AMERICAN TOWER®
CORPORATION

This report was prepared for American Tower Corporation by

telamon
Tower Engineering PLLC

Antenna Mount Analysis Report

ATC Site Name	:	**WSPT - South**
ATC Asset Number	:	**302511**
Engineering Number	:	**13958510_C8_04**
Mount Elevation	:	**132.75 ft**
Carrier	:	**AT&T Mobility**
Carrier Site Name	:	**MRCTB051010**
Carrier Site Number	:	**CTCN002103**
Site Location	:	**20 Post Office Lane** **Westport, CT 06880-6226** **41.12344444, -73.3131**
County	:	**Fairfield**
Date	:	**March 21, 2022**
Max Usage	:	**42%**
Result	:	**Contingent Pass*** ***See conclusion for requirements**

Prepared By:
Vignesh Hari
Telamon Tower Engineering, PLLC

Reviewed By:
William Holt, P.E.
Telamon Tower Engineering, PLLC

Digitally signed by William Holt
Date: 2022.03.22 11:51:45 -04'00'

STATE OF CONNECTICUT
WILLIAM HOLT
PEN.35568
LICENSED
PROFESSIONAL ENGINEER

William Holt, PE
Director of Engineering
License No. 35568 Expires: 01/31/2023

Table of Contents

Introduction

The proposed equipment is to be mounted to the proposed Perfect Vision PV-LPPGS-14M-HR2-H5H10 Platform Mount w/ Support Rails. This proposed mounting configuration was analyzed using RISA-3D, a commercially available finite element analysis software package. A selection of input and output from our analysis is attached to the end of this report.

Supporting Documents

Structural Data	Site Photos dated, July 23, 2020 Assembly drawings by Perfect Vision, Document #LPPGS-ENG-08-R2, Rev 2 dated November 18, 2020 Assembly drawings by Perfect Vision, Document #PV-SMART-ENG-04, Rev 0 dated May 20, 2020 Assembly drawings by Perfect Vision, Document #RMMD-ENG-01-R0, Rev 0 dated June 06, 2019 Assembly drawings by Perfect Vision, Document #PV-SMART-ENG-13, Rev 1 dated August 24, 2020
Previous Analyses	Tower SA by ATC, Eng. Number 13705673_C3_03, October 06, 2021
Loading Data	ATC Application, Project #13958510, dated February 25, 2022 AT&T RFDS, RFDS ID:371214, version 2.00, dated January 18, 2022

Analysis

Codes	TIA-222-H
Basic Wind Speed	118 mph, V_{ult} (3-Second Gust)
Basic Wind Speed w/ Ice	50 mph (3-Second Gust) w/ 1" Radial Ice (Escalating)
Exposure Category	C
Topographic Factor Procedure:	Method 2
Feature:	Flat
Crest Height (H):	0 ft
Crest Length (L):	0 ft
Risk Category	II
Maintenance Live Load	L_M: 500 lb
Spectral Response	S_s: 0.23; S_1: 0.06; Site Class: D

Conclusion

Based on the analysis, the antenna mount meets the requirements per the applicable codes listed above. The mounting configuration considered in this analysis will be capable of supporting the referenced loading pursuant to referenced standards once the following scope is executed:

AT&T CONMAT does not have parts which connect HSS tube to pipe and Perfect Vision kickers. Hence Proposing additional parts not listed in CONMAT list.

- **Replace existing Platform Mount with (1) new Perfect Vision PV-LPPGS-14M-HR2-H5H10 (CEQ.53355) Platform Mount at 131 ft elevation. Skew platform base and support rails laterally as needed.**
- **Install (1) Perfect Vision PV-KKRS-3 Monopole Platform kicker kit as shown. Field-cut kicker angle as required. Maintain minimum bolt edge distance. Connect kicker kit to (1) proposed Perfect Vision PV-RM1045-MD (ANT.47090) Monopole Collar.**
- **Install (4) Perfect Vision PIPE-238X120 (CEQ.48476) antenna mount pipes at each sector (12 total) included in proposed platform kit. Connect to platform base horizontal member using (12) Perfect Vision PV-XP-DC-2030 (CEQ.48508) crossover brackets included in proposed platform kit as shown in the assembly drawings.**
- **Install support rails 3'-6" above the platform base. Connect to all mount pipes using PV-XP-DC-2020 crossover brackets included in proposed platform kit.**
- **Install (2) 5ft. long, Pipe 2 STD, A53 Gr. B, at stand-off horizontal at each sector for RRUS (6 total) as shown. Connect to stand-off horizontal HSS tubes using (1) Perfect Vision PV-SMART-MSK6 back to back crossover kit (3 total).**
- **Install existing and proposed antennas such that they are vertically centered about the face horizontal member.**

If you have any questions or require additional information, please contact American Tower via email at Engineering@americantower.com. Please include the American Tower site name, site number, and engineering number in the subject line for any questions.

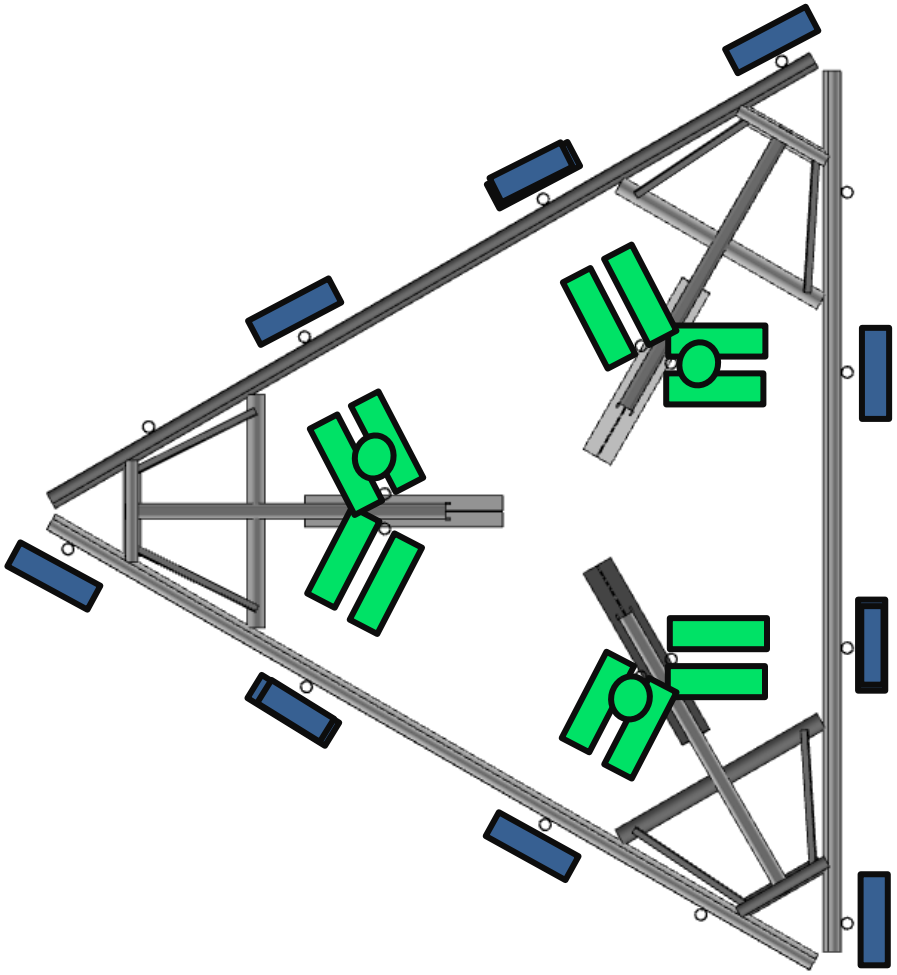
Antenna Loading

Elevation (ft)		Antennas	
Mount	**Rad.**	**#**	**Name**
132.75	133.0	3	Ericsson AIR 6449 B77D
	131.0	3	CCI OPA65R-BU6D
		3	CCI DMP65R-BU6E
		3	Ericsson RRUS 32 B30
		3	Ericsson RRUS 4449 B5/B12
		3	Ericsson RRUS 4478 B14
		3	Ericsson RRUS 8843 B2/B66A
		1	Raycap DC6-48-60-0-8C
		2	Raycap DC6-48-60-18-8F
	129.0	3	Ericsson AIR 6419 B77G

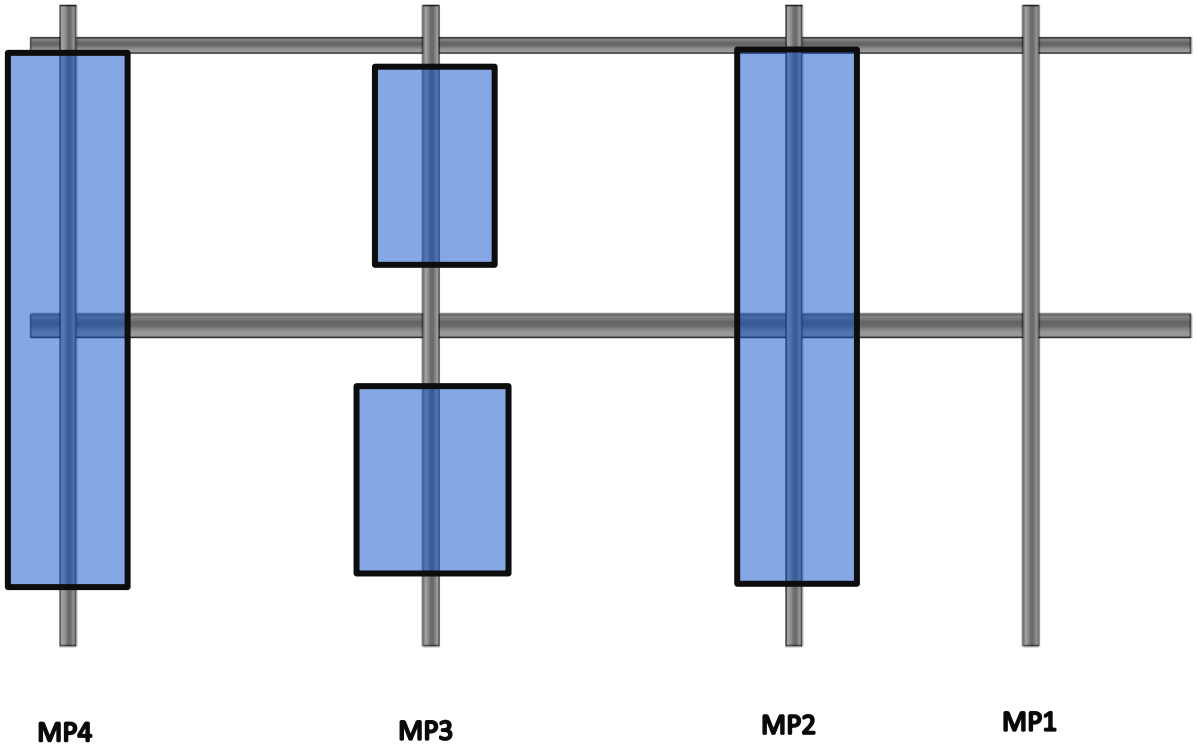
Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Mount Pipes	42%	Pass
Support Rail	28%	Pass
Bracing Members	26%	Pass
Kickers	19%	Pass
Tower-Mount Connection	16%	Pass
Stand-Off Horizontals	15%	Pass
Platform Base	12%	Pass

Equipment Layout Plan View



Equipment Layout Front Elevation View



Total #	Equipment	Mount Pipe Position
3	Ericsson AIR 6449 B77D	P3
3	CCI OPA65R-BU6D	P2
3	CCI DMP65R-BU6E	P4
3	Ericsson RRUS 32 B30	Stand-off pipe
3	Ericsson RRUS 4449 B5/B12	Stand-off pipe
3	Ericsson RRUS 4478 B14	Stand-off pipe
3	Ericsson RRUS 8843 B2/B66A	Stand-off pipe
1	Raycap DC6-48-60-0-8C	Stand-off pipe
2	Raycap DC6-48-60-18-8F	Stand-off pipe
3	Ericsson AIR 6419 B77G	P3

Standard Conditions

This analysis is inclusive of the antenna supporting frames/mounts and all recorded connections that will support the equipment listed in this report. It considers only the theoretical capacity of structural components and it is not a condition assessment. The validity of the analysis may be dependent on the accuracy of structural information supplied by others. The client is responsible for verifying this information. If any provided information is revised after completion of this analysis, Telamon Tower Engineering, PLLC should be notified immediately to revise results.

This analysis assumes the following:

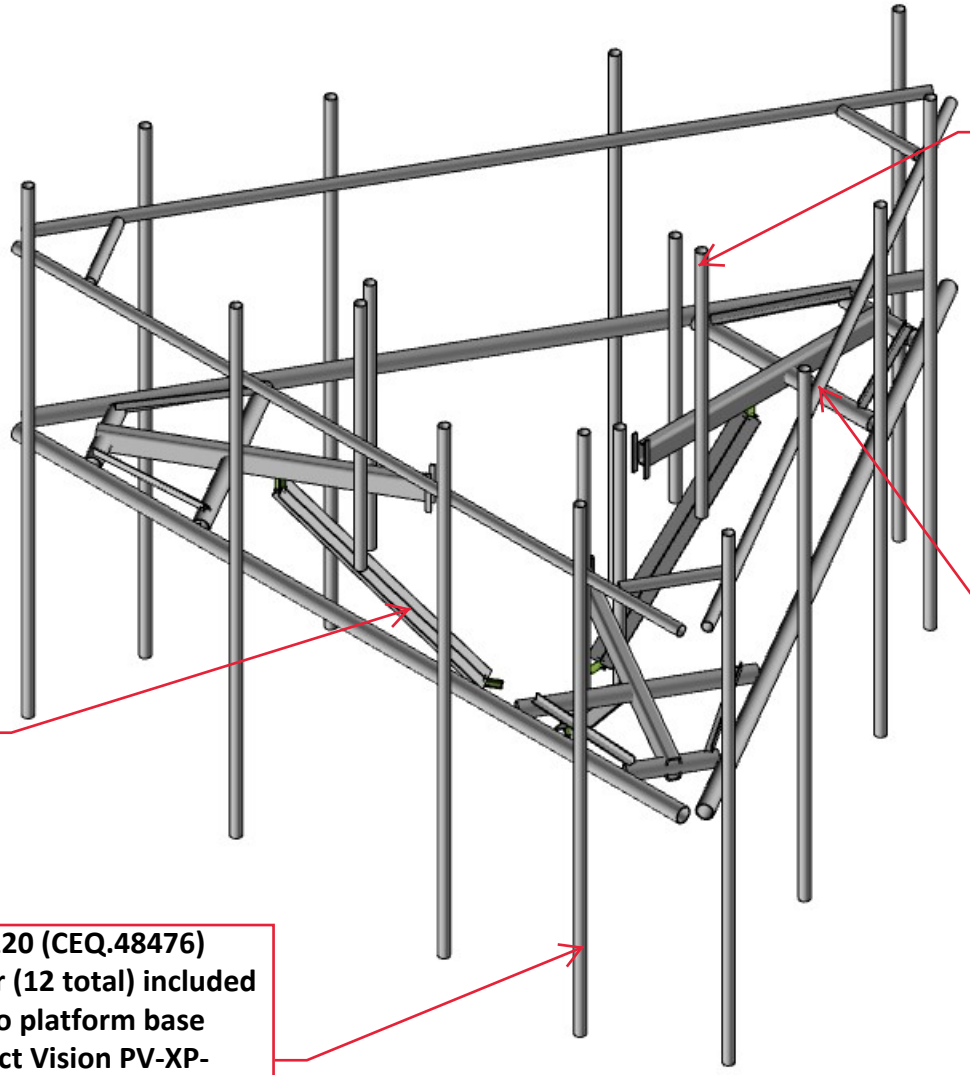
1. The tower or other superstructure and mounts (if existing) were properly constructed as per the original design and have been properly maintained in accordance with applicable code standards.
2. Member sizes and strengths are accurate as supplied or are assumed as stated in the calculations.
3. In the absence of sufficient design information, all welds and connections are assumed to develop at least the capacity of the connected member, unless otherwise stated in this analysis.
4. All prior structural modifications, if any, are assumed to be correctly installed and fully effective.
5. The loading configuration is complete and accurate as supplied and/or as modeled in the previous analysis. All appurtenances are assumed to be properly installed and supported as per manufacturer requirements.
6. Some conservative assumptions may be used regarding appurtenances and their projected areas based on careful interpretation of data supplied, previous experience and standard industry practice.
7. Installation of all equipment and steel should be confirmed not to cause tower conflicts nor impede the tower climbing pegs.

All opinions and conclusions are considered accurate to a reasonable degree of engineering certainty based upon the evidence available at the time of the report. All opinions and conclusions contained herein are subject to revision based upon receipt of new or updated information. All services are provided exercising a level of care and diligence equivalent to the standard of our profession. No warranty or guarantee, either expressed or implied, is offered. All services are confidential in nature and this report will not be released to any other party without the client's consent. The use of this analysis is limited to the expressed purpose for which it was commissioned and it may not be reused, copied or disseminated for any other purpose without consent from Telamon Tower Engineering, PLLC.

All services were performed, results obtained and recommendations made in accordance with generally accepted engineering principles and practices. Telamon Tower Engineering, PLLC is not responsible for the conclusions, opinions or recommendations made by others based on the information supplied in this analysis.

It is not possible to have the fully detailed information necessary to perform a complete and thorough analysis of every structural sub-component of an existing structure. The structural analysis by Telamon Tower Engineering, PLLC verifies the adequacy of the primary members of the structure. Telamon Tower Engineering, PLLC provides a limited scope of service in that we cannot verify the adequacy of every weld, bolt, gusset, etc.

Replace existing Platform Mount with (1) new Perfect Vision PV-LPPGS-14M-HR2-H5H10 Platform Mount at 131 ft elevation.



Install (2) 5ft. long, Pipe 2 STD, A53 Gr. B, at stand-off horizontal at each sector for RRUS (6 total) as shown. Connect to stand-off horizontal HSS tubes using (1) Perfect Vision PV-SMART-MSK6 back to back crossover kit (3 total).

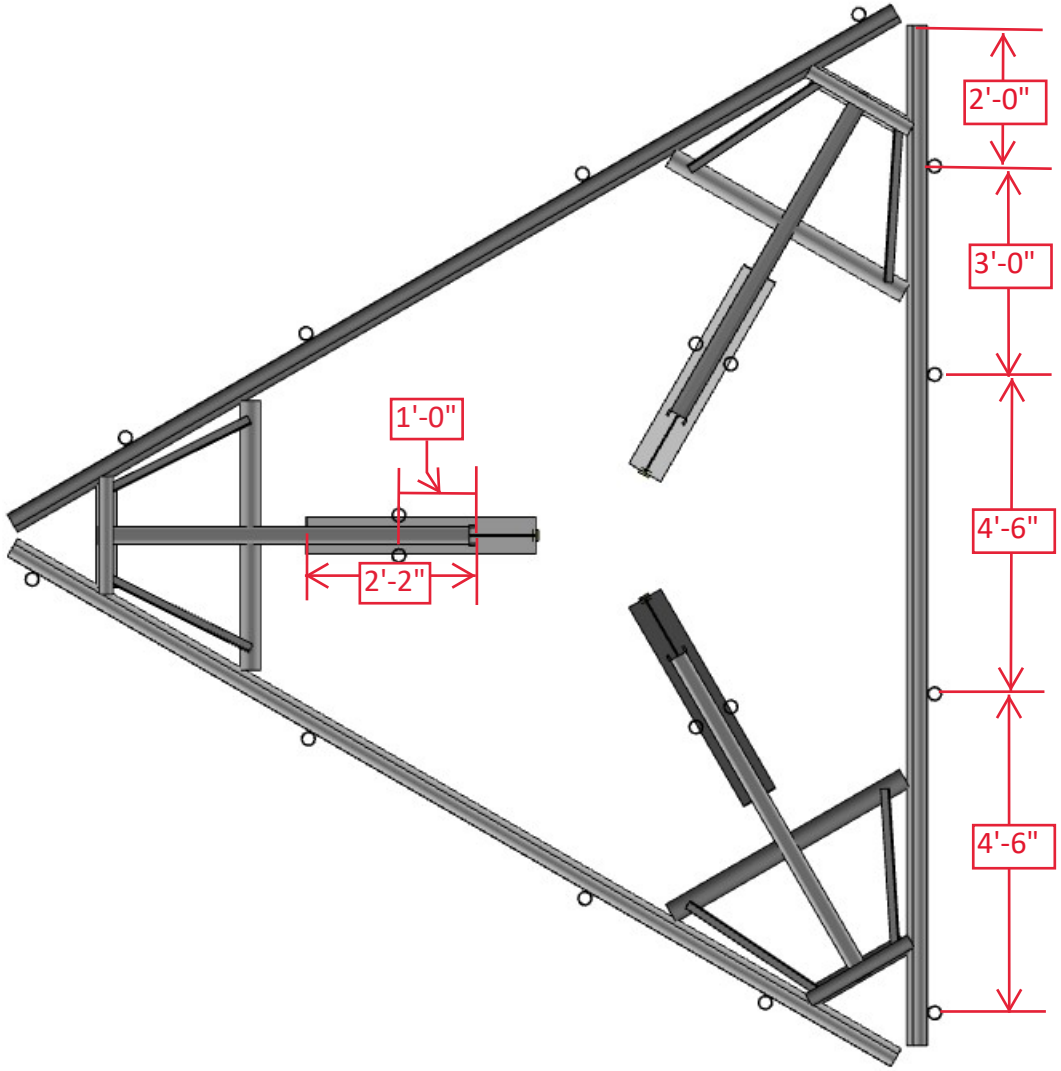
Install (1) Perfect Vision PV-KKRS-3 Monopole Platform Kicker Kit as shown. Field-cut kicker angle as required. Maintain minimum bolt edge distance. Connect kicker kit to (1) proposed Perfect Vision PVRM1045-MD (ANT.47090) Monopole Collar.

Install support rails 3'-6" above the platform base. Connect to all mount pipes using PV-XP-DC-2020 crossover brackets included in proposed platform kit.

Install (4) Perfect Vision PIPE-238X120 (CEQ.48476) antenna mount pipes at each sector (12 total) included in proposed platform kit. Connect to platform base horizontal member using (12) Perfect Vision PV-XP-DC-2030 (CEQ.48508) crossover brackets included in proposed platform kit as shown in the assembly drawings.

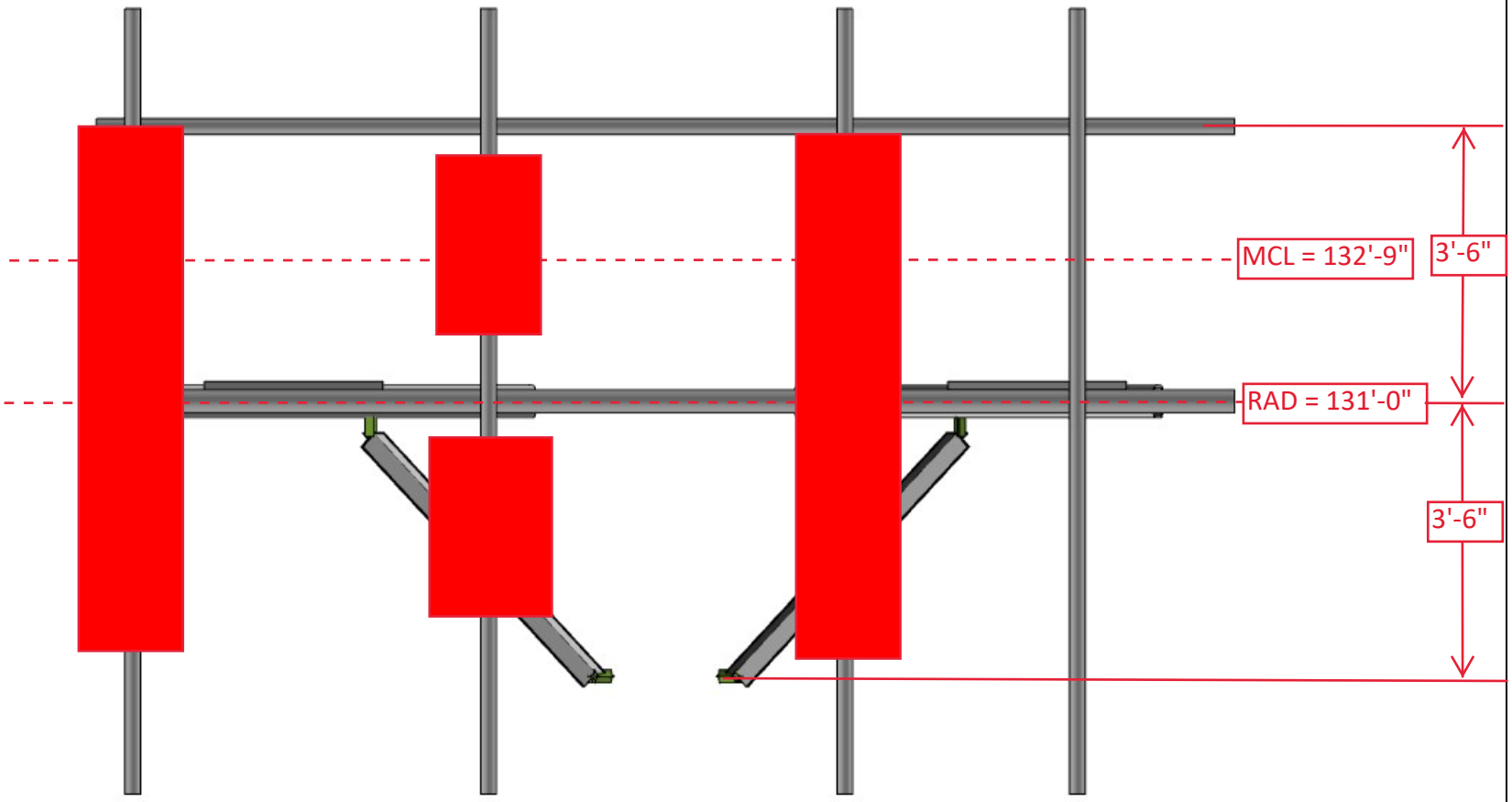
Note: Skew Platform base and Support Rails laterally as needed

CLS	41124-13958510_C8_04-WSPT - South	IN-1
VH		Mar 08, 2022
41124-13958510_C8_04-02-MR	Installation Sketch -ISO	41124-13958510_C8_04-02-MR - Sketch.r3d



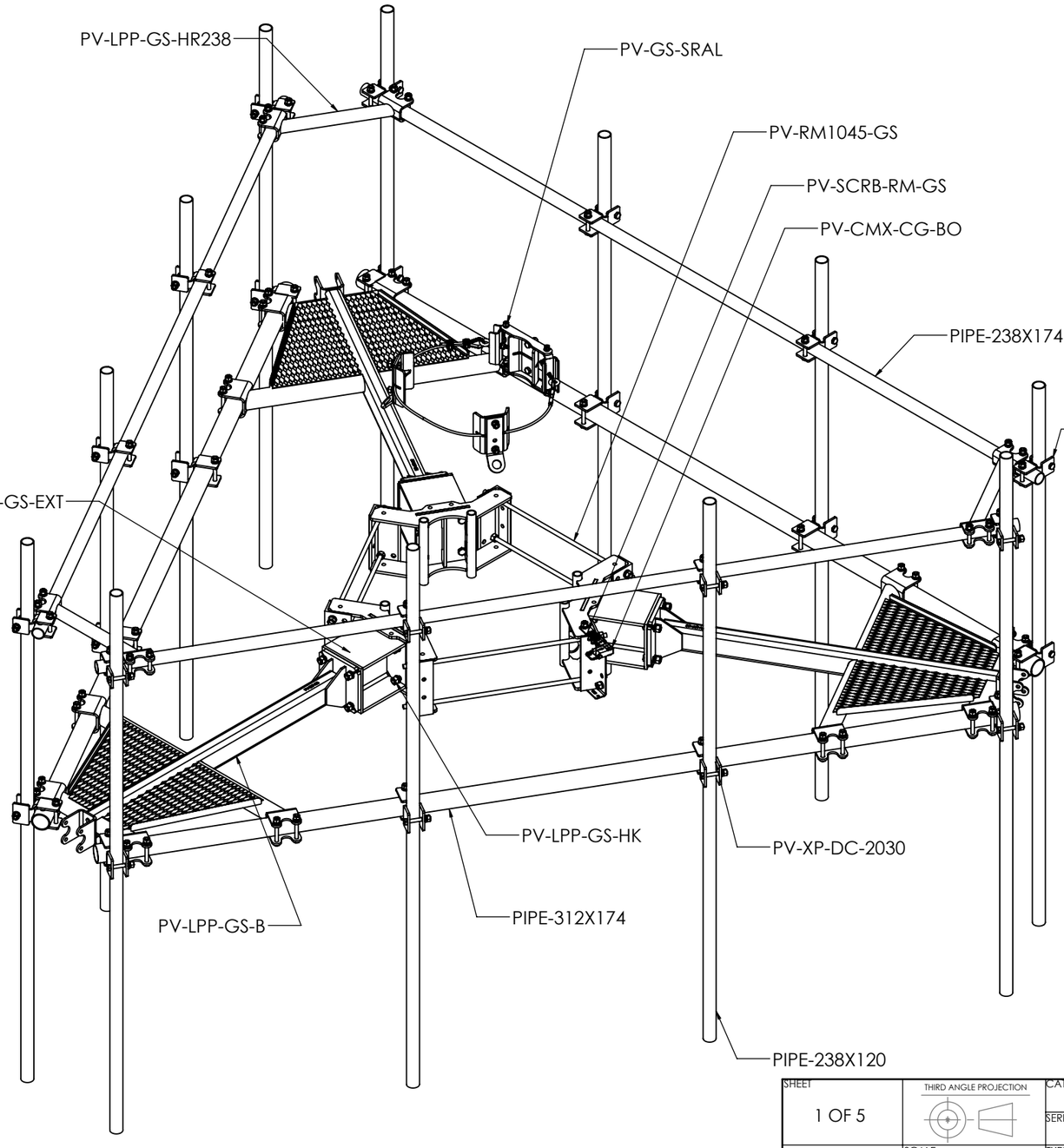
Note: Skew Platform base and Support Rails laterally as needed

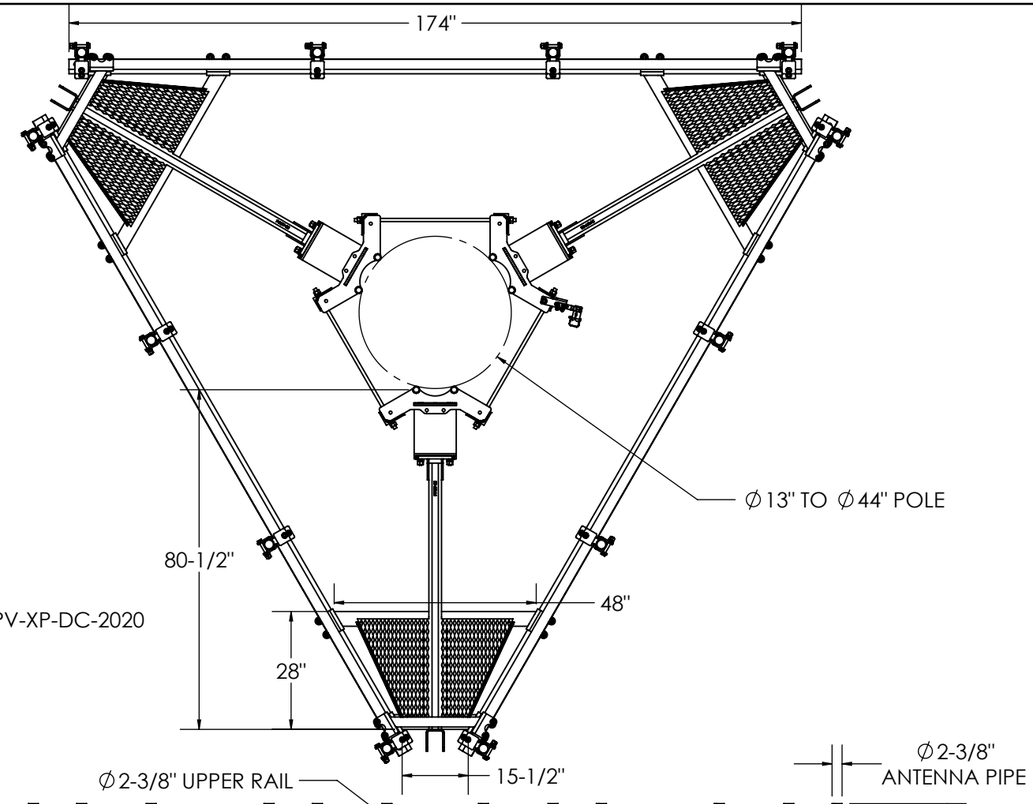
CLS	41124-13958510_C8_04-WSPT - South	IN-2
VH		Mar 03, 2022
41124-13958510_C8_04-0-MR	Installation Sketch -PLAN	41124-13958510_C8_04-02-MR - Sketch.r3d

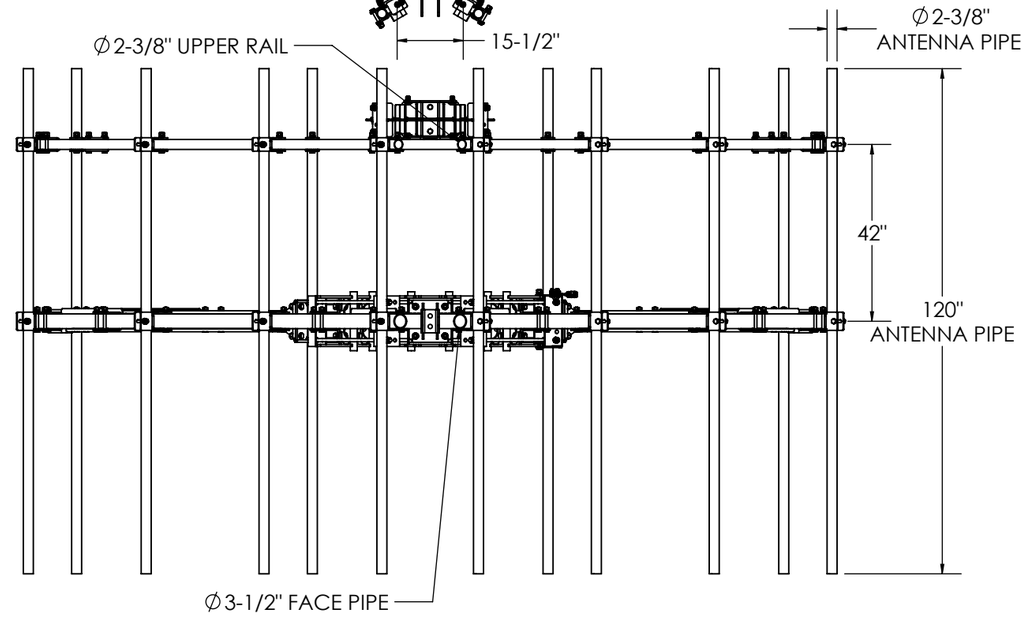


CLS	41124-13958510_C8_01-WSPT - South	IN-3
VH		Mar 08, 2022
41124-13958510_C8_04-02-MR	Installation Sketch -Front	41124-13958510_C8_04-02-MR - Sketch.r3d

PV-LPPGS-14M-HR2-H5H10 - CEQ.53355
MONOPOLE GUARDIAN MOUNT







SHEET 1 OF 5	THIRD ANGLE PROJECTION	CATEGORY 02_Monopole	4			PERFECTVISION®
		SERIES 01_Triangular	3			
8/10/2021	SCALE 1:36	TYPE PV-LPPGS_GUARDIAN	2	PART NUMBER CHANGE - SWAP TO H5H10	11/18/20	
DIMENSIONS ARE IN INCHES TOLERANCES U.N.O. HOLES: +1/16", -1/32" ANGULAR: PROFILE ±1/4°, BEND ±2° ALL OTHERS: ±1/16"		BY DJN	1	PART NUMBER CHANGE - UPDATED AP#	9/25/20	MONOPOLE GUARDIAN MOUNT - ATT
		CHECKED SJS	0	INITIAL RELEASE	9/11/20	DOCUMENT NUMBER LPPGS-ENG-08-R2 REV 2
		STATUS APPROVED	REV	DESCRIPTION	DATE	

C:\PVMSteel\Catalog\SW Working Files\Engineering Details\

INCLUDED PARTS, WEIGHTS, EPA, & MOUNT CLASSIFICATION

Table 1: Included Parts, EPA, Weight

Part Number	Description	Weight (lbs)	(EPA)A (ft2)*	(EPA)A 1/2" Radial Ice (ft2)	Included Parts												
					PV-RM1045-GS	PV-LPP-GS-B	PV-LPP-GS-HK	PV-LPP-GS-EXT	PV-LPP-GS-HR238	PV-XP-DC-2020	PV-XP-DC-2030	PIPE-238X120	PIPE-238X174	PIPE-312X174	PV-GS-SRAL	PV-SCRB-RM-GS	PV-CMX-CG-BO
PV-LPPGS-14M-HR2-H5H10	14'6" Face, 13"-44" OD Pole, 2-3/8" OD Upper Rail, (12) 2-3/8" x 120" Pipe	2400	22.0	29.2	1	1	1	1	1	12	12	12	3	3	1	1	1

* (EPA)A INCLUDES ALL STRUCTURAL MEMBERS INCLUDING CROSSOVER CONNECTIONS. IF DESIRED, ADD ANTENNA PIPE PER TABLE 2

Table 2: Antenna Pipe Additional EPA (Each)

Size	(EPA)A (ft2)	(EPA)A 1/2" Radial Ice (ft2)
2-3/8" x 120"	1.9	2.8

MOUNT CLASSIFICATION INFORMATION:

- STANDARDS: TIA-222-G, TIA-222-H, TIA-5053
- MAX STRUCTURE HEIGHT: 400ft
- STRUCTURE CLASS: I OR II
- TOPOGRAPHIC CATEGORY: 1
- DESIGN WIND PRESSURE: 135psf
- DESIGN WIND PRESSURE (ICED): 15psf
- DESIGN ICE THICKNESS (RADIAL) 2.75"

APPROVED MOUNT CLASSIFICATIONS:

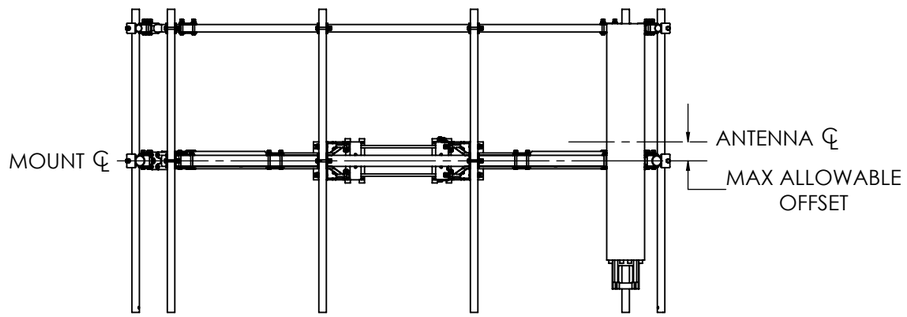
Table 2: Approve Mount Classifications

Part Number	Maximum Antenna Centerline Offset			
	0in	6in	12in	24in
PV-LPPGS-14M-HR2-H5H10	M1300R(1250)-4[0]	M1300R(1200)-4[6]	M1100R(1150)-4[12]	M700R(1000)-4[24]

MOUNT EXCEEDS THE FOLLOWING REQUIREMENTS:

- HEAVY 5
- HEAVY 10

NOTE: ON POLES WITH THICKNESS 3/16" OR LESS, A KICKER AND SECONDARY COLLAR OR FURTHER POLE ANALYSIS SHALL BE REQUIRED.



ALLOWABLE OFFSET - SINGLE COLLAR

SHEET 2 OF 5	THIRD ANGLE PROJECTION	CATEGORY 02_Monopole	4		
		SERIES 01_Triangular	3		
8/10/2021	SCALE 1:36	TYPE PV-LPPGS_GUARDIAN	2	PART NUMBER CHANGE - SWAP TO H5H10	11/18/20
DIMENSIONS ARE IN INCHES TOLERANCES U.N.O. HOLES: +1/16", -1/32" ANGULAR: PROFILE ±1/4°, BEND ±2° ALL OTHERS: ±1/16"		BY DJN	1	PART NUMBER CHANGE - UPDATED AP#	9/25/20
		CHECKED SJS	0	INITIAL RELEASE	9/11/20
		STATUS APPROVED	REV	DESCRIPTION	DATE

PERFECTVISION®

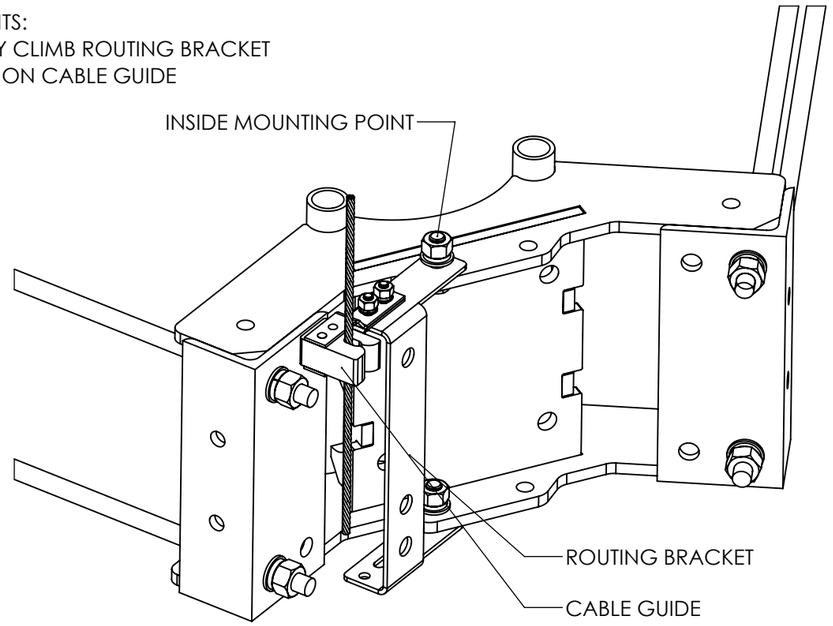
MONOPOLE GUARDIAN MOUNT - ATT

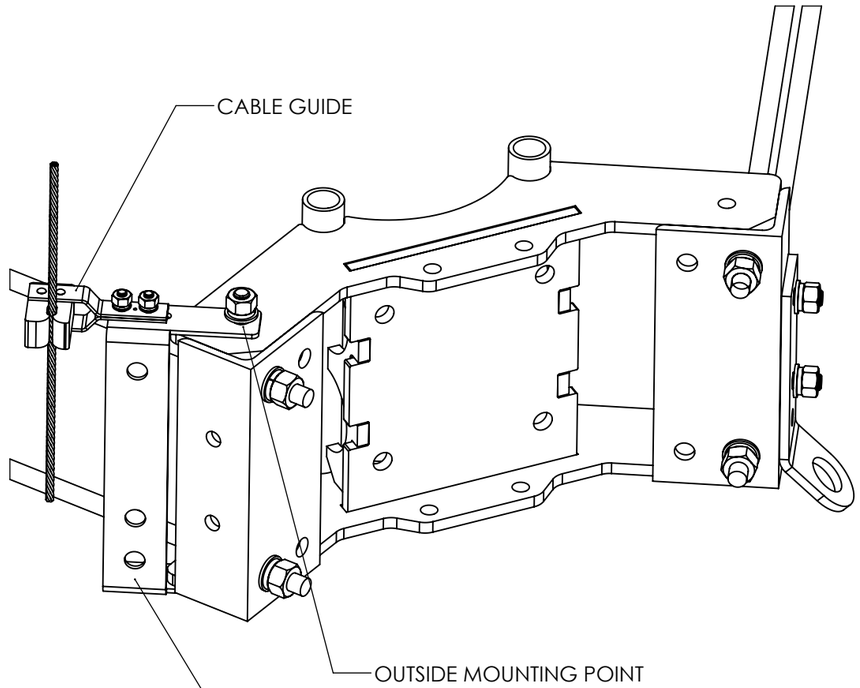
DOCUMENT NUMBER LPPGS-ENG-08-R2 REV 2

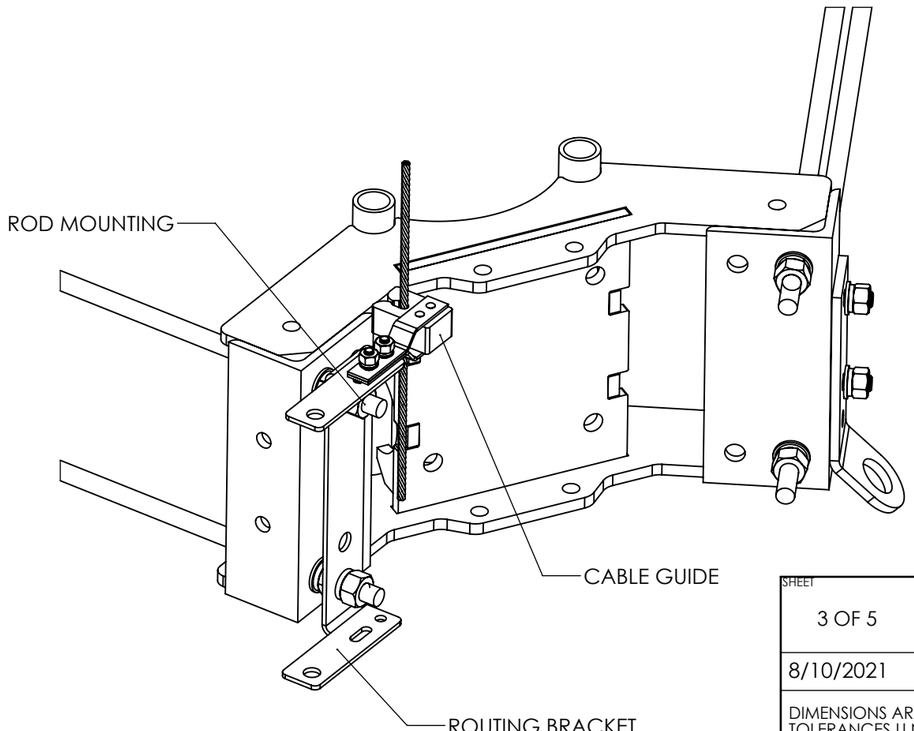
C:\PVWSTeet\Catalog\SW Working Files\Engineering Details\

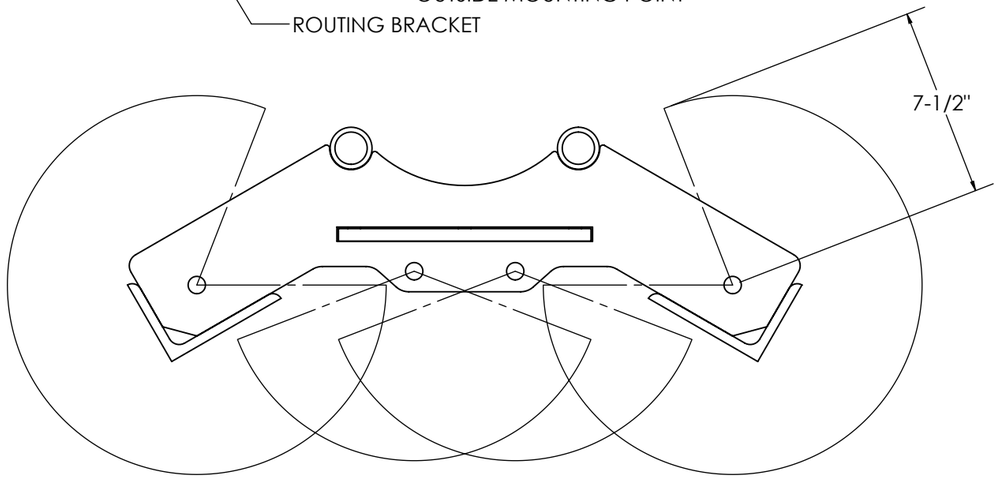
SAFETY CLIMB ROUTING

INCLUDED COMPONENTS:
PV-SCRB-RMGS - SAFETY CLIMB ROUTING BRACKET
PV-CMX-CG-BO - BOLT ON CABLE GUIDE









CABLE GUIDE RANGE

SHEET 3 OF 5	THIRD ANGLE PROJECTION	CATEGORY 02_Monopole	4			PERFECTVISION
		SERIES 01_Triangular	3			
8/10/2021	SCALE 1:6	TYPE PV-LPPGS_GUARDIAN	2	PART NUMBER CHANGE - SWAP TO H5H10	11/18/20	
DIMENSIONS ARE IN INCHES TOLERANCES U.N.O. HOLES: +1/16", -1/32" ANGULAR: PROFILE ±1/4°, BEND ±2° ALL OTHERS: ±1/16"		BY DJN	1	PART NUMBER CHANGE - UPDATED AP#	9/25/20	MONOPOLE GUARDIAN MOUNT - ATT
		CHECKED SJS	0	INITIAL RELEASE	9/11/20	DOCUMENT NUMBER LPPGS-ENG-08-R2 REV 2
		STATUS APPROVED	REV	DESCRIPTION	DATE	

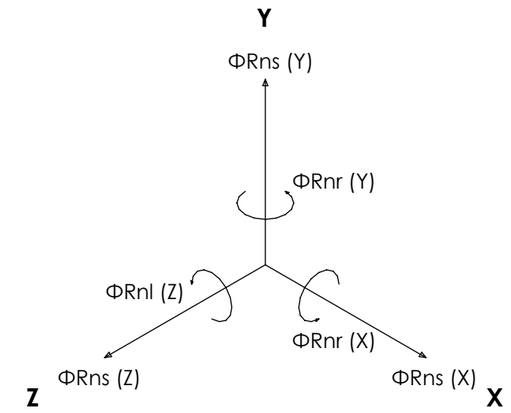
C:\PVMSteel\Catalog\SW Working Files\Engineering Details\

PV-XP-DC

DUALCROSS 90° CROSSOVER BRACKET

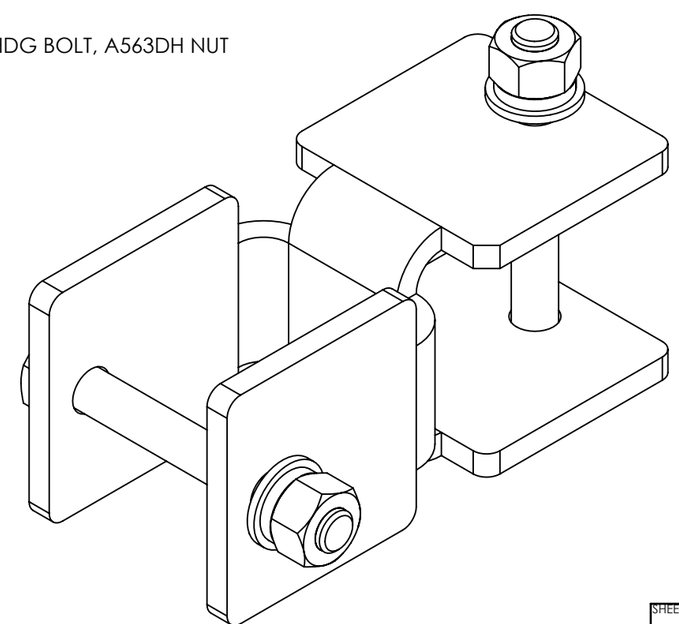
Table 7: Crossover Configurations and Capacities

Part Number	Weight	Pipe 1 Size (Vertical)	Pipe 2 Size (Horizontal)	Pipe 1 Bolt Size	Pipe 2 Bolt Size	Available Sliding Strength (Φ=0.7)			Available Torsional Strength (Φ=0.7)		Available Lateral Twist Strength (Φ=0.9)
						ΦRns (X)	ΦRns (Y)	ΦRns (Z)	ΦRnr (X)	ΦRnr (Y)	ΦRnl (Z)
	lbs	*in*	*in*	*in*	*in*	*kip*	*kip*	*kip*	*kip-in*	*kip-in*	*kip-in*
PV-XP-DC-2020	6.1	∅2.375	∅2.375	∅5/8 x 4-1/2	∅5/8 x 4-1/2	3.85	3.85	Fixed	6.0	6.0	14.0
PV-XP-DC-2025	7.0	∅2.375	∅2.875	∅5/8 x 4-1/2	∅5/8 x 5	3.85	3.85	Fixed	6.0	6.0	14.0
PV-XP-DC-2030	8.1	∅2.375	∅3.5	∅5/8 x 4-1/2	∅5/8 x 5-1/2	3.85	3.85	Fixed	6.8	6.0	14.0
PV-XP-DC-2525	8.0	∅2.875	∅2.875	∅5/8 x 5	∅5/8 x 5	3.85	3.85	Fixed	6.0	6.0	20.0
PV-XP-DC-2530	9.3	∅2.875	∅3.5	∅5/8 x 5	∅5/8 x 5-1/2	3.85	3.85	Fixed	6.8	6.0	20.0
PV-XP-DC-3030	10.7	∅3.5	∅3.5	∅5/8 x 5-1/2	∅5/8 x 5-1/2	3.85	3.85	Fixed	6.8	6.8	27.0
PV-XP-DC-3040	13.1	∅3.5	∅4.5	∅5/8 x 5-1/2	∅5/8 x 6-1/2	3.85	3.85	Fixed	6.8	6.8	27.0

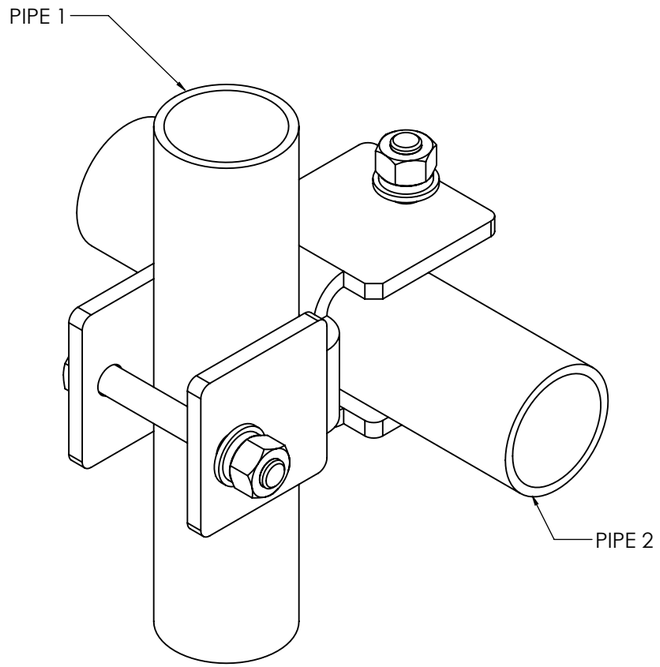


NOTES:

- CAPACITY VALUES EXPERIMENTALLY DETERMINED
- INSTALLATION REQUIREMENTS:
  - MINIMUM BOLT TORQUE: 100 FT-LBS
  - CLEAN, DRY ASSEMBLY
  - GALVANIZED BRACKET AND HARDWARE
  - COLORED WAX COATING ON NUTS
- MATERIALS
  - BRACKET: A36 HDG
  - HARDWARE: A325 HDG BOLT, A563DH NUT



PV-XP-DC
DUALCROSS 90° CROSSOVER



SHEET: 4 OF 5	THIRD ANGLE PROJECTION	CATEGORY: 02_Monopole	4		
		SERIES: 01_Triangular	3		
8/10/2021	SCALE: 1:2	TYPE: PV-LPPGS_GUARDIAN	2	PART NUMBER CHANGE - SWAP TO H5H10	11/18/20
DIMENSIONS ARE IN INCHES TOLERANCES U.N.O. HOLES: +1/16", -1/32" ANGULAR: PROFILE ±1/4°, BEND ±2° ALL OTHERS: ±1/16"		BY: DJN	1	PART NUMBER CHANGE - UPDATED AP#	9/25/20
		CHECKED: SJS	0	INITIAL RELEASE	9/11/20
		STATUS: APPROVED	REV	DESCRIPTION	DATE

PERFECTVISION®

MONOPOLE GUARDIAN MOUNT - ATT

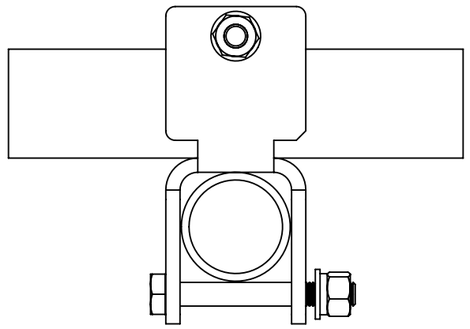
DOCUMENT NUMBER: LPPGS-ENG-08-R2 | REV: 2

C:\PVMSteel\Catalog\SW Working Files\Engineering Details\

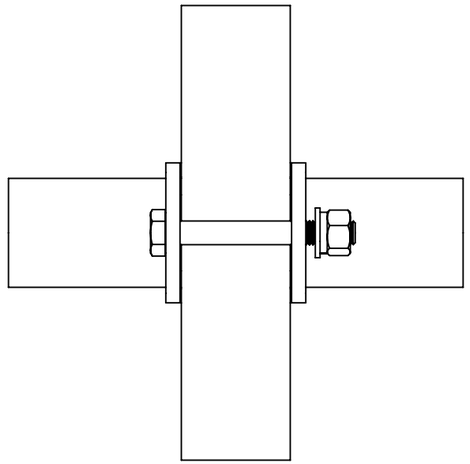
PV-XP-DC

DUALCROSS 90° CROSSOVER BRACKET

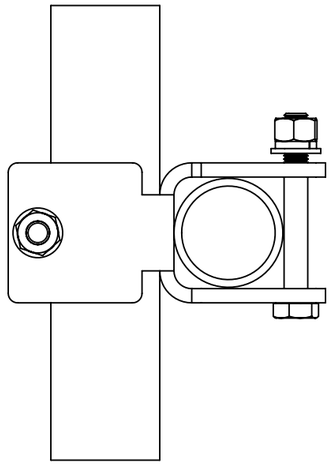
PRE-INSTALL ASSEMBLY:



TOP

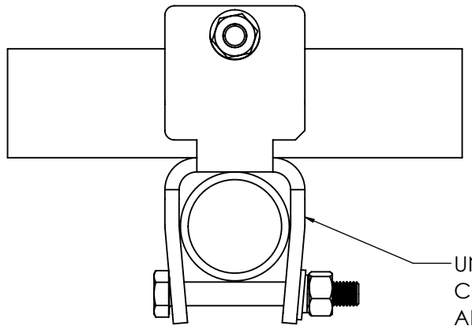


FRONT

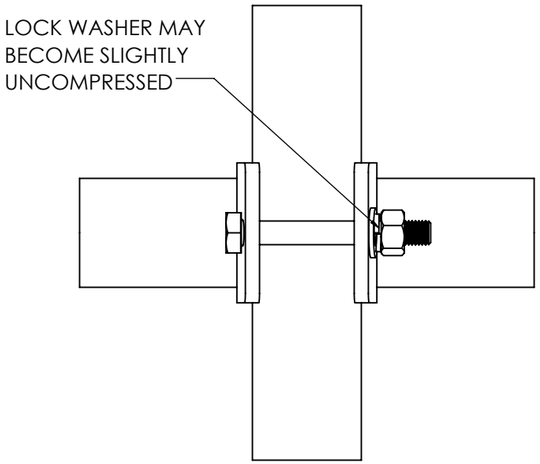


SIDE

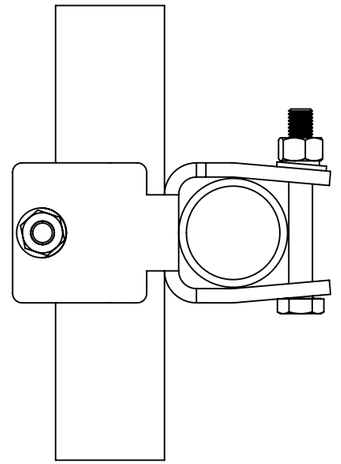
POST-INSTALL ASSEMBLY:



TOP



FRONT



SIDE

SHEET 5 OF 5	THIRD ANGLE PROJECTION	CATEGORY 02_Monopole	4		
		SERIES 01_Triangular	3		
8/10/2021	SCALE 1:4	TYPE PV-LPPGS_GUARDIAN	2	PART NUMBER CHANGE - SWAP TO H5H10	11/18/20
DIMENSIONS ARE IN INCHES TOLERANCES U.N.O. HOLES: +1/16", -1/32" ANGULAR: PROFILE ±1/4°, BEND ±2° ALL OTHERS: ±1/16"		BY DJN	1	PART NUMBER CHANGE - UPDATED AP#	9/25/20
		CHECKED SJS	0	INITIAL RELEASE	9/11/20
		STATUS APPROVED	REV	DESCRIPTION	DATE

PERFECTVISION®

MONOPOLE GUARDIAN MOUNT - ATT

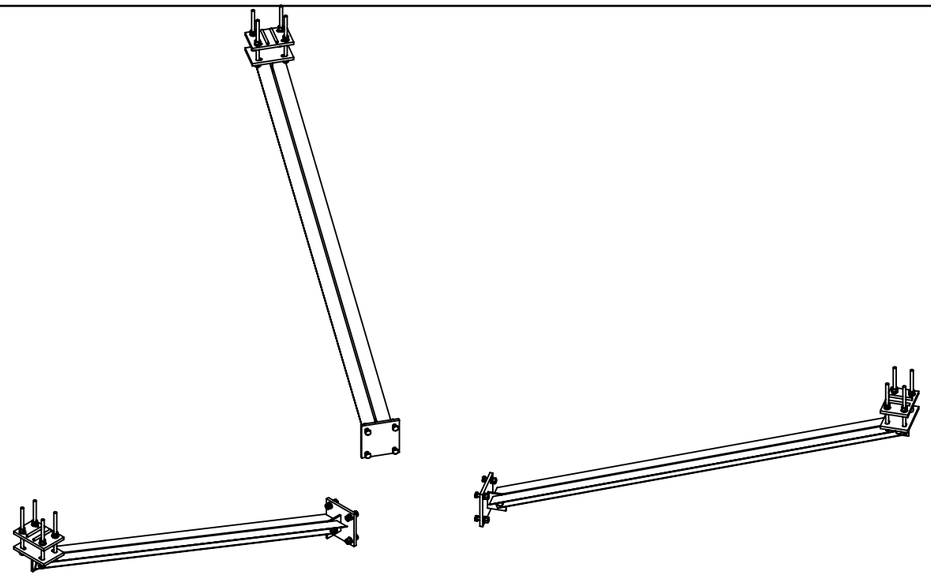
DOCUMENT NUMBER LPPGS-ENG-08-R2 | REV 2

C:\PVMSteel\Catalog\SW Working Files\Engineering Details\

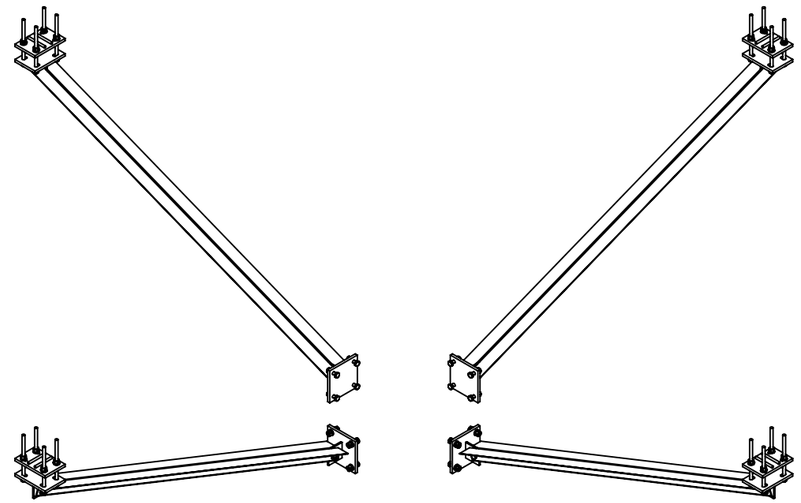
PV-KKRS-#

PV-KKRS Monopole T-Arm/Platform Kicker Kit

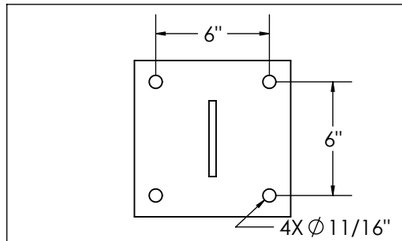
PV-KKRS-1
PV - Kicker Kit Reinforcement System - Single Sector
Weight: 102.245lbs



PV-KKRS-3
PV - Kicker Kit Reinforcement System - 3 Sector
Weight: 306.734lbs

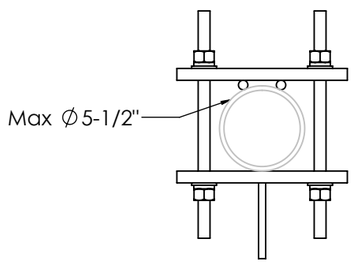


PV-KKRS-4
PV - Kicker Kit Reinforcement System - 4 Sector
Weight: 408.979lbs

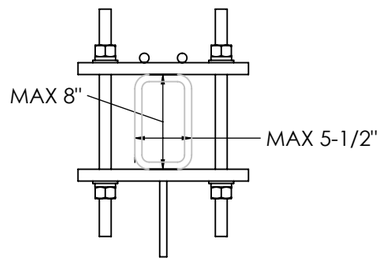


PV-KKRS-# Collar Connection Detail

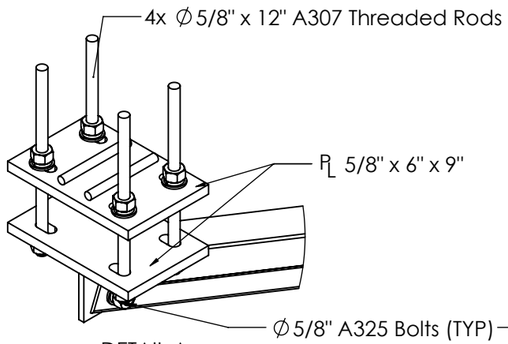
Compatible Collars
PV-RM1045-MD
PV-RM3060-MD
PV-RM1460-4-MD



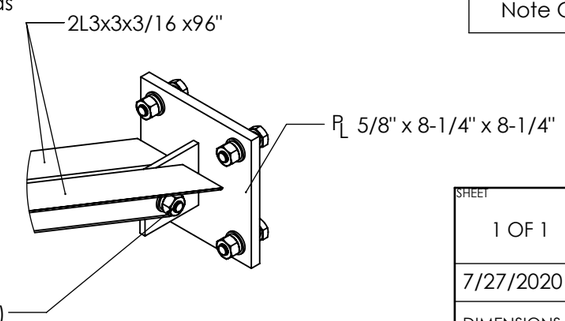
T-Arm-End Connection Installed On Round Member
Note Orientation Of Top Plate With Bearing Bars On Pipe



T-Arm-End Connection Installed On Rectangular Member
Note Orientation Of Top Plate With Flat Face Bearing On Member



DETAIL A
T-Arm-End Connection Detail
SCALE 1 : 8



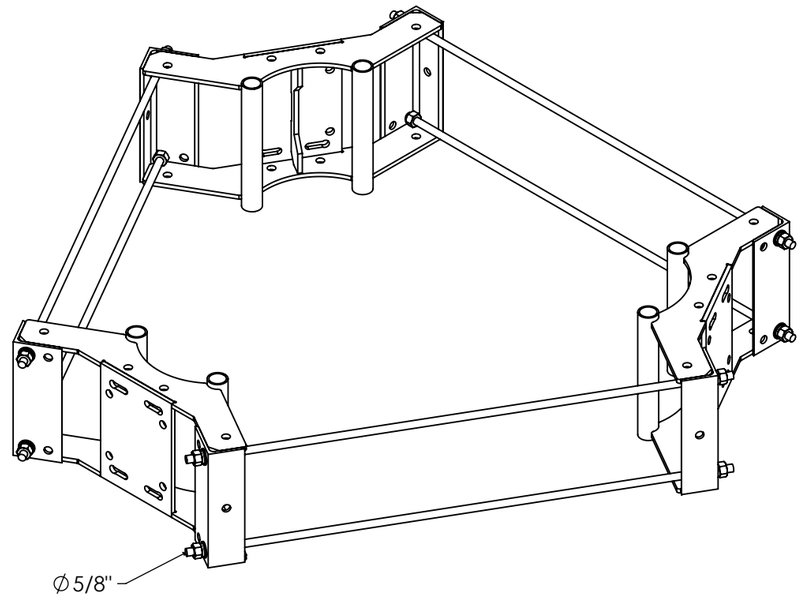
DETAIL B
Collar-End Connection Detail
SCALE 1 : 8

SHEET 1 OF 1	THIRD ANGLE PROJECTION	CATEGORY 14_PV-SMART	4			PERFECTVISION®
		SERIES 02_PLK-Platform	3			PV-KKRS-# Monopole Platform/T-Arm Kicker
7/27/2020	SCALE 1:32	TYPE PV-KKRS_T-Arm Kicker	2			DOCUMENT NUMBER PV-SMART-ENG-04
DIMENSIONS ARE IN INCHES TOLERANCES U.N.O. HOLES: +1/16", -1/32" ANGULAR: PROFILE ±1/4°, BEND ±2° ALL OTHERS: ±1/16"		BY BSB	1			REV 0
		CHECKED	0	INITIAL RELEASE	5/20/2020	
		STATUS APPROVED	REV	DESCRIPTION	DATE	

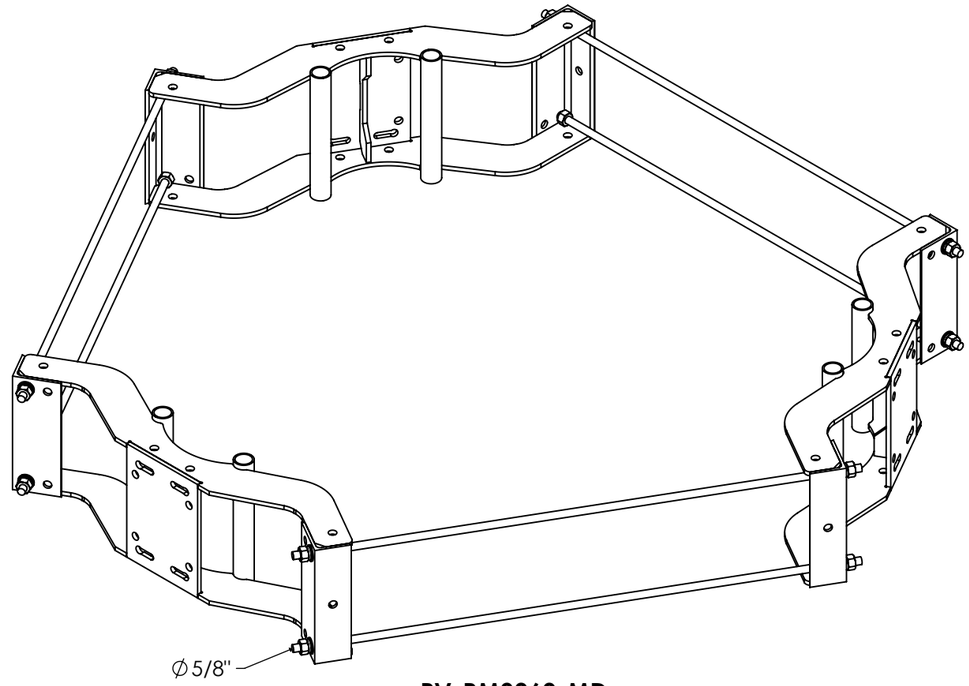
C:\PVMSteel\Catalog\SW Working Files\Engineering Details\

MD RING MOUNT

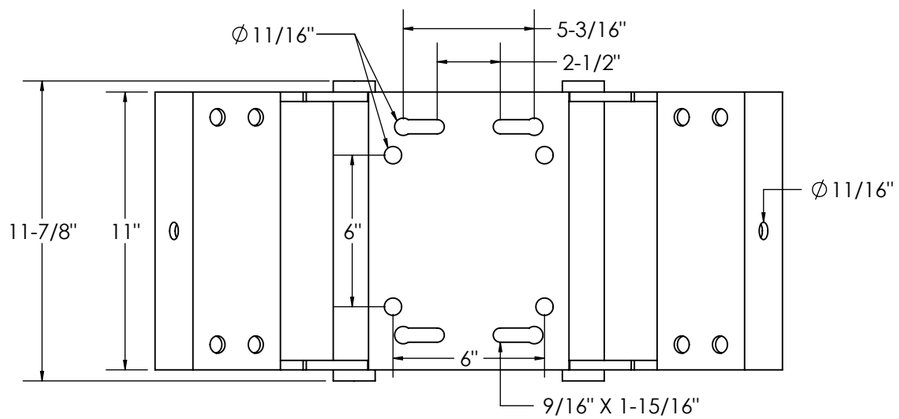
MEDIUM DUTY RING MOUNT



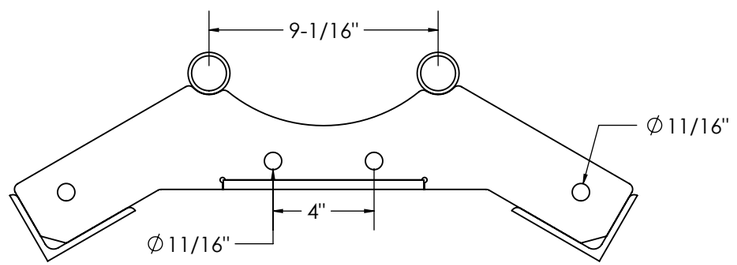
PV-RM1045-MD
MD RING MOUNT - 10" TO 45" POLE
WEIGHT: 152 LBS



PV-RM3060-MD
MD RING MOUNT - 30" TO 60" POLE
WEIGHT: 185 LBS



COLLAR ATTACHMENT POINTS
FRONT



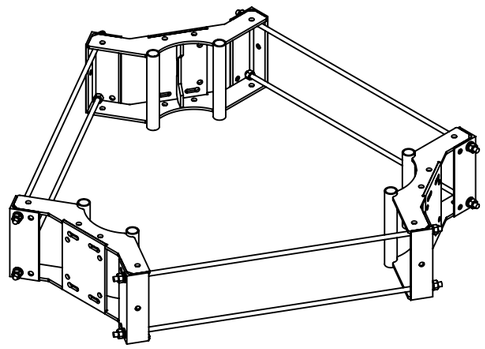
COLLAR ATTACHMENT POINTS
TOP

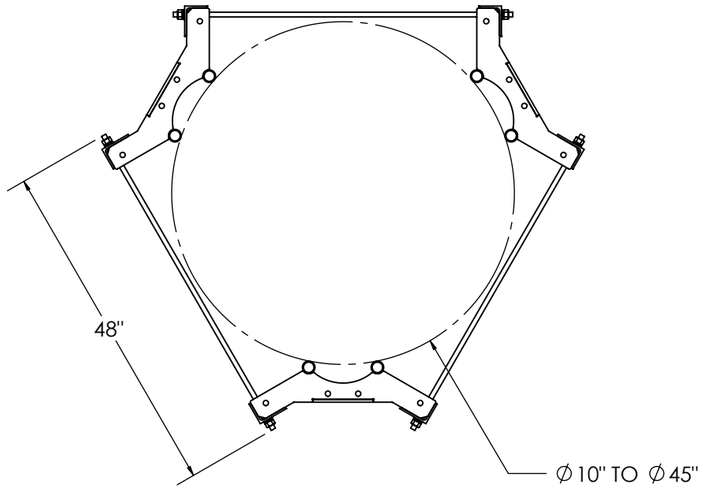
SHEET 1 OF 2	THIRD ANGLE PROJECTION	CATEGORY 02_Monopole	4			PERFECTVISION®
		SERIES 09_Ring Mounts	3			
9/27/2019	SCALE 1:12	TYPE PV-RMMD_Ring Mount	2			
DIMENSIONS ARE IN INCHES TOLERANCES U.N.O. HOLES: +1/16", -1/32" ANGULAR: PROFILE ±1/4°, BEND ±2° ALL OTHERS: ±1/16"		BY DJN	1			MEDIUM DUTY RING MOUNT
		CHECKED SJS	0	INITIAL RELEASE	06/06/2019	DOCUMENT NUMBER RMMD-ENG-01-R0 REV 0
		STATUS APPROVED	REV	DESCRIPTION	DATE	

C:\PVMSteel\Catalog\SW Working Files\Engineering Details\

STANDARD POLE (10" - 45" OD)

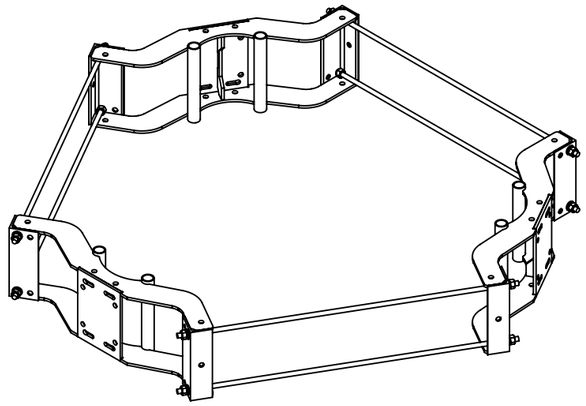
PV-RM1045-MD

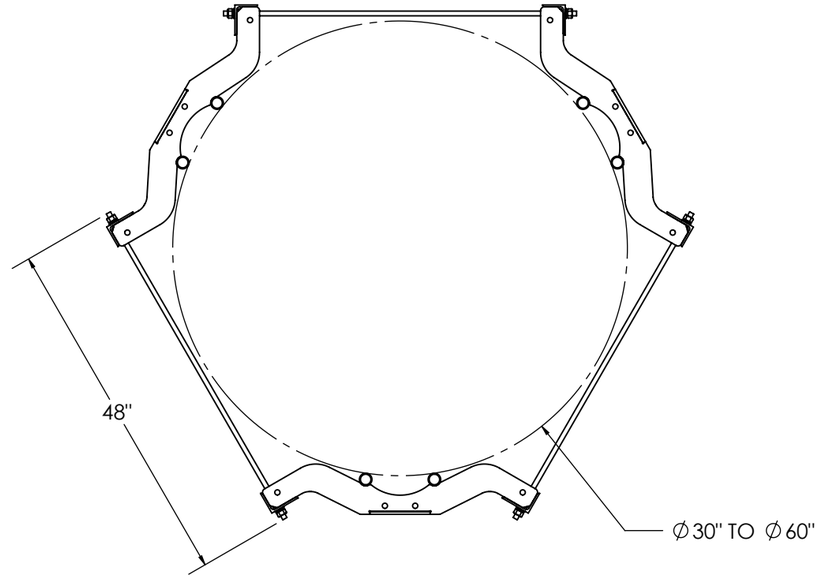




LARGE POLE (30" - 60" OD)

PV-RM3060-MD





ROD CUT LENGTH

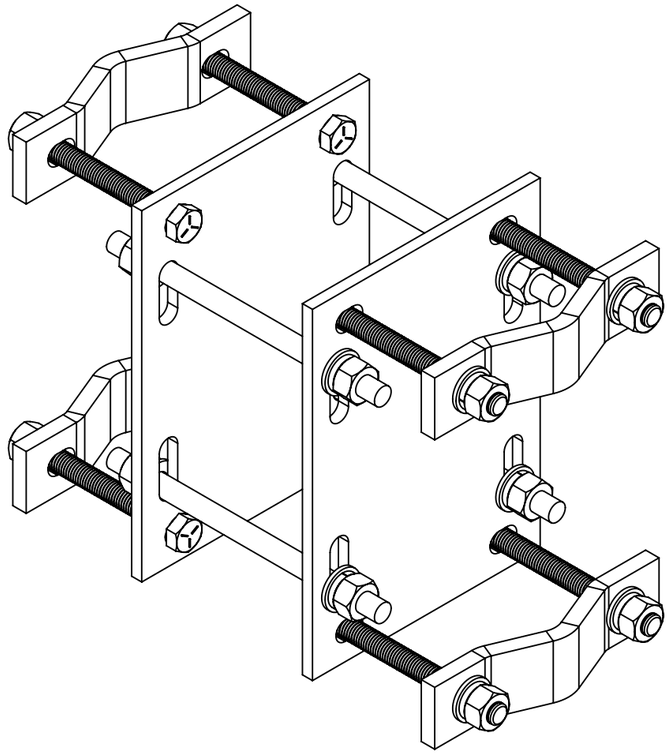
Threaded Rod Cut Length (in)		
Pole OD (in)	**PV-RM1045-MD**	**PV-RM3060-MD**
10	14	-
15	19.5	-
20	24.5	-
25	29	-
30	33.5	24
35	38	26.5
40	42.5	31
45	48	35.5
50	-	40
55	-	44
60	-	48

SHEET 2 OF 2	THIRD ANGLE PROJECTION	CATEGORY 02_Monopole	4			PERFECTVISION®
		SERIES 09_Ring Mounts	3			
9/27/2019	SCALE 1:20	TYPE PV-RMMD_Ring Mount	2			
DIMENSIONS ARE IN INCHES TOLERANCES U.N.O. HOLES: +1/16", -1/32" ANGULAR: PROFILE ±1/4°, BEND ±2° ALL OTHERS: ±1/16"		BY DJN	1			MEDIUM DUTY RING MOUNT
		CHECKED SJS	0	INITIAL RELEASE	06/06/2019	DOCUMENT NUMBER RMMD-ENG-01-R0 / REV 0
		STATUS APPROVED	REV	DESCRIPTION	DATE	

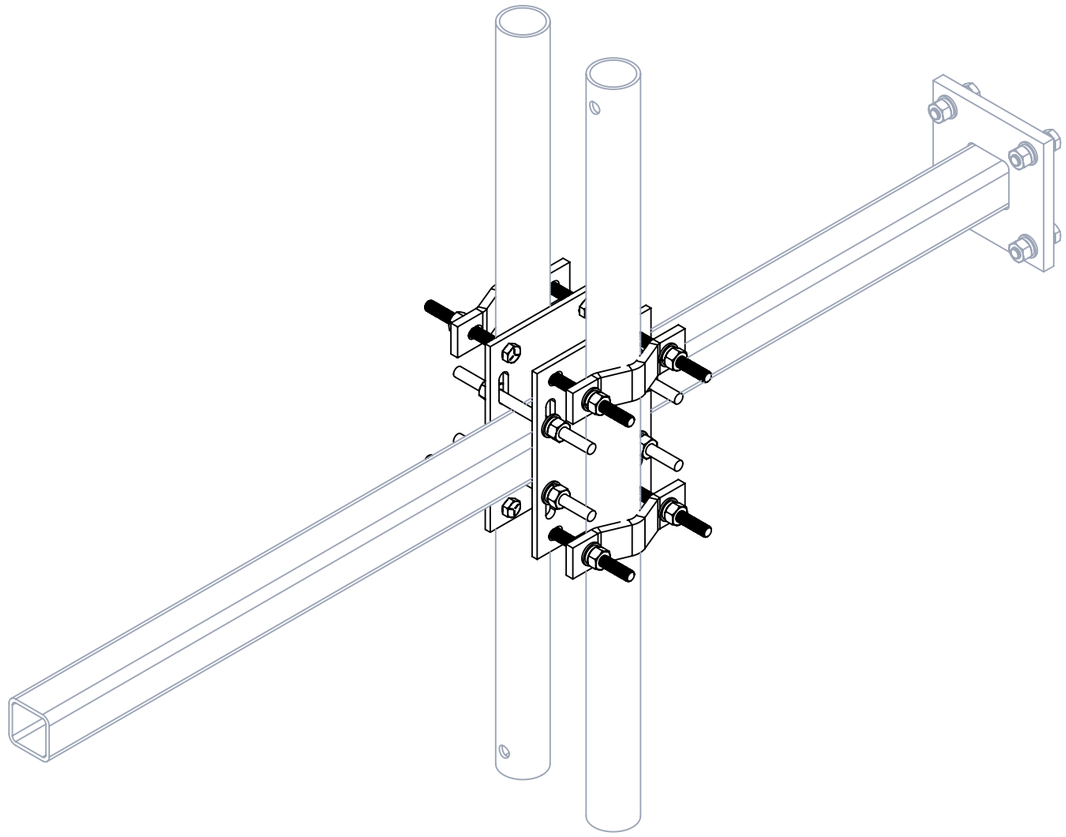
C:\PVMSteel\Catalog\SW Working Files\Engineering Details\

PV-SMART-MSK6

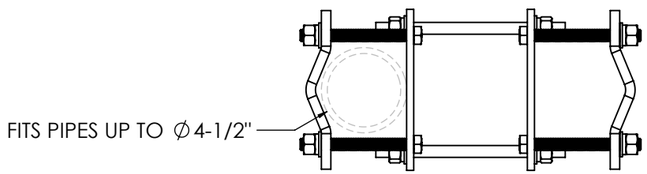
BACK TO BACK CROSSOVER FOR T-ARM



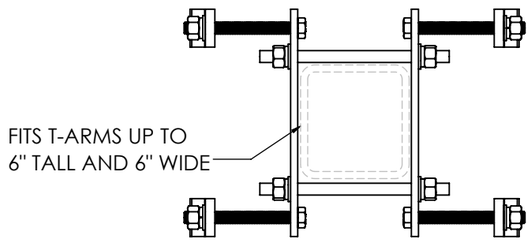
PV-SMART-MSK6
BACK-TO-BACK PIPE CLAMP FOR T-ARM
WEIGHT: 37.265LBS



PV-SMART-MSK6 SHOWN INSTALLED ON A T-ARM WITH DUAL PIPES INSTALLED



TOP VIEW



SIDE VIEW

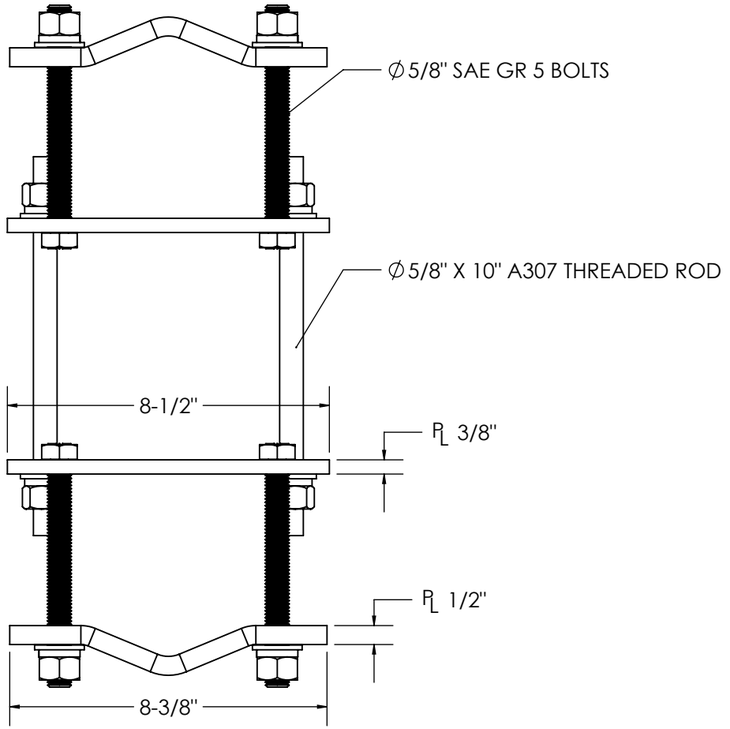
SHEET 1 OF 2	THIRD ANGLE PROJECTION	CATEGORY 14_PV-SMART	4		
		SERIES 01_MSK	3		
4/20/2021	SCALE 1:4	TYPE PV-SMART-MSK6	2		
DIMENSIONS ARE IN INCHES TOLERANCES U.N.O. HOLES: +1/16", -1/32" ANGULAR: PROFILE ±1/4°, BEND ±2° ALL OTHERS: ±1/16"		BY BSB	1		
		CHECKED SJS	0	INITIAL RELEASE	4/16/2021
		STATUS APPROVED	REV	DESCRIPTION	DATE

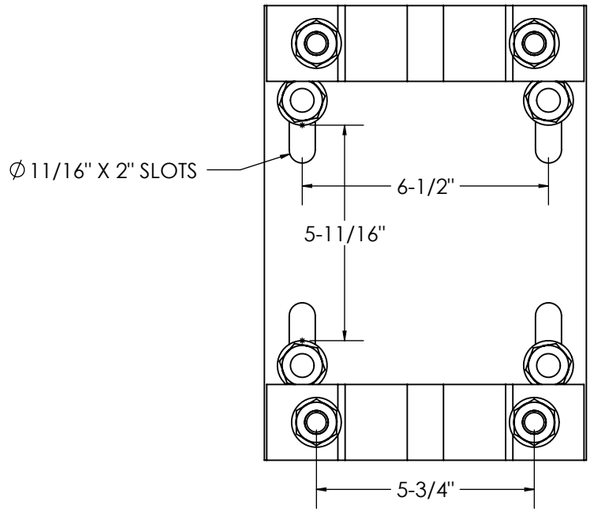
PERFECTVISION®

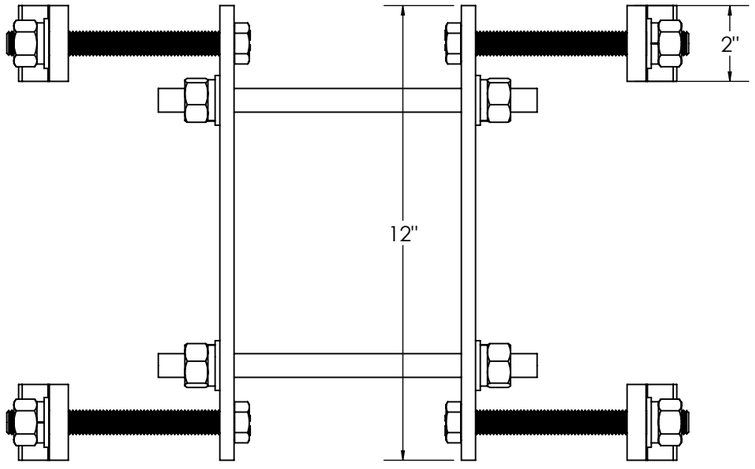
MSK6 BACK-TO-BLACK CLAMP FOR T-ARM

DOCUMENT NUMBER PV-SMART-ENG-13 | REV 0

C:\PVMSfleet\Catalog\SW Working Files\Engineering Details\







SHEET: 2 OF 2	THIRD ANGLE PROJECTION	CATEGORY: 14_PV-SMART	4			PERFECTVISION®
		SERIES: 01_MSK	3			
4/20/2021	SCALE: 1:4	TYPE: PV-SMART-MSK6	2			
DIMENSIONS ARE IN INCHES TOLERANCES U.N.O. HOLES: +1/16", -1/32" ANGULAR: PROFILE ±1/4°, BEND ±2° ALL OTHERS: ±1/16"		BY: BSB	1			MSK6 BACK-TO-BLACK CLAMP FOR T-ARM
		CHECKED: SJS	0	INITIAL RELEASE	4/16/2021	DOCUMENT NUMBER: PV-SMART-ENG-13 — REV: 0
		STATUS: APPROVED	REV	DESCRIPTION	DATE	

C:\PVMSteel\Catalog\SW Working Files\Engineering Details\

Wind & Ice Loading

Nominal Mount Elevation (AGL), z_{mount}	133 ft	K_a	0.90
Nominal Rad Elevation (AGL), z_{rad}	131 ft	K_d	0.95
Elevation AMSL (ft)	18 ft	K_e	1.00
TIA Standard	H	K_z	1.34
Basic Wind Speed, V_{ult} (bare)	118 mph	K_{zt}	1.00
Basic Wind Speed, V (ice)	50 mph	K_s	1.00
Design Ice Thickness, t_i	1 in	t_{iz}	1.15 in
Exposure Category	C	G_h	1.00
Risk Category	II	q_z (bare)	45.4 psf
Seismic Response Coeff., C_s	0.12	q_z (ice)	8.2 psf

Live Loading

At Mount Pipes, L_M	500 lb
Joint Labels Considered	M1
	M2
	M3

Member Distributed Loading

Section Set Label	Shape Label	F_A (lb/ft)		Ice Wt. (lb/ft)
		Bare	Ice	
Collar Conn. PL	PL8.5x3/8	57.94	7.94	9.55
Grating Angle	L1.5x1.5x1/4	10.22	1.83	4.18
Grating Pipe	PIPE_3.0	14.31	4.26	6.53
Offsett Tube	HSS5x3x3/8"	34.08	2.15	8.76
Platform Horizontal Pipe	PIPE_3.0	14.31	4.26	6.53
SR Conn Pipe	PIPE_2.0	9.71	3.43	4.95
Support Rail	PIPE_2.0	9.71	3.43	4.95
Mount Pipe	PIPE_2.0	9.71	3.43	4.95
Under Platform Kickers	L3X3X3	20.45	1.96	6.87

Appurtenances

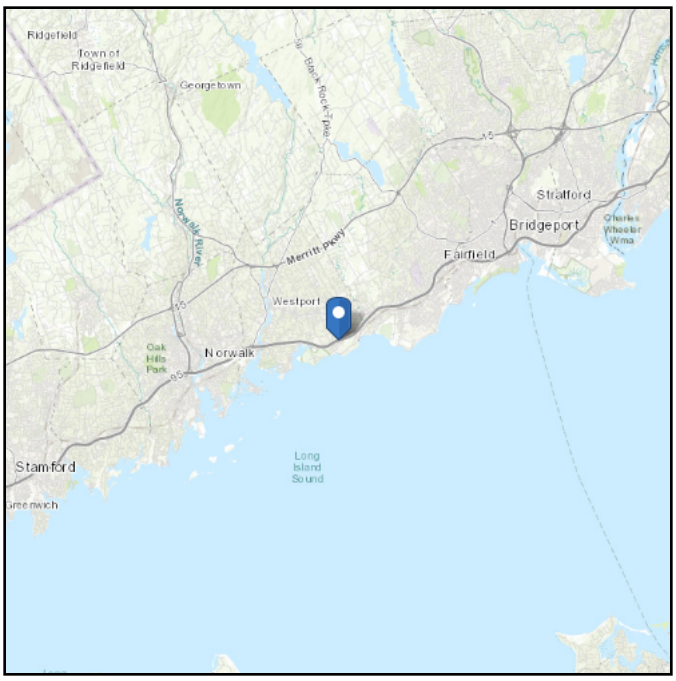
Appurtenance Model	Status	Azimuth Offset (°, ↻)	Rad Elev. Override (ft)	Swap Width & Depth	Area Factor		Qty. per Azimuth			Total Qty. Override	0° Joints		120° Joints		240° Joints		Height (in)	Width (in)	Depth (in)	Weight (Bare) (lb)	Shape	Weight of Ice (lb)	EPA_A (Bare) (ft²)		EPA_A (Ice) (ft²)		F_A (Bare) (lb)		F_A (Ice) (lb)	
					Front	Side	0°	120°	240°		1	2	1	2	1	2							N	T	N	T	N	T	N	T
OPA65R-BU6D				☐			1	1	1		A1	A2	B1	B2	C1	C2	71.2	21	7.8	63.5	Generic	172.24	12.22	4.54	13.96	6.03	498.59	185.24	102.30	44.19
AIR 6449 B77D			133	☐			1	1	1		A3	A4	B3	B4	C3	C4	30.4	15.9	10.6	81.6	Flat	76.90	4.03	2.72	4.96	3.52	164.87	111.41	36.45	25.87
AIR 6419 B77G			129	☐			1	1	1		A5	A6	B5	B6	C5	C6	28.3	16.1	7.9	66.1	Flat	63.86	3.80	1.94	4.69	2.65	154.42	78.81	34.24	19.33
DMP65R-BU6E				☐			1	1	1		A7	A9	B7	B8	C7	C8	71.2	20.7	9.7	103.8	Flat	183.60	12.71	6.77	14.45	8.33	518.56	276.18	105.84	61.05
DC6-48-60-0-8C				☐			1				DC1						31.41	10.24	10.24	26.2	Flat	59.59	2.74	2.74	3.55	3.55	111.66	111.66	25.97	25.97
DC6-48-60-18-8F				☐				1	1				DC2		DC3		24	11	11	18.9	Round	40.67	1.28	1.28	1.70	1.70	52.36	52.36	12.45	12.45
RRUS 8843 B2/B66A				☑		0.5	1	1	1		R1		R3		R5		14.9	13.2	10.9	72	Flat	40.39	1.35	0.82	1.89	1.11	55.22	33.44	13.85	8.13
RRUS 32 B30				☑		0.5	1	1	1		R1		R3		R5		26.7	12.1	6.7	60	Flat	46.83	1.57	1.35	2.23	1.74	64.17	54.92	16.35	12.74
RRUS 4478 B14				☑		0.5	1	1	1		R2		R4		R6		16.5	13.4	7.7	59.9	Flat	36.45	1.06	0.92	1.57	1.23	43.20	37.59	11.47	9.00
RRUS 4449 B5/B12				☑		0.5	1	1	1		R2		R4		R6		17.9	13.19	9.44	71	Flat	42.49	1.41	0.98	1.98	1.30	57.45	40.14	14.47	9.55

ASCE 7 Hazards Report

Address:
Governor John Davis Lodge Pkwy
Westport, Connecticut
06880

Standard: ASCE/SEI 7-16
Risk Category: II
Soil Class: D - Default (see Section 11.4.3)

Elevation: 18.27 ft (NAVD 88)
Latitude: 41.12384
Longitude: -73.313191



Wind

Results:

Wind Speed	118 Vmph
10-year MRI	75 Vmph
25-year MRI	85 Vmph
50-year MRI	90 Vmph
100-year MRI	98 Vmph

Data Source: ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed: Tue Mar 01 2022

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-16 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

Site is in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2. Glazed openings need not be protected against wind-borne debris.

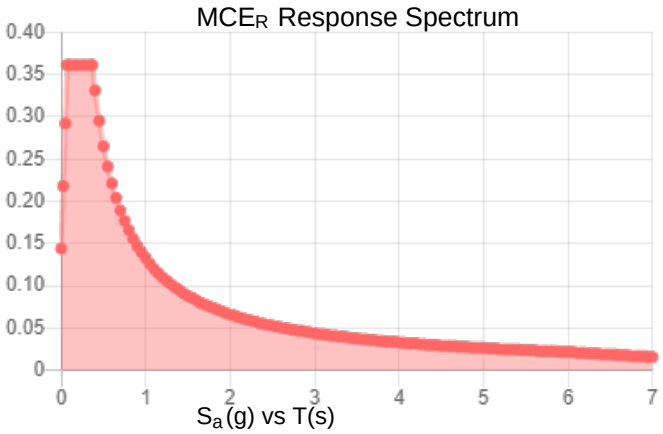
Seismic

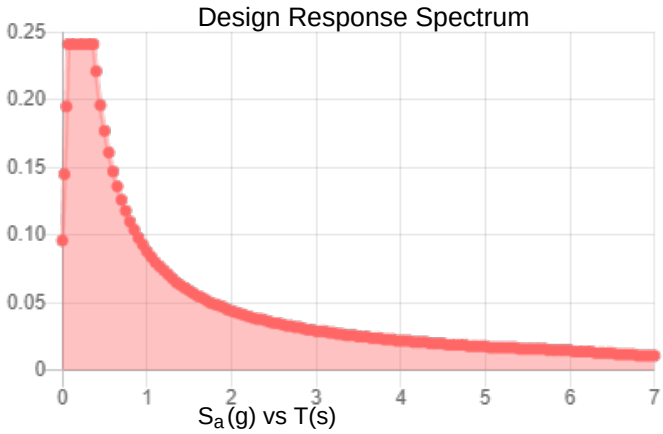
Site Soil Class: D - Default (see Section 11.4.3)

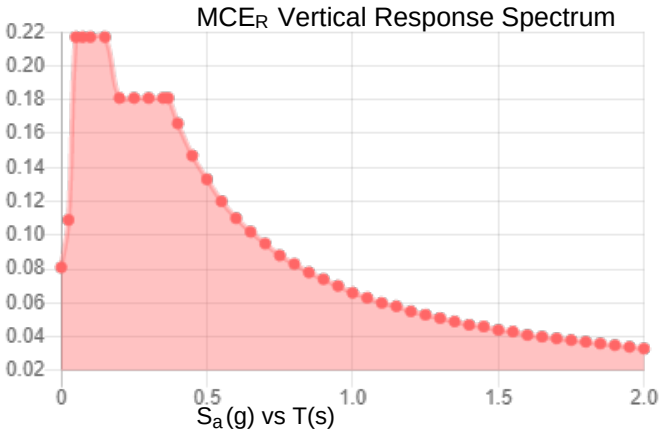
Results:

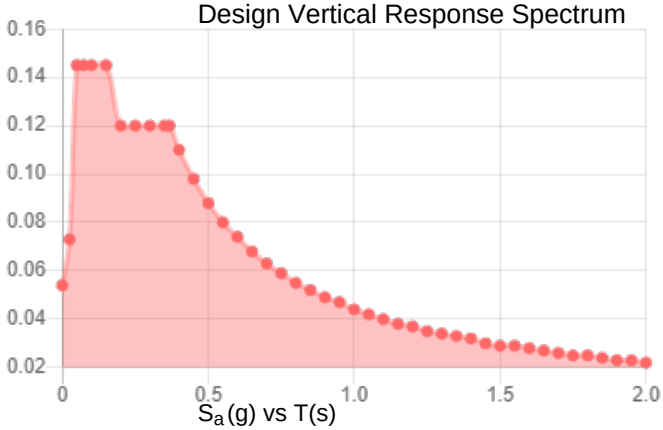
S_S :	0.226	S_{D1} :	0.088
S_1 :	0.055	T_L :	6
F_a :	1.6	PGA :	0.131
F_v :	2.4	PGA_M :	0.201
S_{MS} :	0.361	F_{PGA} :	1.538
S_{M1} :	0.133	I_e :	1
S_{DS} :	0.241	C_v :	0.751

Seismic Design Category B









Data Accessed: **Tue Mar 01 2022**

Date Source:

USGS Seismic Design Maps based on ASCE/SEI 7-16 and ASCE/SEI 7-16 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-16 Ch. 21 are available from USGS.

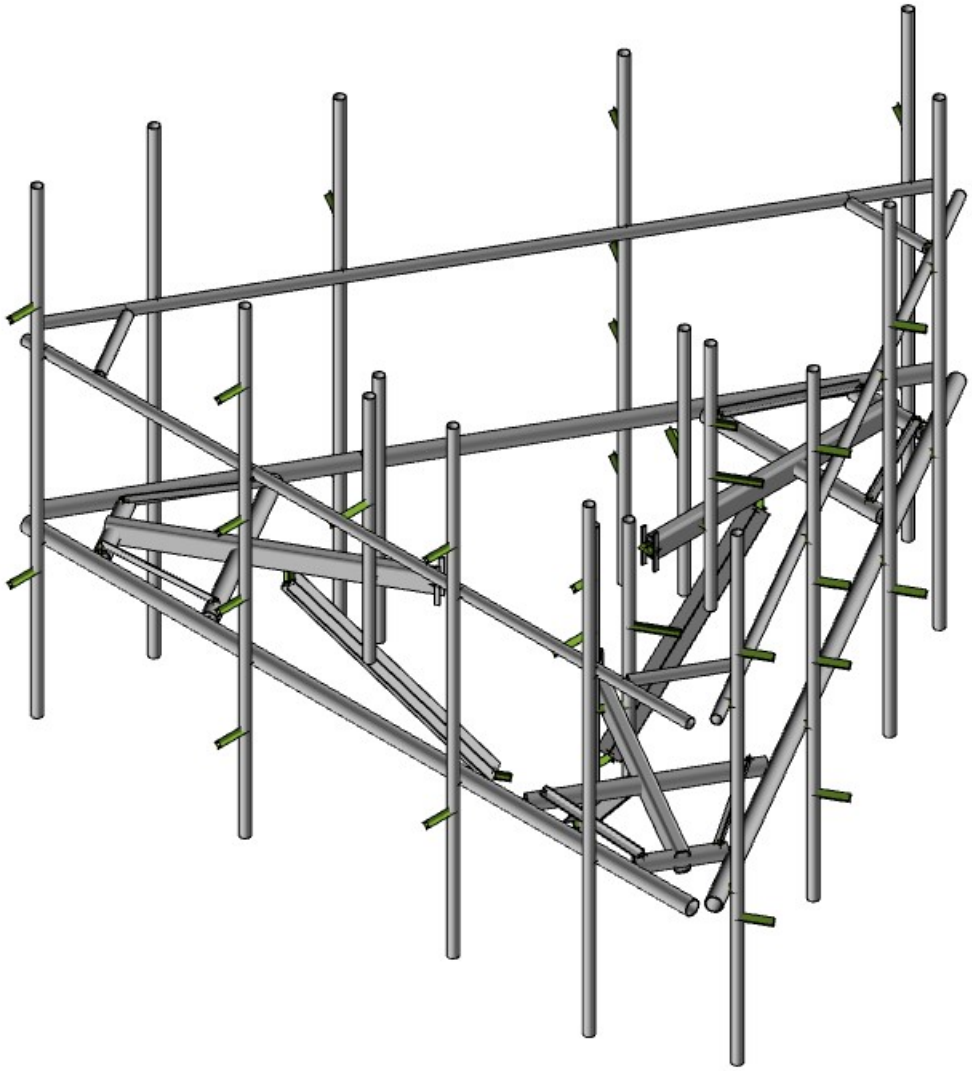
Ice

Results:

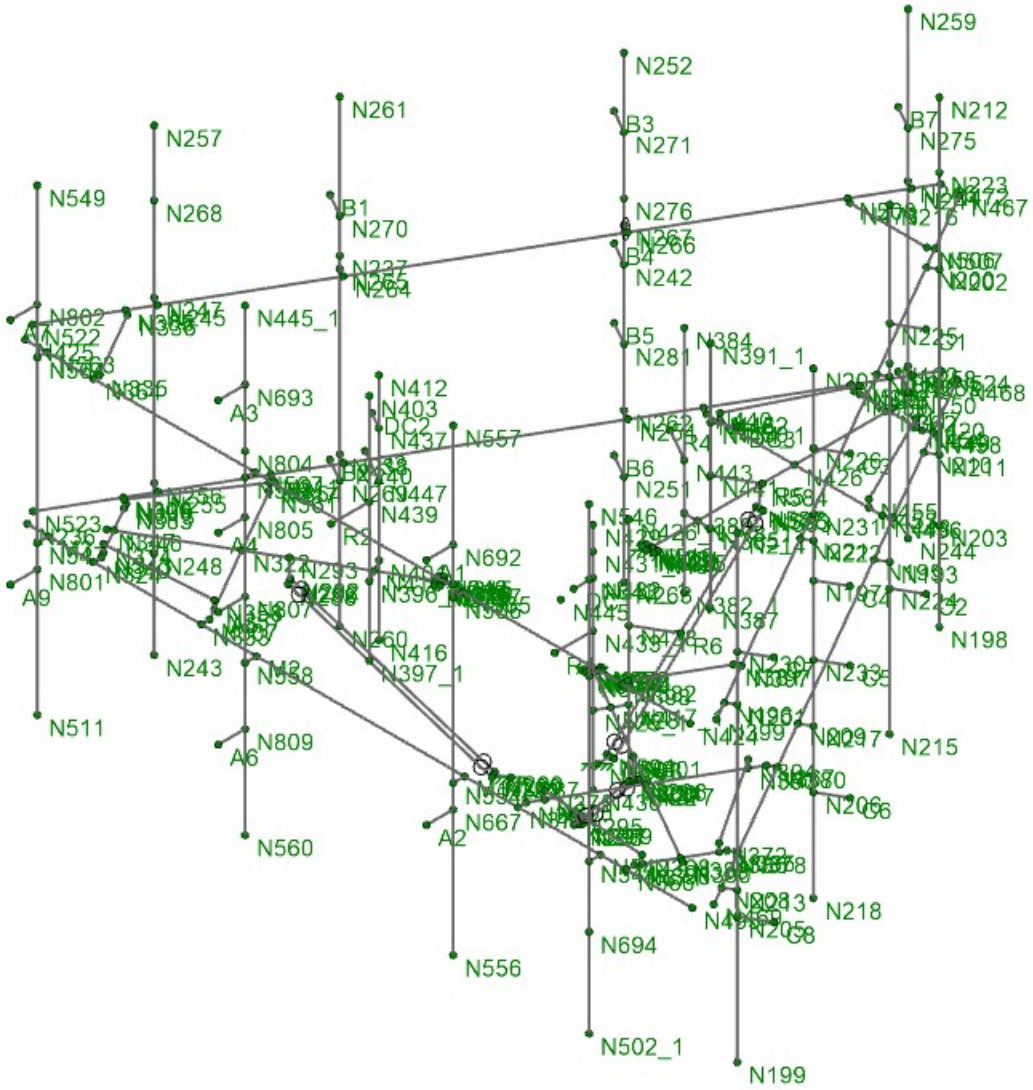
Ice Thickness:	1.00 in.
Concurrent Temperature:	15 F
Gust Speed	50 mph
Data Source:	Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8
Date Accessed:	Tue Mar 01 2022

Ice thicknesses on structures in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

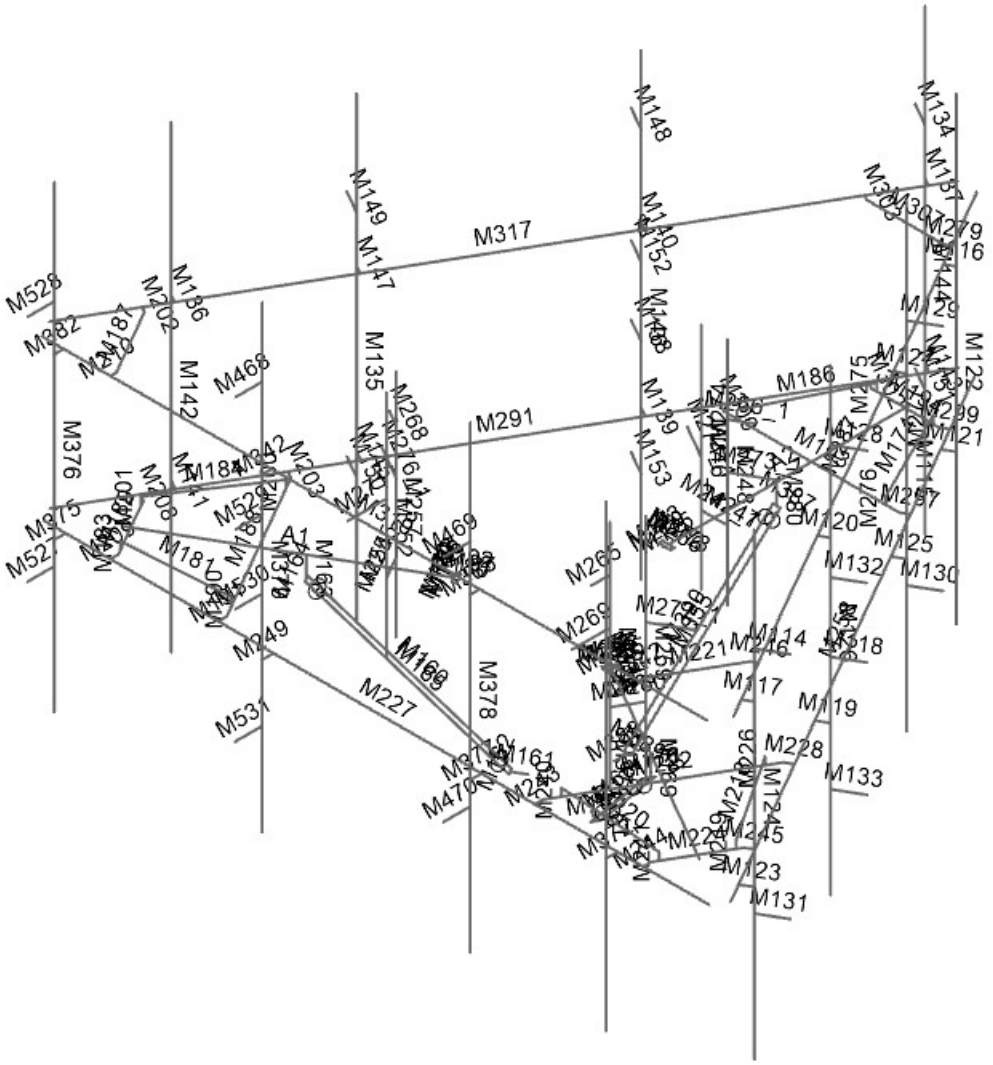
Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 500-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.



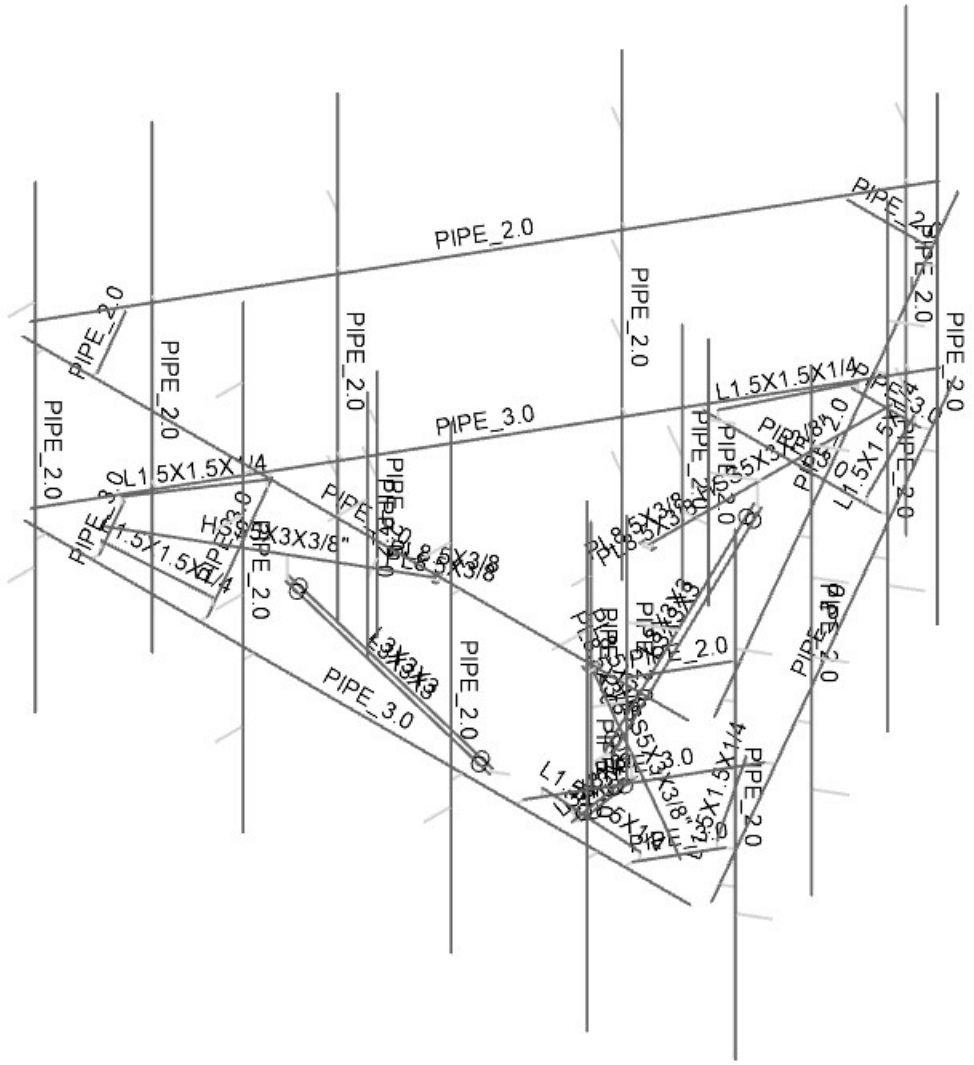
CLS	41124-13958510_C8_04-WSPT - South	SK-1
VH		Mar 21, 2022
41124-13958510_C8_04-02-MR	Rendered	302511-13958510_C8_04_AT&T MOBILITY.r3d



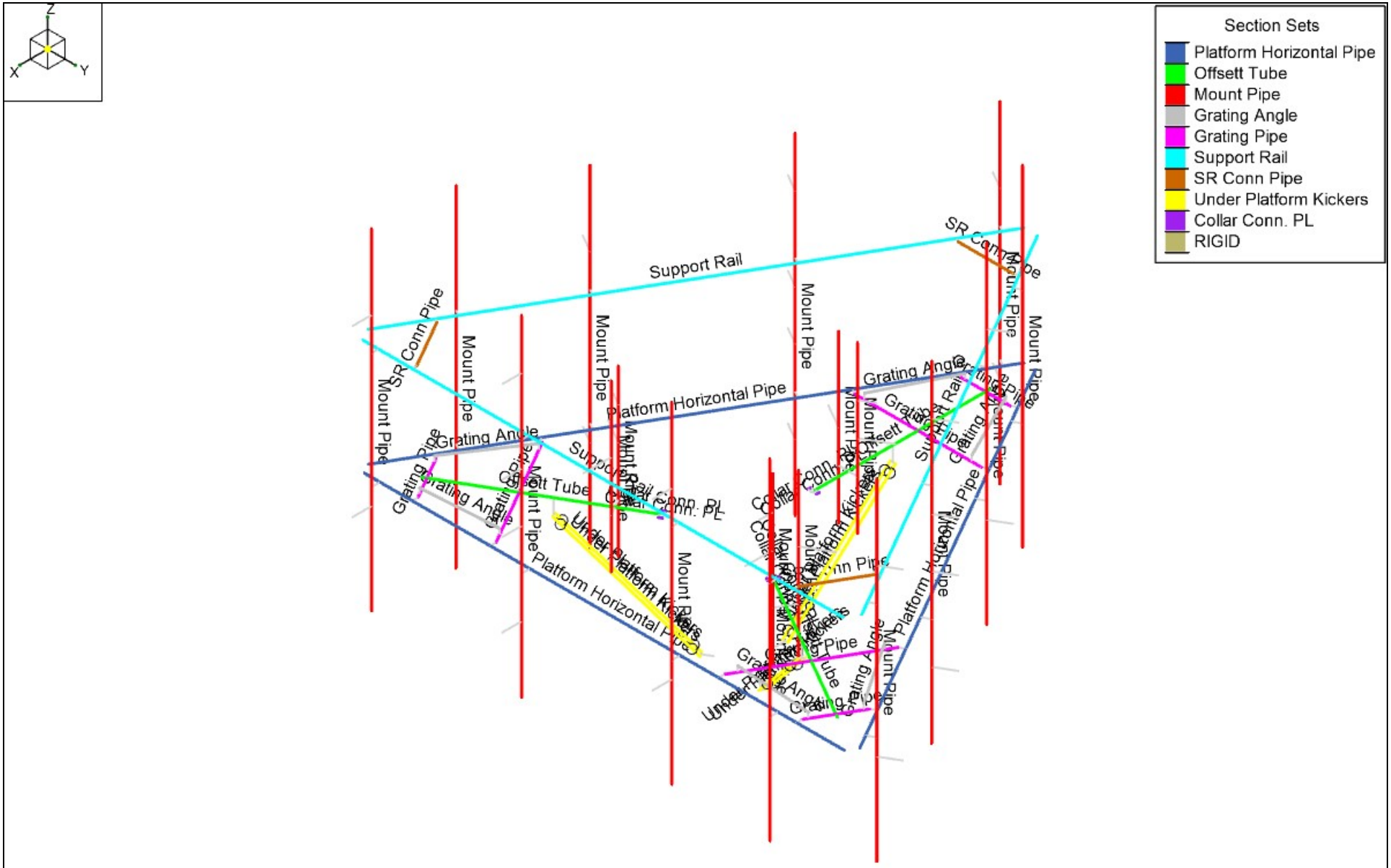
CLS	41124-13958510_C8_04-WSPT - South	SK-2
VH		Mar 21, 2022
41124-13958510_C8_04-02-MR	Joint Labels	302511-13958510_C8_04_AT&T MOBILITY.r3d



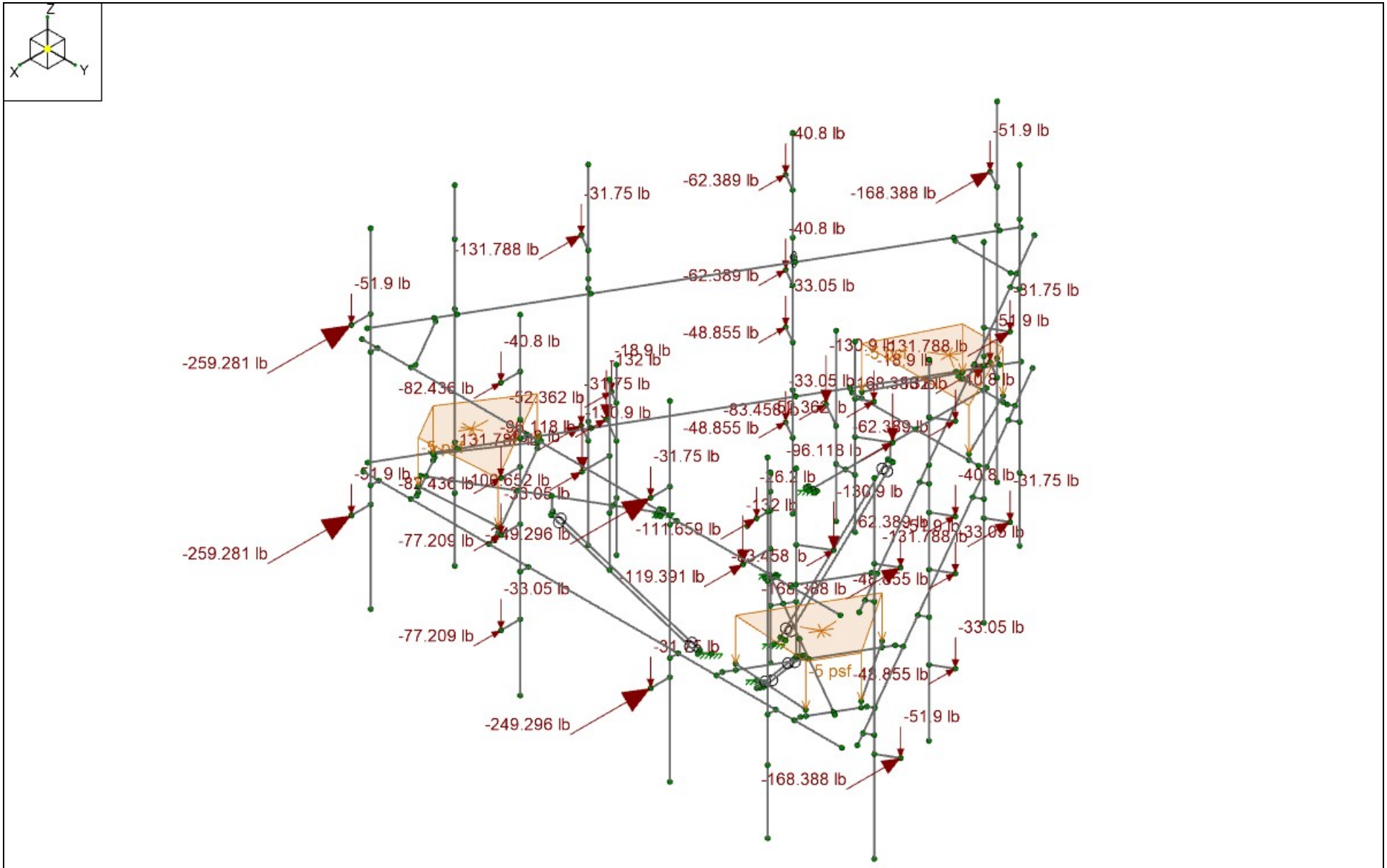
CLS	41124-13958510_C8_04-WSPT - South	SK-3
VH		Mar 21, 2022
41124-13958510_C8_04-02-MR	Member Labels	302511-13958510_C8_04_AT&T MOBILITY.r3d



CLS	41124-13958510_C8_04-WSPT - South	SK-3.1
VH		Mar 21, 2022
41124-13958510_C8_04-02-MR	Member Labels	302511-13958510_C8_04_AT&T MOBILITY.r3d

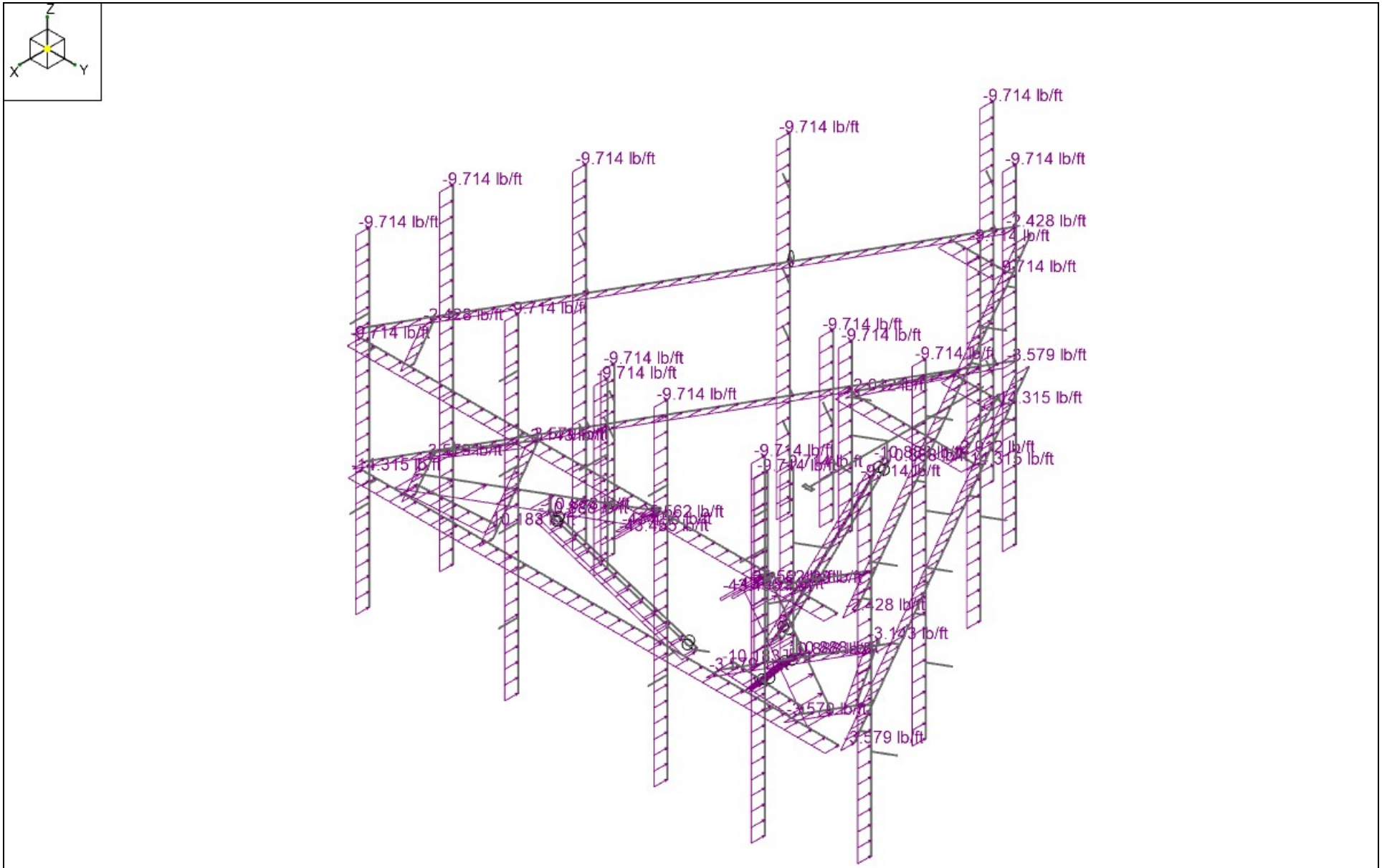


CLS	41124-13958510_C8_04-WSPT - South	SK-4
VH		Mar 21, 2022
41124-13958510_C8_04-02-MR	Section Sets	302511-13958510_C8_04_AT&T MOBILITY.r3d



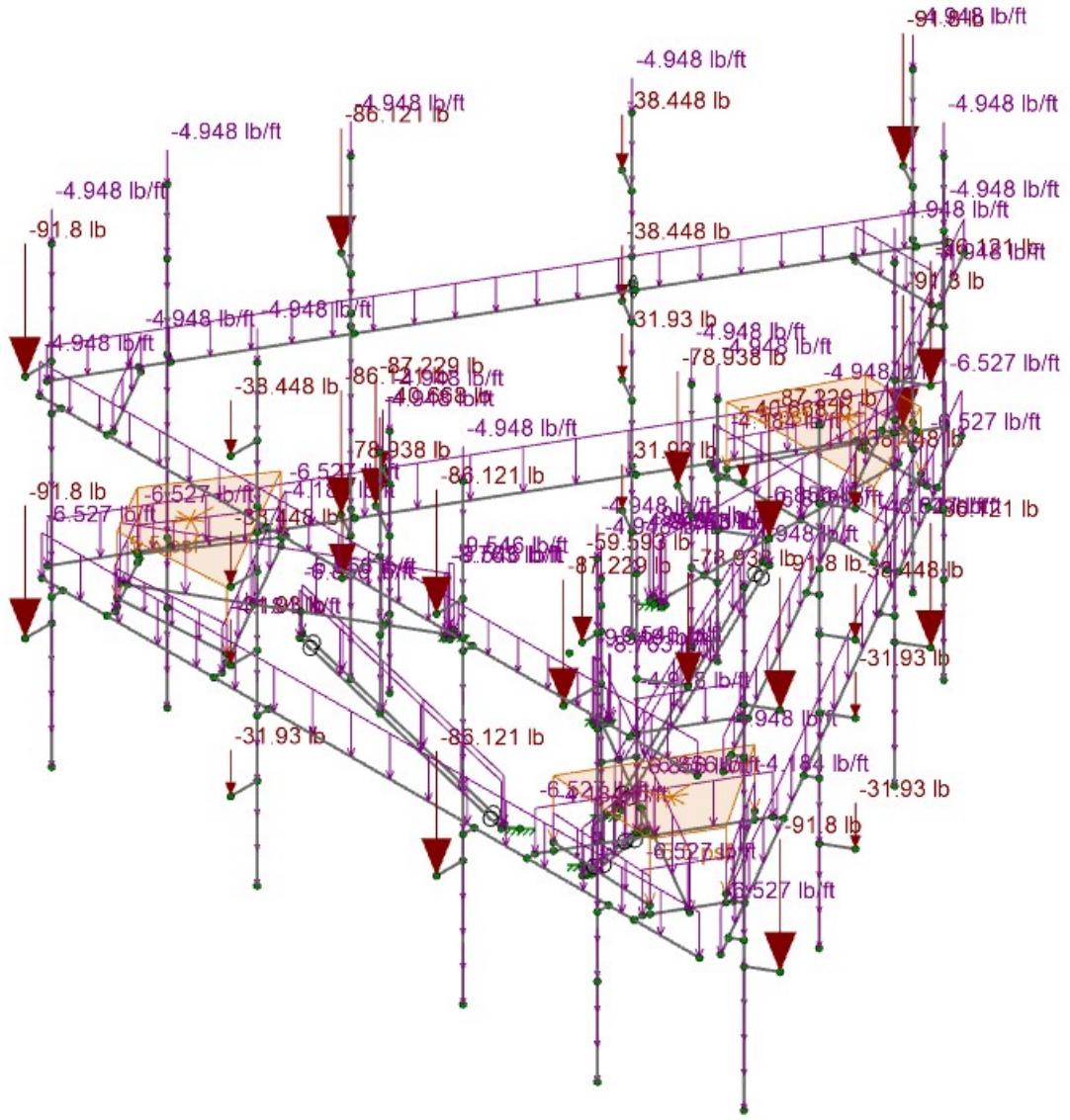
Loads: LC 1, DISPLAY (1.0D + 1.0W_0)

CLS	41124-13958510_C8_04-WSPT - South	SK-5
VH		Mar 21, 2022
41124-13958510_C8_04-02-MR	Joint Loads - Dead and Normal Wind	302511-13958510_C8_04_AT&T MOBILITY.r3d



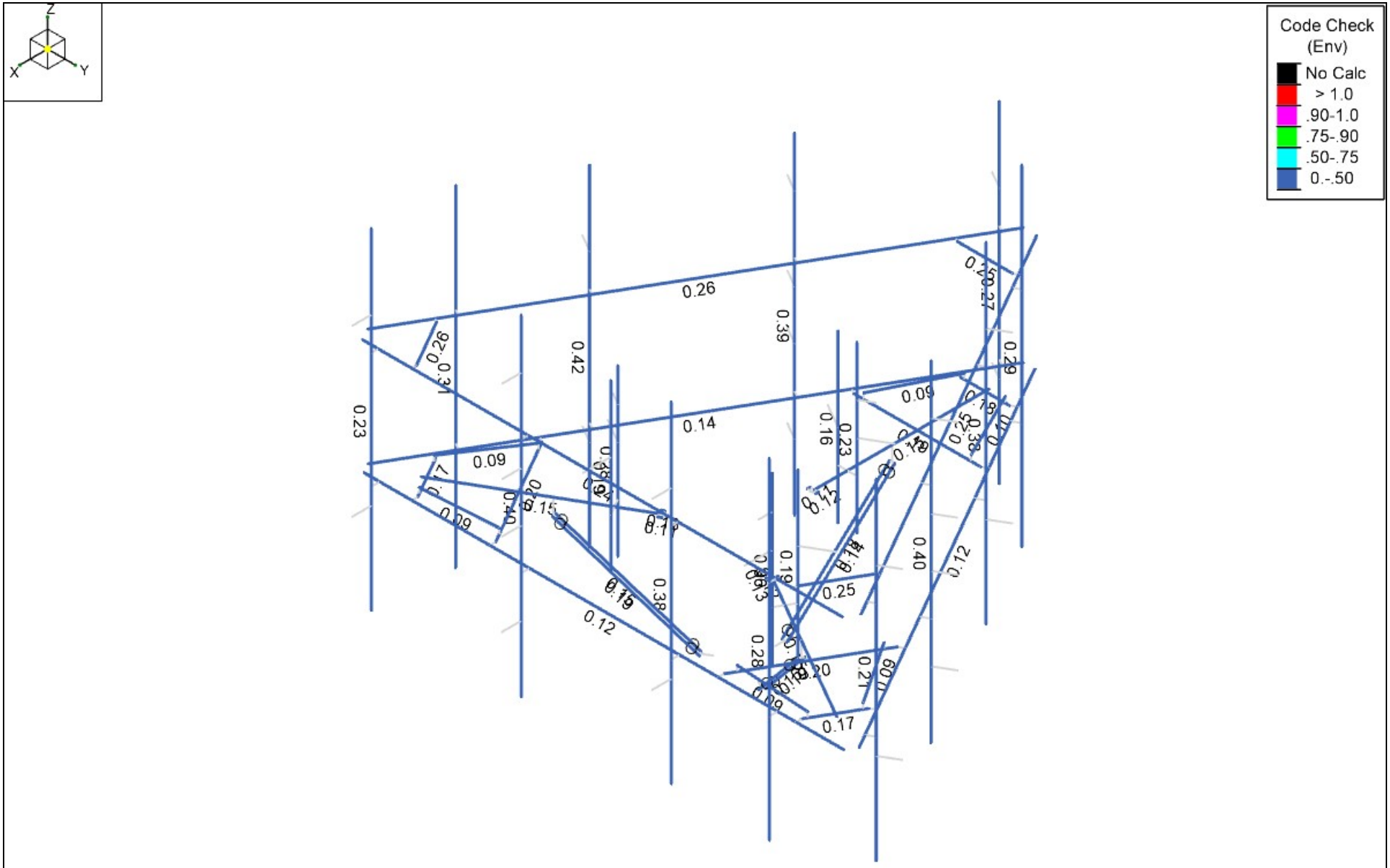
Loads: BLC 5, Structure Wind 0

CLS	41124-13958510_C8_04-WSPT - South	SK-6
VH		Mar 21, 2022
41124-13958510_C8_04-02-MR	Distributed Load - Normal Wind	302511-13958510_C8_04_AT&T MOBILITY.r3d

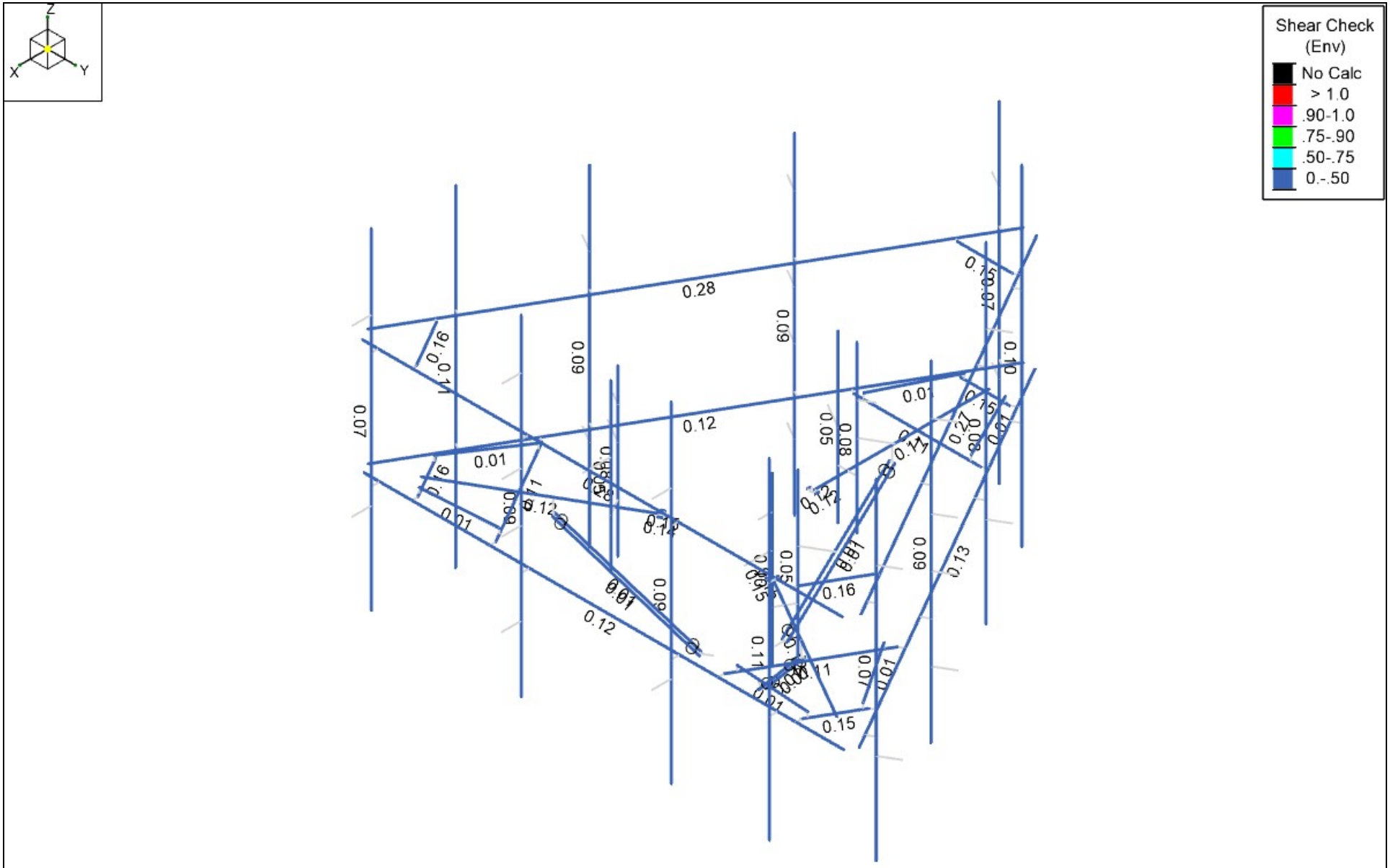


Loads: BLC 2, Ice Dead

CLS	41124-13958510_C8_04-WSPT - South	SK-7
VH		Mar 21, 2022
41124-13958510_C8_04-02-MR	Ice Dead Loads	302511-13958510_C8_04_AT&T MOBILITY.r3d



CLS	41124-13958510_C8_04-WSPT - South	SK-8
VH		Mar 21, 2022
41124-13958510_C8_04-02-MR	Envelope Member Unity Check Results - Bending	302511-13958510_C8_04_AT&T MOBILITY.r3d



CLS	41124-13958510_C8_04-WSPT - South	SK-9
VH		Mar 21, 2022
41124-13958510_C8_04-02-MR	Envelope Member Check Results - Shear	302511-13958510_C8_04_AT&T MOBILITY.r3d

Basic Load Cases

	BLC Description	Category	Z Gravity	Nodal	Distributed	Area(Member)
1	Dead	DL	-1	39		3
2	Ice Dead	RL		39	54	3
3	BLC 1 Transient Area Loads	None			9	
4	BLC 2 Transient Area Loads	None			9	
5	Structure Wind 0°	None			51	
6	Structure Wind 30°	None			98	
7	Structure Wind 45°	None			108	
8	Structure Wind 60°	None			102	
9	Structure Wind 90°	None			49	
10	Structure Wind 120°	None			102	
11	Structure Wind 135°	None			108	
12	Structure Wind 150°	None			98	
13	Structure Wind 180°	None			51	
14	Structure Wind 210°	None			98	
15	Structure Wind 225°	None			108	
16	Structure Wind 240°	None			102	
17	Structure Wind 270°	None			49	
18	Structure Wind 300°	None			102	
19	Structure Wind 315°	None			108	
20	Structure Wind 330°	None			98	
21	Structure Wind w/ Ice 0°	None			51	
22	Structure Wind w/ Ice 30°	None			98	
23	Structure Wind w/ Ice 45°	None			108	
24	Structure Wind w/ Ice 60°	None			102	
25	Structure Wind w/ Ice 90°	None			49	
26	Structure Wind w/ Ice 120°	None			102	
27	Structure Wind w/ Ice 135°	None			108	
28	Structure Wind w/ Ice 150°	None			98	
29	Structure Wind w/ Ice 180°	None			51	
30	Structure Wind w/ Ice 210°	None			98	
31	Structure Wind w/ Ice 225°	None			108	
32	Structure Wind w/ Ice 240°	None			102	
33	Structure Wind w/ Ice 270°	None			49	
34	Structure Wind w/ Ice 300°	None			102	
35	Structure Wind w/ Ice 315°	None			108	
36	Structure Wind w/ Ice 330°	None			98	
37	Antenna Wind 0°	None		39		
38	Antenna Wind 30°	None		78		
39	Antenna Wind 45°	None		78		
40	Antenna Wind 60°	None		78		
41	Antenna Wind 90°	None		39		
42	Antenna Wind 120°	None		78		
43	Antenna Wind 135°	None		78		
44	Antenna Wind 150°	None		78		
45	Antenna Wind 180°	None		39		
46	Antenna Wind 210°	None		78		
47	Antenna Wind 225°	None		78		
48	Antenna Wind 240°	None		78		
49	Antenna Wind 270°	None		39		
50	Antenna Wind 300°	None		78		
51	Antenna Wind 315°	None		78		
52	Antenna Wind 330°	None		78		
53	Antenna Wind w/ Ice 0°	None		39		
54	Antenna Wind w/ Ice 30°	None		78		
55	Antenna Wind w/ Ice 45°	None		78		
56	Antenna Wind w/ Ice 60°	None		78		
57	Antenna Wind w/ Ice 90°	None		39		
58	Antenna Wind w/ Ice 120°	None		78		

Basic Load Cases (Continued)

	BLC Description	Category	Z Gravity	Nodal	Distributed	Area(Member)
59	Antenna Wind w/ Ice 135°	None		78		
60	Antenna Wind w/ Ice 150°	None		78		
61	Antenna Wind w/ Ice 180°	None		39		
62	Antenna Wind w/ Ice 210°	None		78		
63	Antenna Wind w/ Ice 225°	None		78		
64	Antenna Wind w/ Ice 240°	None		78		
65	Antenna Wind w/ Ice 270°	None		39		
66	Antenna Wind w/ Ice 300°	None		78		
67	Antenna Wind w/ Ice 315°	None		78		
68	Antenna Wind w/ Ice 330°	None		78		
69	Seismic X	ELX		39	54	
70	Seismic Y	ELY		39	54	
71	Seismic Z	ELZ		39	54	
72	Maintenance Live 500 (1)	OL1		1		
73	Maintenance Live 500 (2)	OL2		1		
74	Maintenance Live 500 (3)	OL3		1		

Load Combinations

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	DISPLAY (1.0D + 1.0W_0°)	Yes	Y	DL	1	37	1				
2	1.4D	Yes	Y	DL	1.4						
3	1.2D + 1.0W_0°	Yes	Y	DL	1.2	5	1	37	1		
4	1.2D + 1.0W_30°	Yes	Y	DL	1.2	6	1	38	1		
5	1.2D + 1.0W_45°	Yes	Y	DL	1.2	7	1	39	1		
6	1.2D + 1.0W_60°	Yes	Y	DL	1.2	8	1	40	1		
7	1.2D + 1.0W_90°	Yes	Y	DL	1.2	9	1	41	1		
8	1.2D + 1.0W_120°	Yes	Y	DL	1.2	10	1	42	1		
9	1.2D + 1.0W_135°	Yes	Y	DL	1.2	11	1	43	1		
10	1.2D + 1.0W_150°	Yes	Y	DL	1.2	12	1	44	1		
11	1.2D + 1.0W_180°	Yes	Y	DL	1.2	13	-1	45	-1		
12	1.2D + 1.0W_210°	Yes	Y	DL	1.2	14	-1	46	-1		
13	1.2D + 1.0W_225°	Yes	Y	DL	1.2	15	-1	47	-1		
14	1.2D + 1.0W_240°	Yes	Y	DL	1.2	16	-1	48	-1		
15	1.2D + 1.0W_270°	Yes	Y	DL	1.2	17	-1	49	-1		
16	1.2D + 1.0W_300°	Yes	Y	DL	1.2	18	-1	50	-1		
17	1.2D + 1.0W_315°	Yes	Y	DL	1.2	19	-1	51	-1		
18	1.2D + 1.0W_330°	Yes	Y	DL	1.2	20	-1	52	-1		
19	1.2D + 1.0Di + 1.0Wi_0°	Yes	Y	DL	1.2	21	1	53	1	RL	1
20	1.2D + 1.0Di + 1.0Wi_30°	Yes	Y	DL	1.2	22	1	54	1	RL	1
21	1.2D + 1.0Di + 1.0Wi_45°	Yes	Y	DL	1.2	23	1	55	1	RL	1
22	1.2D + 1.0Di + 1.0Wi_60°	Yes	Y	DL	1.2	24	1	56	1	RL	1
23	1.2D + 1.0Di + 1.0Wi_90°	Yes	Y	DL	1.2	25	1	57	1	RL	1
24	1.2D + 1.0Di + 1.0Wi_120°	Yes	Y	DL	1.2	26	1	58	1	RL	1
25	1.2D + 1.0Di + 1.0Wi_135°	Yes	Y	DL	1.2	27	1	59	1	RL	1
26	1.2D + 1.0Di + 1.0Wi_150°	Yes	Y	DL	1.2	28	1	60	1	RL	1
27	1.2D + 1.0Di + 1.0Wi_180°	Yes	Y	DL	1.2	29	-1	61	-1	RL	1
28	1.2D + 1.0Di + 1.0Wi_210°	Yes	Y	DL	1.2	30	-1	62	-1	RL	1
29	1.2D + 1.0Di + 1.0Wi_225°	Yes	Y	DL	1.2	31	-1	63	-1	RL	1
30	1.2D + 1.0Di + 1.0Wi_240°	Yes	Y	DL	1.2	32	-1	64	-1	RL	1
31	1.2D + 1.0Di + 1.0Wi_270°	Yes	Y	DL	1.2	33	-1	65	-1	RL	1
32	1.2D + 1.0Di + 1.0Wi_300°	Yes	Y	DL	1.2	34	-1	66	-1	RL	1
33	1.2D + 1.0Di + 1.0Wi_315°	Yes	Y	DL	1.2	35	-1	67	-1	RL	1
34	1.2D + 1.0Di + 1.0Wi_330°	Yes	Y	DL	1.2	36	-1	68	-1	RL	1
35	1.2D + 1.0Ev + 1.0Eh_0°	Yes	Y	DL	1.248	ELX	-1	ELY			
36	1.2D + 1.0Ev + 1.0Eh_30°	Yes	Y	DL	1.248	ELX	-0.866	ELY	0.5		
37	1.2D + 1.0Ev + 1.0Eh_45°	Yes	Y	DL	1.248	ELX	-0.707	ELY	0.707		
38	1.2D + 1.0Ev + 1.0Eh_60°	Yes	Y	DL	1.248	ELX	-0.5	ELY	0.866		
39	1.2D + 1.0Ev + 1.0Eh_90°	Yes	Y	DL	1.248	ELX		ELY	1		

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
40	1.2D + 1.0Ev + 1.0Eh_120°	Yes	Y	DL	1.248	ELX	0.5	ELY	0.866		
41	1.2D + 1.0Ev + 1.0Eh_135°	Yes	Y	DL	1.248	ELX	0.707	ELY	0.707		
42	1.2D + 1.0Ev + 1.0Eh_150°	Yes	Y	DL	1.248	ELX	0.866	ELY	0.5		
43	1.2D + 1.0Ev + 1.0Eh_180°	Yes	Y	DL	1.248	ELX	1	ELY			
44	1.2D + 1.0Ev + 1.0Eh_210°	Yes	Y	DL	1.248	ELX	0.866	ELY	-0.5		
45	1.2D + 1.0Ev + 1.0Eh_225°	Yes	Y	DL	1.248	ELX	0.707	ELY	-0.707		
46	1.2D + 1.0Ev + 1.0Eh_240°	Yes	Y	DL	1.248	ELX	0.5	ELY	-0.866		
47	1.2D + 1.0Ev + 1.0Eh_270°	Yes	Y	DL	1.248	ELX		ELY	-1		
48	1.2D + 1.0Ev + 1.0Eh_300°	Yes	Y	DL	1.248	ELX	-0.5	ELY	-0.866		
49	1.2D + 1.0Ev + 1.0Eh_315°	Yes	Y	DL	1.248	ELX	-0.707	ELY	-0.707		
50	1.2D + 1.0Ev + 1.0Eh_330°	Yes	Y	DL	1.248	ELX	-0.866	ELY	-0.5		
51	0.9D - 1.0Ev + 1.0Eh_0°	Yes	Y	DL	0.852	ELX	-1	ELY			
52	0.9D - 1.0Ev + 1.0Eh_30°	Yes	Y	DL	0.852	ELX	-0.866	ELY	0.5		
53	0.9D - 1.0Ev + 1.0Eh_45°	Yes	Y	DL	0.852	ELX	-0.707	ELY	0.707		
54	0.9D - 1.0Ev + 1.0Eh_60°	Yes	Y	DL	0.852	ELX	-0.5	ELY	0.866		
55	0.9D - 1.0Ev + 1.0Eh_90°	Yes	Y	DL	0.852	ELX		ELY	1		
56	0.9D - 1.0Ev + 1.0Eh_120°	Yes	Y	DL	0.852	ELX	0.5	ELY	0.866		
57	0.9D - 1.0Ev + 1.0Eh_135°	Yes	Y	DL	0.852	ELX	0.707	ELY	0.707		
58	0.9D - 1.0Ev + 1.0Eh_150°	Yes	Y	DL	0.852	ELX	0.866	ELY	0.5		
59	0.9D - 1.0Ev + 1.0Eh_180°	Yes	Y	DL	0.852	ELX	1	ELY			
60	0.9D - 1.0Ev + 1.0Eh_210°	Yes	Y	DL	0.852	ELX	0.866	ELY	-0.5		
61	0.9D - 1.0Ev + 1.0Eh_225°	Yes	Y	DL	0.852	ELX	0.707	ELY	-0.707		
62	0.9D - 1.0Ev + 1.0Eh_240°	Yes	Y	DL	0.852	ELX	0.5	ELY	-0.866		
63	0.9D - 1.0Ev + 1.0Eh_270°	Yes	Y	DL	0.852	ELX		ELY	-1		
64	0.9D - 1.0Ev + 1.0Eh_300°	Yes	Y	DL	0.852	ELX	-0.5	ELY	-0.866		
65	0.9D - 1.0Ev + 1.0Eh_315°	Yes	Y	DL	0.852	ELX	-0.707	ELY	-0.707		
66	0.9D - 1.0Ev + 1.0Eh_330°	Yes	Y	DL	0.852	ELX	-0.866	ELY	-0.5		
67	1.2D + 1.5Lm_1 + 1.0Wm_0°	Yes	Y	DL	1.2	5	0.068	37	0.068	OL1	1.5
68	1.2D + 1.5Lm_1 + 1.0Wm_30°	Yes	Y	DL	1.2	6	0.068	38	0.068	OL1	1.5
69	1.2D + 1.5Lm_1 + 1.0Wm_45°	Yes	Y	DL	1.2	7	0.068	39	0.068	OL1	1.5
70	1.2D + 1.5Lm_1 + 1.0Wm_60°	Yes	Y	DL	1.2	8	0.068	40	0.068	OL1	1.5
71	1.2D + 1.5Lm_1 + 1.0Wm_90°	Yes	Y	DL	1.2	9	0.068	41	0.068	OL1	1.5
72	1.2D + 1.5Lm_1 + 1.0Wm_120°	Yes	Y	DL	1.2	10	0.068	42	0.068	OL1	1.5
73	1.2D + 1.5Lm_1 + 1.0Wm_135°	Yes	Y	DL	1.2	11	0.068	43	0.068	OL1	1.5
74	1.2D + 1.5Lm_1 + 1.0Wm_150°	Yes	Y	DL	1.2	12	0.068	44	0.068	OL1	1.5
75	1.2D + 1.5Lm_1 + 1.0Wm_180°	Yes	Y	DL	1.2	13	-0.068	45	-0.068	OL1	1.5
76	1.2D + 1.5Lm_1 + 1.0Wm_210°	Yes	Y	DL	1.2	14	-0.068	46	-0.068	OL1	1.5
77	1.2D + 1.5Lm_1 + 1.0Wm_225°	Yes	Y	DL	1.2	15	-0.068	47	-0.068	OL1	1.5
78	1.2D + 1.5Lm_1 + 1.0Wm_240°	Yes	Y	DL	1.2	16	-0.068	48	-0.068	OL1	1.5
79	1.2D + 1.5Lm_1 + 1.0Wm_270°	Yes	Y	DL	1.2	17	-0.068	49	-0.068	OL1	1.5
80	1.2D + 1.5Lm_1 + 1.0Wm_300°	Yes	Y	DL	1.2	18	-0.068	50	-0.068	OL1	1.5
81	1.2D + 1.5Lm_1 + 1.0Wm_315°	Yes	Y	DL	1.2	19	-0.068	51	-0.068	OL1	1.5
82	1.2D + 1.5Lm_1 + 1.0Wm_330°	Yes	Y	DL	1.2	20	-0.068	52	-0.068	OL1	1.5
83	1.2D + 1.5Lm_2 + 1.0Wm_0°	Yes	Y	DL	1.2	5	0.068	37	0.068	OL2	1.5
84	1.2D + 1.5Lm_2 + 1.0Wm_30°	Yes	Y	DL	1.2	6	0.068	38	0.068	OL2	1.5
85	1.2D + 1.5Lm_2 + 1.0Wm_45°	Yes	Y	DL	1.2	7	0.068	39	0.068	OL2	1.5
86	1.2D + 1.5Lm_2 + 1.0Wm_60°	Yes	Y	DL	1.2	8	0.068	40	0.068	OL2	1.5
87	1.2D + 1.5Lm_2 + 1.0Wm_90°	Yes	Y	DL	1.2	9	0.068	41	0.068	OL2	1.5
88	1.2D + 1.5Lm_2 + 1.0Wm_120°	Yes	Y	DL	1.2	10	0.068	42	0.068	OL2	1.5
89	1.2D + 1.5Lm_2 + 1.0Wm_135°	Yes	Y	DL	1.2	11	0.068	43	0.068	OL2	1.5
90	1.2D + 1.5Lm_2 + 1.0Wm_150°	Yes	Y	DL	1.2	12	0.068	44	0.068	OL2	1.5
91	1.2D + 1.5Lm_2 + 1.0Wm_180°	Yes	Y	DL	1.2	13	-0.068	45	-0.068	OL2	1.5
92	1.2D + 1.5Lm_2 + 1.0Wm_210°	Yes	Y	DL	1.2	14	-0.068	46	-0.068	OL2	1.5
93	1.2D + 1.5Lm_2 + 1.0Wm_225°	Yes	Y	DL	1.2	15	-0.068	47	-0.068	OL2	1.5
94	1.2D + 1.5Lm_2 + 1.0Wm_240°	Yes	Y	DL	1.2	16	-0.068	48	-0.068	OL2	1.5
95	1.2D + 1.5Lm_2 + 1.0Wm_270°	Yes	Y	DL	1.2	17	-0.068	49	-0.068	OL2	1.5
96	1.2D + 1.5Lm_2 + 1.0Wm_300°	Yes	Y	DL	1.2	18	-0.068	50	-0.068	OL2	1.5
97	1.2D + 1.5Lm_2 + 1.0Wm_315°	Yes	Y	DL	1.2	19	-0.068	51	-0.068	OL2	1.5

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
98	1.2D + 1.5Lm_2 + 1.0Wm_330°	Yes	Y	DL	1.2	20	-0.068	52	-0.068	OL2	1.5
99	1.2D + 1.5Lm_3 + 1.0Wm_0°	Yes	Y	DL	1.2	5	0.068	37	0.068	OL3	1.5
100	1.2D + 1.5Lm_3 + 1.0Wm_30°	Yes	Y	DL	1.2	6	0.068	38	0.068	OL3	1.5
101	1.2D + 1.5Lm_3 + 1.0Wm_45°	Yes	Y	DL	1.2	7	0.068	39	0.068	OL3	1.5
102	1.2D + 1.5Lm_3 + 1.0Wm_60°	Yes	Y	DL	1.2	8	0.068	40	0.068	OL3	1.5
103	1.2D + 1.5Lm_3 + 1.0Wm_90°	Yes	Y	DL	1.2	9	0.068	41	0.068	OL3	1.5
104	1.2D + 1.5Lm_3 + 1.0Wm_120°	Yes	Y	DL	1.2	10	0.068	42	0.068	OL3	1.5
105	1.2D + 1.5Lm_3 + 1.0Wm_135°	Yes	Y	DL	1.2	11	0.068	43	0.068	OL3	1.5
106	1.2D + 1.5Lm_3 + 1.0Wm_150°	Yes	Y	DL	1.2	12	0.068	44	0.068	OL3	1.5
107	1.2D + 1.5Lm_3 + 1.0Wm_180°	Yes	Y	DL	1.2	13	-0.068	45	-0.068	OL3	1.5
108	1.2D + 1.5Lm_3 + 1.0Wm_210°	Yes	Y	DL	1.2	14	-0.068	46	-0.068	OL3	1.5
109	1.2D + 1.5Lm_3 + 1.0Wm_225°	Yes	Y	DL	1.2	15	-0.068	47	-0.068	OL3	1.5
110	1.2D + 1.5Lm_3 + 1.0Wm_240°	Yes	Y	DL	1.2	16	-0.068	48	-0.068	OL3	1.5
111	1.2D + 1.5Lm_3 + 1.0Wm_270°	Yes	Y	DL	1.2	17	-0.068	49	-0.068	OL3	1.5
112	1.2D + 1.5Lm_3 + 1.0Wm_300°	Yes	Y	DL	1.2	18	-0.068	50	-0.068	OL3	1.5
113	1.2D + 1.5Lm_3 + 1.0Wm_315°	Yes	Y	DL	1.2	19	-0.068	51	-0.068	OL3	1.5
114	1.2D + 1.5Lm_3 + 1.0Wm_330°	Yes	Y	DL	1.2	20	-0.068	52	-0.068	OL3	1.5

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm. Coeff. [1e^{5}°F^{-1}]	Density [k/ft^{3}]	Yield [ksi]	Ry	Fu [ksi]	Rt
1	A36 Gr.36	29000	11154	0.3	0.65	0.49	36	1.5	58	1.2
2	A572 Gr.50	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
3	A992	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	0.3	0.65	0.527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	0.3	0.65	0.527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	0.3	0.65	0.49	35	1.6	60	1.2
7	A1085	29000	11154	0.3	0.65	0.49	50	1.4	65	1.3

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rule	Area [in^{2}]	Iyy [in^{4}]	Izz [in^{4}]	J [in^{4}]
1	Platform Horizontal Pipe	PIPE_3.0	Beam	None	A53 Gr.B	Typical	2.07	2.85	2.85	5.69
2	Offsett Tube	HSS5x3x3/8"	Beam	None	A500 Gr.B Rect	Typical	5.438	7.216	16.856	15.248
3	Mount Pipe	PIPE_2.0	Beam	None	A53 Gr.B	Typical	1.02	0.627	0.627	1.25
4	Grating Angle	L1.5x1.5x1/4	Beam	None	A36 Gr.36	Typical	0.688	0.139	0.139	0.013
5	Grating Pipe	PIPE_3.0	Beam	None	A53 Gr.B	Typical	2.07	2.85	2.85	5.69
6	Support Rail	PIPE_2.0	Beam	None	A53 Gr.B	Typical	1.02	0.627	0.627	1.25
7	SR Conn Pipe	PIPE_2.0	Beam	None	A53 Gr.B	Typical	1.02	0.627	0.627	1.25
8	Under Platform Kickers	L3X3X3	Beam	None	A36 Gr.36	Typical	1.09	0.948	0.948	0.014
9	Collar Conn. PL	PL8.5x3/8	Beam	None	A36 Gr.36	Typical	3.188	0.037	19.191	0.145

Hot Rolled Steel Design Parameters

	Label	Shape	Length [in]	Lb y-y [in]	Lb z-z [in]	K y-y	K z-z	Function
1	M173	Collar Conn. PL	1			0.65	0.65	Lateral
2	M174	Grating Angle	27.336			0.65	0.65	Lateral
3	M175	Collar Conn. PL	1			0.65	0.65	Lateral
4	M186	Grating Angle	27.336			0.65	0.65	Lateral
5	M193	Grating Pipe	46					Lateral
6	M194	Grating Pipe	17.75					Lateral
7	A2	Offsett Tube	63.25					Lateral
8	M227	Platform Horizontal Pipe	174	82.87	54.45			Lateral
9	M307	SR Conn Pipe	20.125					Lateral
10	M310	Support Rail	174		54.45			Lateral
11	M180	Collar Conn. PL	1			0.65	0.65	Lateral
12	M181	Grating Angle	27.336			0.65	0.65	Lateral
13	M184	Grating Angle	27.336			0.65	0.65	Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length [in]	Lb y-y [in]	Lb z-z [in]	K y-y	K z-z	Function
14	M187	SR Conn Pipe	20.125					Lateral
15	M188	Grating Pipe	46					Lateral
16	M189	Grating Pipe	17.75					Lateral
17	M192	Collar Conn. PL	1			0.65	0.65	Lateral
18	A1	Offsett Tube	63.25					Lateral
19	M217	Collar Conn. PL	1			0.65	0.65	Lateral
20	M218	Grating Angle	27.336			0.65	0.65	Lateral
21	M220	Grating Angle	27.336			0.65	0.65	Lateral
22	M221	SR Conn Pipe	20.125					Lateral
23	M222	Grating Pipe	46					Lateral
24	M224	Grating Pipe	17.75					Lateral
25	M234	Collar Conn. PL	1			0.65	0.65	Lateral
26	A3	Offsett Tube	63.25					Lateral
27	M258	Platform Horizontal Pipe	174	82.87	54.45			Lateral
28	M287	Support Rail	174		54.45			Lateral
29	M291	Platform Horizontal Pipe	174	82.87	54.45			Lateral
30	M317	Support Rail	174		54.45			Lateral
31	M374	Mount Pipe	120					Lateral
32	M376	Mount Pipe	120					Lateral
33	M378	Mount Pipe	120					Lateral
34	M379	Mount Pipe	120					Lateral
35	M246_1	Mount Pipe	60					Lateral
36	M248	Mount Pipe	60					Lateral
37	M252	Mount Pipe	60					Lateral
38	M257	Mount Pipe	60					Lateral
39	M259	Mount Pipe	60					Lateral
40	M262	Mount Pipe	60					Lateral
41	M115	Mount Pipe	120					Lateral
42	M122	Mount Pipe	120					Lateral
43	M124	Mount Pipe	120					Lateral
44	M126	Mount Pipe	120					Lateral
45	M135	Mount Pipe	120					Lateral
46	M142	Mount Pipe	120					Lateral
47	M144	Mount Pipe	120					Lateral
48	M146	Mount Pipe	120					Lateral
49	M355	Under Platform Kickers	53.552					Lateral
50	M390	Under Platform Kickers	53.552					Lateral
51	M160	Under Platform Kickers	53.552					Lateral
52	M165	Under Platform Kickers	53.552					Lateral
53	M166	Under Platform Kickers	53.552					Lateral
54	M171	Under Platform Kickers	53.552					Lateral

Member Advanced Data

	Label	I Release	J Release	Physical	Deflection Ratio Options	Seismic DR
1	M173			Yes	Default	None
2	M174			Yes	Default	None
3	M175			Yes	Default	None
4	M186			Yes	Default	None
5	M193			Yes	Default	None
6	M194			Yes	Default	None
7	A2			Yes	Default	None
8	M227			Yes	Default	None
9	M266			Yes	** NA **	None
10	M270			Yes	** NA **	None
11	M272			Yes	** NA **	None
12	M273			Yes	** NA **	None
13	M274			Yes	** NA **	None
14	M275			Yes	** NA **	None

Member Advanced Data (Continued)

	Label	I Release	J Release	Physical	Deflection Ratio Options	Seismic DR
15	M276			Yes	** NA **	None
16	M277			Yes	** NA **	None
17	M279			Yes	** NA **	None
18	M297			Yes	** NA **	None
19	M299			Yes	** NA **	None
20	M300			Yes	** NA **	None
21	M302			Yes	** NA **	None
22	M303			Yes	** NA **	None
23	M307			Yes	Default	None
24	M310			Yes	Default	None
25	M179			Yes	** NA **	None
26	M180			Yes	Default	None
27	M181			Yes	Default	None
28	M183			Yes	** NA **	None
29	M184			Yes	Default	None
30	M187			Yes	Default	None
31	M188			Yes	Default	None
32	M189			Yes	Default	None
33	M190			Yes	** NA **	None
34	M191			Yes	** NA **	None
35	M192			Yes	Default	None
36	A1			Yes	Default	None
37	M196			Yes	** NA **	None
38	M197			Yes	** NA **	None
39	M198			Yes	** NA **	None
40	M200			Yes	** NA **	None
41	M201			Yes	** NA **	None
42	M202			Yes	** NA **	None
43	M203			Yes	** NA **	None
44	M208			Yes	** NA **	None
45	M209			Yes	** NA **	None
46	M210			Yes	** NA **	None
47	M215			Yes	** NA **	None
48	M217			Yes	Default	None
49	M218			Yes	Default	None
50	M219			Yes	** NA **	None
51	M220			Yes	Default	None
52	M221			Yes	Default	None
53	M222			Yes	Default	None
54	M224			Yes	Default	None
55	M226			Yes	** NA **	None
56	M228			Yes	** NA **	None
57	M234			Yes	Default	None
58	A3			Yes	Default	None
59	M237			Yes	** NA **	None
60	M238			Yes	** NA **	None
61	M239			Yes	** NA **	None
62	M240			Yes	** NA **	None
63	M241			Yes	** NA **	None
64	M242			Yes	** NA **	None
65	M243			Yes	** NA **	None
66	M244			Yes	** NA **	None
67	M245			Yes	** NA **	None
68	M246			Yes	** NA **	None
69	M258			Yes	Default	None
70	M287			Yes	Default	None
71	M291			Yes	Default	None
72	M317			Yes	Default	None

Member Advanced Data (Continued)

	Label	I Release	J Release	Physical	Deflection Ratio Options	Seismic DR
73	M249			Yes	** NA **	None
74	M342			Yes	** NA **	None
75	M372			Yes	** NA **	None
76	M374			Yes	Default	None
77	M375			Yes	** NA **	None
78	M376			Yes	Default	None
79	M377			Yes	** NA **	None
80	M378			Yes	Default	None
81	M379			Yes	Default	None
82	M380			Yes	** NA **	None
83	M382			Yes	** NA **	None
84	M383			Yes	** NA **	None
85	M468			Yes	** NA **	None
86	M469			Yes	** NA **	None
87	M470			Yes	** NA **	None
88	M527			Yes	** NA **	None
89	M528			Yes	** NA **	None
90	M529			Yes	** NA **	None
91	M530			Yes	** NA **	None
92	M531			Yes	** NA **	None
93	M242_1			Yes	** NA **	None
94	M246_1			Yes	Default	None
95	M247			Yes	** NA **	None
96	M248			Yes	Default	None
97	M252			Yes	Default	None
98	M254			Yes	** NA **	None
99	M255			Yes	** NA **	None
100	M257			Yes	Default	None
101	M259			Yes	Default	None
102	M260			Yes	** NA **	None
103	M261			Yes	** NA **	None
104	M262			Yes	Default	None
105	M265			Yes	** NA **	None
106	M266_1			Yes	** NA **	None
107	M268			Yes	** NA **	None
108	M269			Yes	** NA **	None
109	M271			Yes	** NA **	None
110	M272_1			Yes	** NA **	None
111	M273_1			Yes	** NA **	None
112	M274_1			Yes	** NA **	None
113	M276_1			Yes	** NA **	None
114	M114			Yes	** NA **	None
115	M115			Yes	Default	None
116	M116			Yes	** NA **	None
117	M117			Yes	** NA **	None
118	M118			Yes	** NA **	None
119	M119			Yes	** NA **	None
120	M120			Yes	** NA **	None
121	M121			Yes	** NA **	None
122	M122			Yes	Default	None
123	M123			Yes	** NA **	None
124	M124			Yes	Default	None
125	M125			Yes	** NA **	None
126	M126			Yes	Default	None
127	M127			Yes	** NA **	None
128	M128			Yes	** NA **	None
129	M129			Yes	** NA **	None
130	M130			Yes	** NA **	None

Member Advanced Data (Continued)

	Label	I Release	J Release	Physical	Deflection Ratio Options	Seismic DR
131	M131			Yes	** NA **	None
132	M132			Yes	** NA **	None
133	M133			Yes	** NA **	None
134	M134			Yes	** NA **	None
135	M135			Yes	Default	None
136	M136			Yes	** NA **	None
137	M137			Yes	** NA **	None
138	M138			Yes	** NA **	None
139	M139			Yes	** NA **	None
140	M140		OOOXOO	Yes	** NA **	None
141	M141			Yes	** NA **	None
142	M142			Yes	Default	None
143	M143			Yes	** NA **	None
144	M144			Yes	Default	None
145	M145			Yes	** NA **	None
146	M146			Yes	Default	None
147	M147			Yes	** NA **	None
148	M148			Yes	** NA **	None
149	M149			Yes	** NA **	None
150	M150			Yes	** NA **	None
151	M151			Yes	** NA **	None
152	M152			Yes	** NA **	None
153	M153			Yes	** NA **	None
154	M280			Yes	** NA **	None
155	M355	OOOOOX	OOOOOX	Yes	Default	None
156	M387			Yes	** NA **	None
157	M388			Yes	** NA **	None
158	M389			Yes	** NA **	None
159	M390	OOOOXO	OOOOXO	Yes	Default	None
160	M160	OOOOOX	OOOOOX	Yes	Default	None
161	M161			Yes	** NA **	None
162	M162			Yes	** NA **	None
163	M163			Yes	** NA **	None
164	M164			Yes	** NA **	None
165	M165	OOOOXO	OOOOXO	Yes	Default	None
166	M166	OOOOOX	OOOOOX	Yes	Default	None
167	M167			Yes	** NA **	None
168	M168			Yes	** NA **	None
169	M169			Yes	** NA **	None
170	M170			Yes	** NA **	None
171	M171	OOOOXO	OOOOXO	Yes	Default	None

Node Boundary Conditions

	Node 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	N318						
2	N429						
3	N432	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
4	N433						
5	N434						
6	N435						
7	N315						
8	N316	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
9	N319						
10	N329						
11	N338						
12	N349						
13	N373						
14	N374	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction

Node Boundary Conditions (Continued)

	Node 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]
15	N376						
16	N379						
17	N383						
18	N391						
19	N589	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
20	N287	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
21	N295	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction

Envelope Node Reactions

	Node Label		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
1	N432	max	5448.527	3	1775.573	15	714.097	11	1010.426	7	474.632	10	2953.824	7
2		min	-3063.049	11	-1784.464	7	-693.279	3	-1099.125	15	-145.233	18	-2955.39	15
3	N316	max	1827.001	3	5005.123	14	966.691	5	871.67	11	860.63	18	2937.82	18
4		min	-3011.122	11	-2934.901	6	-950.46	13	-1107.041	3	-1110.915	10	-2939.639	10
5	N374	max	1783.138	17	2874.622	16	853.027	16	737.562	3	1194.986	5	3003.091	12
6		min	-2983.414	9	-4937.341	8	-816.922	8	-396.639	11	-1295.878	13	-3004.022	4
7	N589	max	14.96	11	49.324	15	3207.296	19	142.704	7	886.643	34	160.981	7
8		min	-3380.184	19	-42.828	7	-37.113	11	-155.012	15	-23.179	10	-176.285	15
9	N287	max	1712.246	30	179.673	6	3272.156	30	108.325	5	53.065	4	127.992	18
10		min	-113.322	6	-2985.974	30	-265.936	6	-786.06	29	-470.886	29	-142.693	10
11	N295	max	1726.254	24	2962.703	24	3254.934	24	787.891	24	30.872	16	133.905	13
12		min	-75.984	16	-127.895	16	-192.485	16	-58.925	15	-435.673	24	-148.632	5
13	Totals:	max	6541.059	3	6795.603	15	8069.501	20						
14		min	-6541.044	11	-6795.614	7	2917.714	60						

Envelope AISC 15TH (360-16): LRFD Member Steel Code Checks

	Member	Shape	Code Check	Loc[in]	LC	Shear Check	Loc[in]	Dir	LC	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y-y [lb-ft]	phi*Mn z-z [lb-ft]	Cb	Eqn
1	M135	PIPE_2.0	0.422	80.842	11	0.086	80.842		15	9836.597	32130	1871.625	1871.625	3	H1-1b
2	M126	PIPE_2.0	0.4	80.842	12	0.091	80.842		7	9836.597	32130	1871.625	1871.625	3	H1-1b
3	M379	PIPE_2.0	0.4	80.842	5	0.085	80.842		13	9836.597	32130	1871.625	1871.625	3	H1-1b
4	M146	PIPE_2.0	0.39	80.842	8	0.086	80.842		18	9836.597	32130	1871.625	1871.625	2.769	H1-1b
5	M115	PIPE_2.0	0.384	80.842	15	0.08	80.842		4	9836.597	32130	1871.625	1871.625	3	H1-1b
6	M378	PIPE_2.0	0.384	80.842	5	0.087	80.842		10	9836.597	32130	1871.625	1871.625	3	H1-1b
7	M262	PIPE_2.0	0.359	42	11	0.097	42		7	23808.54	32130	1871.625	1871.625	2.417	H1-1b
8	M142	PIPE_2.0	0.305	80.842	11	0.111	80.842		17	9836.597	32130	1871.625	1871.625	3	H1-1b
9	M122	PIPE_2.0	0.293	80.842	15	0.101	80.842		7	9836.597	32130	1871.625	1871.625	3	H1-1b
10	M257	PIPE_2.0	0.277	42	16	0.076	42		12	23808.54	32130	1871.625	1871.625	2.432	H1-1b
11	M374	PIPE_2.0	0.277	80.842	5	0.11	80.842		11	9836.597	32130	1871.625	1871.625	3	H1-1b
12	M144	PIPE_2.0	0.266	80.842	11	0.072	38.526		11	9836.597	32130	1871.625	1871.625	3	H1-1b
13	M187	PIPE_2.0	0.263	20.125	3	0.155	20.125		10	31064.555	32130	1871.625	1871.625	2.166	H1-1b
14	M317	PIPE_2.0	0.258	17.4	15	0.278	150.189		18	4678.524	32130	1871.625	1871.625	2.438	H1-1b
15	M221	PIPE_2.0	0.254	20.125	14	0.16	20.125		4	31064.555	32130	1871.625	1871.625	2.17	H1-1b
16	M307	PIPE_2.0	0.252	20.125	8	0.149	20.125		15	31064.555	32130	1871.625	1871.625	2.169	H1-1b
17	M287	PIPE_2.0	0.25	17.4	4	0.271	150.189		7	4678.524	32130	1871.625	1871.625	3	H1-1b
18	M310	PIPE_2.0	0.245	17.4	10	0.277	150.189		12	4678.524	32130	1871.625	1871.625	3	H1-1b
19	M376	PIPE_2.0	0.234	80.842	5	0.073	38.526		5	9836.597	32130	1871.625	1871.625	3	H1-1b
20	M248	PIPE_2.0	0.231	42	6	0.076	42		18	23808.54	32130	1871.625	1871.625	2.652	H1-1b
21	M124	PIPE_2.0	0.211	80.842	16	0.072	38.526		16	9836.597	32130	1871.625	1871.625	3	H1-1b
22	M188	PIPE_3.0	0.204	23	94	0.107	3.389		10	60272.456	65205	5748.75	5748.75	1.442	H1-1b
23	M222	PIPE_3.0	0.195	23	75	0.112	3.389		5	60272.456	65205	5748.75	5748.75	1.438	H1-1b
24	M165	L3X3X3	0.193	0	10	0.008	0	y	17	22701.12	35316	1320.097	2619.385	1.5	H2-1
25	M171	L3X3X3	0.192	0	5	0.008	0	y	14	22701.12	35316	1320.097	2619.385	1.5	H2-1
26	M252	PIPE_2.0	0.186	42	11	0.051	42		15	23808.54	32130	1871.625	1871.625	2.447	H1-1b
27	M259	PIPE_2.0	0.186	42	6	0.051	42		10	23808.54	32130	1871.625	1871.625	2.447	H1-1b
28	M193	PIPE_3.0	0.186	23	22	0.114	3.389		15	60272.456	65205	5748.75	5748.75	1.318	H1-1b
29	M390	L3X3X3	0.177	0.846	15	0.008	0	y	7	22701.12	35316	1320.097	2619.385	1.5	H2-1

Envelope AISC 15TH (360-16): LRFD Member Steel Code Checks (Continued)

	Member	Shape	Code Check	Loc[in]	LC	Shear Check	Loc[in]	Dir	LC	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y-y [lb-ft]	phi*Mn z-z [lb-ft]	Cb	Eqn
30	M194	PIPE_3.0	0.176	8.875	4	0.148	16.255		16	64445.758	65205	5748.75	5748.75	1.206	H1-1b
31	M189	PIPE_3.0	0.174	8.875	13	0.161	16.255		11	64445.758	65205	5748.75	5748.75	1.262	H1-1b
32	M224	PIPE_3.0	0.171	8.875	10	0.148	16.255		6	64445.758	65205	5748.75	5748.75	1.198	H1-1b
33	M246_1	PIPE_2.0	0.159	42	16	0.051	42		4	23808.54	32130	1871.625	1871.625	2.568	H1-1b
34	A3	HSS5x3x3/8"	0.151	0	12	0.124	0	z	4	183793.38	225112.5	20255.274	29634.962	2.044	H1-1b
35	M160	L3X3X3	0.15	0	17	0.005	53.552	y	12	22701.12	35316	1320.097	2455.698	1.136	H2-1
36	A1	HSS5x3x3/8"	0.15	0	18	0.121	0	z	10	183793.38	225112.5	20255.274	29634.962	2.243	H1-1b
37	A2	HSS5x3x3/8"	0.148	0	7	0.109	0	z	15	183793.38	225112.5	20255.274	29634.962	2.08	H1-1b
38	M166	L3X3X3	0.147	0	12	0.006	53.552	y	7	22701.12	35316	1320.097	2455.698	1.136	H2-1
39	M291	PIPE_3.0	0.144	113.558	12	0.125	45.789		16	50513.649	65205	5748.75	5748.75	2.997	H1-1b
40	M355	L3X3X3	0.143	0	7	0.005	0	z	15	22701.12	35316	1320.097	2455.698	1.136	H2-1
41	M234	PL8.5x3/8	0.126	0	12	0.15	1	y	5	103079.172	103275	806.836	18288.283	1.805	H1-1b
42	M192	PL8.5x3/8	0.125	0	18	0.148	1	y	11	103079.172	103275	806.836	18288.283	1.682	H1-1b
43	M175	PL8.5x3/8	0.122	0	7	0.121	1	y	15	103079.172	103275	806.836	18288.283	1.669	H1-1b
44	M227	PIPE_3.0	0.122	59.526	92	0.124	128.211		11	50513.649	65205	5748.75	5748.75	2.465	H1-1b
45	M258	PIPE_3.0	0.119	17.4	8	0.126	45.789		6	50513.649	65205	5748.75	5748.75	2.799	H1-1b
46	M217	PL8.5x3/8	0.117	0	4	0.145	0	y	4	103079.172	103275	806.836	18288.283	2.256	H1-1b
47	M173	PL8.5x3/8	0.112	0	15	0.116	0	y	15	103079.172	103275	806.836	18288.283	2.265	H1-1b
48	M180	PL8.5x3/8	0.112	1	18	0.14	0	y	10	103079.172	103275	806.836	18288.283	1.652	H1-1b
49	M174	L1.5x1.5x1/4	0.096	0	14	0.009	0	y	19	18330.114	22275	360.338	834.027	1.5	H2-1
50	M184	L1.5x1.5x1/4	0.093	0	8	0.008	27.336	y	23	18330.114	22275	360.338	834.027	1.5	H2-1
51	M220	L1.5x1.5x1/4	0.093	0	3	0.008	27.336	y	20	18330.114	22275	360.338	834.027	1.5	H2-1
52	M218	L1.5x1.5x1/4	0.087	0	27	0.008	0	y	28	18330.114	22275	360.338	834.027	1.5	H2-1
53	M181	L1.5x1.5x1/4	0.087	0	32	0.008	0	y	19	18330.114	22275	360.338	834.027	1.5	H2-1
54	M186	L1.5x1.5x1/4	0.086	0	21	0.007	0	y	23	18330.114	22275	360.338	834.027	1.5	H2-1

TOWER-MOUNT CONNECTION ANALYSIS

v.1.0.0

telamon CLS
319 Chapanoke Road, Suite 118
Raleigh, NC 27603
Office: (405) 348-5460
Fax: (405) 341-6334

SITE INFORMATION	
Site ID	302511
Site Name	WSPT - South
Project ID	41124-13958510_C8_04-02-MR

ANALYSIS PARAMETERS	
TIA Revision	H

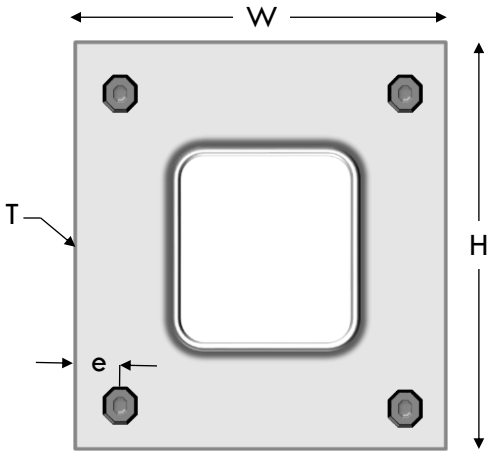
APPLIED FORCES FROM R3D		
Member Label		A3
Member End Label		I
Force-X	Fx, lbs	-5731.0
Force-Y	Fy, lbs	851.0
Force-Z	Fz, lbs	-1818.2
Moment X-X	Mx, lbs-ft	1362.2
Moment Y-Y	My, lbs-ft	-2795.9
Moment Z-Z	Mz, lbs-ft	387.5

STANDOFF MEMBER PROPERTIES	
Standoff Member Type	Square/Rect. HSS
Standoff Member Shape	HSS5X3X3/8
Standoff Member Grade	A500-46 Gr.B Rect.
Member to Plate Weld Size, in	5/16

BOLT & PLATE PROPERTIES	
Bolt Quantity	4
Bolt Edge Distance (e), in	1.50
Nominal Bolt Diameter (ØDb), in	0.75
Bolt Grade	A325
Plate Height (H), in	10.00
Plate Width (W), in	10.00
Plate Thickness (T), in	0.75
Plate Grade	A36

BOLT ANALYSIS		
Shear Demand (Vu), k	0.71	
Shear Capacity (ΦRnv), k	19.88	
Tension Demand (Tu), k	4.85	
Tension Capacity (ΦRnt), k	30.10	
Shear Utilization	3.6%	
Tension Utilization	16.1%	PASS
Interaction Utilization	2.7%	

MANUFACTURER COLLAR RECOMMENDATION		
PV Recommended Max Moment, kip-ft	12.5	
Analysis Max Moment, kip-ft	2.795	
Analysis Max Moment/Recommended Max Momen	22.4%	PASS



MATERIAL PROPERTIES	
Standoff Member - Yield Strength (Fy), ksi	46
Standoff Member - Ultimate Strength (Fu), ksi	58
Bolt - Yield Strength (Fy), ksi	92
Bolt - Tensile Strength (Fu), ksi	120
Plate - Yield Strength (Fy), ksi	36
Plate - Ultimate Strength (Fu), ksi	58