STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL
Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@ct.gov
www.ct.gov/csc

VIA ELECTRONIC MAIL

October 22, 2018

Kyle Richers
Transcend Wireless
10 Industrial Avenue, Suite 3
Mahwah, NJ 07430

RE: **EM-T-MOBILE-084-181016** - T-Mobile notice of intent to modify an existing telecommunications facility located at 181-1 Research Drive, Milford, Connecticut.

Dear Mr. Richers:

The Connecticut Siting Council (Council) is in receipt of your correspondence of October 18, 2018 submitted in response to the Council's October 17, 2018 notification of an incomplete request for exempt modification with regard to the above-referenced matter.

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

Thank you for your attention and cooperation.

Sincerely,

Melanie A. Bachman
Executive Director

MAB/FOC/IN

Robidoux, Evan

From: Kyle Richers <krichers@transcendwireless.com>
Sent: Thursday, October 18, 2018 1:28 PM
To: Robidoux, Evan
Cc: CSC-DL Siting Council
Subject: RE: Council Incomplete Letter for EM-T-MOBILE-084-181016-ResearchDr-Milford
Attachments: CT11020D_A and E_Mount Analysis_Site Modification_L1900 CMP4.pdf

Good Afternoon,

Attached please find the mount analysis completed for the site, as referenced in the drawings and incorporated in the provided structural. Let me know if this suffices and if you need hard copies of the report.

Thanks

From: Robidoux, Evan
Sent: Thursday, October 18, 2018 8:20 AM
To: 'krichers@transcendwireless.com'
Cc: CSC-DL Siting Council
Subject: Council Incomplete Letter for EM-T-MOBILE-084-181016-ResearchDr-Milford

Please see the attached correspondence.

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

CENTEK engineering

Centered on Solutions℠

Structural Analysis Report

Antenna Mount Analysis

T-Mobile Site #: CT11020D

185 Research Drive
Milford, CT 06460

Centek Project No. 18058.69

Date: June 21, 2018

Max Stress Ratio = 41.2%

STATE OF CONNECTICUT
TIMOTHY J. LYNN
No. 29336
LICENSED
PROFESSIONAL ENGINEER

Prepared for:

T-Mobile USA
35 Griffin Road
Bloomfield, CT 06002

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CENTEK engineering

Centered on Solutions℠

June 21, 2018

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

Re: *Structural Letter ~ Antenna Mount*
T-Mobile – Site Ref: CT11020D
185 Research Drive
Milford, CT 06460

Centek Project No. 18058.69

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 proposed mount, consisting of one (1) low profile platform to support the equipment configuration. The review considered the effects of wind load, dead load and ice load in accordance with the 2012 International Building Code as modified by the 2016 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:**
  Platform: Three (3) Ericsson AIR32 panel antennas, three (3) RFS APXVAARR24-43-NA20 panel antennas, six (6) TMAs and three (3) Ericsson 4449 B71_B12 remote radio units mounted on one (1) low profile platform with a RAD center elevation of 145-ft +/- AGL.

The antenna mount was analyzed per the requirements of the 2012 International Building Code as modified by the 2016 Connecticut State Building Code considering a nominal design wind speed of 97 mph for Milford as required in Appendix N of the 2016 Connecticut State Building Code.

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

The existing antenna flush mount needs to be replaced with a SItePro platform (p/n RMQP-4096-HK) in order to accommodate the proposed antenna configuration. If there are any questions regarding this matter, please feel free to call.

Respectfully Submitted by:

Timothy J. Lynn, PE
Structural Engineer

STATE OF CONNECTICUT
TIMOTHY J. LYNN
No. 29336
LICENSED
PROFESSIONAL ENGINEER

Section 2 - Calculations

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

Wind Speeds

Basic Wind Speed	$V := 97$	mph	(User Input - 2016 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 := C		(User Input)
Structure Height =	$h := 183$	ft	(User Input)
Height to Center of Antennas =	$z_{AT\&T} := 145$	ft	(User Input)
Radial Ice Thickness =	$t_i := 0.75$	in	(User Input per Annex B of TIA-222-G)
Radial Ice Density =	$Id := 56.00$	pcf	(User Input)
Topograpic 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)

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

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

$$K_{iz} := \left(\frac{z_{AT\&T}}{33}\right)^{0.1} = 1.16 \qquad t_{iz} := 2.0 \cdot t_i \cdot I_{ice} \cdot K_{iz} \cdot K_{zt}^{0.35} = 1.739$$

Velocity Pressure Coefficient Antennas =

$$Kz_{AT\&T} := 2.01 \left(\left(\frac{z_{AT\&T}}{zg}\right)\right)^{\frac{2}{\alpha}} = 1.369$$

Velocity Pressure w/o Ice Antennas =

$$qz_{AT\&T} := 0.00256 \cdot K_d \cdot Kz_{AT\&T} \cdot V^2 \cdot I_{Wind} = 31.317$$

Velocity Pressure with Ice Antennas =

$$qz_{ice.AT\&T} := 0.00256 \cdot K_d \cdot Kz_{AT\&T} \cdot V_i^2 \cdot I_{Wind} = 8.321$$

Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	Ericsson AIR32		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 56.6$	in	(User Input)
Antenna Width =	$W_{ant} := 12.9$	in	(User Input)
Antenna Thickness =	$T_{ant} := 8.7$	in	(User Input)
Antenna Weight =	$WT_{ant} := 133$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 1$		(User Input)
Antenna Aspect Ratio =	$Ar_{ant} := \frac{L_{ant}}{W_{ant}} = 4.4$		
Antenna Force Coefficient =	$Ca_{ant} = 1.28$		

Wind Load (without ice)

Surface Area for One Antenna =	$SA_{antF} := \frac{L_{ant} \cdot W_{ant}}{144} = 5.1$	sf
Total Antenna Wind Force =	$F_{ant} := qz_{AT\&T} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antF} = 224$	lbs
Surface Area for One Antenna =	$SA_{antS} := \frac{L_{ant} \cdot T_{ant}}{144} = 3.4$	sf
Total Antenna Wind Force =	$F_{ant} := qz_{AT\&T} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antS} = 151$	lbs

Wind Load (with ice)

Surface Area for One Antenna w/ Ice =	$SA_{ICEantF} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (W_{ant} + 2 \cdot t_{iz})}{144} = 6.8$	sf
Total Antenna Wind Force w/ Ice =	$Fi_{ant} := qz_{ice.AT\&T} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantF} = 80$	lbs
Surface Area for One Antenna w/ Ice =	$SA_{ICEantS} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz})}{144} = 5.1$	sf
Total Antenna Wind Force w/ Ice =	$Fi_{ant} := qz_{ice.AT\&T} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantS} = 60$	lbs

Gravity Load (without ice)

Weight of All Antennas =	$WT_{ant} \cdot N_{ant} = 133$	lbs

Gravity Loads (ice only)

Volume of Each Antenna =	$V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 6352$	cu in
Volume of Ice on Each Antenna =	$V_{ice} := (L_{ant} + 2 \cdot t_{iz})(W_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz}) - V_{ant} = 5632$	cu in
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 183$	lbs
Weight of Ice on All Antennas =	$W_{ICEant} \cdot N_{ant} = 183$	lbs

Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	RFSAPXVAARR24-43		
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 =	$WT_{ant} := 153$	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 =	$F_{ant} := qz_{AT\&T} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antF} = 697$	lbs
Surface Area for One Antenna =	$SA_{antS} := \frac{L_{ant} \cdot T_{ant}}{144} = 5.8$	sf
Total Antenna Wind Force =	$F_{ant} := qz_{AT\&T} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antS} = 253$	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 =	$Fi_{ant} := qz_{ice.AT\&T} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantF} = 220$	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 =	$Fi_{ant} := qz_{ice.AT\&T} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantS} = 97$	lbs

Gravity Load (without ice)

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

Gravity Loads (ice only)

Volume of Each Antenna =	$V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 2 \times 10^4$	cu in
Volume of Ice on Each Antenna =	$V_{ice} := (L_{ant} + 2 \cdot t_{iz})(W_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz}) - V_{ant} = 1 \times 10^4$	cu in
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 429$	lbs
Weight of Ice on All Antennas =	$W_{ICEant} \cdot N_{ant} = 429$	lbs

Development of Wind & Ice Load on TMA's

TMA Data:

TMA Model =	Ericsson KRY112 TMA		
TMA Shape =	Flat		(User Input)
TMA Height =	$L_{TMA} := 7.7$	in	(User Input)
TMA Width =	$W_{TMA} := 7.5$	in	(User Input)
TMA Thickness =	$T_{TMA} := 3.4$	in	(User Input)
TMA Weight =	$WT_{TMA} := 11$	lbs	(User Input)
Number of TMA's =	$N_{TMA} := 1$		(User Input)
TMA Aspect Ratio =	$Ar_{TMA} := \frac{L_{TMA}}{W_{TMA}} = 1$		
TMA Force Coefficient =	$Ca_{TMA} = 1.2$		

Wind Load (without ice)

Surface Area for One TMA = $SA_{TMAF} := \frac{L_{TMA} \cdot W_{TMA}}{144} = 0.4$ sf

Total TMA Wind Force = $F_{TMA} := qz_{AT\&T} \cdot G_H \cdot Ca_{TMA} \cdot K_a \cdot SA_{TMAF} = 17$ lbs

Surface Area for One TMA = $SA_{TMAS} := \frac{L_{TMA} \cdot T_{TMA}}{144} = 0.2$ sf

Total TMA Wind Force = $F_{TMA} := qz_{AT\&T} \cdot G_H \cdot Ca_{TMA} \cdot K_a \cdot SA_{TMAS} = 8$ lbs

Wind Load (with ice)

Surface Area for One TMA w/ Ice = $SA_{ICETMAF} := \frac{(L_{TMA} + 2 \cdot t_{iz}) \cdot (W_{TMA} + 2 \cdot t_{iz})}{144} = 0.9$ sf

Total TMA Wind Force w/ Ice = $Fi_{TMA} := qz_{ice.AT\&T} \cdot G_H \cdot Ca_{TMA} \cdot K_a \cdot SA_{ICETMAF} = 9$ 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 = $Fi_{TMA} := qz_{ice.AT\&T} \cdot G_H \cdot Ca_{TMA} \cdot K_a \cdot SA_{ICETMAS} = 6$ lbs

Gravity Load (without ice)

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

Gravity Loads (ice only)

Volume of Each TMA = $V_{TMA} := L_{TMA} \cdot W_{TMA} \cdot T_{TMA} = 196$ cu in

Volume of Ice on Each TMA = $V_{ice} := (L_{TMA} + 2 \cdot t_{iz})(W_{TMA} + 2 \cdot t_{iz}) \cdot (T_{TMA} + 2 \cdot t_{iz}) - V_{TMA} = 648$ cu in

Weight of Ice on Each TMA = $W_{ICETMA} := \frac{V_{ice}}{1728} \cdot Id = 21$ lbs

Weight of Ice on All TMAs = $W_{ICETMA} \cdot N_{TMA} = 21$ lbs

Development of Wind & Ice Load on RRUS's

RRUS Data:

RRUS Model =	Ericsson 4449 B71B12		
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 =	$N_{RRUS} := 1$		(User Input)
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 =	$F_{RRUS} := qz_{AT\&T} \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{RRUSF} = 56$	lbs
Surface Area for One RRUS =	$SA_{RRUSS} := \frac{L_{RRUS} \cdot T_{RRUS}}{144} = 1.1$	sf
Total RRUS Wind Force =	$F_{RRUS} := qz_{AT\&T} \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{RRUSS} = 44$	lbs

Wind Load (with ice)

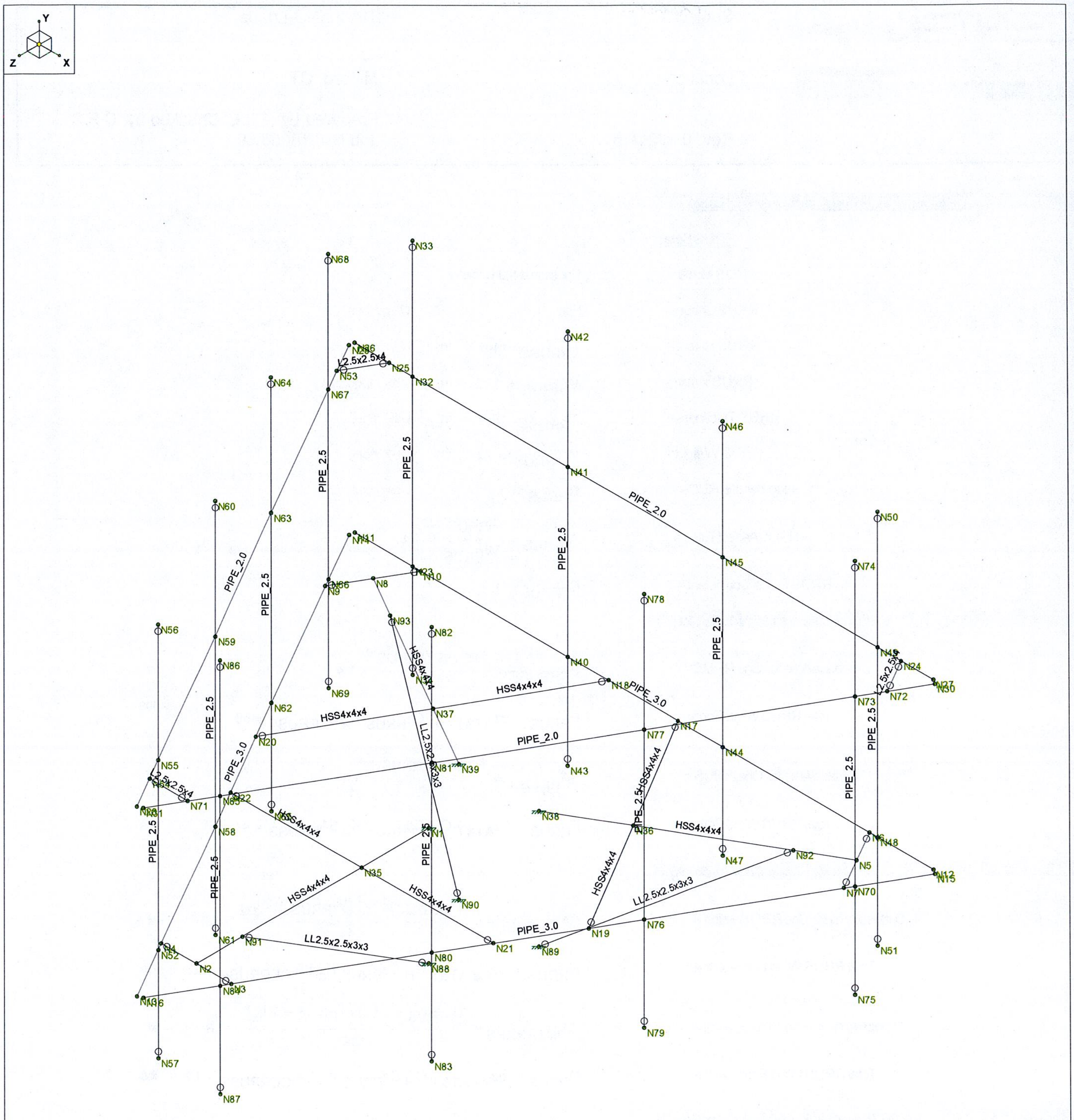
Surface Area for One RRUS w/ Ice =	$SA_{ICERRUSF} := \frac{(L_{RRUS} + 2 \cdot t_{iz}) \cdot (W_{RRUS} + 2 \cdot t_{iz})}{144} = 2.1$	sf
Total RRUS Wind Force w/ Ice =	$Fi_{RRUS} := qz_{ice.AT\&T} \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{ICERRUSF} = 23$	lbs
Surface Area for One RRUS w/ Ice =	$SA_{ICERRUSS} := \frac{(L_{RRUS} + 2 \cdot t_{iz}) \cdot (T_{RRUS} + 2 \cdot t_{iz})}{144} = 1.8$	sf
Total RRUS Wind Force w/ Ice =	$Fi_{RRUS} := qz_{ice.AT\&T} \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{ICERRUSS} = 19$	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 =	$V_{ice} := (L_{RRUS} + 2 \cdot t_{iz})(W_{RRUS} + 2 \cdot t_{iz}) \cdot (T_{RRUS} + 2 \cdot t_{iz}) - V_{RRUS} = 2209$	cu in
Weight of Ice on Each RRUS =	$W_{ICERRUS} := \frac{V_{ice}}{1728} \cdot Id = 72$	lbs
Weight of Ice on All RRUSs =	$W_{ICERRUS} \cdot N_{RRUS} = 72$	lbs



Envelope Only Solution

Centek		
TJL	CT11020D - Mount	June 21, 2018 at 7:38 AM
18058.69	Member Framing	Mount - Proposed.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)	12
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?	No
RISAConnection Code	AISC 13th(360-05): ASD
Cold Formed Steel Code	AISI S100-10: ASD
Wood Code	AWC NDS-12: ASD
Wood Temperature	< 100F
Concrete Code	ACI 318-11
Masonry Code	ACI 530-11: ASD
Aluminum Code	AA ADM1-10: ASD - Building
	AISC 14th(360-10): ASD

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?	No
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
Footing Overturning Safety Factor	1
Optimize for OTM/Sliding	No
Check Concrete Bearing	No
Footing Concrete Weight (k/ft^3)	150.001
Footing Concrete f'c (ksi)	4
Footing Concrete Ec (ksi)	3644
Lambda	1
Footing Steel fy (ksi)	60
Minimum Steel	0.0018
Maximum Steel	0.0075
Footing Top Bar	#3
Footing Top Bar Cover (in)	2
Footing Bottom Bar	#3
Footing Bottom Bar Cover (in)	3.5
Pedestal Bar	#3
Pedestal Bar Cover (in)	1.5
Pedestal Ties	#3

Hot Rolled Steel Properties

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

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design ...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Outrigger	HSS4x4x4	Beam	Pipe	A500 Gr.46	Typical	3.37	7.8	7.8	12.8
2	Horz Pipe	PIPE_3.0	Beam	Pipe	A53 Gr B	Typical	2.07	2.85	2.85	5.69
3	Antenna Pipe	PIPE_2.5	Beam	Pipe	A53 Gr B	Typical	1.61	1.45	1.45	2.89
4	Handrail	PIPE_2.0	Beam	Pipe	A53 Gr B	Typical	1.02	.627	.627	1.25
5	Support	HSS4x4x4	Beam	Pipe	A500 Gr.46	Typical	3.37	7.8	7.8	12.8
6	Kicker	LL2.5x2.5x3x3	Beam	Pipe	A36 Gr.36	Typical	1.8	2.46	1.07	.023
7	Handrail Corner	L2.5x2.5x4	Beam	Pipe	A36 Gr.36	Typical	1.19	.692	.692	.026

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	Outrigger	5	Segment	Segment	Segment	Segment	Segme...				Lateral
2	M2	Outrigger	5	Segment	Segment	Segment	Segment	Segme...				Lateral
3	M3	Outrigger	5	Segment	Segment	Segment	Segment	Segme...				Lateral
4	M4	Horz Pipe	12.45	5	5	5	5					Lateral
5	M5	Horz Pipe	12.45	5	5	5	5					Lateral
6	M6	Horz Pipe	12.45	5	5	5	5					Lateral
7	M10	Support	2.786			Lbyy						Lateral
8	M11	Support	2.811			Lbyy						Lateral
9	M12	Support	2.786			Lbyy						Lateral
10	M13	Handrail	12.45			Lbyy						Lateral
11	M14	Handrail	12.45			Lbyy						Lateral
12	M15	Handrail	12.45			Lbyy						Lateral
13	M16	Antenna Pipe	8			Lbyy						Lateral
14	M17	Support	2.811			Lbyy						Lateral
15	M18	Support	2.761			Lbyy						Lateral
16	M19	Support	2.761			Lbyy						Lateral
17	M20	Antenna Pipe	8			Lbyy						Lateral
18	M21	Antenna Pipe	8			Lbyy						Lateral
19	M22	Antenna Pipe	8			Lbyy						Lateral
20	M23	Antenna Pipe	8			Lbyy						Lateral
21	M24	Antenna Pipe	8			Lbyy						Lateral
22	M25	Antenna Pipe	8			Lbyy						Lateral
23	M26	Antenna Pipe	8			Lbyy						Lateral
24	M27	Antenna Pipe	8			Lbyy						Lateral
25	M28	Antenna Pipe	8			Lbyy						Lateral
26	M29	Antenna Pipe	8			Lbyy						Lateral
27	M30	Antenna Pipe	8			Lbyy						Lateral
28	M31	Handrail Co...	.821			Lbyy						Lateral
29	M32	Handrail Co...	.821			Lbyy						Lateral
30	M33	Handrail Co...	.821			Lbyy						Lateral
31	M34	Kicker	4.717			Lbyy						Lateral
32	M35	Kicker	4.717			Lbyy						Lateral
33	M36	Kicker	4.717			Lbyy						Lateral

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design Rul...
1	M1	N1	N2			Outrigger	Beam	Pipe	A500 Gr...	Typical
2	M2	N38	N5			Outrigger	Beam	Pipe	A500 Gr...	Typical
3	M3	N39	N8			Outrigger	Beam	Pipe	A500 Gr...	Typical
4	M4	N16	N15			Horz Pipe	Beam	Pipe	A53 Gr B	Typical
5	M5	N13	N14			Horz Pipe	Beam	Pipe	A53 Gr B	Typical
6	M6	N12	N11			Horz Pipe	Beam	Pipe	A53 Gr B	Typical
7	M7	N9	N10			RIGID	None	None	RIGID	Typical
8	M8	N7	N6			RIGID	None	None	RIGID	Typical
9	M9	N3	N4			RIGID	None	None	RIGID	Typical
10	M10	N22	N35			Support	Beam	Pipe	A500 Gr...	Typical
11	M11	N36	N17			Support	Beam	Pipe	A500 Gr...	Typical
12	M12	N37	N20			Support	Beam	Pipe	A500 Gr...	Typical
13	M13	N31	N30			Handrail	Beam	Pipe	A53 Gr B	Typical
14	M14	N28	N29			Handrail	Beam	Pipe	A53 Gr B	Typical
15	M15	N27	N26			Handrail	Beam	Pipe	A53 Gr B	Typical
16	M16	N34	N33			Antenna Pipe	Beam	Pipe	A53 Gr B	Typical
17	M17	N35	N21			Support	Beam	Pipe	A500 Gr...	Typical
18	M18	N36	N19			Support	Beam	Pipe	A500 Gr...	Typical
19	M19	N18	N37			Support	Beam	Pipe	A500 Gr...	Typical
20	M20	N43	N42			Antenna Pipe	Beam	Pipe	A53 Gr B	Typical
21	M21	N47	N46			Antenna Pipe	Beam	Pipe	A53 Gr B	Typical
22	M22	N51	N50			Antenna Pipe	Beam	Pipe	A53 Gr B	Typical
23	M23	N57	N56			Antenna Pipe	Beam	Pipe	A53 Gr B	Typical
24	M24	N61	N60			Antenna Pipe	Beam	Pipe	A53 Gr B	Typical
25	M25	N65	N64			Antenna Pipe	Beam	Pipe	A53 Gr B	Typical
26	M26	N69	N68			Antenna Pipe	Beam	Pipe	A53 Gr B	Typical
27	M27	N75	N74			Antenna Pipe	Beam	Pipe	A53 Gr B	Typical
28	M28	N79	N78			Antenna Pipe	Beam	Pipe	A53 Gr B	Typical
29	M29	N83	N82			Antenna Pipe	Beam	Pipe	A53 Gr B	Typical
30	M30	N87	N86			Antenna Pipe	Beam	Pipe	A53 Gr B	Typical
31	M31	N53	N25			Handrail Corner	Beam	Pipe	A36 Gr.36	Typical
32	M32	N72	N24			Handrail Corner	Beam	Pipe	A36 Gr.36	Typical
33	M33	N54	N71			Handrail Corner	Beam	Pipe	A36 Gr.36	Typical
34	M34	N91	N88			Kicker	Beam	Pipe	A36 Gr.36	Typical
35	M35	N93	N90			Kicker	Beam	Pipe	A36 Gr.36	Typical
36	M36	N92	N89			Kicker	Beam	Pipe	A36 Gr.36	Typical

Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Dia...
1	N1	0	0	1	0	
2	N2	0	0	6	0	
3	N3	0.75	0	6	0	
4	N4	-0.75	0	6	0	
5	N5	5.196152	0	-3	0	
6	N6	4.821152	0	-3.649519	0	
7	N7	5.571152	0	-2.350481	0	
8	N8	-5.196152	0	-3	0	
9	N9	-5.571152	0	-2.350481	0	
10	N10	-4.821152	0	-3.649519	0	
11	N11	-6.25	0	-3.649519	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Dia...
12	N12	6.2	0	-3.649519	0	
13	N13	-0.035576	0	7.237418	0	
14	N14	-6.260576	0	-3.544598	0	
15	N15	6.285576	0	-3.587899	0	
16	N16	0.060576	0	7.194117	0	
17	N17	.7	0	-3.649519	0	
18	N18	-.8	0	-3.649519	0	
19	N19	3.560576	0	1.131939	0	
20	N20	-3.535576	0	1.17524	0	
21	N21	2.810576	0	2.430977	0	
22	N22	-2.785576	0	2.474279	0	
23	N23	-5	0	-3.649519	0	
24	N24	5.5	3.5	-3.649519	0	
25	N25	-5.5	3.5	-3.649519	0	
26	N26	-6.25	3.5	-3.649519	0	
27	N27	6.2	3.5	-3.649519	0	
28	N28	-0.035576	3.5	7.237418	0	
29	N29	-6.260576	3.5	-3.544598	0	
30	N30	6.285576	3.5	-3.587899	0	
31	N31	0.060576	3.5	7.194117	0	
32	N32	-5	3.5	-3.649519	0	
33	N33	-5	6	-3.649519	0	
34	N34	-5	-2	-3.649519	0	
35	N35	0	0	2.452725	0	
36	N36	2.143125	0	-1.237334	0	
37	N37	-2.161623	0	-1.248013	0	
38	N38	0.866025	0	-.5	0	
39	N39	-0.866025	0	-.5	0	
40	N40	-1.667	0	-3.649519	0	
41	N41	-1.667	3.5	-3.649519	0	
42	N42	-1.667	6	-3.649519	0	
43	N43	-1.667	-2	-3.649519	0	
44	N44	1.666	0	-3.649519	0	
45	N45	1.666	3.5	-3.649519	0	
46	N46	1.666	6	-3.649519	0	
47	N47	1.666	-2	-3.649519	0	
48	N48	4.999	0	-3.649519	0	
49	N49	4.999	3.5	-3.649519	0	
50	N50	4.999	6	-3.649519	0	
51	N51	4.999	-2	-3.649519	0	
52	N52	-0.660576	0	6.154887	0	
53	N53	-5.910576	3.5	-2.93838	0	
54	N54	-0.410576	3.5	6.587899	0	
55	N55	-0.660576	3.5	6.154887	0	
56	N56	-0.660576	6	6.154887	0	
57	N57	-0.660576	-2	6.154887	0	
58	N58	-2.327076	0	3.268424	0	
59	N59	-2.327076	3.5	3.268424	0	
60	N60	-2.327076	6	3.268424	0	
61	N61	-2.327076	-2	3.268424	0	
62	N62	-3.993576	0	0.381961	0	
63	N63	-3.993576	3.5	0.381961	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Dia...
64	N64	-3.993576	6	0.381961	0	
65	N65	-3.993576	-2	0.381961	0	
66	N66	-5.660076	0	-2.504501	0	
67	N67	-5.660076	3.5	-2.504501	0	
68	N68	-5.660076	6	-2.504501	0	
69	N69	-5.660076	-2	-2.504501	0	
70	N70	5.660576	0	-2.505368	0	
71	N71	0.410576	3.5	6.587899	0	
72	N72	5.910576	3.5	-2.93838	0	
73	N73	5.660576	3.5	-2.505368	0	
74	N74	5.660576	6	-2.505368	0	
75	N75	5.660576	-2	-2.505368	0	
76	N76	3.994076	0	0.381095	0	
77	N77	3.994076	3.5	0.381095	0	
78	N78	3.994076	6	0.381095	0	
79	N79	3.994076	-2	0.381095	0	
80	N80	2.327576	0	3.267558	0	
81	N81	2.327576	3.5	3.267558	0	
82	N82	2.327576	6	3.267558	0	
83	N83	2.327576	-2	3.267558	0	
84	N84	0.661076	0	6.15402	0	
85	N85	0.661076	3.5	6.15402	0	
86	N86	0.661076	6	6.15402	0	
87	N87	0.661076	-2	6.15402	0	
88	N88	0	-2.5	1	0	
89	N89	0.866025	-2.5	-.5	0	
90	N90	-0.866025	-2.5	-.5	0	
91	N91	0	0	5	0	
92	N92	4.330127	0	-2.5	0	
93	N93	-4.330127	0	-2.5	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	N1	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	N38	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
3	N39	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
4	N88	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
5	N89	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
6	N90	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
7	N91						
8	N92						
9	N93						

Member Point Loads (BLC 2 : Equipment Weight)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M20	Y	-.067	7
2	M24	Y	-.067	7
3	M28	Y	-.067	7
4	M20	Y	-.067	3

Member Point Loads (BLC 2 : Equipment Weight) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
5	M24	Y	-.067	3
6	M28	Y	-.067	3
7	M21	Y	-.077	1
8	M25	Y	-.077	1
9	M29	Y	-.077	1
10	M21	Y	-.077	7
11	M25	Y	-.077	7
12	M29	Y	-.077	7
13	M21	Y	-.074	%50
14	M25	Y	-.074	%50
15	M29	Y	-.074	%50

Member Point Loads (BLC 3 : Ice Weight)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M20	Y	-.092	7
2	M24	Y	-.092	7
3	M28	Y	-.092	7
4	M20	Y	-.092	3
5	M24	Y	-.092	3
6	M28	Y	-.092	3
7	M21	Y	-.215	1
8	M25	Y	-.215	1
9	M29	Y	-.215	1
10	M21	Y	-.215	7
11	M25	Y	-.215	7
12	M29	Y	-.215	7
13	M21	Y	-.072	%50
14	M25	Y	-.072	%50
15	M29	Y	-.072	%50

Member Point Loads (BLC 4 : Wind w/ Ice X)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M20	X	.03	7
2	M20	X	.03	3
3	M24	X	.04	7
4	M28	X	.04	7
5	M24	X	.04	3
6	M28	X	.04	3
7	M21	X	.049	1
8	M21	X	.049	7
9	M25	X	.11	1
10	M29	X	.11	1
11	M25	X	.11	7
12	M29	X	.11	7
13	M21	X	.019	%50
14	M25	X	.019	%50
15	M29	X	.019	%50

Member Point Loads (BLC 5 : Wind X)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]

Member Point Loads (BLC 5 : Wind X) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M20	X	.076	7
2	M20	X	.076	3
3	M24	X	.112	7
4	M28	X	.112	7
5	M24	X	.112	3
6	M28	X	.112	3
7	M21	X	.127	1
8	M21	X	.127	7
9	M25	X	.349	1
10	M29	X	.349	1
11	M25	X	.349	7
12	M29	X	.349	7
13	M21	X	.044	%50
14	M25	X	.044	%50
15	M29	X	.044	%50

Member Point Loads (BLC 6 : Wind w/ Ice Z)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M20	Z	.04	7
2	M20	Z	.04	3
3	M24	Z	.03	7
4	M28	Z	.03	7
5	M24	Z	.03	3
6	M28	Z	.03	3
7	M21	Z	.11	1
8	M21	Z	.11	7
9	M25	Z	.049	1
10	M29	Z	.049	1
11	M25	Z	.049	7
12	M29	Z	.049	7
13	M21	Z	.019	%50
14	M25	Z	.019	%50
15	M29	Z	.019	%50

Member Point Loads (BLC 7 : Wind Z)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M20	Z	.112	7
2	M20	Z	.112	3
3	M24	Z	.076	7
4	M28	Z	.076	7
5	M24	Z	.076	3
6	M28	Z	.076	3
7	M21	Z	.349	1
8	M21	Z	.349	7
9	M25	Z	.127	1
10	M29	Z	.127	1
11	M25	Z	.127	7
12	M29	Z	.127	7
13	M21	Z	.044	%50
14	M25	Z	.044	%50
15	M29	Z	.044	%50

Member Distributed Loads (BLC 4 : Wind w/ Ice X)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/...	Start Location[ft,%]	End Location[ft,%]
1	M14	X	.003	.003	0	0
2	M5	X	.003	.003	0	0
3	M5	X	.003	.003	0	0
4	M24	X	.003	.003	0	0
5	M28	X	.003	.003	0	0
6	M16	X	.003	.003	0	0
7	M20	X	.003	.003	0	0
8	M21	X	.003	.003	0	0
9	M22	X	.003	.003	0	0
10	M13	X	.003	.003	0	0
11	M4	X	.003	.003	0	0

Member Distributed Loads (BLC 5 : Wind X)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/...	Start Location[ft,%]	End Location[ft,%]
1	M14	X	.008	.008	0	0
2	M5	X	.008	.008	0	0
3	M5	X	.008	.008	0	0
4	M24	X	.008	.008	0	0
5	M28	X	.008	.008	0	0
6	M16	X	.008	.008	0	0
7	M20	X	.008	.008	0	0
8	M21	X	.008	.008	0	0
9	M22	X	.008	.008	0	0
10	M13	X	.008	.008	0	0
11	M4	X	.008	.008	0	0

Member Distributed Loads (BLC 6 : Wind w/ Ice Z)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/...	Start Location[ft,%]	End Location[ft,%]
1	M15	Z	.003	.003	0	0
2	M6	Z	.003	.003	0	0
3	M20	Z	.003	.003	0	0
4	M26	Z	.003	.003	0	0
5	M25	Z	.003	.003	0	0
6	M24	Z	.003	.003	0	0
7	M23	Z	.003	.003	0	0
8	M27	Z	.003	.003	0	0
9	M28	Z	.003	.003	0	0
10	M29	Z	.003	.003	0	0
11	M30	Z	.003	.003	0	0
12	M14	Z	.003	.003	0	0
13	M5	Z	.003	.003	0	0
14	M13	Z	.003	.003	0	0
15	M4	Z	.003	.003	0	0

Member Distributed Loads (BLC 7 : Wind Z)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/...	Start Location[ft,%]	End Location[ft,%]
1	M15	Z	.008	.008	0	0
2	M6	Z	.008	.008	0	0
3	M20	Z	.008	.008	0	0

Member Distributed Loads (BLC 7 : Wind Z) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/...	Start Location[ft,%]	End Location[ft,%]
4	M26	Z	.008	.008	0	0
5	M25	Z	.008	.008	0	0
6	M24	Z	.008	.008	0	0
7	M23	Z	.008	.008	0	0
8	M27	Z	.008	.008	0	0
9	M28	Z	.008	.008	0	0
10	M29	Z	.008	.008	0	0
11	M30	Z	.008	.008	0	0
12	M14	Z	.008	.008	0	0
13	M5	Z	.008	.008	0	0
14	M13	Z	.008	.008	0	0
15	M4	Z	.008	.008	0	0

Member Distributed Loads (BLC 8 : BLC 2 Transient Area Loads)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/...	Start Location[ft,%]	End Location[ft,%]
1	M1	Y	-.033	-.019	2	3.5
2	M1	Y	-.019	-.005	3.5	5
3	M4	Y	-.003	-.006	0	2.49
4	M4	Y	-.006	-.01	2.49	4.98
5	M5	Y	.0003227	-.006	0	2.49
6	M5	Y	-.006	-.013	2.49	4.98
7	M9	Y	-.006	-.006	.317	1.183
8	M10	Y	-.012	-.012	.242	2.779
9	M17	Y	-.013	-.013	.0003843	2.559
10	M2	Y	-.032	-.019	2	3.5
11	M2	Y	-.019	-.005	3.5	5
12	M4	Y	-.013	-.006	7.47	9.96
13	M4	Y	-.006	.0003127	9.96	12.45
14	M6	Y	-.003	-.006	0	2.49
15	M6	Y	-.006	-.01	2.49	4.98
16	M8	Y	-.006	-.006	.318	1.183
17	M11	Y	-.012	-.012	0	2.556
18	M18	Y	-.012	-.012	.009	2.525
19	M3	Y	-.032	-.019	2	3.5
20	M3	Y	-.019	-.005	3.5	5
21	M5	Y	-.009	-.006	7.47	9.96
22	M5	Y	-.006	-.003	9.96	12.45
23	M6	Y	-.013	-.006	7.47	9.96
24	M6	Y	-.006	.0003098	9.96	12.45
25	M7	Y	-.006	-.006	.318	1.182
26	M12	Y	-.012	-.012	.0001388	2.537
27	M19	Y	-.012	-.012	.239	2.754

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribut...	Area(Me...	Surface(...
1	Self Weight	DL		-1						
2	Equipment Weight	None					15		3	
3	Ice Weight	None					15			
4	Wind w/ Ice X	None					15	11		
5	Wind X	None					15	11		

Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribut...	Area(Me...	Surface(...
6	Wind w/ Ice Z	None					15	15		
7	Wind Z	None					15	15		
8	BLC 2 Transient Area Loads	None						27		

Load Combinations

	Description	So...	P...	S...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...
1	1.2D + 1.6W (X-d...	Yes	Y		1	1.2	2	1.2	5	1.6														
2	0.9D + 1.6W (X-d...	Yes	Y		1	.9	2	.9	5	1.6														
3	1.2D + 1.0Di + 1....	Yes	Y		1	1.2	2	1.2	3	1	4	1												
4	1.2D + 1.6W (X-d...	Yes	Y		1	1.2	2	1.2	7	1.6														
5	0.9D + 1.6W (X-d...	Yes	Y		1	.9	2	.9	7	1.6														
6	1.2D + 1.0Di + 1....	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	N1	max	-.031	6	.741	3	-.94	2	-.287	2	-.022	6	.297	1
2		min	-1.839	1	.037	5	-5.05	4	-.739	3	-1.851	2	.054	5
3	N38	max	.986	5	.8	6	2.302	1	.409	3	1.163	5	.652	6
4		min	-3.775	1	.041	2	-2.045	5	-.024	5	-.289	1	.336	2
5	N39	max	.674	6	.821	3	.214	3	.412	1	.229	2	-.214	2
6		min	-3.313	2	.504	5	-1.336	2	-.033	5	-.675	5	-.709	6
7	N88	max	0	1	2.136	4	3.391	4	0	1	0	6	0	6
8		min	0	4	.617	2	.966	2	0	1	0	2	0	2
9	N89	max	2.811	1	2.045	1	.15	5	0	4	0	4	0	3
10		min	-.26	5	-.175	5	-1.624	1	0	3	0	3	0	4
11	N90	max	.993	2	.98	6	.573	2	0	5	0	3	0	5
12		min	-1.334	6	-.704	2	-.77	6	0	3	0	5	0	3
13	Totals:	max	0	6	5.689	6	0	2						
14		min	-5.222	1	2.723	2	-4.863	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	0	1	0	5	0	4	0	3	0	2	0	5
2		min	0	6	0	3	0	2	0	2	0	6	0	1
3	N2	max	.023	2	-.005	2	.003	4	1.552e-03	4	-1.217e-05	6	2.546e-03	2
4		min	0	4	-.029	4	0	2	1.601e-05	3	-5.258e-05	4	-4.771e-04	6
5	N3	max	.023	2	.018	2	.003	4	1.552e-03	4	-1.204e-04	3	-9.443e-04	6
6		min	0	4	-.03	4	0	3	1.601e-05	3	-4.474e-04	4	-7.628e-03	1
7	N4	max	.023	2	-.008	3	.002	4	1.552e-03	4	3.134e-04	4	1.46e-03	4
8		min	0	4	-.028	1	0	2	1.601e-05	3	3.066e-05	3	-7.145e-03	2
9	N5	max	.004	4	.01	5	.008	5	-7.128e-04	6	3.653e-04	2	1.737e-03	4
10		min	-.004	2	-.027	1	-.011	1	-1.618e-03	1	6.257e-05	6	-7.884e-04	2
11	N6	max	.001	4	-.009	5	.01	5	6.072e-03	5	1.014e-03	5	-1.591e-04	3
12		min	-.007	2	-.036	1	-.009	1	-3.861e-04	3	-1.215e-05	3	-2.56e-03	5
13	N7	max	.006	4	.028	5	.007	5	4.93e-03	4	9.75e-04	1	-6.439e-04	6
14		min	0	2	-.018	1	-.013	1	1.133e-03	3	-1.123e-04	5	-3.701e-03	1
15	N8	max	0	3	.019	2	.009	2	1.547e-03	1	5.37e-04	2	6.762e-05	3

Envelope Joint Displacements (Continued)

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [...	LC	Y Rotation [...	LC	Z Rotation [...	LC
16		min	-.003	1	-.004	6	0	6	-1.117e-03	5	-2.06e-04	4	-1.572e-03	5
17	N9	max	.001	2	.024	5	.012	2	4.495e-03	4	1.376e-03	2	1.685e-03	4
18		min	-.004	4	-.008	3	0	6	-3.319e-03	2	-5.413e-05	4	-3.545e-03	2
19	N10	max	0	5	.027	2	.007	2	5.758e-03	5	1.643e-04	1	2.397e-03	5
20		min	-.007	1	-.008	4	0	3	-1.461e-03	1	-5.384e-04	5	-2.456e-03	1
21	N11	max	0	5	.069	2	.009	1	5.978e-03	5	1.159e-04	1	2.203e-03	5
22		min	-.007	1	-.046	4	-.005	5	-1.663e-03	1	-6.145e-04	5	-2.464e-03	1
23	N12	max	.001	4	-.017	6	-.001	6	6.368e-03	5	1.107e-03	5	-2.258e-04	3
24		min	-.007	2	-.07	1	-.011	2	-3.02e-04	3	-2.692e-05	3	-2.35e-03	5
25	N13	max	.024	1	-.008	6	0	3	1.672e-03	4	3.667e-04	4	1.321e-03	4
26		min	.002	6	-.088	1	0	5	-2.32e-04	2	3.141e-05	3	-7.368e-03	2
27	N14	max	0	6	.074	5	.024	2	4.564e-03	4	1.467e-03	2	1.929e-03	4
28		min	-.02	2	-.007	3	0	6	-3.192e-03	2	-4.911e-05	6	-3.843e-03	2
29	N15	max	.008	5	.083	5	.008	5	5.01e-03	4	1.066e-03	1	-6.858e-04	6
30		min	-.017	1	-.003	1	-.022	1	1.049e-03	3	-1.401e-04	5	-3.897e-03	1
31	N16	max	.017	2	.077	2	0	6	1.703e-03	4	-1.376e-04	3	-8.559e-04	6
32		min	-.008	4	-.042	4	-.003	2	1.027e-04	3	-5.034e-04	4	-7.811e-03	1
33	N17	max	0	4	.016	5	.007	5	7.703e-03	5	-2.772e-05	3	7.412e-06	2
34		min	-.006	2	-.031	3	0	3	-2.877e-04	3	-6.276e-04	5	-7.524e-04	4
35	N18	max	0	5	.017	5	.004	5	7.986e-03	5	2.178e-04	5	6.815e-04	5
36		min	-.006	1	-.026	3	-.004	1	-6.131e-04	1	-1.745e-04	1	-2.463e-04	3
37	N19	max	.009	1	-.026	5	.005	5	4.13e-03	1	-4.723e-05	3	-8.878e-04	6
38		min	0	6	-.036	1	-.008	1	8.772e-04	6	-2.068e-04	4	-6.015e-03	1
39	N20	max	.012	2	.016	2	.006	2	1.825e-03	4	2.314e-04	4	2.842e-03	4
40		min	-.002	4	-.033	6	0	6	-4.022e-03	1	-5.117e-04	2	-5.629e-03	2
41	N21	max	.01	2	-.026	5	.004	4	3.229e-03	1	5.506e-04	1	-7.481e-04	6
42		min	0	6	-.039	1	-.007	2	7.531e-04	6	2.47e-05	6	-6.505e-03	1
43	N22	max	.01	2	.017	2	.008	1	1.371e-03	4	2.268e-04	2	2.885e-03	4
44		min	0	6	-.027	6	0	6	-3.074e-03	2	-3.55e-05	4	-6.786e-03	2
45	N23	max	0	5	.033	2	.007	2	5.978e-03	5	1.159e-04	1	2.199e-03	5
46		min	-.007	1	-.013	4	0	3	-1.663e-03	1	-6.217e-04	5	-2.469e-03	1
47	N24	max	.095	1	-.011	5	.378	4	1.208e-02	4	6.631e-03	5	4.572e-04	4
48		min	0	5	-.052	1	.023	3	7.896e-04	3	-2.236e-03	1	-1.852e-03	2
49	N25	max	.095	1	.045	2	.331	4	1.028e-02	4	-1.809e-04	3	-2.577e-04	6
50		min	-.001	5	-.01	4	-.153	1	-4.111e-03	2	-5.202e-03	5	-2.039e-03	1
51	N26	max	.095	1	.063	2	.285	4	1.028e-02	4	-1.809e-04	3	-2.554e-04	6
52		min	-.001	5	-.007	4	-.174	2	-4.111e-03	2	-5.195e-03	5	-2.037e-03	1
53	N27	max	.095	1	-.007	5	.322	4	1.208e-02	4	6.625e-03	5	4.553e-04	4
54		min	0	5	-.067	1	.03	3	7.896e-04	3	-2.236e-03	1	-1.853e-03	2
55	N28	max	.394	1	-.01	3	.092	5	2.604e-03	5	3.421e-03	4	6.683e-04	5
56		min	.01	6	-.058	4	-.13	1	-5.101e-03	1	-2.334e-03	2	-1.088e-02	1
57	N29	max	.212	1	.055	5	.222	5	5.281e-03	4	7.209e-03	2	5.751e-03	5
58		min	-.194	4	-.001	3	-.026	1	-3.126e-03	2	-2.547e-04	6	-8.807e-03	1
59	N30	max	.234	5	.062	5	.252	4	5.843e-03	4	6.292e-03	1	-1.187e-03	6
60		min	.034	3	-.039	1	.003	3	5.863e-04	3	-1.095e-03	5	-7.04e-03	2
61	N31	max	.38	1	.039	2	.129	1	5.442e-03	2	-1.132e-03	6	-2.241e-04	6
62		min	-.023	4	-.06	4	.026	6	5.347e-04	6	-4.326e-03	1	-1.129e-02	1
63	N32	max	.095	1	.033	2	.362	4	1.033e-02	4	-1.711e-04	3	-2.835e-04	6
64		min	-.001	5	-.013	4	-.14	1	-4.152e-03	2	-5.128e-03	5	-1.995e-03	1
65	N33	max	.157	1	.033	2	.672	4	0	1	-1.711e-04	3	0	1
66		min	.011	6	-.013	4	-.264	2	0	1	-5.128e-03	5	0	1
67	N34	max	.052	5	.033	2	.047	1	0	1	1.159e-04	1	0	1

Envelope Joint Displacements (Continued)

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [...	LC	Y Rotation [...	LC	Z Rotation [...	LC
68		min	-.065	1	-.013	4	-.139	5	0	1	-6.217e-04	5	0	1
69	N35	max	.01	2	-.002	2	0	4	2.867e-04	4	4.773e-04	2	-7.864e-05	5
70		min	0	6	-.004	6	0	2	8.282e-05	2	-6.103e-06	4	-4.353e-04	1
71	N36	max	.003	4	-.001	5	.005	5	3.271e-04	5	1.982e-04	2	-1.334e-04	6
72		min	0	2	-.004	3	-.002	1	-1.689e-04	3	-2.066e-04	4	-3.446e-04	1
73	N37	max	0	2	-.001	2	.003	5	3.161e-04	5	1.38e-04	2	2.228e-04	6
74		min	-.002	4	-.004	6	0	3	-2.245e-04	1	1.939e-05	3	-2.463e-04	2
75	N38	max	0	1	0	2	0	5	0	5	0	1	0	2
76		min	0	5	0	6	0	1	0	3	0	5	0	6
77	N39	max	0	2	0	5	0	2	0	5	0	5	0	6
78		min	0	6	0	3	0	3	0	1	0	2	0	2
79	N40	max	0	5	.013	5	.007	5	9.3e-03	5	1.919e-04	5	6.089e-05	5
80		min	-.007	1	-.023	3	-.004	1	-9.041e-04	1	-2.092e-06	3	-6.656e-04	1
81	N41	max	.095	1	.013	5	.595	5	1.681e-02	5	-2.526e-04	3	3.012e-04	5
82		min	0	5	-.023	3	-.056	1	-1.451e-03	1	-4.051e-03	5	-1.99e-03	1
83	N42	max	.169	1	.013	5	1.119	5	0	1	-2.526e-04	3	0	1
84		min	-.01	5	-.023	3	-.099	1	0	1	-4.051e-03	5	0	1
85	N43	max	.002	5	.013	5	.017	1	0	1	1.919e-04	5	0	1
86		min	-.021	1	-.023	3	-.215	5	0	1	-2.092e-06	3	0	1
87	N44	max	0	4	.012	5	.016	5	8.825e-03	5	6.737e-05	1	6.361e-07	6
88		min	-.006	2	-.035	3	0	3	-2.659e-04	3	-6.137e-04	5	-2.912e-04	2
89	N45	max	.095	1	.012	5	.668	5	2.021e-02	5	2.129e-03	5	-7.428e-07	6
90		min	0	5	-.035	3	-.005	3	-3.109e-05	3	-1.585e-03	1	-2.067e-03	2
91	N46	max	.178	2	.012	5	1.327	5	0	1	2.129e-03	5	0	1
92		min	.002	6	-.035	3	-.006	3	0	1	-1.585e-03	1	0	1
93	N47	max	0	6	.012	5	.007	3	0	1	6.737e-05	1	0	1
94		min	-.005	2	-.035	3	-.176	5	0	1	-6.137e-04	5	0	1
95	N48	max	.001	4	-.013	6	.007	5	6.368e-03	5	1.113e-03	5	-2.194e-04	3
96		min	-.007	2	-.04	1	-.01	1	-3.02e-04	3	-2.692e-05	3	-2.345e-03	5
97	N49	max	.095	1	-.013	6	.417	4	1.214e-02	4	6.504e-03	5	5.447e-04	4
98		min	0	5	-.041	1	.019	3	7.958e-04	3	-2.036e-03	1	-1.804e-03	2
99	N50	max	.151	2	-.013	6	.782	4	0	1	6.504e-03	5	0	1
100		min	-.016	4	-.041	1	.043	3	0	1	-2.036e-03	1	0	1
101	N51	max	-.006	3	-.013	6	.006	3	0	1	1.113e-03	5	0	1
102		min	-.055	5	-.04	1	-.146	5	0	1	-2.692e-05	3	0	1
103	N52	max	.024	1	-.008	6	.002	4	1.668e-03	4	3.703e-04	4	1.324e-03	4
104		min	0	5	-.036	1	0	2	-2.353e-04	2	2.846e-05	3	-7.366e-03	2
105	N53	max	.264	1	.041	5	.221	4	5.283e-03	4	7.214e-03	2	5.751e-03	5
106		min	-.192	4	-.005	3	-.056	1	-3.125e-03	2	-2.554e-04	6	-8.808e-03	1
107	N54	max	.412	1	-.009	3	.107	5	2.603e-03	5	3.425e-03	4	6.691e-04	5
108		min	.001	6	-.042	1	-.14	1	-5.103e-03	1	-2.34e-03	2	-1.088e-02	1
109	N55	max	.424	1	-.008	6	.117	4	2.593e-03	5	3.245e-03	4	6.726e-04	5
110		min	-.014	4	-.036	1	-.147	1	-5.222e-03	1	-2.417e-03	2	-1.089e-02	1
111	N56	max	.75	1	-.008	6	.197	5	0	1	3.245e-03	4	0	1
112		min	-.034	4	-.036	1	-.304	1	0	1	-2.417e-03	2	0	1
113	N57	max	.032	4	-.008	6	.006	2	0	1	3.703e-04	4	0	1
114		min	-.153	2	-.036	1	-.037	4	0	1	2.846e-05	3	0	1
115	N58	max	.014	2	.011	2	.006	1	2.065e-03	4	3.776e-04	2	2.798e-03	4
116		min	0	4	-.025	6	0	6	-4.016e-03	1	-6.696e-05	4	-7.927e-03	2
117	N59	max	.532	2	.011	2	.183	4	4.025e-03	5	2.23e-03	4	4.081e-03	4
118		min	-.128	4	-.025	6	-.21	2	-6.602e-03	1	-2.107e-03	2	-1.453e-02	2
119	N60	max	.987	2	.011	2	.318	4	0	1	2.23e-03	4	0	1

Envelope Joint Displacements (Continued)

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [...	LC	Y Rotation [...	LC	Z Rotation [...	LC
120		min	-.25	4	-.026	6	-.408	1	0	1	-2.107e-03	2	0	1
121	N61	max	.066	4	.011	2	.102	1	0	1	3.776e-04	2	0	1
122		min	-.175	2	-.025	6	-.046	4	0	1	-6.696e-05	4	0	1
123	N62	max	.018	2	.013	2	.005	5	2.401e-03	4	2.058e-04	4	3.332e-03	4
124		min	-.004	4	-.035	6	0	3	-3.714e-03	2	-3.297e-04	2	-6.647e-03	2
125	N63	max	.539	2	.013	2	.216	4	5.645e-03	4	3.026e-03	2	5.498e-03	4
126		min	-.185	4	-.036	6	-.214	2	-7.346e-03	2	6.924e-05	6	-1.584e-02	1
127	N64	max	1.066	2	.013	2	.407	4	0	1	3.026e-03	2	0	1
128		min	-.35	4	-.036	6	-.434	2	0	1	6.924e-05	6	0	1
129	N65	max	.076	4	.013	2	.092	2	0	1	2.058e-04	4	0	1
130		min	-.122	2	-.035	6	-.045	4	0	1	-3.297e-04	2	0	1
131	N66	max	0	3	.031	5	.013	2	4.57e-03	4	1.479e-03	2	1.926e-03	4
132		min	-.004	4	-.008	3	0	6	-3.188e-03	2	-4.987e-05	6	-3.846e-03	2
133	N67	max	.302	2	.031	5	.22	4	5.258e-03	4	7.034e-03	2	5.823e-03	5
134		min	-.191	4	-.008	3	-.077	1	-3.092e-03	2	-2.453e-04	6	-8.875e-03	1
135	N68	max	.568	1	.031	5	.38	4	0	1	7.034e-03	2	0	1
136		min	-.365	4	-.008	3	-.17	2	0	1	-2.453e-04	6	0	1
137	N69	max	.043	4	.031	5	.09	2	0	1	1.479e-03	2	0	1
138		min	-.094	2	-.008	3	-.105	4	0	1	-4.987e-05	6	0	1
139	N70	max	.006	4	.035	5	.007	5	5.014e-03	4	1.073e-03	1	-6.833e-04	6
140		min	-.003	2	-.016	1	-.014	1	1.054e-03	3	-1.365e-04	5	-3.895e-03	1
141	N71	max	.412	1	.031	2	.147	1	5.441e-03	2	-1.133e-03	6	-2.25e-04	6
142		min	.001	6	-.044	4	.03	6	5.33e-04	6	-4.331e-03	1	-1.129e-02	1
143	N72	max	.226	4	.046	5	.247	4	5.845e-03	4	6.298e-03	1	-1.186e-03	6
144		min	.045	6	-.025	1	.011	3	5.883e-04	3	-1.092e-03	5	-7.039e-03	2
145	N73	max	.253	1	.035	5	.244	4	5.815e-03	4	6.119e-03	1	-1.199e-03	6
146		min	.046	6	-.016	1	.016	3	5.934e-04	3	-9.246e-04	5	-7.083e-03	2
147	N74	max	.465	2	.035	5	.421	4	0	1	6.119e-03	1	0	1
148		min	.082	6	-.016	1	.033	3	0	1	-9.246e-04	5	0	1
149	N75	max	-.015	6	.035	5	-.028	3	0	1	1.073e-03	1	0	1
150		min	-.096	1	-.016	1	-.112	4	0	1	-1.365e-04	5	0	1
151	N76	max	.01	1	-.021	5	.006	5	3.933e-03	1	-1.434e-05	2	-9.687e-04	6
152		min	.001	6	-.035	1	-.006	1	1.05e-03	6	-1.781e-04	4	-7.229e-03	1
153	N77	max	.482	1	-.021	5	.23	4	6.496e-03	1	4.639e-03	1	-1.31e-03	6
154		min	.051	6	-.035	1	.048	3	1.567e-03	6	-7.758e-04	5	-1.281e-02	1
155	N78	max	.886	1	-.021	5	.414	4	0	1	4.639e-03	1	0	1
156		min	.09	6	-.035	1	.097	3	0	1	-7.758e-04	5	0	1
157	N79	max	-.022	6	-.021	5	-.024	6	0	1	-1.434e-05	2	0	1
158		min	-.162	1	-.035	1	-.101	1	0	1	-1.781e-04	4	0	1
159	N80	max	.018	1	-.026	5	.005	4	4.048e-03	1	7.137e-04	1	-9.323e-04	6
160		min	0	6	-.038	3	-.002	2	6.111e-04	6	3.234e-05	6	-7.445e-03	1
161	N81	max	.576	1	-.026	5	.242	1	7.382e-03	1	-2.53e-04	3	-1.25e-03	6
162		min	.041	6	-.038	3	.053	6	1.122e-03	6	-2.174e-03	4	-1.714e-02	1
163	N82	max	1.142	1	-.026	5	.463	1	0	1	-2.53e-04	3	0	1
164		min	.078	6	-.039	3	.092	6	0	1	-2.174e-03	4	0	1
165	N83	max	-.022	6	-.026	5	-.011	6	0	1	7.137e-04	1	0	1
166		min	-.141	1	-.038	3	-.099	1	0	1	3.234e-05	6	0	1
167	N84	max	.023	2	.026	2	.003	4	1.697e-03	4	-1.389e-04	3	-8.591e-04	6
168		min	-.002	4	-.032	4	0	2	9.723e-05	3	-5.066e-04	4	-7.815e-03	1
169	N85	max	.434	1	.026	2	.16	1	5.545e-03	2	-1.058e-03	6	-2.299e-04	6
170		min	.007	6	-.032	4	.034	6	5.263e-04	6	-4.289e-03	1	-1.131e-02	1
171	N86	max	.773	1	.026	2	.326	1	0	1	-1.058e-03	6	0	1

Envelope Joint Displacements (Continued)

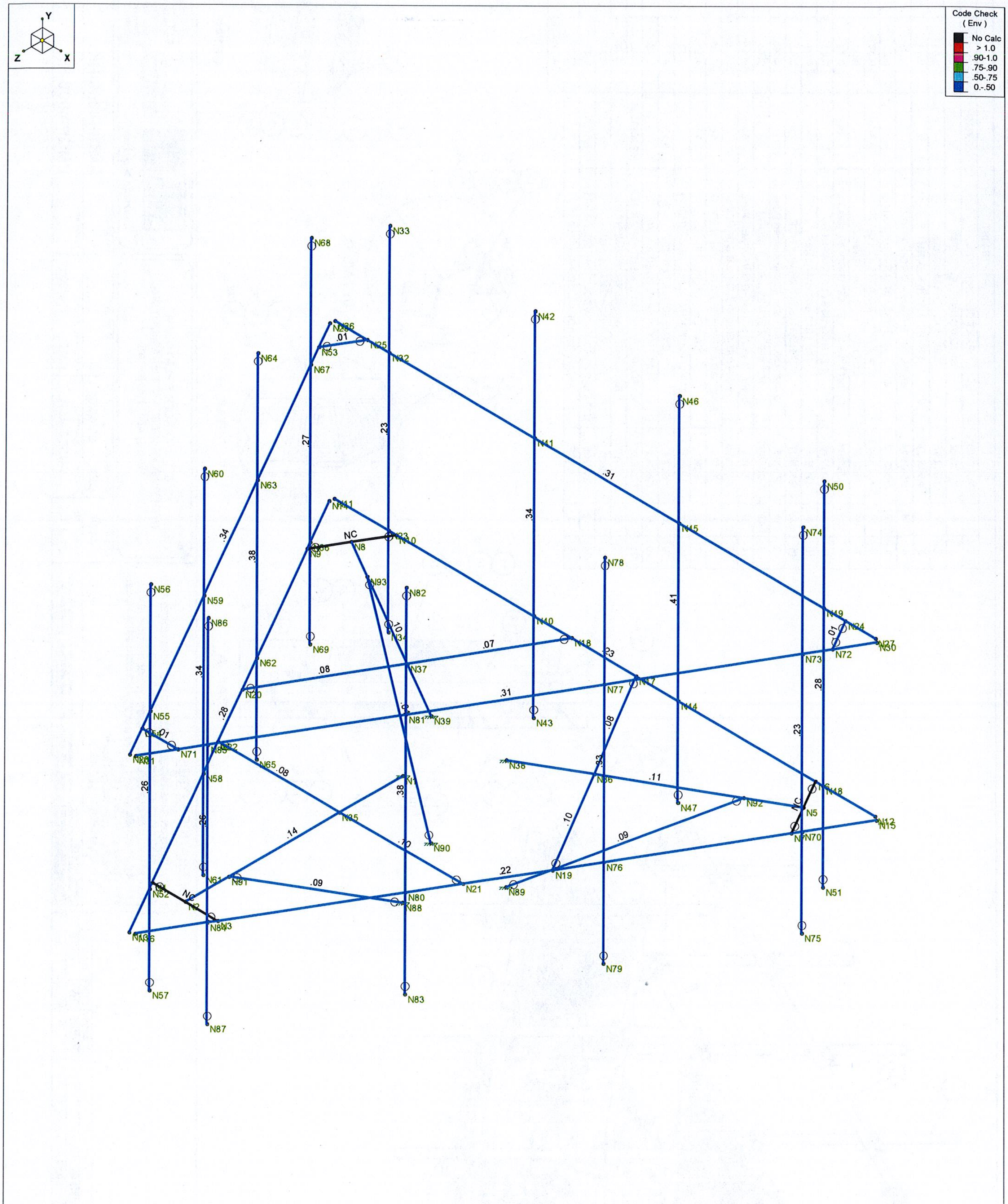
	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [...	LC	Y Rotation [...	LC	Z Rotation [...	LC
172		min	.014	6	-.032	4	.05	6	0	1	-4.289e-03	1	0	1
173	N87	max	-.021	6	.026	2	-.002	3	0	1	-1.389e-04	3	0	1
174		min	-.165	1	-.032	4	-.037	4	0	1	-5.066e-04	4	0	1
175	N88	max	0	4	0	2	0	2	0	1	0	2	0	2
176		min	0	1	0	4	0	4	0	1	0	6	0	6
177	N89	max	0	5	0	5	0	1	0	3	0	3	0	4
178		min	0	1	0	1	0	5	0	4	0	4	0	3
179	N90	max	0	6	0	2	0	6	0	3	0	5	0	3
180		min	0	2	0	6	0	2	0	5	0	3	0	5
181	N91	max	.022	2	-.003	2	.002	4	9.799e-04	4	2.258e-04	2	1.707e-03	2
182		min	0	4	-.012	4	0	2	9.658e-05	2	-3.555e-05	4	-3.727e-04	6
183	N92	max	.005	4	.002	5	.01	5	-5.699e-04	6	2.506e-04	2	1.049e-03	5
184		min	-.002	2	-.011	1	-.008	1	-1.039e-03	1	3.115e-06	6	-4.386e-04	1
185	N93	max	0	3	.006	2	.006	5	9.055e-04	1	3.074e-04	2	1.607e-04	3
186		min	-.003	4	-.004	6	0	3	-8.094e-04	5	-1.694e-05	4	-9.125e-04	5

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

	Member	Shape	Code Check	Loc...	LC	Shea...	Loc......		L...	phi*Pn...	phi*Pn...	phi*M...	phi*M...	...	Eqn
1	M1	HSS4x4x4	.143	0	1	.076	4.01	y	1	138.291	139.518	16.181	16.181	2..	H1-1b
2	M2	HSS4x4x4	.113	3.9...	1	.058	1.51	y	5	135.844	139.518	16.181	16.181	2..	H1-1b
3	M3	HSS4x4x4	.097	3.9...	2	.052	1.51	y	5	135.905	139.518	16.181	16.181	2..	H1-1b
4	M4	PIPE_3.0	.223	1.4...	2	.164	1.2...		2	57.037	65.205	5.749	5.749	1	H1-1b
5	M5	PIPE_3.0	.281	1.5...	1	.177	1.4...		1	57.037	65.205	5.749	5.749	1	H1-1b
6	M6	PIPE_3.0	.234	1.4...	4	.160	7.0...		5	57.037	65.205	5.749	5.749	1	H1-1b
7	M10	HSS4x4x4	.083	2.7...	6	.085	0	z	1	135.06	139.518	16.181	16.181	1..	H1-1b
8	M11	HSS4x4x4	.078	0	3	.089	0	z	5	134.98	139.518	16.181	16.181	1..	H1-1b
9	M12	HSS4x4x4	.076	0	6	.077	0	z	2	135.06	139.518	16.181	16.181	1..	H1-1b
10	M13	PIPE_2.0	.312	4.5...	1	.153	11....		1	6.346	32.13	1.872	1.872	3..	H1-1b
11	M14	PIPE_2.0	.339	8.0...	2	.178	11....		2	6.346	32.13	1.872	1.872	3..	H1-1b
12	M15	PIPE_2.0	.307	4.4...	5	.172	1.2...		5	6.346	32.13	1.872	1.872	3..	H1-1b
13	M16	PIPE_2.5	.235	2	4	.108	2		5	30.038	50.715	3.596	3.596	1..	H1-1b
14	M17	HSS4x4x4	.099	0	1	.093	0	y	1	134.981	139.518	16.181	16.181	1..	H1-1b
15	M18	HSS4x4x4	.101	0	1	.086	0	y	1	135.137	139.518	16.181	16.181	1..	H1-1b
16	M19	HSS4x4x4	.074	2.7...	3	.090	0	y	5	135.138	139.518	16.181	16.181	1..	H1-1b
17	M20	PIPE_2.5	.337	2	4	.114	2		5	30.038	50.715	3.596	3.596	2..	H1-1b
18	M21	PIPE_2.5	.412	2	4	.092	5.5		5	30.038	50.715	3.596	3.596	2..	H1-1b
19	M22	PIPE_2.5	.283	2	4	.128	2		5	30.038	50.715	3.596	3.596	1..	H1-1b
20	M23	PIPE_2.5	.264	2	1	.076	2		4	30.038	50.715	3.596	3.596	1..	H1-1b
21	M24	PIPE_2.5	.344	2	1	.081	2		1	30.038	50.715	3.596	3.596	1..	H1-1b
22	M25	PIPE_2.5	.384	2	1	.104	5.5		2	30.038	50.715	3.596	3.596	1..	H1-1b
23	M26	PIPE_2.5	.272	2	2	.136	2		2	30.038	50.715	3.596	3.596	1..	H1-1b
24	M27	PIPE_2.5	.235	2	1	.124	2		1	30.038	50.715	3.596	3.596	1..	H1-1b
25	M28	PIPE_2.5	.326	2	1	.128	2		1	30.038	50.715	3.596	3.596	1..	H1-1b
26	M29	PIPE_2.5	.378	2	2	.073	2		4	30.038	50.715	3.596	3.596	1..	H1-1b
27	M30	PIPE_2.5	.263	2	2	.093	2		1	30.038	50.715	3.596	3.596	1..	H1-1b
28	M31	L2.5x2.5x4	.007	.411	2	.095	.821	y	4	37.717	38.556	1.114	2.537	1..	H2-1
29	M32	L2.5x2.5x4	.006	.411	1	.111	0	y	4	37.717	38.556	1.114	2.537	1..	H2-1
30	M33	L2.5x2.5x4	.006	.411	4	.128	0	y	1	37.717	38.556	1.114	2.537	1..	H2-1
31	M34	LL2.5x2.5x3x3	.092	4.7...	4	.003	4.7...	y	1	43.374	58.32	3.954	2.55	1	H1-1..
32	M35	LL2.5x2.5x3x3	.042	4.7...	6	.002	0	y	4	43.374	58.32	3.954	2.55	1	H1-1..

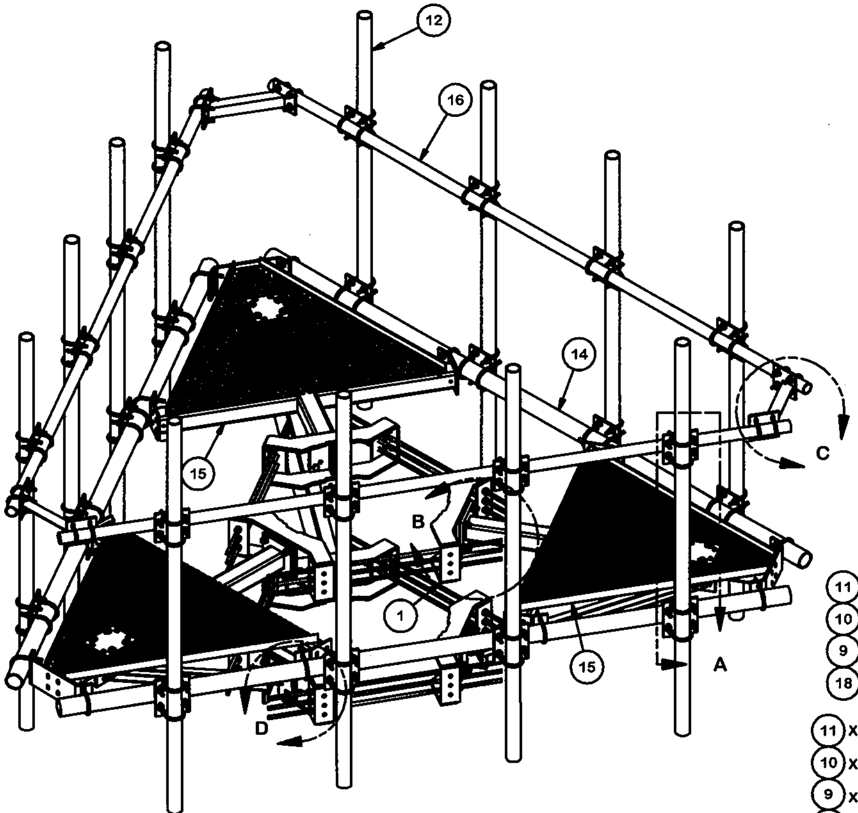
Envelope AISC 14th(360-10): LRFD Steel Code Checks (Continued)

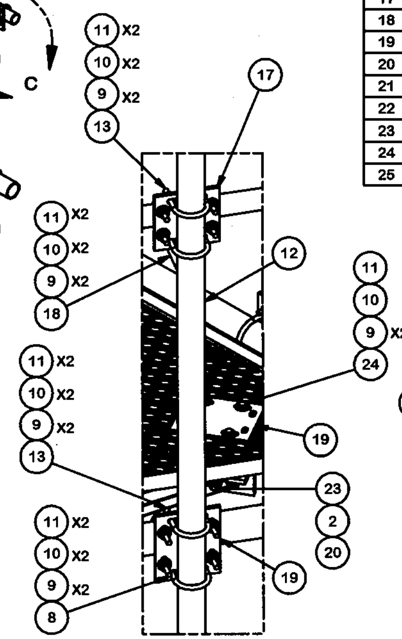
	Member	Shape	Code Check	Loc...	LC	Shea...	Loc.....		L...	phi*Pn...	phi*Pn...	phi*M...	phi*M...	...	Eqn
33	M36	LL2.5x2.5x3x3	.088	4.7...	1	.003	0	y	4	43.374	58.32	3.954	2.55	1	H1-1...



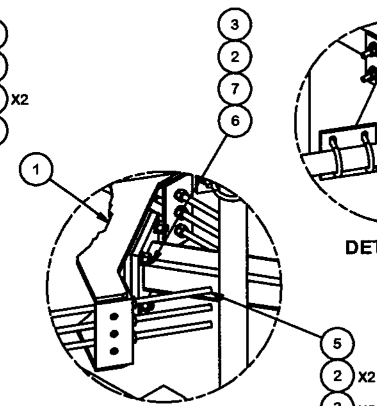
Member Code Checks Displayed (Enveloped)
Envelope Only Solution

Centek	CT11020D - Mount	
TJL		June 21, 2018 at 7:37 AM
18058.69	Unity Check	Mount - Proposed.r3d

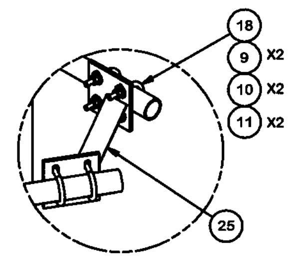




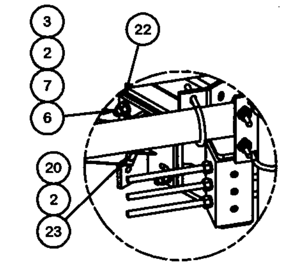
DETAIL A



DETAIL B



DETAIL C



DETAIL D

PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	6	X-LWRM	RING MOUNT WELDMENT		68.16	408.95
2	66	G58LW	5/8" HDG LOCKWASHER		0.03	1.72
3	60	A58NUT	5/8" HDG A325 HEX NUT		0.13	7.78
4	18	G58R-24	5/8" x 24" THREADED ROD (HDG.)		0.55	9.88
5	18	G58R-48	5/8" x 48" THREADED ROD (HDG.)		0.55	9.88
6	24	A58234	5/8" x 2-3/4" HDG A325 HEX BOLT	2 3/4 in	0.36	8.53
7	24	A58FW	5/8" HDG A325 FLATWASHER		0.03	0.82
8	36	X-UB1306	1/2" X 3-5/8" X 6" X 3" U-BOLT (HDG.)		0.73	26.34
9	264	G12FW	1/2" HDG USS FLATWASHER		0.03	8.99
10	252	G12LW	1/2" HDG LOCKWASHER		0.01	3.50
11	252	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	18.03
12	12	P3096	2-7/8" OD X 96" Sch 40 Galvanized Pipe		46.45	557.43
13	48	X-UB1300	1/2" X 3" X 5" X 2" U-BOLT (HDG.)		0.73	35.12
14	3	P3150	3-1/2" X 150" SCH 40 GALVANIZED PIPE	150 in	94.80	284.40
15	3	X-SV196	LOW PROFILE PLATFORM CORNER		212.10	636.31
16	3	P2150	2-3/8" OD X 150" SCH 40 GALVANIZED PIPE	150 in	48.06	144.17
17	12	SCX2	CROSSOVER PLATE	7 in	4.80	57.56
18	36	X-UB1212	1/2" X 2-1/2" X 4-1/2" X 2" U-BOLT (HDG.)		0.73	26.34
19	15	SCX4	CROSSOVER PLATE	8 1/2 in	6.02	90.32
20	6	G58NUT	5/8" HDG HEAVY 2H HEX NUT		0.13	0.78
21	6	X-253993	PLATFORM REINFORCEMENT KIT ANGLE	52 25/32 in	14.33	85.99
22	6	X-253992	T-BRACKET FOR REINFORCEMENT KIT		13.55	81.27
23	6	G5802	5/8" x 2" HDG HEX BOLT GR5		0.27	1.62
24	12	G12065	1/2" x 6-1/2" HDG HEX BOLT GR5 FULL THREAD	6 1/2 in	0.41	4.91
25	3	X-AHCP	ANGLE HANDRAIL CORNER PLATE		12.92	38.76
					TOTAL WT. #	2645.84

A	REPLACED HCP WITH X-AHCP	4488	CEK	7/14/2014
REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE

REVISION HISTORY

TOLERANCE NOTES

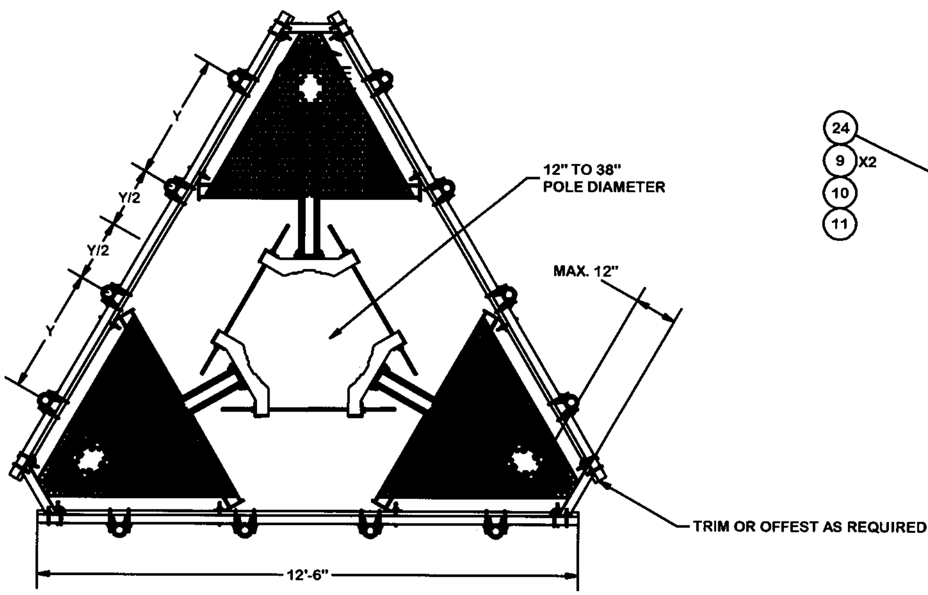
TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
SAWED, SHEARED AND GAS CUT EDGES *(± 0.030")*
DRILLED AND GAS CUT HOLES *(± 0.030")* - NO CONING OF HOLES
LASER CUT EDGES AND HOLES *(± 0.010")* - NO CONING OF HOLES
BENDS ARE ± 1/2 DEGREE
ALL OTHER MACHINING *(± 0.030")*
ALL OTHER ASSEMBLY *(± 0.060")*

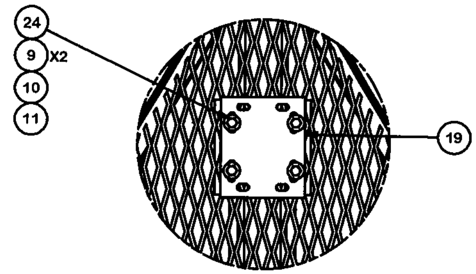
DESCRIPTION
12' 6" LOW PROFILE PLATFORM
WITH TWELVE 2-7/8" ANTENNA MOUTING
PIPES, AND HANDRAIL

CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.
4488	CEK 3/24/2014		RMQP-4096-HK

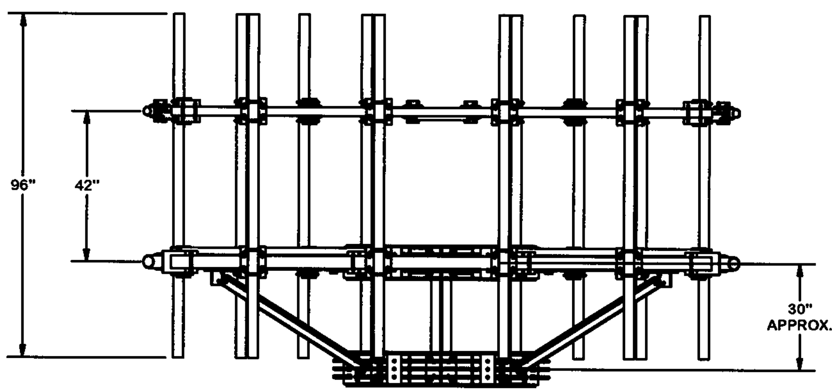
CLASS	SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
81	02	CUSTOMER	BMC 7/14/2014	RMQP-4096-HK

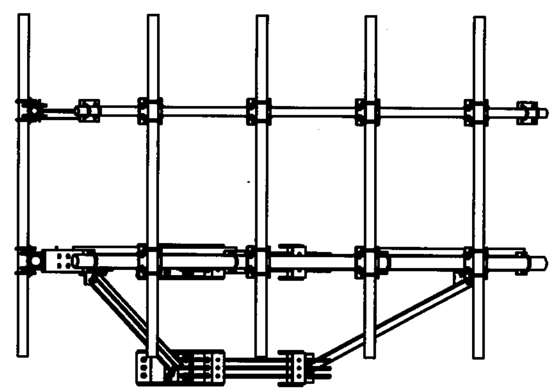
SITE PRO 1
A valmont COMPANY
Engineering
Support Team:
1-888-753-7446
Locations:
New York, NY
Atlanta, GA
Los Angeles, CA
Plymouth, IN
Salem, OR
Dallas, TX





DETAIL E





REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
A	REPLACED HCP WITH X-AHCP	4488	CEK	7/14/2014

REVISION HISTORY

TOLERANCE NOTES

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LASER CUT EDGES AND HOLES *(± 0.010")* - NO CONING OF HOLES
BENDS ARE ± 1/2 DEGREE
ALL OTHER MACHINING *(± 0.030")*
ALL OTHER ASSEMBLY *(± 0.060")*

DESCRIPTION
12' 6" LOW PROFILE PLATFORM
WITH TWELVE 2-7/8" ANTENNA MOUTING
PIPES, AND HANDRAIL

CPD NO.	DRAWN BY	ENG. APPROVAL
4488	CEK 3/24/2014	

CLASS	SUB	DRAWING USAGE	CHECKED BY
81	02	CUSTOMER	BMC 7/14/2014

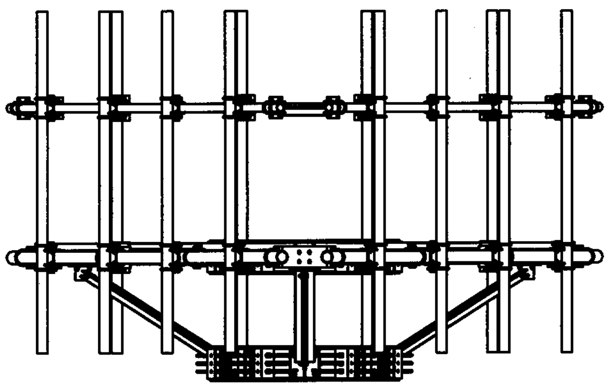
SITE PRO 1
A valmont COMPANY

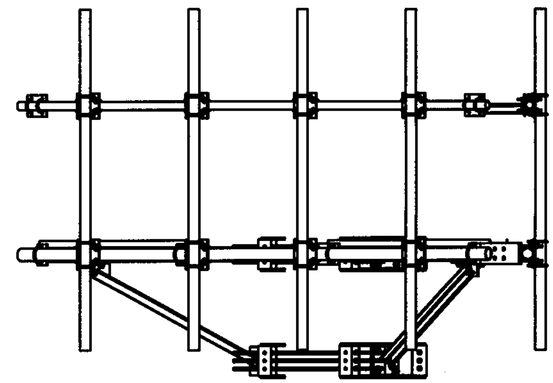
Engineering Support Team:
1-888-753-7446

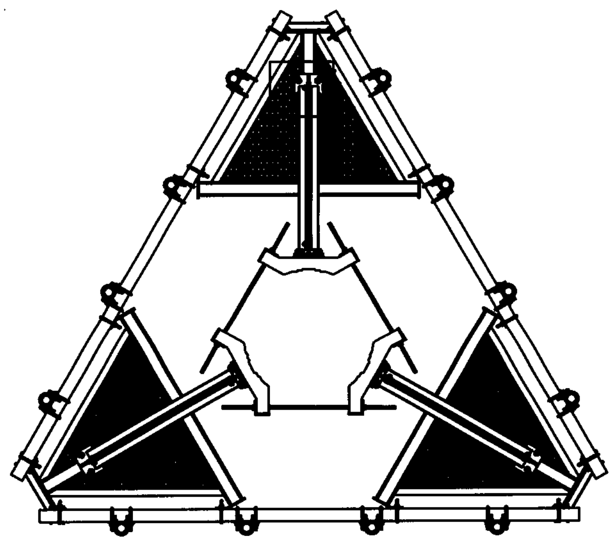
Locations:
New York, NY
Atlanta, GA
Los Angeles, CA
Plymouth, IN
Salem, OR
Dallas, TX

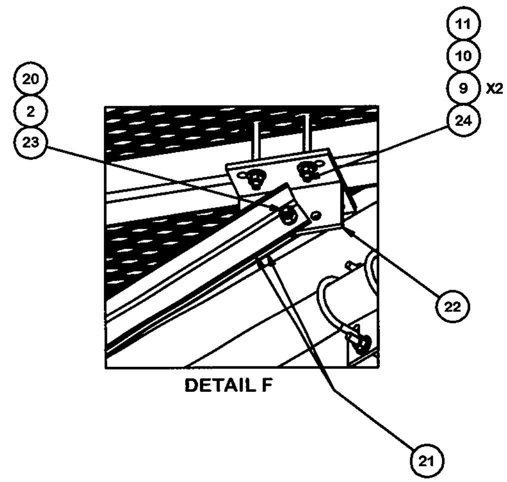
PART NO. RMQP-4096-HK

DWG. NO. RMQP-4096-HK









DETAIL F

TOLERANCE NOTES

TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
SAWED, SHEARED AND GAS CUT EDGES (± 0.030")
DRILLED AND GAS CUT HOLES (± 0.030") - NO CONING OF HOLES
LASER CUT EDGES AND HOLES (± 0.010") - NO CONING OF HOLES
BENDS ARE ± 1/2 DEGREE
ALL OTHER MACHINING (± 0.030")
ALL OTHER ASSEMBLY (± 0.060")

REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
A	REPLACED HCP WITH X-AHCP	4488	CEK	7/14/2014

REVISION HISTORY

DESCRIPTION
12' 6" LOW PROFILE PLATFORM
WITH TWELVE 2-7/8" ANTENNA MOUTING
PIPES, AND HANDRAIL

CPD NO.		DRAWN BY	ENG. APPROVAL	PART NO.
4488		CEK 3/24/2014		RMQP-4096-HK
CLASS 81	SUB 02	DRAWING USAGE CUSTOMER	CHECKED BY BMC 7/14/2014	DWG. NO. RMQP-4096-HK

SITE PRO 1
A valmont COMPANY
Engineering Support Team: 1-888-753-7446
Locations:
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Atlanta, GA
Los Angeles, CA
Plymouth, IN
Salem, OR
Dallas, TX