T-Mobile

T-Mobile USA
35 Griffin Road
South Bloomfield,
CT 06002

February 17, 2021

Attorney Melanie Bachman
Acting Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06501

RE: EM-T-MOBILE -014A-191001
T-Mobile Site # CTNH102C
Notice of Construction Completion:
405 Brushy Plain Road, Branford, CT 06405

Dear Attorney Bachman,

We represent T-Mobile Northeast LLC ("T-Mobile") and have been retained to notify the Connecticut Siting Council ("Council") that the modification conditions have been met and constructed in accordance with the documentation provided at the time of filing.

The Council acknowledged the above referenced T-Mobile notice of exempt modification on 11/4//2019. T-Mobile hereby notifies the Council that construction of this modification is now complete.

Documentation certified by a Professional Engineer is included with this letter that in lieu of a full mount replacement, the engineer approved structural mount reinforcements during construction to the existing mount and that it passes structurally and meets all applicable codes.

Sincerely,

Elizabeth Jamieson
Transcend Wireless LLC
on behalf of T-Mobile
10 Industrial Ave, Suite 3
Mahwah, NJ 07430

CENTEK engineering
Centered on Solutions℠

February 15, 2021

Mr. Anthony Cinicola
Town of Branford Building Department
1019 Main Street
Branford, CT 06405

Re: Letter of Professional Opinion

Project:	CTNH102C – Branford CT 6 (L600) 405 Brushy Plain Road Branford, CT 06405
Owner:	American Tower Corporation
Engineer:	CENTEK Engineering, Inc, 63-2 North Branford Road, Branford, CT 06405
Contractor:	D & A Construction Management 7 Sycamore Way #2, Branford, CT 06405

Centek Project No.: 20127.00

Building Permit No.: B-20-00493

Dear Mr. Cinicola,

We are providing this "Letter of Professional Opinion" with regard to the structural components at the above referenced project.

The following are the basis for substantiating compliance with construction documents prepared by American Tower Corporation dated 07/25/2019 Rev.1 and Mount Analysis Report prepared by CLS Engineering, PLLC. dated 07/03/2019 (Project #41124-12927172-01-MR-R1):

- A subsequent Mount Analysis was performed by Centek Engineering, Inc. dated 08/20/2020 in lieu of the aforementioned Mount Analysis prepared by CLS Engineering. This Mount Analysis was done at the request of T-Mobile to reinforce the existing antenna mounts instead of mount replacement per the Construction Drawings.
- Field observations of completed construction on 02/12/2021 determined the antenna mount modification is per the Mount Analysis Report prepared by Centek Engineering, Inc.

The work under this Contract has been reviewed and found, to the Engineer's best knowledge, information and belief, to be completed in general compliance with the documents prepared by American Tower Corporation and Centek Engineering Inc.

Sincerely,

Carlo F. Centore, PE
Principal

CENTEK engineering

Centered on Solutions℠

Structural Analysis Report

Antenna Mount Analysis

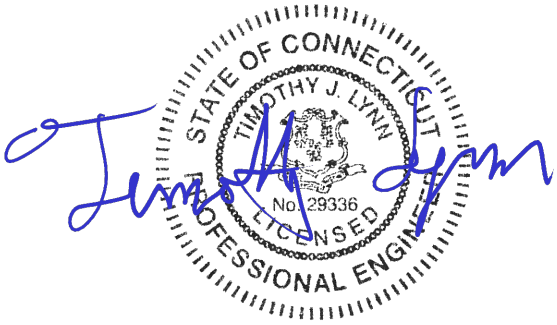
T-Mobile Site #: CTNH102C

405 Brushy Plain Road
Branford, CT

Centek Project No. 20127.00

Date: August 20, 2020

Max Stress Ratio = 61.1%



Prepared for:

T-Mobile USA
35 Griffin Road
Bloomfield, CT 06002

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CENTEK engineering

Centered on Solutions℠

August 20, 2020

Mr. Dan Reid
Transcend Wireless
10 Industrial Ave
Mahwah, NJ 07430

Re: Structural Letter ~ Antenna Mount
T-Mobile – Site Ref: CTNH102C
405 Brushy Plain Road
Branford, CT 06405

Centek Project No. 20127.00

Dear Mr. Reid,

Centek Engineering, Inc. has reviewed the T-Mobile antenna installation at the above referenced site. The purpose of the review is to determine the structural adequacy of the existing three (3) 10-ft T-frames. The review considered the effects of wind load, dead load and ice load in accordance with the 2015 International Building Code as modified by the 2018 Connecticut State Building Code (CTBC) including ASCE 7-10 and ANSI/TIA-222-G *Structural Standards for Steel Antenna Towers and Supporting Structures*

The loads considered in this analysis consist of the following:

- T-Mobile:
  T-Arms: Three (3) Ericsson AIR21 B2A_B4P panel antennas, three (3) Ericsson AIR21 B2P_B4A panel antennas, three (3) RFS APXVAARR24_43-U-NA20 panel antennas, (3) Ericsson 4449 B71+B12 remote radio units, three (3) TMAs mounted on three (3) T-Arms with a RAD center elevation of 140 ft +/- AGL.

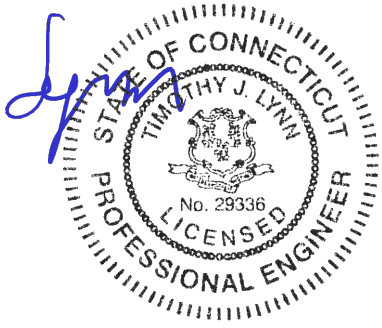
The antenna mount was analyzed per the requirements of the 2015 International Building Code as modified by the 2018 Connecticut State Building Code considering a nominal design wind speed of 101 mph for Branford as required in Appendix N of the 2018 Connecticut State Building Code.

A structural analysis of tower and foundation needs to be completed prior to any work.

Based on our review of the installation, it is our opinion that the existing mounts with the replacement of three (3) vertical antenna pipes with Pipe 2.5 STD (O.D. = 2.875") X 9'-0" long (@ RFS APXVAARR24_43 antennas), the installation of one (1) PerfectVision 4-Sector Collar mount (P/N: PV-RM1460-4-MD)with three (3) PerfectVision V-Frame Stabilizers (P/N: PV-VSK-B) and three (3) horizontal handrail Pipe 2.0 STD (O.D.= 2.375")X 10'-0" long of have sufficient capacity to support the aforementioned antenna configuration. If there are any questions regarding this matter, please feel free to call.

Respectfully Submitted by:

Timothy J. Lynn, PE
Structural Engineer



Prepared by:

Fernando J. Palacios
Engineer

Section 2 - Calculations

CENTEK engineering
Centered on Solutions℠ www.centekeng.com
63-2 North Branford Road P: (203) 488-0580
Branford, CT 06405 F: (203) 488-8587

Subject: Loads on Equipment

Location: Branford, CT

Rev. 0: 08/19/20

Prepared by: F.J.P Checked by: T.J.L.
Job No. 20127.00

Development of Design Heights, Exposure Coefficients, and Velocity Pressures Per TIA-222-G

Wind Speeds

Basic Wind Speed	$V := 101$	mph	(User Input - 2018 CSBC Appendix N)
Basic Wind Speed with Ice	$V_i := 50$	mph	(User Input per Annex B of TIA-222-G)

Input

Structure Type =	$Structure\_Type := Pole$		(User Input)
Structure Category =	$SC := II$		(User Input)
Exposure Category =	$Exp := B$		(User Input)
Structure Height =	$h := 150$	ft	(User Input)
Height to Center of Antennas =	$z := 140$	ft	(User Input)
Radial Ice Thickness =	$t_i := .75$	in	(User Input per Annex B of TIA-222-G)
Radial Ice Density =	$Id := 56.00$	pcf	(User Input)
Topographic Factor =	$K_{zt} := 1.0$		(User Input)
	$K_a := 1.0$		(User Input)
Gust Response Factor =	$G_H = 1.1$		(User Input)

Output

Wind Direction Probability Factor =

$$K_d := \begin{cases} 0.95 & \text{if } Structure\_Type = Pole \\ 0.85 & \text{if } Structure\_Type = Lattice \end{cases} = 0.95$$

(Per Table 2-2 of TIA-222-G)

Importance Factors =

$$I_{Wind} := \begin{cases} 0.87 & \text{if } SC = 1 \\ 1.00 & \text{if } SC = 2 \\ 1.15 & \text{if } SC = 3 \end{cases} = 1$$

(Per Table 2-3 of TIA-222-G)

$$I_{Wind\_w\_Ice} := \begin{cases} 0 & \text{if } SC = 1 \\ 1.00 & \text{if } SC = 2 \\ 1.00 & \text{if } SC = 3 \end{cases} = 1$$

$$I_{ice} := \begin{cases} 0 & \text{if } SC = 1 \\ 1.00 & \text{if } SC = 2 \\ 1.25 & \text{if } SC = 3 \end{cases} = 1$$

$$K_{iz} := \left(\frac{z}{33}\right)^{0.1} = 1.155$$

Velocity Pressure Coefficient Antennas =

$$t_{iz} := 2.0 \cdot t_i \cdot I_{ice} \cdot K_{iz} \cdot K_{zt}^{0.35} = 2$$

$$Kz := 2.01 \cdot \left(\left(\frac{z}{zg}\right)\right)^{\frac{2}{\alpha}} = 1.088$$

Velocity Pressure w/o Ice Antennas = $qz := 0.00256 \cdot K_d \cdot Kz \cdot V^2 \cdot I_{Wind} = 27$ psf

Velocity Pressure with Ice Antennas = $qz_{ice} := 0.00256 \cdot K_d \cdot Kz \cdot V_i^2 \cdot I_{Wind} = 7$ psf

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63-2 North Branford Road P: (203) 488-0580
Branford, CT 06405 F: (203) 488-8587

Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	Ericsson - AIR21 KRC118023-1_B2A_B4P		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 55.9$	in	(User Input)
Antenna Width =	$W_{ant} := 12.1$	in	(User Input)
Antenna Thickness =	$T_{ant} := 7.8$	in	(User Input)
Antenna Weight =	$WT_{ant} := 91.5$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 1$		(User Input)
Antenna Aspect Ratio =	$Ar_{ant} := \frac{L_{ant}}{W_{ant}} = 4.6$		
Antenna Force Coefficient =	$Ca_{ant} = 1.29$		

Wind Load (without ice)

Surface Area for One Antenna =	$SA_{antF} := \frac{L_{ant} \cdot W_{ant}}{144} = 4.7$	sf
Total Antenna Wind Force Front =	$F_{ant} := qz \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antF} = 180$	lbs
Surface Area for One Antenna =	$SA_{antS} := \frac{L_{ant} \cdot T_{ant}}{144} = 3$	sf
Total Antenna Wind Force Side =	$F_{ant} := qz \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antS} = 116$	lbs

Wind Load (with ice)

Surface Area for One Antenna w/ Ice =	$SA_{ICEantF} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (W_{ant} + 2 \cdot t_{iz})}{144} = 6.4$	sf
Total Antenna Wind Force w/ Ice Front =	$Fi_{ant} := qz_{ice} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantF} = 60$	lbs
Surface Area for One Antenna w/ Ice =	$SA_{ICEantS} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz})}{144} = 4.6$	sf
Total Antenna Wind Force w/ Ice Side =	$Fi_{ant} := qz_{ice} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantS} = 44$	lbs

Gravity Load (without ice)

Weight of All Antennas =	$WT_{ant} \cdot N_{ant} = 92$	lbs

Gravity Loads (ice only)

Volume of Each Antenna =	$V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 5276$	cu in
Volume of Ice on Each Antenna =	$V_{ice} := (L_{ant} + 2 \cdot t_{iz}) \cdot (W_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz}) - V_{ant} = 5136$	cu in
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 166$	lbs
Weight of Ice on All Antennas =	$W_{ICEant} \cdot N_{ant} = 166$	lbs

Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	Ericsson - AIR21 KRC118023-1_B2P_B4A		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 55.9$	in	(User Input)
Antenna Width =	$W_{ant} := 12.1$	in	(User Input)
Antenna Thickness =	$T_{ant} := 7.8$	in	(User Input)
Antenna Weight =	$WT_{ant} := 91.5$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 1$		(User Input)
Antenna Aspect Ratio =	$Ar_{ant} := \frac{L_{ant}}{W_{ant}} = 4.6$		
Antenna Force Coefficient =	$Ca_{ant} = 1.29$		

Wind Load (without ice)

Surface Area for One Antenna =	$SA_{antF} := \frac{L_{ant} \cdot W_{ant}}{144} = 4.7$	sf
Total Antenna Wind Force Front =	$F_{ant} := qz \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antF} = 180$	lbs
Surface Area for One Antenna =	$SA_{antS} := \frac{L_{ant} \cdot T_{ant}}{144} = 3$	sf
Total Antenna Wind Force Side =	$F_{ant} := qz \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antS} = 116$	lbs

Wind Load (with ice)

Surface Area for One Antenna w/ Ice =	$SA_{ICEantF} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (W_{ant} + 2 \cdot t_{iz})}{144} = 6.4$	sf
Total Antenna Wind Force w/ Ice Front =	$Fi_{ant} := qz_{ice} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantF} = 60$	lbs
Surface Area for One Antenna w/ Ice =	$SA_{ICEantS} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz})}{144} = 4.6$	sf
Total Antenna Wind Force w/ Ice Side =	$Fi_{ant} := qz_{ice} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantS} = 44$	lbs

Gravity Load (without ice)

Weight of All Antennas =	$WT_{ant} \cdot N_{ant} = 92$	lbs

Gravity Loads (ice only)

Volume of Each Antenna =	$V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 5276$	cu in
Volume of Ice on Each Antenna =	$V_{ice} := (L_{ant} + 2 \cdot t_{iz}) \cdot (W_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz}) - V_{ant} = 5136$	cu in
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 166$	lbs
Weight of Ice on All Antennas =	$W_{ICEant} \cdot N_{ant} = 166$	lbs

Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	RFS - APXVAARR24_43-U-NA20		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 95.9$	in	(User Input)
Antenna Width =	$W_{ant} := 24$	in	(User Input)
Antenna Thickness =	$T_{ant} := 8.7$	in	(User Input)
Antenna Weight =	$WT_{ant} := 153.3$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 1$		(User Input)
Antenna Aspect Ratio =	$Ar_{ant} := \frac{L_{ant}}{W_{ant}} = 4.0$		
Antenna Force Coefficient =	$Ca_{ant} = 1.27$		

Wind Load (without ice)

Surface Area for One Antenna =	$SA_{antF} := \frac{L_{ant} \cdot W_{ant}}{144} = 16$	sf
Total Antenna Wind Force Front =	$F_{ant} := qz \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antF} = 601$	lbs
Surface Area for One Antenna =	$SA_{antS} := \frac{L_{ant} \cdot T_{ant}}{144} = 5.8$	sf
Total Antenna Wind Force Side =	$F_{ant} := qz \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antS} = 218$	lbs

Wind Load (with ice)

Surface Area for One Antenna w/ Ice =	$SA_{ICEantF} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (W_{ant} + 2 \cdot t_{iz})}{144} = 19$	sf
Total Antenna Wind Force w/ Ice Front =	$Fi_{ant} := qz_{ice} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantF} = 175$	lbs
Surface Area for One Antenna w/ Ice =	$SA_{ICEantS} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz})}{144} = 8.4$	sf
Total Antenna Wind Force w/ Ice Side =	$Fi_{ant} := qz_{ice} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantS} = 77$	lbs

Gravity Load (without ice)

Weight of All Antennas =	$WT_{ant} \cdot N_{ant} = 153$	lbs

Gravity Loads (ice only)

Volume of Each Antenna =	$V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 2 \cdot 10^4$	cu in
Volume of Ice on Each Antenna =	$V_{ice} := (L_{ant} + 2 \cdot t_{iz}) \cdot (W_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz}) - V_{ant} = 1 \cdot 10^4$	cu in
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 427$	lbs
Weight of Ice on All Antennas =	$W_{ICEant} \cdot N_{ant} = 427$	lbs

Development of Wind & Ice Load on RRUS's

RRUS Data:

RRUS Model =	Ericsson 4449 B71+B12		
RRUS Shape =	Flat		(User Input)
RRUS Height =	$L_{RRUS} := 14.9$	in	(User Input)
RRUS Width =	$W_{RRUS} := 13.2$	in	(User Input)
RRUS Thickness =	$T_{RRUS} := 10.4$	in	(User Input)
RRUS Weight =	$WT_{RRUS} := 74$	lbs	(User Input)
Number of RRUS's =	$N_{RRUS} := 1$		
RRUS Aspect Ratio =	$Ar_{RRUS} := \frac{L_{RRUS}}{W_{RRUS}} = 1.1$		
RRUS Force Coefficient =	$Ca_{RRUS} = 1.2$		

Wind Load (without ice)

Surface Area for One RRUS =	$SA_{RRUSF} := \frac{L_{RRUS} \cdot W_{RRUS}}{144} = 1.4$	sf
Total RRUS Wind Force =	$F_{RRUS} := qz \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{RRUSF} = 49$	lbs
Surface Area for One RRUS =	$SA_{RRUSS} := \frac{L_{RRUS} \cdot T_{RRUS}}{144} = 1.1$	sf
Total RRUS Wind Force =	$F_{RRUS} := qz \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{RRUSS} = 38$	lbs

Wind Load (with ice)

Surface Area for One RRUS w/ Ice =	$SA_{ICERRUSF} := \frac{(L_{RRUS} + 2 \cdot t_{iz}) \cdot (W_{RRUS} + 2 \cdot t_{iz})}{144} = 2.1$	sf
Total RRUS Wind Force w/ Ice =	$Fi_{RRUS} := qz_{ice} \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{ICERRUSF} = 19$	lbs
Surface Area for One RRUS w/ Ice =	$SA_{ICERRUSS} := \frac{(L_{RRUS} + 2 \cdot t_{iz}) \cdot (T_{RRUS} + 2 \cdot t_{iz})}{144} = 1.8$	sf
Total RRUS Wind Force w/ Ice =	$Fi_{RRUS} := qz_{ice} \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{ICERRUSS} = 15$	lbs

Gravity Load (without ice)

Weight of All RRUSs =	$WT_{RRUS} \cdot N_{RRUS} = 74$	lbs

Gravity Loads (ice only)

Volume of Each RRUS =	$V_{RRUS} := L_{RRUS} \cdot W_{RRUS} \cdot T_{RRUS} = 2045$	cu in
Volume of Ice on Each RRUS =	$V_{ice} := (L_{RRUS} + 2 \cdot t_{iz}) \cdot (W_{RRUS} + 2 \cdot t_{iz}) \cdot (T_{RRUS} + 2 \cdot t_{iz}) - V_{RRUS} = 2199$	cu in
Weight of Ice on Each RRUS =	$W_{ICERRUS} := \frac{V_{ice}}{1728} \cdot Id = 71$	lbs
Weight of Ice on All RRUSs =	$W_{ICERRUS} \cdot N_{RRUS} = 71$	lbs

Development of Wind & Ice Load on TMA's

TMA Data:

TMA Model =	Ericsson KRY112 TMA		
TMA Shape =	Flat	in	(User Input)
TMA Height =	$L_{TMA} := 7$	in	(User Input)
TMA Width =	$W_{TMA} := 6$	in	(User Input)
TMA Thickness =	$T_{TMA} := 3$	lbs	(User Input)
TMA Weight =	$WT_{TMA} := 11$		(User Input)
Number of TMA's =	$N_{TMA} := 1$		(User Input)
TMA Aspect Ratio =	$Ar_{TMA} := \frac{L_{TMA}}{W_{TMA}} = 1.2$		
TMA Force Coefficient =	$Ca_{TMA} = 1.2$		

Wind Load (without ice)

Surface Area for One TMA =	$SA_{TMAF} := \frac{L_{TMA} \cdot W_{TMA}}{144} = 0.3$	sf
Total TMA Wind Force =	$F_{TMA} := qz \cdot G_H \cdot Ca_{TMA} \cdot K_a \cdot SA_{TMAF} = 10$	lbs
Surface Area for One TMA =	$SA_{TMAS} := \frac{L_{TMA} \cdot T_{TMA}}{144} = 0.1$	sf
Total TMA Wind Force =	$F_{TMA} := qz \cdot G_H \cdot Ca_{TMA} \cdot K_a \cdot SA_{TMAS} = 5$	lbs

Wind Load (with ice)

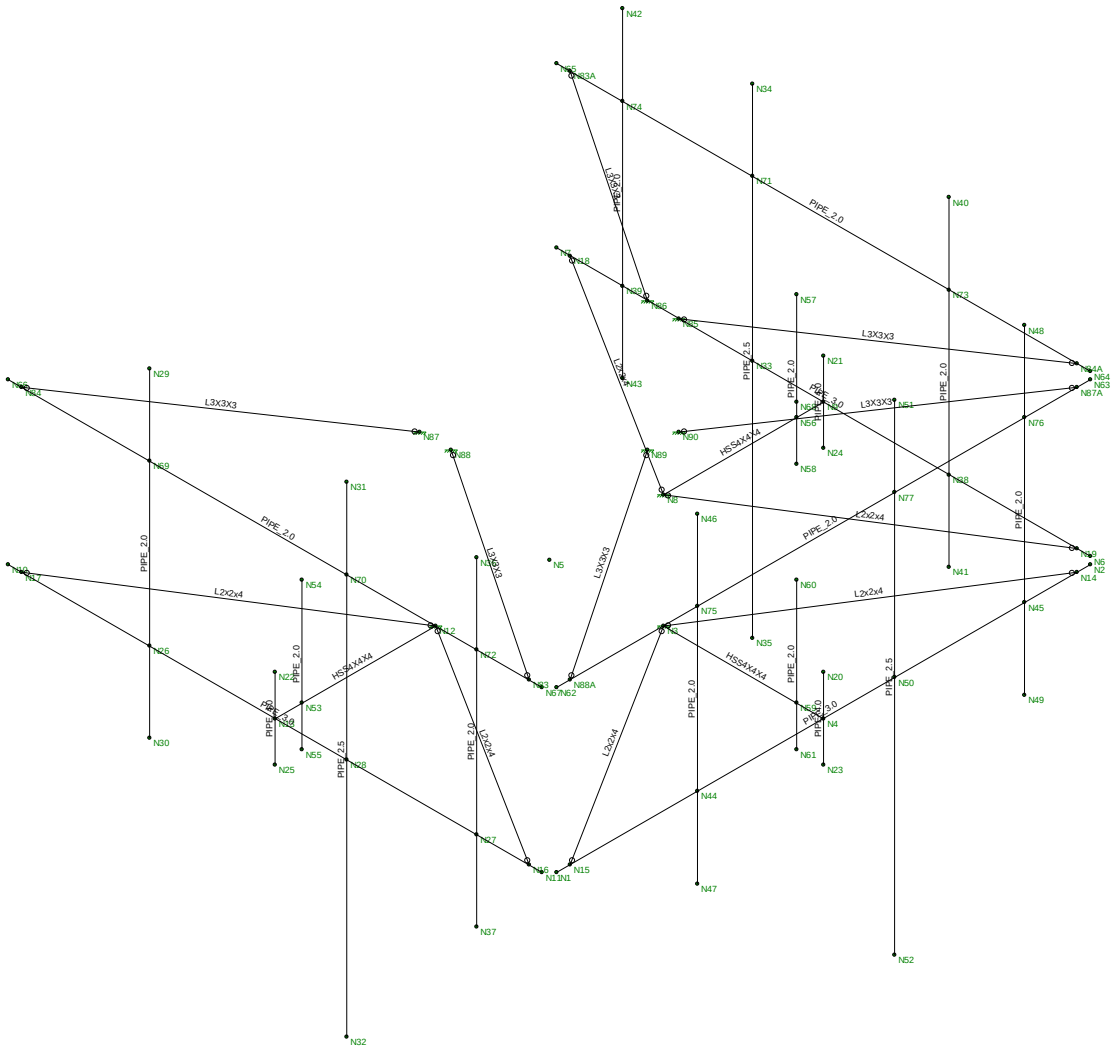
Surface Area for One TMA w/ Ice =	$SA_{ICETMAF} := \frac{(L_{TMA} + 2 \cdot t_{iz}) \cdot (W_{TMA} + 2 \cdot t_{iz})}{144} = 0.7$	sf
Total TMA Wind Force w/ Ice =	$Fi_{TMA} := qz_{ice} \cdot G_H \cdot Ca_{TMA} \cdot K_a \cdot SA_{ICETMAF} = 6$	lbs
Surface Area for One TMA w/ Ice =	$SA_{ICETMAS} := \frac{(L_{TMA} + 2 \cdot t_{iz}) \cdot (T_{TMA} + 2 \cdot t_{iz})}{144} = 0.5$	sf
Total TMA Wind Force w/ Ice =	$Fi_{TMA} := qz_{ice} \cdot G_H \cdot Ca_{TMA} \cdot K_a \cdot SA_{ICETMAS} = 4$	lbs

Gravity Load (without ice)

Weight of All TMAs =	$WT_{TMA} \cdot N_{TMA} = 11$	lbs

Gravity Loads (ice only)

Volume of Each TMA =	$V_{TMA} := L_{TMA} \cdot W_{TMA} \cdot T_{TMA} = 126$	cu in
Volume of Ice on Each TMA =	$V_{ice} := (L_{TMA} + 2 \cdot t_{iz}) \cdot (W_{TMA} + 2 \cdot t_{iz}) \cdot (T_{TMA} + 2 \cdot t_{iz}) - V_{TMA} = 515$	cu in
Weight of Ice on Each TMA =	$W_{ICETMA} := \frac{V_{ice}}{1728} \cdot Id = 17$	lbs
Weight of Ice on All TMAs =	$W_{ICETMA} \cdot N_{TMA} = 17$	lbs



Envelope Only Solution

Centek Engineering		
FJP	CTNH102C - Mount	Aug 20, 2020 at 11:27 AM
20127.00	Member Framing	CTNH102C_AMA.r3d

(Global) Model Settings

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

Hot Rolled Steel Code	AISC 14th(360-10): LRFD
Adjust Stiffness?	Yes(Iterative)
RISAConnection Code	AISC 14th(360-10): ASD
Cold Formed Steel Code	AISI S100-12: ASD
Wood Code	AWC NDS-15: ASD
Wood Temperature	< 100F
Concrete Code	ACI 318-14
Masonry Code	ACI 530-13: ASD
Aluminum Code	AA ADM1-15: ASD - Building
Stainless Steel Code	AISC 14th(360-10): ASD
Adjust Stiffness?	Yes(Iterative)

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

(Global) Model Settings, Continued

Seismic Code	ASCE 7-10
Seismic Base Elevation (ft)	Not Entered
Add Base Weight?	Yes
Ct X	.02
Ct Z	.02
T X (sec)	Not Entered
T Z (sec)	Not Entered
R X	3
R Z	3
Ct Exp. X	.75
Ct Exp. Z	.75
SD1	1
SDS	1
S1	1
TL (sec)	5
Risk Cat	I or II
Drift Cat	Other
Om Z	1
Om X	1
Cd Z	4
Cd X	4
Rho Z	1
Rho X	1

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (/1...	Density[k/...	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A992	29000	11154	.3	.65	.49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	.3	.65	.527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	.3	.65	.527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	.3	.65	.49	35	1.6	60	1.2
7	A1085	29000	11154	.3	.65	.49	50	1.4	65	1.3

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design ...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	(E)Antenna Mast_2.0 Std. Pipe	PIPE_2.0	Column	None	A53 Gr.B	Typical	1.02	.627	.627	1.25
2	(E)Horizontal_3.0 Std. Pipe	PIPE_3.0	Column	None	A53 Gr.B	Typical	2.07	2.85	2.85	5.69
3	(E) Outrigger_HSS4X4	HSS4X4X4	Beam	Tube	A500 Gr.B R...	Typical	3.37	7.8	7.8	12.8
4	(E) Vertical Mount_4.0STD Pipe	PIPE_4.0	Column	None	A53 Gr.B	Typical	2.96	6.82	6.82	13.6
5	(E)Reinforcing Angle_L2X2X1/4	L2x2x4	HBrace	Single Angle	A36 Gr.36	Typical	.944	.346	.346	.021
6	(P)Hor. Handrail_2.0 Std. Pipe	PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25
7	(P)Antenna Mast_2.5 Std. Pipe	PIPE_2.5	Beam	Pipe	A53 Gr.B	Typical	1.61	1.45	1.45	2.89
8	(P)Reinforcing Angle_L3x3x3/16	L3X3X3	HBrace	Single Angle	A36 Gr.36	Typical	1.09	.948	.948	.014

Hot Rolled Steel Design Parameters

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[ft]	Lcomp bot[ft]	L-torqu...	Kyy	Kzz	Cb	Function
1	M1	(E)Horizont...	10	Segment		Lbyy						Lateral
2	M2	(P)Hor. Han...	10	Segment		Lbyy						Lateral
3	M3	(P)Hor. Han...	10	Segment		Lbyy						Lateral
4	M4	(P)Hor. Han...	10	Segment		Lbyy						Lateral
5	M5	(E) Outrigge...	3			Lbyy						Lateral
6	M6	(E) Outrigge...	3			Lbyy						Lateral
7	M7	(E) Outrigge...	3			Lbyy						Lateral
8	M8	(E) Vertical ...	1.5	Segment		Lbyy						Lateral
9	M9	(E) Vertical ...	1.5	Segment		Lbyy						Lateral
10	M10	(E) Vertical ...	1.5	Segment		Lbyy						Lateral
11	M11	(E)Reinforci...	5.618									Lateral
12	M12	(E)Reinforci...	5.618									Lateral
13	M13	(E)Reinforci...	5.618									Lateral
14	M14	(E)Reinforci...	5.618									Lateral
15	M15	(E)Reinforci...	5.618									Lateral
16	M16	(E)Reinforci...	5.618									Lateral
17	M17	(E)Antenna ...	2.75	Segment		Lbyy						Lateral
18	M18	(E)Antenna ...	2.75	Segment		Lbyy						Lateral
19	M19	(E)Horizont...	10	Segment		Lbyy						Lateral
20	M20	(E)Antenna ...	2.75	Segment		Lbyy						Lateral
21	M21	(E)Horizont...	10	Segment		Lbyy						Lateral
22	M22	(P)Reinforci...	5.374									Lateral
23	M23	(P)Reinforci...	5.374									Lateral
24	M28	(E)Antenna ...	6	Segment		Lbyy						Lateral
25	M29	(P)Antenna ...	9	Segment		Lbyy						Lateral
26	M30	(E)Antenna ...	6	Segment		Lbyy						Lateral
27	M31	(E)Antenna ...	6	Segment		Lbyy						Lateral
28	M32	(P)Antenna ...	9	Segment		Lbyy						Lateral
29	M33	(E)Antenna ...	6	Segment		Lbyy						Lateral
30	M34	(E)Antenna ...	6	Segment		Lbyy						Lateral
31	M35	(P)Antenna ...	9	Segment		Lbyy						Lateral
32	M36	(E)Antenna ...	6	Segment		Lbyy						Lateral
33	M33A	(P)Reinforci...	5.374									Lateral
34	M34A	(P)Reinforci...	5.374									Lateral
35	M35A	(P)Reinforci...	5.374									Lateral
36	M36A	(P)Reinforci...	5.374									Lateral

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design Ru...
1	M1	N10	N11			(E)Horizontal_3.0 St...	Column	None	A53 Gr.B	Typical
2	M2	N66	N67			(P)Hor. Handrail_2.0...	Beam	Pipe	A53 Gr.B	Typical
3	M3	N62	N63			(P)Hor. Handrail_2.0...	Beam	Pipe	A53 Gr.B	Typical
4	M4	N64	N65			(P)Hor. Handrail_2.0...	Beam	Pipe	A53 Gr.B	Typical
5	M5	N8	N9			(E) Outrigger_HSS4...	Beam	Tube	A500 Gr...	Typical
6	M6	N12	N13			(E) Outrigger_HSS4...	Beam	Tube	A500 Gr...	Typical
7	M7	N3	N4			(E) Outrigger_HSS4...	Beam	Tube	A500 Gr...	Typical
8	M8	N22	N25			(E) Vertical Mount_4...	Column	None	A53 Gr.B	Typical
9	M9	N20	N23			(E) Vertical Mount_4...	Column	None	A53 Gr.B	Typical
10	M10	N21	N24			(E) Vertical Mount_4...	Column	None	A53 Gr.B	Typical
11	M11	N12	N17			(E)Reinforcing Angle...	HBrace	Single Angle	A36 Gr.36	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design Ru...
12	M12	N12	N16			(E)Reinforcing Angle...	HBrace	Single Angle	A36 Gr.36	Typical
13	M13	N3	N15			(E)Reinforcing Angle...	HBrace	Single Angle	A36 Gr.36	Typical
14	M14	N3	N14			(E)Reinforcing Angle...	HBrace	Single Angle	A36 Gr.36	Typical
15	M15	N8	N18			(E)Reinforcing Angle...	HBrace	Single Angle	A36 Gr.36	Typical
16	M16	N8	N19			(E)Reinforcing Angle...	HBrace	Single Angle	A36 Gr.36	Typical
17	M17	N54	N55			(E)Antenna Mast_2....	Column	None	A53 Gr.B	Typical
18	M18	N57	N58			(E)Antenna Mast_2....	Column	None	A53 Gr.B	Typical
19	M19	N6	N7			(E)Horizontal_3.0 St...	Column	None	A53 Gr.B	Typical
20	M20	N60	N61			(E)Antenna Mast_2....	Column	None	A53 Gr.B	Typical
21	M21	N1	N2			(E)Horizontal_3.0 St...	Column	None	A53 Gr.B	Typical
22	M22	N87	N84		180	(P)Reinforcing Angle...	HBrace	Single Angle	A36 Gr.36	Typical
23	M23	N88	N83		90	(P)Reinforcing Angle...	HBrace	Single Angle	A36 Gr.36	Typical
24	M28	N29	N30			(E)Antenna Mast_2....	Column	None	A53 Gr.B	Typical
25	M29	N31	N32			(P)Antenna Mast_2....	Beam	Pipe	A53 Gr.B	Typical
26	M30	N36	N37			(E)Antenna Mast_2....	Column	None	A53 Gr.B	Typical
27	M31	N46	N47			(E)Antenna Mast_2....	Column	None	A53 Gr.B	Typical
28	M32	N51	N52			(P)Antenna Mast_2....	Beam	Pipe	A53 Gr.B	Typical
29	M33	N48	N49			(E)Antenna Mast_2....	Column	None	A53 Gr.B	Typical
30	M34	N40	N41			(E)Antenna Mast_2....	Column	None	A53 Gr.B	Typical
31	M35	N34	N35			(P)Antenna Mast_2....	Beam	Pipe	A53 Gr.B	Typical
32	M36	N42	N43			(E)Antenna Mast_2....	Column	None	A53 Gr.B	Typical
33	M33A	N85	N84A		180	(P)Reinforcing Angle...	HBrace	Single Angle	A36 Gr.36	Typical
34	M34A	N86	N83A		90	(P)Reinforcing Angle...	HBrace	Single Angle	A36 Gr.36	Typical
35	M35A	N89	N88A		180	(P)Reinforcing Angle...	HBrace	Single Angle	A36 Gr.36	Typical
36	M36A	N90	N87A		90	(P)Reinforcing Angle...	HBrace	Single Angle	A36 Gr.36	Typical

Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diaphragm
1	N1	5.133333	0	5	0	
2	N2	5.133333	0	-5	0	
3	N3	2.133333	0	-0.	0	
4	N4	5.133333	0	-0.	0	
5	N5	0	0	0	0	
6	N6	5	0	-5.133333	0	
7	N7	-5	0	-5.133333	0	
8	N8	0	0	-2.133333	0	
9	N9	-0.	0	-5.133333	0	
10	N10	-5	0	5.133333	0	
11	N11	5	0	5.133333	0	
12	N12	0.	0	2.133333	0	
13	N13	0.	0	5.133333	0	
14	N14	5.133333	0	-4.75	0	
15	N15	5.133333	0	4.75	0	
16	N16	4.75	0	5.133333	0	
17	N17	-4.75	0	5.133333	0	
18	N18	-4.75	0	-5.133333	0	
19	N19	4.75	0	-5.133333	0	
20	N20	5.133333	.75	-0.	0	
21	N21	-0.	.75	-5.133333	0	
22	N22	0.	.75	5.133333	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diaphragm
23	N23	5.133333	-.75	-0.	0	
24	N24	-0.	-.75	-5.133333	0	
25	N25	0.	-.75	5.133333	0	
26	N26	-2.358333	0	5.133333	0	
27	N27	3.766667	0	5.133333	0	
28	N28	1.333333	0	5.133333	0	
29	N29	-2.358333	4.5	5.133333	0	
30	N30	-2.358333	-1.5	5.133333	0	
31	N31	1.333333	4.5	5.133333	0	
32	N32	1.333333	-4.5	5.133333	0	
33	N33	-1.333333	0	-5.133333	0	
34	N34	-1.333333	4.5	-5.133333	0	
35	N35	-1.333333	-4.5	-5.133333	0	
36	N36	3.766667	4.5	5.133333	0	
37	N37	3.766667	-1.5	5.133333	0	
38	N38	2.358333	0	-5.133333	0	
39	N39	-3.766667	0	-5.133333	0	
40	N40	2.358333	4.5	-5.133333	0	
41	N41	2.358333	-1.5	-5.133333	0	
42	N42	-3.766667	4.5	-5.133333	0	
43	N43	-3.766667	-1.5	-5.133333	0	
44	N44	5.133333	0	2.358333	0	
45	N45	5.133333	0	-3.766667	0	
46	N46	5.133333	4.5	2.358333	0	
47	N47	5.133333	-1.5	2.358333	0	
48	N48	5.133333	4.5	-3.766667	0	
49	N49	5.133333	-1.5	-3.766667	0	
50	N50	5.133333	0	-1.333333	0	
51	N51	5.133333	4.5	-1.333333	0	
52	N52	5.133333	-4.5	-1.333333	0	
53	N53	0.	0	4.633333	0	
54	N54	0.	2	4.633333	0	
55	N55	0.	-.75	4.633333	0	
56	N56	-0.	0	-4.633333	0	
57	N57	-0.	2	-4.633333	0	
58	N58	-0.	-.75	-4.633333	0	
59	N59	4.633333	0	-0.	0	
60	N60	4.633333	2	-0.	0	
61	N61	4.633333	-.75	-0.	0	
62	N62	5.133333	3	5	0	
63	N63	5.133333	3	-5	0	
64	N64	5	3	-5.133333	0	
65	N65	-5	3	-5.133333	0	
66	N66	-5	3	5.133333	0	
67	N67	5	3	5.133333	0	
68	N68	-0.	.25	-4.633333	0	
69	N69	-2.358333	3	5.133333	0	
70	N70	1.333333	3	5.133333	0	
71	N71	-1.333333	3	-5.133333	0	
72	N72	3.766667	3	5.133333	0	
73	N73	2.358333	3	-5.133333	0	
74	N74	-3.766667	3	-5.133333	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diaphragm
75	N75	5.133333	3	2.358333	0	
76	N76	5.133333	3	-3.766667	0	
77	N77	5.133333	3	-1.333333	0	
78	N83	4.75	3	5.133333	0	
79	N84	-4.75	3	5.133333	0	
80	N87	-0.291667	3	2.133333	0	
81	N88	0.291667	3	2.133333	0	
82	N83A	-4.75	3	-5.133333	0	
83	N84A	4.75	3	-5.133333	0	
84	N85	0.291667	3	-2.133333	0	
85	N86	-0.291667	3	-2.133333	0	
86	N87A	5.133333	3	-4.75	0	
87	N88A	5.133333	3	4.75	0	
88	N89	2.133333	3	0.291667	0	
89	N90	2.133333	3	-0.291667	0	

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
1	N3	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	N8	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
3	N12	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
4	N87	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
5	N88	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
6	N85	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
7	N86	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
8	N89	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
9	N90	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction

Member Point Loads (BLC 2 : Dead Load)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M28	Y	-.046	.167
2	M28	Y	-.046	4.833
3	M29	Y	-.077	.5
4	M29	Y	-.077	8.5
5	M30	Y	-.046	.167
6	M30	Y	-.046	4.833
7	M31	Y	-.046	.167
8	M31	Y	-.046	4.833
9	M32	Y	-.077	.5
10	M32	Y	-.077	8.5
11	M33	Y	-.046	.167
12	M33	Y	-.046	4.833
13	M34	Y	-.046	.167
14	M34	Y	-.046	4.833
15	M35	Y	-.077	.5
16	M35	Y	-.077	8.5
17	M36	Y	-.046	.167
18	M36	Y	-.046	4.833
19	M28	Y	-.011	.5

Member Point Loads (BLC 2 : Dead Load) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
20	M31	Y	-.011	.5
21	M34	Y	-.011	.5
22	M17	Y	-.074	1
23	M18	Y	-.074	1
24	M20	Y	-.074	1

Member Point Loads (BLC 3 : Ice Load)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M28	Y	-.083	.167
2	M28	Y	-.083	4.833
3	M29	Y	-.214	.5
4	M29	Y	-.214	8.5
5	M30	Y	-.083	.167
6	M30	Y	-.083	4.833
7	M31	Y	-.083	.167
8	M31	Y	-.083	4.833
9	M32	Y	-.214	.5
10	M32	Y	-.214	8.5
11	M33	Y	-.083	.167
12	M33	Y	-.083	4.833
13	M34	Y	-.083	.167
14	M34	Y	-.083	4.833
15	M35	Y	-.214	.5
16	M35	Y	-.214	8.5
17	M36	Y	-.083	.167
18	M36	Y	-.083	4.833
19	M28	Y	-.017	.5
20	M31	Y	-.017	.5
21	M34	Y	-.017	.5
22	M17	Y	-.071	1
23	M18	Y	-.071	1
24	M20	Y	-.071	1

Member Point Loads (BLC 4 : Wind with Ice X (7 psf))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M28	X	.022	.167
2	M28	X	.022	4.833
3	M29	X	.039	.5
4	M29	X	.039	9
5	M30	X	.022	.167
6	M30	X	.022	4.833
7	M31	X	.03	.167
8	M31	X	.03	4.833
9	M32	X	.088	.5
10	M32	X	.088	9
11	M33	X	.03	.167
12	M33	X	.03	4.833
13	M34	X	.022	.167
14	M34	X	.022	4.833
15	M35	X	.039	.5
16	M35	X	.039	9

Member Point Loads (BLC 4 : Wind with Ice X (7 psf)) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
17	M36	X	.022	.167
18	M36	X	.022	4.833
19	M28	X	.004	.5
20	M31	X	.006	.5
21	M34	X	.004	.5
22	M17	X	.019	1
23	M18	X	.019	1
24	M20	X	.015	1

Member Point Loads (BLC 5 : Wind X(27psf))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M28	X	.058	.167
2	M28	X	.058	4.833
3	M29	X	.109	.5
4	M29	X	.109	9
5	M30	X	.058	.167
6	M30	X	.058	4.833
7	M31	X	.09	.167
8	M31	X	.09	4.833
9	M32	X	.301	.5
10	M32	X	.301	9
11	M33	X	.09	.167
12	M33	X	.09	4.833
13	M34	X	.058	.167
14	M34	X	.058	4.833
15	M35	X	.109	.5
16	M35	X	.109	9
17	M36	X	.058	.167
18	M36	X	.058	4.833
19	M28	X	.005	.5
20	M31	X	.01	.5
21	M34	X	.005	.5
22	M17	X	.049	1
23	M18	X	.049	1
24	M20	X	.038	1

Member Point Loads (BLC 6 : Wind with Ice Z(7psf))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M28	Z	.03	.167
2	M28	Z	.03	4.833
3	M29	Z	.088	.5
4	M29	Z	.088	9
5	M30	Z	.03	.167
6	M30	Z	.03	4.833
7	M31	Z	.022	.167
8	M31	Z	.022	4.833
9	M32	Z	.039	.5
10	M32	Z	.039	9
11	M33	Z	.022	.167
12	M33	Z	.022	4.833
13	M34	Z	.03	.167

Member Point Loads (BLC 6 : Wind with Ice Z(7psf)) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
14	M34	Z	.03	4.833
15	M35	Z	.088	.5
16	M35	Z	.088	9
17	M36	Z	.03	.167
18	M36	Z	.03	4.833
19	M28	Z	.006	.5
20	M31	Z	.004	.5
21	M34	Z	.006	.5
22	M17	Z	.015	1
23	M18	Z	.015	1
24	M20	Z	.019	1

Member Point Loads (BLC 7 : Wind Z(27psf))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M28	Z	.09	.167
2	M28	Z	.09	4.833
3	M29	Z	.301	.5
4	M29	Z	.301	9
5	M30	Z	.09	.167
6	M30	Z	.09	4.833
7	M31	Z	.058	.167
8	M31	Z	.058	4.833
9	M32	Z	.109	.5
10	M32	Z	.109	9
11	M33	Z	.058	.167
12	M33	Z	.058	4.833
13	M34	Z	.09	.167
14	M34	Z	.09	4.833
15	M35	Z	.301	.5
16	M35	Z	.301	9
17	M36	Z	.09	.167
18	M36	Z	.09	4.833
19	M28	Z	.01	.5
20	M31	Z	.005	.5
21	M34	Z	.01	.5
22	M17	Z	.038	1
23	M18	Z	.038	1
24	M20	Z	.049	1

Member Distributed Loads (BLC 4 : Wind with Ice X (7 psf))

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,ksf]	Start Location[ft,%]	End Location[ft,...
1	M21	X	.002	.002	0	2.142
2	M21	X	.002	.002	3.15	5.333
3	M21	X	.002	.002	7.333	8.267
4	M21	X	.002	.002	9.267	10
5	M11	X	.001	.001	0	0
6	M12	X	.001	.001	0	0
7	M13	X	.001	.001	0	0
8	M14	X	.001	.001	0	0
9	M15	X	.001	.001	0	0

Member Distributed Loads (BLC 4 : Wind with Ice X (7 psf)) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,ksf]	Start Location[ft,%]	End Location[ft,...
10	M16	X	.001	.001	0	0
11	M3	X	.001	.001	0	2.142
12	M3	X	.001	.001	3.15	5.333
13	M3	X	.001	.001	7.333	8.267
14	M3	X	.001	.001	9.267	10
15	M22	X	.002	.002	0	0
16	M23	X	.002	.002	0	0
17	M33A	X	.002	.002	0	0
18	M34A	X	.002	.002	0	0
19	M35A	X	.002	.002	0	0
20	M36A	X	.002	.002	0	0

Member Distributed Loads (BLC 5 : Wind X(27psf))

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,ksf]	Start Location[ft,%]	End Location[ft,...
1	M21	X	.008	.008	0	2.142
2	M21	X	.008	.008	3.15	5.333
3	M21	X	.008	.008	7.333	8.267
4	M21	X	.008	.008	9.267	10
5	M11	X	.005	.005	0	0
6	M12	X	.005	.005	0	0
7	M13	X	.005	.005	0	0
8	M14	X	.005	.005	0	0
9	M15	X	.005	.005	0	0
10	M16	X	.005	.005	0	0
11	M3	X	.005	.005	0	2.142
12	M3	X	.005	.005	3.15	5.333
13	M3	X	.005	.005	7.333	8.267
14	M3	X	.005	.005	9.267	10
15	M22	X	.007	.007	0	0
16	M23	X	.007	.007	0	0
17	M33A	X	.007	.007	0	0
18	M34A	X	.007	.007	0	0
19	M35A	X	.007	.007	0	0
20	M36A	X	.007	.007	0	0

Member Distributed Loads (BLC 6 : Wind with Ice Z(7psf))

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,ksf]	Start Location[ft,%]	End Location[ft,...
1	M1	Z	.002	.002	0	2.142
2	M1	Z	.002	.002	3.15	5.333
3	M1	Z	.002	.002	7.333	8.267
4	M1	Z	.002	.002	9.267	10
5	M19	Z	.002	.002	0	2.142
6	M19	Z	.002	.002	3.15	5.333
7	M19	Z	.002	.002	7.333	8.267
8	M19	Z	.002	.002	9.267	10
9	M11	Z	.001	.001	0	0
10	M12	Z	.001	.001	0	0
11	M13	Z	.001	.001	0	0
12	M14	Z	.001	.001	0	0
13	M15	Z	.001	.001	0	0
14	M16	Z	.001	.001	0	0

Member Distributed Loads (BLC 6 : Wind with Ice Z(7psf)) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,ksf]	Start Location[ft,%]	End Location[ft,...
15	M2	Z	.001	.001	0	2.142
16	M2	Z	.001	.001	3.15	5.333
17	M2	Z	.001	.001	7.333	8.267
18	M2	Z	.001	.001	9.267	10
19	M4	Z	.001	.001	0	2.142
20	M4	Z	.001	.001	3.15	5.333
21	M4	Z	.001	.001	7.333	8.267
22	M4	Z	.001	.001	9.267	10
23	M22	Z	.002	.002	0	0
24	M23	Z	.002	.002	0	0
25	M33A	Z	.002	.002	0	0
26	M34A	Z	.002	.002	0	0
27	M35A	Z	.002	.002	0	0
28	M36A	Z	.002	.002	0	0

Member Distributed Loads (BLC 7 : Wind Z(27psf))

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,ksf]	Start Location[ft,%]	End Location[ft,...
1	M1	Z	.008	.008	0	2.142
2	M1	Z	.008	.008	3.15	5.333
3	M1	Z	.008	.008	7.333	8.267
4	M1	Z	.008	.008	9.267	10
5	M19	Z	.008	.008	0	2.142
6	M19	Z	.008	.008	3.15	5.333
7	M19	Z	.008	.008	7.333	8.267
8	M19	Z	.008	.008	9.267	10
9	M11	Z	.005	.005	0	0
10	M12	Z	.005	.005	0	0
11	M13	Z	.005	.005	0	0
12	M14	Z	.005	.005	0	0
13	M15	Z	.005	.005	0	0
14	M16	Z	.005	.005	0	0
15	M2	Z	.005	.005	0	2.142
16	M2	Z	.005	.005	3.15	5.333
17	M2	Z	.005	.005	7.333	8.267
18	M2	Z	.005	.005	9.267	10
19	M4	Z	.005	.005	0	2.142
20	M4	Z	.005	.005	3.15	5.333
21	M4	Z	.005	.005	7.333	8.267
22	M4	Z	.005	.005	9.267	10
23	M22	Z	.007	.007	0	0
24	M23	Z	.007	.007	0	0
25	M33A	Z	.007	.007	0	0
26	M34A	Z	.007	.007	0	0
27	M35A	Z	.007	.007	0	0
28	M36A	Z	.007	.007	0	0

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribu...	Area(M...	Surface...
1	Self Weight	None		-1						
2	Dead Load	None					24			
3	Ice Load	None					24			
4	Wind with Ice X (7 psf)	None					24	20		
5	Wind X(27psf)	None					24	20		
6	Wind with Ice Z(7psf)	None					24	28		
7	Wind Z(27psf)	None					24	28		

Load Combinations

	Description	Solve	PDelta	SR...	B...	Fa...	BLC	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
1	1.2D + 1.6W (X-directi...	Yes	Y		1	1.2	2	1.2	5	1.6														
2	0.9D + 1.6W (X-directi...	Yes	Y		1	.9	2	.9	5	1.6														
3	1.2D + 1.0Di + 1.0Wi (...	Yes	Y		1	1.2	2	1.2	3	1	4	1												
4	1.2D + 1.6W (Z-directi...	Yes	Y		1	1.2	2	1.2	7	1.6														
5	0.9D + 1.6W (Z-directi...	Yes	Y		1	.9	2	.9	7	1.6														
6	1.2D + 1.0Di + 1.0Wi (...	Yes	Y		1	1.2	2	1.2	3	1	6	1												

Envelope Joint Reactions

	Joint		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N3	max	.19	6	1.731	6	-.175	2	.478	3	2.697	5	4.413	6
2		min	-1.338	2	.662	2	-.864	4	-.26	5	.241	3	1.587	2
3	N8	max	.026	5	1.731	6	-.034	2	4.413	3	2.697	2	.26	2
4		min	-.864	1	.663	2	-1.5	4	1.71	5	-1.576	4	-.597	6
5	N12	max	.257	6	1.73	3	.206	3	-1.533	2	1.518	5	.631	3
6		min	-.689	2	.662	2	-1.338	5	-4.391	6	-2.726	1	-.165	5
7	N87	max	.321	4	.013	4	.032	2	0	2	0	6	0	4
8		min	-.077	2	.009	2	-.244	4	-.001	4	0	1	0	2
9	N88	max	-.238	2	.014	6	-.139	2	0	1	0	6	0	1
10		min	-.522	4	.009	5	-.382	4	-.001	5	0	1	0	5
11	N85	max	.289	5	.012	1	.056	1	0	3	0	6	0	5
12		min	-.113	1	.009	5	-.225	5	0	5	0	1	0	3
13	N86	max	.234	3	.013	3	.16	3	0	2	0	6	0	2
14		min	-.315	5	.008	5	-.239	5	-.001	4	0	1	0	4
15	N89	max	-.029	6	.013	1	-.048	6	0	1	0	6	.001	1
16		min	-.244	1	.009	5	-.321	1	0	5	0	1	0	5
17	N90	max	.019	5	.014	3	.522	1	0	6	0	6	.001	2
18		min	-.382	1	.009	5	-.056	5	0	2	0	1	0	6
19	Totals:	max	0	6	5.268	6	0	3						
20		min	-3.947	1	2.043	2	-4.884	4						

Envelope Joint Displacements

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [...	LC	Y Rotation [...	LC	Z Rotation [...	LC
1	N1	max	-.012	3	-.115	3	.074	5	2.298e-3	4	-1.505e-4	3	-1.287e-3	5
2		min	-.123	5	-.184	4	.007	3	1.71e-4	3	-1.598e-3	5	-4.156e-3	3
3	N2	max	.123	5	-.005	5	.074	5	1.11e-3	5	-1.734e-4	3	-5.981e-4	2
4		min	.011	3	-.288	3	.007	3	-2.752e-3	3	-1.712e-3	4	-2.347e-3	4
5	N3	max	0	6	0	6	0	6	0	6	0	6	0	6

Envelope Joint Displacements (Continued)

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [...	LC	Y Rotation [...	LC	Z Rotation [...	LC
6		min	0	1	0	1	0	1	0	1	0	1	0	1
7	N4	max	0	2	-.042	2	.074	5	7.448e-4	5	-2.95e-4	3	-1.501e-3	2
8		min	0	6	-.12	6	.007	3	-1.443e-3	3	-2.761e-3	5	-4.479e-3	6
9	N5	max	0	6	0	6	0	6	0	6	0	6	0	6
10		min	0	1	0	1	0	1	0	1	0	1	0	1
11	N6	max	.074	2	.02	5	.123	2	-5.394e-4	5	1.164e-3	4	1.095e-3	5
12		min	-.05	4	-.184	1	-.082	4	-3.902e-3	3	-1.598e-3	2	-2.298e-3	1
13	N7	max	.074	2	-.005	2	.083	4	-6.493e-4	5	9.565e-5	5	3.376e-3	6
14		min	-.05	4	-.322	6	-.123	2	-2.347e-3	1	-1.712e-3	1	-1.11e-3	2
15	N8	max	0	6	0	6	0	6	0	6	0	6	0	6
16		min	0	1	0	1	0	1	0	1	0	1	0	1
17	N9	max	.074	2	-.047	5	0	4	-1.824e-3	5	2.194e-3	4	1.805e-3	6
18		min	-.05	4	-.12	3	0	2	-4.479e-3	3	-2.761e-3	2	-7.448e-4	2
19	N10	max	.075	1	.058	2	.125	1	4.156e-3	6	1.658e-3	1	1.731e-3	4
20		min	-.048	5	-.145	4	-.079	5	1.592e-3	2	-1.086e-3	5	-1.643e-3	2
21	N11	max	.075	1	-.016	5	.078	5	1.422e-3	6	1.595e-3	2	5.613e-4	5
22		min	-.048	5	-.328	3	-.126	1	-9.163e-4	2	-1.94e-4	4	-3.557e-3	3
23	N12	max	0	6	0	6	0	6	0	6	0	6	0	6
24		min	0	1	0	1	0	1	0	1	0	1	0	1
25	N13	max	.075	1	-.04	2	0	5	4.425e-3	6	2.826e-3	1	4.983e-4	5
26		min	-.048	5	-.119	6	0	3	1.39e-3	2	-2.099e-3	5	-1.898e-3	3
27	N14	max	.118	5	-.009	5	.074	5	1.11e-3	5	-1.733e-4	3	-5.981e-4	2
28		min	.01	3	-.28	3	.007	3	-2.752e-3	3	-1.712e-3	4	-2.347e-3	4
29	N15	max	-.011	3	-.115	3	.074	5	2.298e-3	4	-1.505e-4	3	-1.287e-3	5
30		min	-.118	5	-.177	4	.007	3	1.709e-4	3	-1.598e-3	5	-4.156e-3	3
31	N16	max	.075	1	-.018	5	.078	5	1.422e-3	6	1.595e-3	2	5.613e-4	5
32		min	-.048	5	-.317	3	-.121	1	-9.163e-4	2	-1.94e-4	4	-3.557e-3	3
33	N17	max	.075	1	.053	2	.12	1	4.156e-3	6	1.658e-3	1	1.731e-3	4
34		min	-.048	5	-.14	4	-.076	5	1.592e-3	2	-1.086e-3	5	-1.643e-3	2
35	N18	max	.074	2	-.009	2	.082	4	-6.493e-4	5	9.558e-5	5	3.376e-3	6
36		min	-.05	4	-.312	6	-.118	2	-2.347e-3	1	-1.712e-3	1	-1.11e-3	2
37	N19	max	.074	2	.017	5	.118	2	-5.394e-4	5	1.164e-3	4	1.096e-3	5
38		min	-.05	4	-.177	1	-.079	4	-3.902e-3	3	-1.598e-3	2	-2.298e-3	1
39	N20	max	.04	6	-.042	2	.08	5	7.448e-4	5	-2.95e-4	3	-1.501e-3	2
40		min	.014	2	-.12	6	-.006	3	-1.443e-3	3	-2.761e-3	5	-4.479e-3	6
41	N21	max	.08	2	-.047	5	-.016	5	-1.824e-3	5	2.194e-3	4	1.805e-3	6
42		min	-.063	4	-.12	3	-.04	3	-4.479e-3	3	-2.761e-3	2	-7.448e-4	2
43	N22	max	.09	1	-.04	2	.04	6	4.425e-3	6	2.826e-3	1	4.983e-4	5
44		min	-.052	5	-.119	6	.013	2	1.39e-3	2	-2.099e-3	5	-1.898e-3	3
45	N23	max	-.013	2	-.042	2	.068	4	7.448e-4	5	-2.95e-4	3	-1.501e-3	2
46		min	-.04	6	-.12	6	.02	3	-1.443e-3	3	-2.761e-3	5	-4.479e-3	6
47	N24	max	.068	1	-.047	5	.04	3	-1.824e-3	5	2.194e-3	4	1.805e-3	6
48		min	-.037	5	-.12	3	.017	5	-4.479e-3	3	-2.761e-3	2	-7.448e-4	2
49	N25	max	.061	2	-.04	2	-.013	2	4.425e-3	6	2.826e-3	1	4.983e-4	5
50		min	-.044	4	-.119	6	-.04	6	1.39e-3	2	-2.099e-3	5	-1.898e-3	3
51	N26	max	.075	1	.005	2	.068	1	4.161e-3	6	2.089e-3	1	1.606e-3	4
52		min	-.048	5	-.111	6	-.042	5	1.595e-3	2	-1.346e-3	5	-1.737e-3	2
53	N27	max	.075	1	-.024	5	.075	5	1.422e-3	6	1.776e-3	1	5.742e-4	5
54		min	-.048	5	-.275	3	-.102	1	-9.176e-4	2	-3.077e-4	5	-3.539e-3	3
55	N28	max	.075	1	-.037	5	.04	5	2.76e-3	6	2.493e-3	1	4.185e-4	5
56		min	-.048	5	-.167	3	-.042	1	2.743e-5	5	-2.171e-3	5	-3.401e-3	3
57	N29	max	.255	1	.005	2	.374	4	1.116e-2	4	4.292e-3	2	1.002e-3	5

Envelope Joint Displacements (Continued)

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [...	LC	Y Rotation [...	LC	Z Rotation [...	LC
58		min	-.107	5	-.111	6	.154	2	1.344e-3	2	-7.042e-3	4	-3.901e-3	1
59	N30	max	.046	1	.005	2	.039	2	4.141e-3	6	2.089e-3	1	1.606e-3	4
60		min	-.02	5	-.111	6	-.093	4	1.595e-3	2	-1.346e-3	5	-1.686e-3	2
61	N31	max	.252	1	-.037	5	.547	4	1.306e-2	4	4.219e-3	1	1.045e-3	5
62		min	-.108	5	-.168	3	-.069	2	-7.717e-4	2	1.725e-4	5	-3.617e-3	1
63	N32	max	.232	2	-.037	5	.792	5	2.686e-3	3	2.493e-3	1	5.414e-3	2
64		min	-.16	6	-.168	3	-.158	3	-2.082e-2	5	-2.171e-3	5	-2.825e-3	6
65	N33	max	.074	2	-.043	2	.043	4	-1.951e-3	2	2.386e-3	4	3.397e-3	6
66		min	-.05	4	-.167	6	-.04	2	-3.087e-3	3	-2.305e-3	2	-1.92e-4	2
67	N34	max	.187	2	-.044	2	.463	5	1.187e-2	5	1.961e-3	6	2.264e-3	4
68		min	-.176	4	-.168	6	-.148	1	-1.868e-3	1	-2.786e-3	2	-2.429e-3	2
69	N35	max	.354	1	-.043	2	.938	4	-1.947e-3	2	2.386e-3	4	7.679e-3	1
70		min	.079	5	-.168	6	.065	2	-2.346e-2	4	-2.305e-3	2	2.389e-3	5
71	N36	max	.263	1	-.024	5	.372	5	9.247e-3	5	5.996e-3	1	6.931e-4	5
72		min	-.102	5	-.275	3	-.256	1	-3.035e-3	1	5.191e-3	6	-4.39e-3	1
73	N37	max	.02	2	-.024	5	.066	5	1.405e-3	6	1.776e-3	1	5.74e-4	5
74		min	-.056	6	-.275	3	-.089	1	-9.174e-4	2	-3.077e-4	5	-3.524e-3	3
75	N38	max	.074	2	-.015	5	.068	2	-5.408e-4	5	1.381e-3	4	1.189e-3	5
76		min	-.05	4	-.116	3	-.044	4	-3.906e-3	3	-2.075e-3	2	-2.174e-3	1
77	N39	max	.074	2	-.022	2	.081	4	-6.488e-4	5	3.371e-4	4	3.359e-3	6
78		min	-.05	4	-.272	6	-.098	2	-2.348e-3	1	-1.768e-3	2	-1.124e-3	2
79	N40	max	.193	2	-.015	5	.25	5	9.288e-3	5	6.765e-3	5	2.052e-3	6
80		min	-.171	4	-.116	3	-.122	3	-2.052e-3	3	-4.556e-3	1	-2.922e-3	2
81	N41	max	.037	2	-.015	5	.099	1	-6.198e-4	5	1.381e-3	4	1.189e-3	5
82		min	-.03	4	-.116	3	-.032	5	-3.903e-3	3	-2.075e-3	2	-2.122e-3	1
83	N42	max	.182	2	-.022	2	.404	4	9.969e-3	4	3.599e-3	6	3.068e-3	6
84		min	-.186	4	-.272	6	-.225	2	-2.314e-3	2	-2.56e-3	2	-2.326e-3	2
85	N43	max	.061	3	-.022	2	.097	4	-7.278e-4	5	3.371e-4	4	3.356e-3	6
86		min	-.003	5	-.272	6	-.059	2	-2.347e-3	1	-1.768e-3	2	-1.072e-3	2
87	N44	max	-.006	3	-.076	2	.074	5	2.174e-3	4	-2.115e-4	3	-1.287e-3	5
88		min	-.068	5	-.116	6	.007	3	4.417e-5	3	-2.075e-3	5	-4.161e-3	3
89	N45	max	.098	5	-.022	5	.074	5	1.124e-3	5	-4.511e-5	3	-5.985e-4	2
90		min	.008	3	-.247	3	.007	3	-2.735e-3	3	-1.768e-3	5	-2.348e-3	4
91	N46	max	.374	1	-.077	2	.193	5	2.922e-3	5	-8.833e-4	6	-1.647e-4	5
92		min	-.053	5	-.116	6	-.073	3	-1.492e-3	3	-7.042e-3	1	-1.116e-2	1
93	N47	max	-.081	3	-.076	2	.037	5	2.122e-3	4	-2.115e-4	3	-1.287e-3	5
94		min	-.099	4	-.116	6	.006	3	4.413e-5	3	-2.075e-3	5	-4.141e-3	3
95	N48	max	.372	2	-.022	5	.182	5	2.326e-3	5	5.912e-3	1	7.123e-4	6
96		min	-.008	6	-.247	3	-.09	3	-2.442e-3	3	-2.56e-3	5	-9.247e-3	2
97	N49	max	.066	2	-.022	5	.061	6	1.072e-3	5	-4.511e-5	3	-5.192e-4	2
98		min	-.017	3	-.247	3	.038	2	-2.733e-3	3	-1.768e-3	5	-2.347e-3	4
99	N50	max	.04	2	-.037	2	.074	5	4.185e-4	2	-1.579e-4	3	-2.743e-5	2
100		min	.005	3	-.16	6	.007	3	-2.845e-3	3	-2.305e-3	5	-3.087e-3	6
101	N51	max	.547	1	-.037	2	.187	5	2.429e-3	5	1.854e-3	3	-1.331e-3	6
102		min	.104	6	-.161	6	-.073	3	-1.515e-3	3	-2.786e-3	5	-1.306e-2	1
103	N52	max	.792	2	-.037	2	.354	4	4.176e-4	2	-1.579e-4	3	2.082e-2	2
104		min	-.16	6	-.161	6	.025	2	-7.679e-3	4	-2.305e-3	5	-3.065e-3	6
105	N53	max	.057	1	-.031	2	0	5	4.515e-3	6	2.861e-3	1	4.153e-4	5
106		min	-.035	5	-.092	6	0	3	1.464e-3	2	-1.961e-3	5	-1.59e-3	3
107	N54	max	.101	1	-.031	2	.11	6	4.597e-3	6	2.861e-3	1	4.156e-4	5
108		min	-.045	5	-.092	6	.035	2	1.465e-3	2	-1.961e-3	5	-1.853e-3	1
109	N55	max	.045	2	-.031	2	-.013	2	4.515e-3	6	2.861e-3	1	4.153e-4	5

Envelope Joint Displacements (Continued)

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [...	LC	Y Rotation [...	LC	Z Rotation [...	LC
110		min	-.033	4	-.092	6	-.041	6	1.464e-3	2	-1.961e-3	5	-1.59e-3	3
111	N56	max	.057	2	-.036	5	0	4	-1.807e-3	5	2.046e-3	4	1.505e-3	6
112		min	-.037	4	-.092	3	0	2	-4.556e-3	3	-2.806e-3	2	-6.536e-4	2
113	N57	max	.08	2	-.036	5	-.037	5	-1.508e-3	5	2.046e-3	4	1.507e-3	6
114		min	-.067	4	-.092	3	-.109	3	-4.563e-3	3	-2.806e-3	2	-1.042e-3	2
115	N58	max	.052	1	-.036	5	.041	3	-1.807e-3	5	2.046e-3	4	1.505e-3	6
116		min	-.027	5	-.092	3	.017	5	-4.556e-3	3	-2.806e-3	2	-6.536e-4	2
117	N59	max	0	2	-.033	2	.057	5	6.536e-4	5	-2.848e-4	3	-1.575e-3	2
118		min	0	6	-.092	6	.005	3	-1.203e-3	3	-2.806e-3	5	-4.556e-3	6
119	N60	max	.11	3	-.033	2	.08	5	1.042e-3	5	-2.848e-4	3	-1.877e-3	2
120		min	.044	2	-.092	6	-.024	3	-1.205e-3	3	-2.806e-3	5	-4.597e-3	3
121	N61	max	-.014	2	-.033	2	.052	4	6.536e-4	5	-2.848e-4	3	-1.575e-3	2
122		min	-.041	6	-.092	6	.016	3	-1.203e-3	3	-2.806e-3	5	-4.556e-3	6
123	N62	max	.061	3	-.074	3	.145	5	2.407e-3	5	-1.714e-3	6	-1.695e-4	5
124		min	-.233	5	-.184	4	-.046	3	-1.022e-3	3	-1.215e-2	1	-9.776e-3	1
125	N63	max	.223	5	0	5	.145	5	1.454e-3	5	7.455e-3	1	7.087e-4	6
126		min	-.085	3	-.284	3	-.046	3	-2.505e-3	3	-2.649e-3	5	-7.966e-3	2
127	N64	max	.145	2	.036	5	.233	2	7.916e-3	5	1.114e-2	5	1.579e-3	6
128		min	-.134	4	-.184	1	-.231	4	-2.042e-3	3	-6.15e-3	1	-2.407e-3	2
129	N65	max	.145	2	0	2	.196	4	8.684e-3	4	4.239e-3	3	3.129e-3	6
130		min	-.136	4	-.318	6	-.223	2	-2.309e-3	2	-3.174e-3	5	-1.454e-3	2
131	N66	max	.189	1	.089	2	.295	1	9.776e-3	4	5.208e-3	2	1.361e-3	5
132		min	-.088	5	-.13	4	-.165	5	1.333e-3	2	-1.215e-2	4	-2.572e-3	1
133	N67	max	.188	1	-.015	5	.116	5	7.966e-3	5	7.455e-3	4	6.351e-4	5
134		min	-.09	5	-.325	3	-.299	1	-3.027e-3	1	6.173e-3	2	-3.636e-3	1
135	N68	max	.059	2	-.036	5	-.005	5	-1.676e-3	5	2.046e-3	4	1.505e-3	6
136		min	-.041	4	-.092	3	-.014	3	-4.558e-3	3	-2.806e-3	2	-8.236e-4	2
137	N69	max	.189	1	.005	2	.18	4	9.806e-3	4	4.292e-3	2	1.002e-3	5
138		min	-.089	5	-.111	6	.128	3	1.343e-3	2	-7.042e-3	4	-3.043e-3	1
139	N70	max	.189	1	-.037	5	.315	4	1.202e-2	4	4.219e-3	1	1.045e-3	5
140		min	-.089	5	-.168	3	-.055	2	-7.716e-4	2	1.725e-4	5	-3.243e-3	1
141	N71	max	.145	2	-.044	2	.253	5	1.084e-2	5	1.961e-3	6	2.264e-3	4
142		min	-.135	4	-.168	6	-.114	1	-1.867e-3	1	-2.786e-3	2	-2.056e-3	2
143	N72	max	.189	1	-.024	5	.212	5	7.978e-3	5	5.996e-3	1	6.929e-4	5
144		min	-.09	5	-.275	3	-.202	1	-3.034e-3	1	5.191e-3	6	-3.572e-3	1
145	N73	max	.145	2	-.015	5	.09	5	7.939e-3	5	6.765e-3	5	2.05e-3	6
146		min	-.135	4	-.116	3	-.085	3	-2.05e-3	3	-4.556e-3	1	-2.065e-3	2
147	N74	max	.145	2	-.022	2	.231	4	8.699e-3	4	3.599e-3	6	3.066e-3	6
148		min	-.136	4	-.272	6	-.184	2	-2.313e-3	2	-2.56e-3	2	-1.509e-3	2
149	N75	max	.18	1	-.077	2	.145	5	2.065e-3	5	-8.833e-4	6	-1.646e-4	5
150		min	-.056	5	-.116	6	-.046	3	-1.49e-3	3	-7.042e-3	1	-9.806e-3	1
151	N76	max	.212	2	-.022	5	.145	5	1.509e-3	5	5.912e-3	1	7.117e-4	6
152		min	.004	3	-.247	3	-.046	3	-2.44e-3	3	-2.56e-3	5	-7.978e-3	2
153	N77	max	.315	1	-.037	2	.145	5	2.056e-3	5	1.854e-3	3	-1.33e-3	6
154		min	.08	6	-.161	6	-.046	3	-1.514e-3	3	-2.786e-3	5	-1.202e-2	1
155	N83	max	.188	1	-.016	5	.136	5	7.966e-3	5	7.455e-3	4	6.352e-4	5
156		min	-.09	5	-.315	3	-.279	1	-3.027e-3	1	6.173e-3	2	-3.636e-3	1
157	N84	max	.189	1	.082	2	.28	1	9.776e-3	4	5.208e-3	2	1.361e-3	5
158		min	-.088	5	-.126	4	-.129	5	1.333e-3	2	-1.215e-2	4	-2.572e-3	1
159	N87	max	0	6	0	6	0	6	0	6	0	6	0	6
160		min	0	1	0	1	0	1	0	1	0	1	0	1
161	N88	max	0	6	0	6	0	6	0	6	0	6	0	6

Envelope Joint Displacements (Continued)

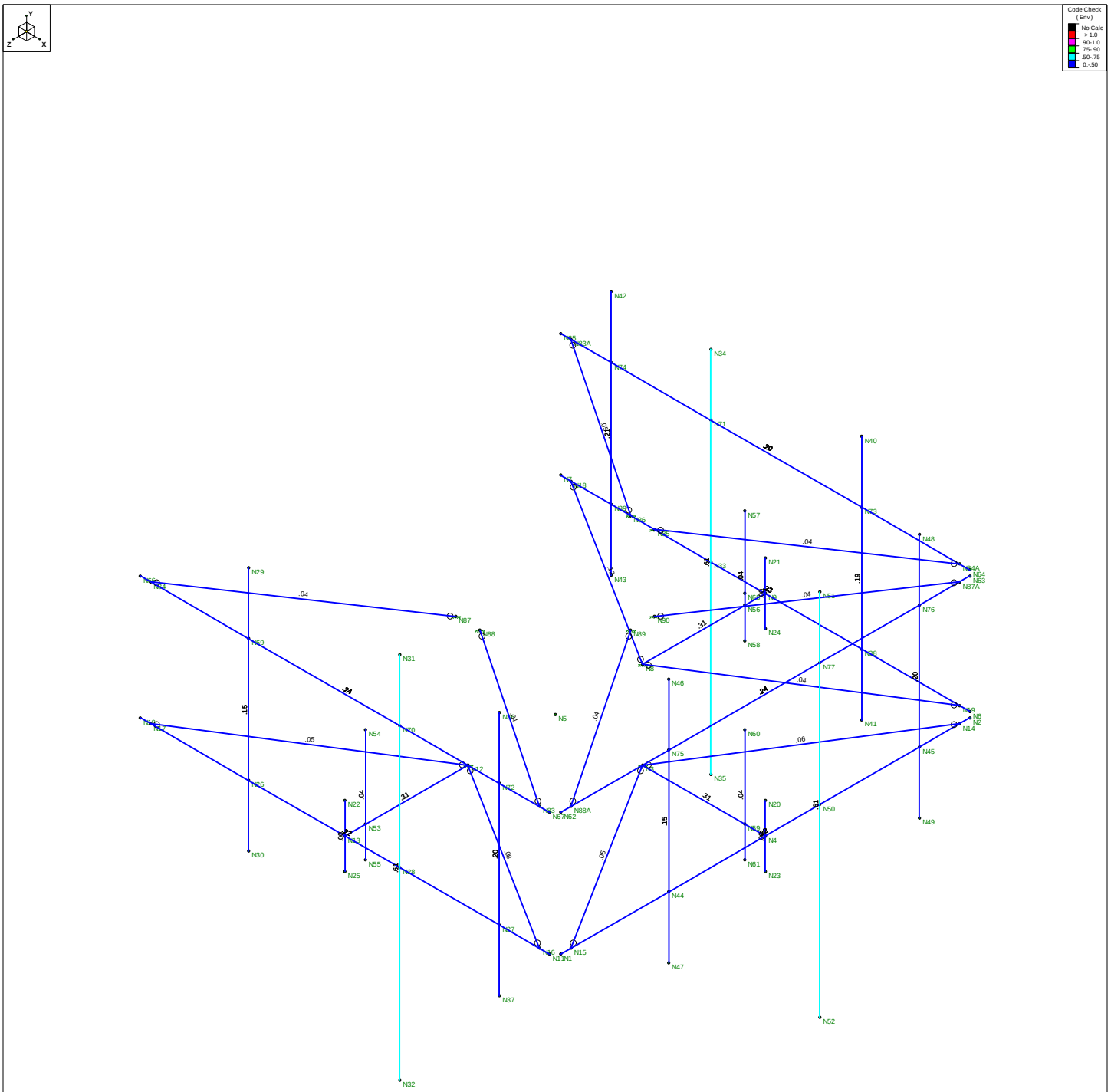
	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [...	LC	Y Rotation [...	LC	Z Rotation [...	LC
162		min	0	1	0	1	0	1	0	1	0	1	0	1
163	N83A	max	.145	2	-.004	2	.203	4	8.684e-3	4	4.239e-3	3	3.129e-3	6
164		min	-.136	4	-.308	6	-.215	2	-2.309e-3	2	-3.174e-3	5	-1.454e-3	2
165	N84A	max	.145	2	.032	5	.214	2	7.916e-3	5	1.114e-2	5	1.579e-3	6
166		min	-.134	4	-.177	1	-.198	4	-2.042e-3	3	-6.15e-3	1	-2.407e-3	2
167	N85	max	0	6	0	6	0	6	0	6	0	6	0	6
168		min	0	1	0	1	0	1	0	1	0	1	0	1
169	N86	max	0	6	0	6	0	6	0	6	0	6	0	6
170		min	0	1	0	1	0	1	0	1	0	1	0	1
171	N87A	max	.215	5	-.004	5	.145	5	1.454e-3	5	7.455e-3	1	7.087e-4	6
172		min	-.066	3	-.277	3	-.046	3	-2.505e-3	3	-2.649e-3	5	-7.966e-3	2
173	N88A	max	.069	3	-.077	3	.145	5	2.407e-3	5	-1.714e-3	6	-1.695e-4	5
174		min	-.214	5	-.177	4	-.046	3	-1.022e-3	3	-1.215e-2	1	-9.776e-3	1
175	N89	max	0	6	0	6	0	6	0	6	0	6	0	6
176		min	0	1	0	1	0	1	0	1	0	1	0	1
177	N90	max	0	6	0	6	0	6	0	6	0	6	0	6
178		min	0	1	0	1	0	1	0	1	0	1	0	1

Envelope AISC 14th(360-10): LRFD Steel Code Checks

	Me...	Sha...	Code Ch...	Lo...	LC	Shear...	Loc...	Dir	LC	phi*Pnc [k]	phi*Pnt [k]	phi*Mn y...	phi*Mn ...	Cb	Eqn
1	M1	PIP...	.222	5	3	.164	5		3	38.177	65.205	5.749	5.749	1.865	H1-1b
2	M2	PIP...	.241	2.6...	4	.114	6.3...		4	9.837	32.13	1.872	1.872	3.206	H1-1b
3	M3	PIP...	.241	2.6...	1	.114	6.3...		1	9.837	32.13	1.872	1.872	3.206	H1-1b
4	M4	PIP...	.196	2.6...	5	.073	6.3...		3	9.837	32.13	1.872	1.872	2.313	H1-1b
5	M5	HS...	.309	0	1	.088	0	y	6	134.361	139.518	16.181	16.181	1.798	H1-1b
6	M6	HS...	.310	0	3	.091	0	y	3	134.361	139.518	16.181	16.181	1.876	H1-1b
7	M7	HS...	.309	0	4	.080	0	y	3	134.361	139.518	16.181	16.181	1.798	H1-1b
8	M8	PIP...	.000	.75	3	.000	0		3	92.571	93.24	10.631	10.631	1	H1-1b
9	M9	PIP...	.000	.75	6	.000	0		6	92.571	93.24	10.631	10.631	1.316	H1-1b
10	M10	PIP...	.000	.75	6	.000	0		6	92.571	93.24	10.631	10.631	1	H1-1b
11	M11	L2x...	.047	2.8...	4	.008	5.6...	y	3	7.027	30.586	.691	1.404	1.136	H2-1
12	M12	L2x...	.081	2.9...	1	.005	0	y	1	7.027	30.586	.691	1.404	1.136	H2-1
13	M13	L2x...	.047	2.8...	1	.007	5.6...	y	3	7.027	30.586	.691	1.404	1.136	H2-1
14	M14	L2x...	.056	2.8...	6	.005	0	z	5	7.027	30.586	.691	1.404	1.136	H2-1
15	M15	L2x...	.118	2.7...	4	.005	0	z	2	7.027	30.586	.691	1.404	1.136	H2-1
16	M16	L2x...	.038	2.9...	2	.007	5.6...	y	6	7.027	30.586	.691	1.404	1.136	H2-1
17	M17	PIP...	.043	1.9...	1	.008	1.0...		1	29.345	32.13	1.872	1.872	3.093	H1-1b
18	M18	PIP...	.043	1.9...	1	.008	1.7...		1	29.345	32.13	1.872	1.872	3.095	H1-1b
19	M19	PIP...	.227	5	6	.146	5		6	38.177	65.205	5.749	5.749	1.888	H1-1b
20	M20	PIP...	.043	1.9...	4	.008	1.0...		4	29.345	32.13	1.872	1.872	1.966	H1-1b
21	M21	PIP...	.218	5	6	.164	5		3	38.177	65.205	5.749	5.749	1.853	H1-1b
22	M22	L3X...	.042	2.6...	4	.012	0	z	4	18.014	35.316	1.32	2.387	1.136	H2-1
23	M23	L3X...	.049	2.6...	4	.012	5.3...	y	5	18.014	35.316	1.32	2.387	1.136	H2-1
24	M28	PIP...	.145	1.5	5	.127	1.5		4	20.867	32.13	1.872	1.872	4.953	H1-1b
25	M29	PIP...	.611	4.5	4	.091	1.5		4	26.137	50.715	3.596	3.596	2.187	H1-1b
26	M30	PIP...	.203	1.5	4	.136	1.5		4	20.867	32.13	1.872	1.872	1.484	H1-1b
27	M31	PIP...	.145	1.5	2	.127	1.5		1	20.867	32.13	1.872	1.872	1.087	H1-1b
28	M32	PIP...	.611	4.5	1	.091	1.5		1	26.137	50.715	3.596	3.596	1.419	H1-1b
29	M33	PIP...	.203	1.5	1	.136	1.5		1	20.867	32.13	1.872	1.872	1.36	H1-1b
30	M34	PIP...	.190	4.5	4	.121	1.5		5	20.867	32.13	1.872	1.872	2.208	H1-1b

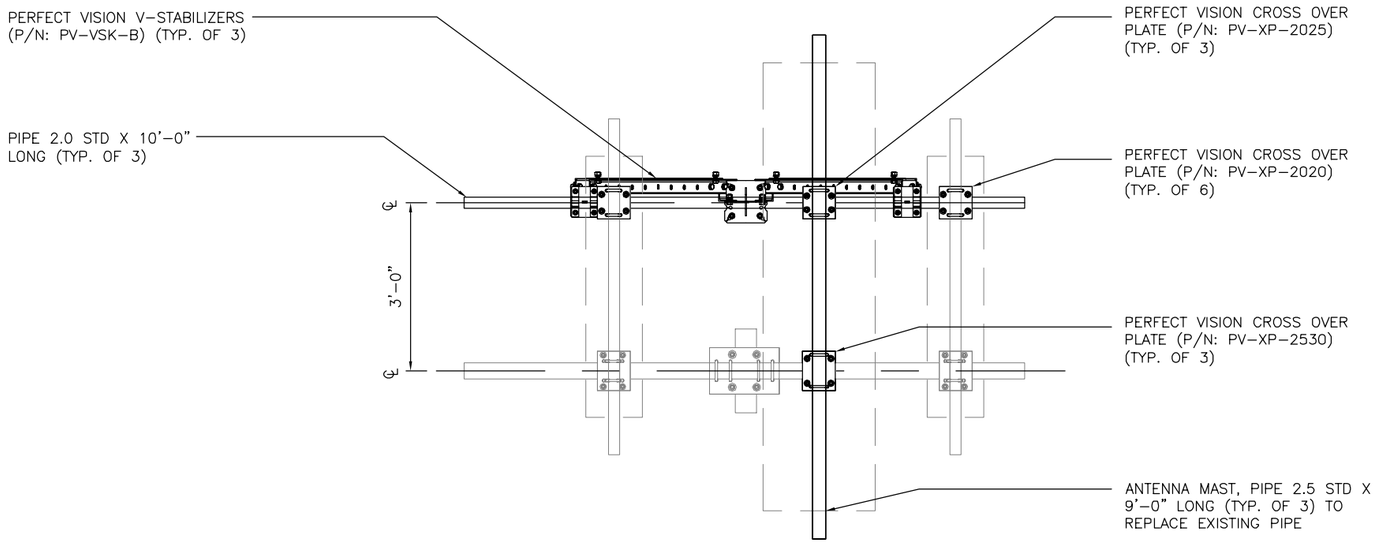
Envelope AISC 14th(360-10): LRFD Steel Code Checks (Continued)

	Me...	Sha...	Code Ch...	Lo...	LC	Shear...	Loc...	Dir	LC	phi*Pnc [k]	phi*Pnt [k]	phi*Mn y...	phi*Mn ...	Cb	Eqn
31	M35	PIP...	.607	4.5	4	.061	1.5		5	26.137	50.715	3.596	3.596	1.844	H1-1b
32	M36	PIP...	.210	4.5	6	.094	1.5		3	20.867	32.13	1.872	1.872	1.486	H1-1b
33	M3...	L3X...	.043	2.6...	5	.010	0	z	5	18.014	35.316	1.32	2.387	1.136	H2-1
34	M3...	L3X...	.045	2.6...	5	.014	5.3...	y	4	18.014	35.316	1.32	2.387	1.136	H2-1
35	M3...	L3X...	.042	2.6...	1	.012	0	z	1	18.014	35.316	1.32	2.387	1.136	H2-1
36	M3...	L3X...	.049	2.6...	1	.012	5.3...	y	2	18.014	35.316	1.32	2.387	1.136	H2-1



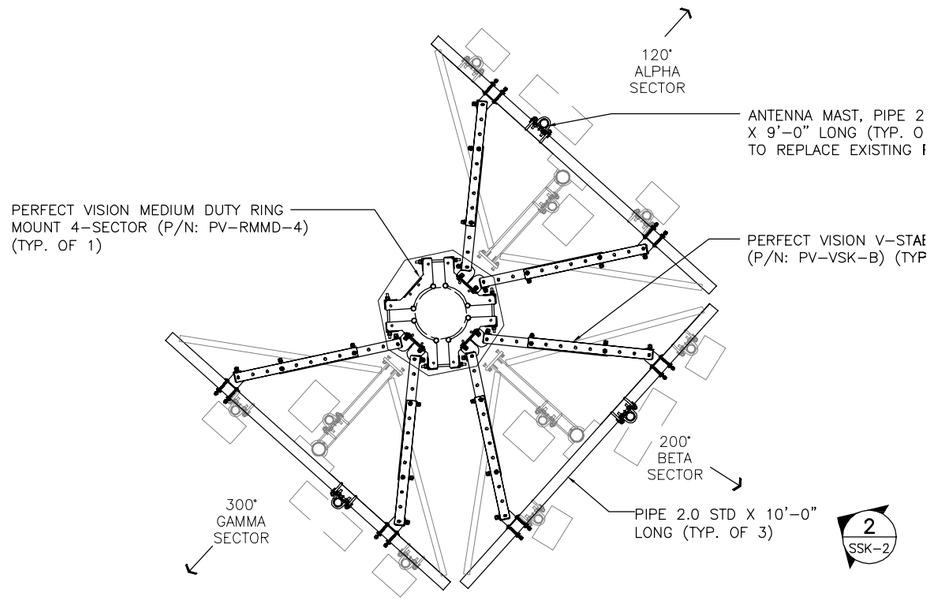
Member Code Checks Displayed (Enveloped)
Envelope Only Solution

Centek Engineering		
FJP	CTNH102C - Mount	Aug 20, 2020 at 11:28 AM
20127.00	Member Unity Check	CTNH102C_AMA.r3d



2 SSK-1 **MOUNT ELEVATION**

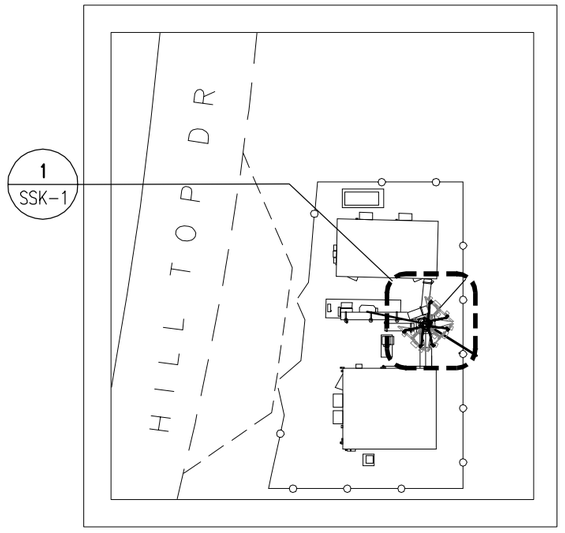
SCALE: 3/16"=1'



1 SSK-1 **MOUNT MODIFICATION PLAN**

SCALE: 1/4"=1'

APPROXIMATE NORTH



SITE KEY PLAN

SCALE: 1" = 40'

APPROXIMATE NORTH

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
0	08/20/20	FJP	TJL	STRUCTURAL SKETCH - REVIEW

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DATE:	08/20/20
SCALE:	AS SHOWN
JOB NO.	20127.00

ANTENNA MOUNT PLAN VIEW & DETAILS

SHEET NO.
SSK-1
Sheet No. 1 of 1