DEPARTMENT OF CITY DEVELOPMENT

Application for Conditional Use Permit

Applicant Name: FULLERTON ENGINEERING o.b.o. DISH WIRELESS

Address: 1100 E WOODFIELD RD., STE. 500 City: SCHAUMBURG

State: IL Zip: 60173

Telephone: (517) 648-0023 Cell Phone: (517) 648-0023

Email: JGOLDSHLACK@FULLERTONENGINEERING.COM

Agent Name: JOE GOLDSHLACK

Address: 1100 E WOODFIELD RD., STE. 500 City: SCHAUMBURG

State: IL Zip: 60173

Telephone: (517) 648-0023 Cell Phone: (517) 648-0023

Email: JGOLDSHLACK@FULLERTONENGINEERING.COM

Property Address (Es): 314-16 6TH STREET

Current Zoning: B-4

Current/Most Recent Property Use: 6th STREET THEATRE / PERENNIAL HANDMADE STUDIO

Proposed Use: WIRELESS TELECOMMUNICATIONS FACILITY (ROOFTOP MOUNTED)

The application will be evaluated using the standards of Sec. 114-154 of the Municipal Code (below). Please use the space to justify and explain how your proposal addresses these conditions; use an additional sheet if necessary.

(1) The establishment, maintenance, or operation of the conditional use will not be detrimental to, or endanger, the public health, safety, morals, comfort, or general welfare;

Dish Wireless' proposed wireless facility will comply with all FCC regulations regarding health/safety, and will be minimally visible (if at all) from ground level.

(2) The conditional use will not be injurious to the use and enjoyment of other property in the immediate vicinity for the purposes already permitted, nor substantially diminish and impair property values within the neighborhood;

The proposed facility will have no impact on surrounding properties, aside from providing cellular coverage for Dish Wireless' cellular network.

(3) The establishment of the conditional use will not impede the normal and orderly development and improvement of the surrounding property for uses permitted in the district;

The proposed facility will have no impact on development and improvement of the surrounding property.

(4) Adequate utilities, access roads, drainage and/or necessary facilities have been or are being provided;

Electricity and Fiber connections will be included with this proposed installation. No drainage or access roads required.

(5) Adequate measures have been or will be taken to provide ingress and egress so designed as to minimize traffic congestion in the public streets;

The proposed facility will be unmanned and will sit on the existing rooftop. It will have no impact on traffic congestion.

(6) The proposed conditional use is not contrary to the objectives of the current land use plan for the city; and

The proposed facility will be minimally visible (if at all) from ground level, and will provide the public access to 5G coverage on Dish Wireless' cellular network without the eyesore of a new cell tower.

(7) The conditional use shall, in all other respects, conform to the applicable regulations of the district in which it is located, except as such regulations may, in each instance, be modified pursuant to the recommendations of the plan commission.

To applicant's knowledge,the proposed facility will not violate any district regulations.

If the required supplemental materials, which constitute a completed application, are not submitted, the application will not be processed.

Required Submittal Format

1. An electronic submission via email/USB drive/CD/Download link; and
2. One (1) paper copy, no larger than 11" x 17" size.

Required Submittal Item	Applicant Submitted	City Received
1. Conditional Use Review Application	✔	
2. Written description of project, including: a. Hours of operation b. Anticipated delivery schedule c. Maintenance plan d. General use of the building and lot	✔	
3. Site Plan (drawn to scale), including: a. Fully dimensioned property boundary b. All buildings (existing and proposed) c. Setbacks from property lines d. Identification as to whether all elements are "Existing" or "Proposed" e. Dimensioned parking spaces and drive aisle layout f. Trash enclosure location and materials g. Loading spaces h. Fire hydrant locations i. Location of signage, with setbacks	✔	
4. Zoning Analysis Table a. Land area (in acres and square feet) b. Building area (in square feet) c. Setbacks (required yards in feet) d. Floor Area Ratio (building area divided by lot area) e. Lot Coverage (building footprint divided by lot area) f. Height of all buildings and structures g. Percentage of greenspace (landscaped areas divided by lot area) h. Parking spaces	✔	
5. Landscape Plan a. Bufferyards b. Parking Areas c. Screening and fencing locations d. Plant lists including the following: Latin and Common Names, Number of each planting material, and Size at planting.	✔	

Required Submittal Item	Applicant Submitted	City Received
6. Lighting Plan a. Location of light fixtures b. A cut sheet of light fixtures with indication of cut-offs or shielding c. Illumination diagram indicating intensity of lighting on the property.	✔	
7. Floor Plan a. Preliminary floor plan layout of all buildings/structures b. Labels for the type of use of the area c. Labels for square footage of the area	✔	
8. Engineering Plan a. Stormwater Plan (Drainage pattern, flow, detention) b. Existing and proposed roadway and access configurations c. Cross access	✔	
9. Signage Plan a. dimensioned color elevations of signage b. A diagram showing the location of the proposed signage	✔	
10. Building/site elevations (if new building or exterior changes planned) a. Building elevations showing all four sides of the buildings in color b. Elevation of trash enclosure area	✔	
11. Building Material Samples (if making exterior changes)	✔	
12. Review Fee	✔	

Acknowledgement and authorization signatures

A conditional use is not like a building permit; applying does not mean it will be approved.

The approval may contain conditions related to the improvement of the site which must be met prior to the issuance of a building occupancy permit. Conditions related to the operational aspect(s) of the business must be complied with at all times. That, in the event site improvement work required by ordinance cannot be completed prior to desired occupancy, a financial assurance, at 100% of the improvement estimate, guaranteeing completion of the required improvements must be placed on file with the City of Racine. Estimates and Assurance documents are subject to the review and final approval by the City. Improvements may include but are not limited to landscaping, fencing, lighting, pavement surfacing and sealing, dumpster enclosures, and exterior building improvements;

The signature(s) hereby certify that the statements made by myself and constituting part of this application are true and correct. I am fully aware that any misrepresentation of any information on this application may be grounds for denial of this application.

Owner Signature (acknowledgement and authorization): _____ Date: 8/8/22

Applicant Signature (acknowledgement): Joe Goldshlack Digitally signed by Joe Goldshlack DN: cn=Joe Goldshlack, o=Fullerton Engineering, ou=Zoning & Permitting, email=jgoldshlack@fullertonengineering.com, c=US Date: 2022.07.18 16:39:31 -05'00' Date: July 18, 2022

DISH Wireless L.L.C. SITE ID:

MWMKE00116B

DISH Wireless L.L.C. SITE ADDRESS:

314 6TH STREET
RACINE, WI 53403

WISCONSIN CODE COMPLIANCE

ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES:

CODE TYPE	CODE
BUILDING	WISCONSIN CBC/2015 IBC W/ WI AMENDMENTS
MECHANICAL	WISCONSIN CBC/2015 IMC W/ WI AMENDMENTS
ELECTRICAL	WISCONSIN ELECTRICAL CODE/2017 NEC W/ WI AMENDMENTS

SHEET INDEX

SCOPE OF WORK

THIS IS NOT AN ALL INCLUSIVE LIST. CONTRACTOR SHALL UTILIZE SPECIFIED EQUIPMENT PART OR ENGINEER APPROVED EQUIVALENT. CONTRACTOR SHALL VERIFY ALL NEEDED EQUIPMENT TO PROVIDE A FUNCTIONAL SITE. THE PROJECT GENERALLY CONSISTS OF THE FOLLOWING:

SECTOR SCOPE OF WORK:
- INSTALL (3) PROPOSED PANEL ANTENNAS (1 PER SECTOR)
- INSTALL (3) PROPOSED ANTENNA MOUNTS (1 PER SECTOR)
- INSTALL PROPOSED JUMPERS
- INSTALL (6) PROPOSED RRUs (2 PER SECTOR)
- INSTALL (3) PROPOSED OVER VOLTAGE PROTECTION DEVICE (OVP) (1 PER SECTOR)
- INSTALL (3) PROPOSED HYBRID CABLES
- INSTALL PROPOSED CABLE TRAY

ROOFTOP SCOPE OF WORK:
- INSTALL (1) PROPOSED EQUIPMENT CABINET AND EQUIPMENT PLATFORM ON PROPOSED STEEL SUPPORT BEAMS BETWEEN PARAPET WALL AND ELEVATED ROOF
- INSTALL (1) H-FRAME
- INSTALL (1) PROPOSED BBU IN CABINET
- INSTALL (1) PROPOSED POWER CONDUIT AND (1) GROUNDING CONDUIT
- INSTALL (1) PROPOSED TELCO CONDUIT
- INSTALL (1) PROPOSED PPC CABINET
- INSTALL (1) PROPOSED NEMA 3 TELCO-FIBER BOX
- INSTALL (1) PROPOSED GPS UNIT
- INSTALL (1) METER SOCKET ON BUILDING WALL

SITE PHOTO

UNDERGROUND SERVICE ALERT - DIGGERS HOTLINE
UTILITY NOTIFICATION CENTER OF WISCONSIN
(800) 242-8511
WWW.DIGGERSHOTLINE.COM

CALL 3 WORKING DAYS UTILITY NOTIFICATION PRIOR TO CONSTRUCTION

811

GENERAL NOTES

THE FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. A TECHNICIAN WILL VISIT THE SITE AS REQUIRED FOR ROUTINE MAINTENANCE. THE PROJECT WILL NOT RESULT IN ANY SIGNIFICANT DISTURBANCE OR EFFECT ON DRAINAGE. NO SANITARY SEWER SERVICE, POTABLE WATER, OR TRASH DISPOSAL IS REQUIRED AND NO COMMERCIAL SIGNAGE IS PROPOSED.

11"x17" PLOT WILL BE HALF SCALE UNLESS OTHERWISE NOTED

CONTRACTOR SHALL VERIFY ALL PLANS, EXISTING DIMENSIONS, AND CONDITIONS ON THE JOB SITE, AND SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK.

SITE INFORMATION

PROPERTY OWNER:	C AND A HOME AND BUILDING LLC
ADDRESS:	901 COLLEGE AVE. RACINE, WI 53403
STRUCTURE TYPE:	ROOFTOP
COUNTY:	RACINE
LATITUDE (NAD 83):	42° 43' 37.14" N 42.726983°
LONGITUDE (NAD 83):	87° 47' 4.79" W -87.784664°
ZONING JURISDICTION:	CITY OF RACINE
ZONING DISTRICT:	AR
PARCEL NUMBER:	276000000286000
OCCUPANCY GROUP:	U
CONSTRUCTION TYPE:	II-B
POWER COMPANY:	WE ENERGIES
TELEPHONE COMPANY:	TBD

PROJECT DIRECTORY

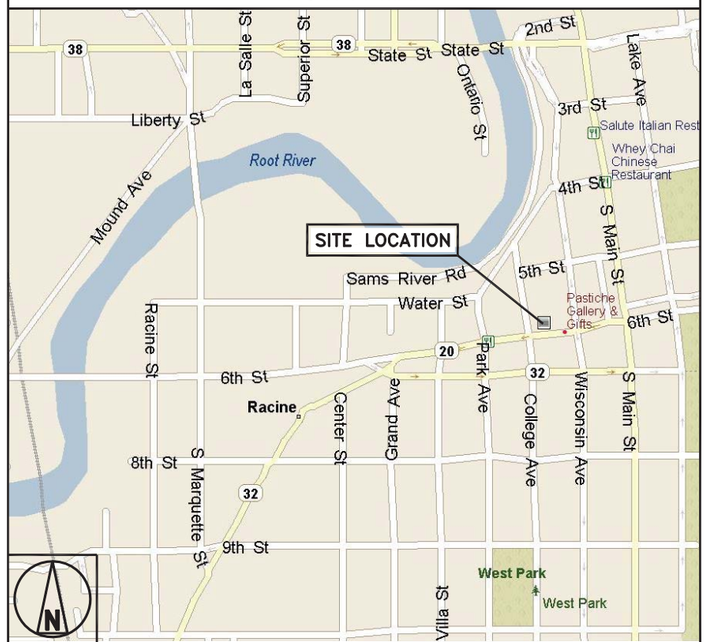
APPLICANT:	DISH Wireless, LLC. 5701 SOUTH SANTA FE DRIVE LITTLETON, CO 80120
SITE DESIGNER:	FULLERTON ENGINEERING 1100 E WOODFIELD RD., STE 500 SCHAUMBURG, IL 60173 (847) 908-8400
SITE ACQUISITION:	MEGHAN LANIGAN
CONSTRUCTION MANAGER:	ANDREW HILGERSON
RF ENGINEER:	INGA BRAUNEIS

DIRECTIONS

DIRECTIONS FROM JOHN H BATTEN MEMORIAL AIRPORT:

TURN (LEFT) ONTO WI-38 [NORTHWESTERN AVE].
TURN LEFT (EAST) ONTO WI-38 [STATE ST].
TURN RIGHT (SOUTH) ONTO WISCONSIN AVE.
TURN RIGHT (WEST) ONTO WI-20 [WI-32].
TURN RIGHT (NORTH) ONTO LOCAL ROAD(S),
ARRIVE AT SITE.

VICINITY MAP



NO SCALE

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

FULLERTON

1100 E. WOODFIELD ROAD, SUITE 500
SCHAUMBURG, ILLINOIS 60173
TEL: 847-908-8400
COA# 3620-11
www.FullertonEngineering.com

WISCONSIN
DANIEL W. SMITH
44096-6
SCHAUMBURG, IL
PROFESSIONAL ENGINEER

DRAWN BY:	CHECKED BY:	APPROVED BY:
LA	DZ	DS

RFDS REV #: 2

PERMITTING DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	03/31/2022	ISSUED FOR REVIEW
B	05/11/2022	ISSUED FOR REVIEW
0	07/07/2022	ISSUED FOR PERMITTING

A&E PROJECT NUMBER

2021.0030.0004

DISH Wireless L.L.C.
PROJECT INFORMATION

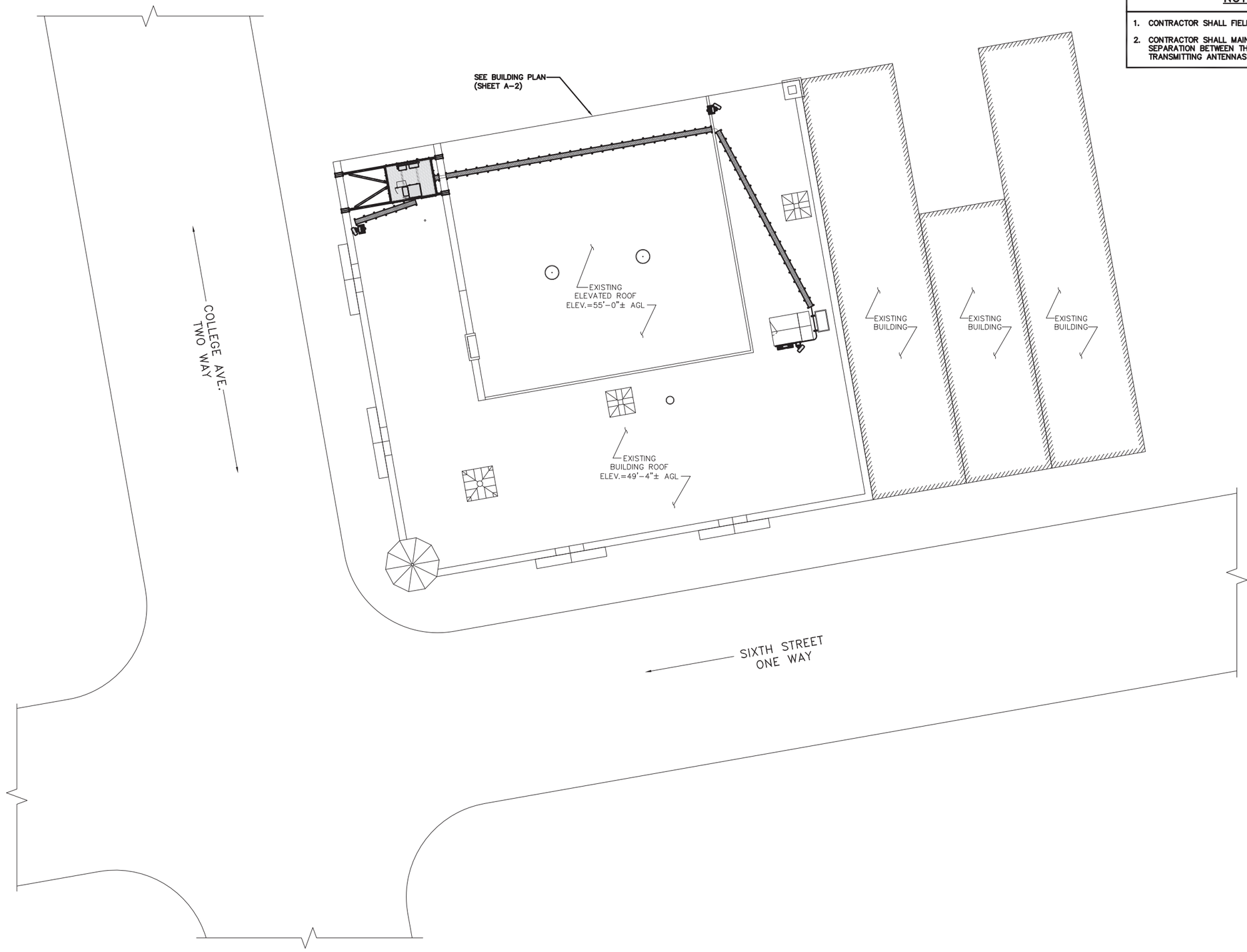
MWMKE00116B
314 6TH STREET
RACINE, WI 53403

SHEET TITLE

TITLE SHEET

SHEET NUMBER

T-1



NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. CONTRACTOR SHALL MAINTAIN A 10'-0" MINIMUM SEPARATION BETWEEN THE PROPOSED GPS UNIT, TRANSMITTING ANTENNAS AND EXISTING GPS UNITS.

OVERALL SITE PLAN

12' 8' 4' 0 10' 20'
3/32"=1'-0"

dish wireless.
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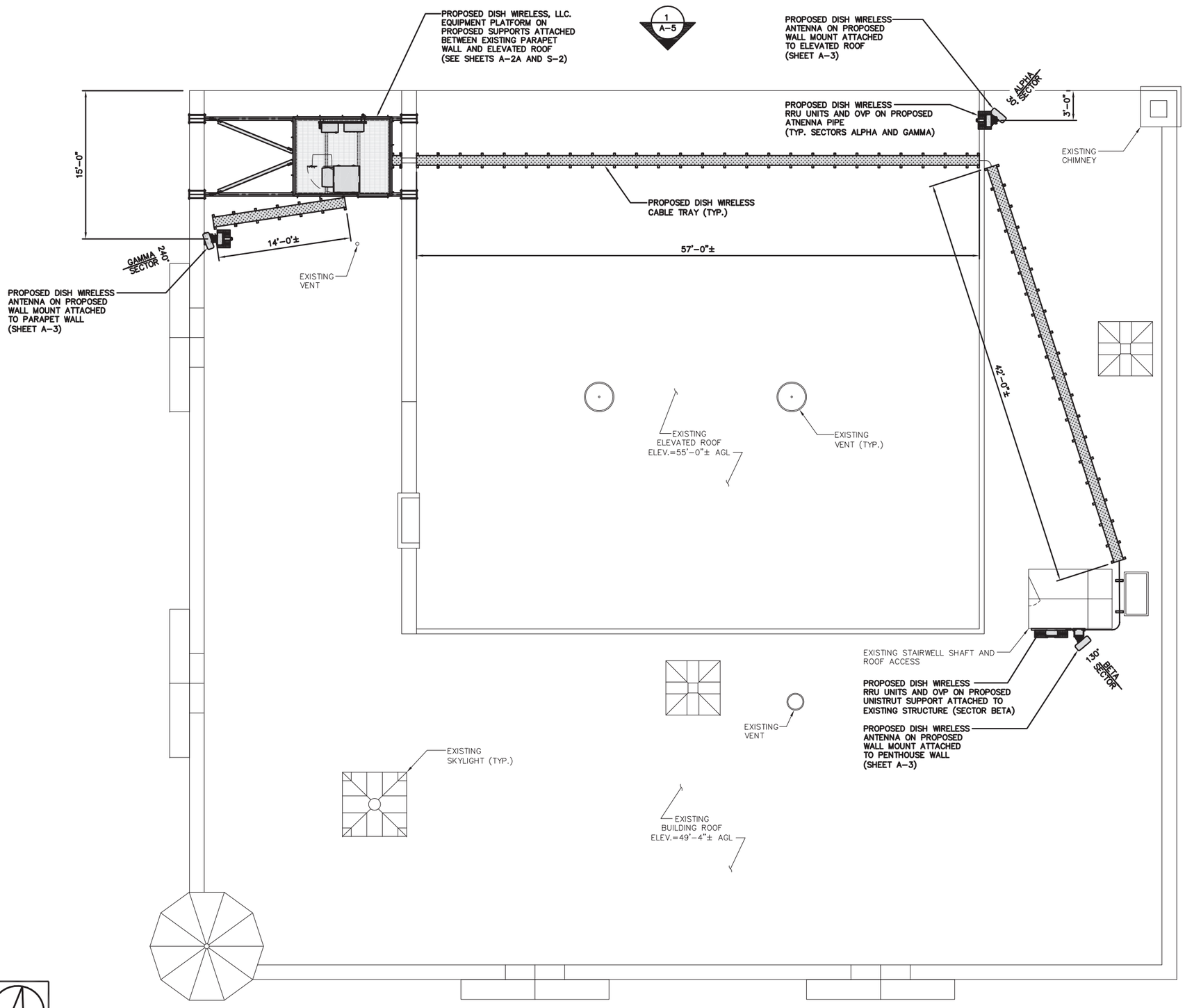
OVERALL
SITE PLAN

SHEET NUMBER
A-1



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3. CONTRACTOR TO VERIFY WITH DISH Wireless L.L.C. C.M. THE LOCATION OF THE POWER AND FIBER SOURCE PRIOR TO CONSTRICTION.
4. UTILITY RUBBER MAT TO BE IN STALLED UNDER ALL DISH Wireless L.L.C. EQUIPMENT THAT IS RESTING ON OR AFFIXED TO ROOF MEMBRANE

ENLARGED BUILDING PLAN

6' 4' 2' 0 5' 10'
3/16"=1'-0"

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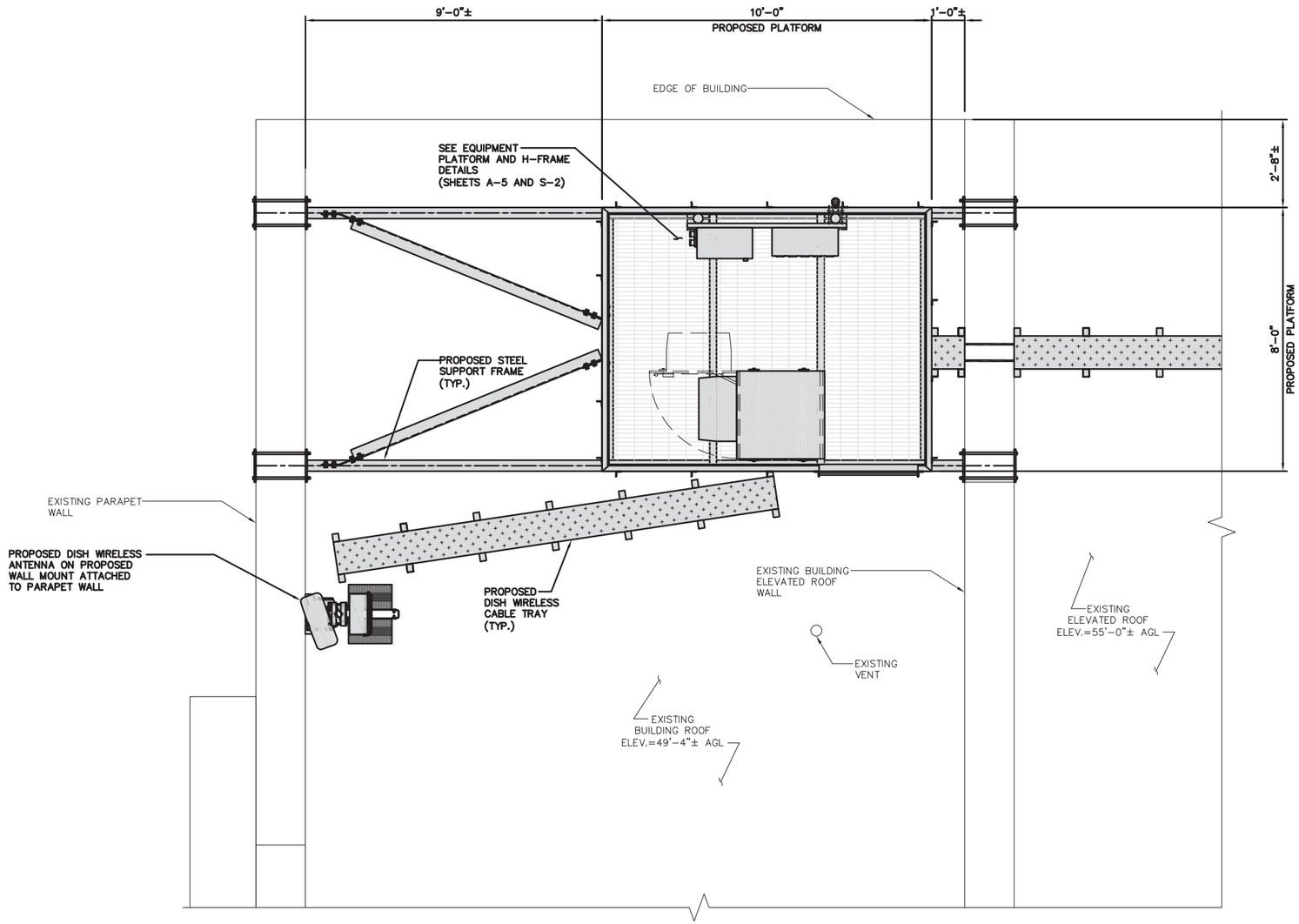
RACINE, WI 53403

SHEET TITLE
ENLARGED BUILDING PLAN

SHEET NUMBER
A-2



ENLARGED EQUIPMENT PLAN

12" 6" 0 1' 2' 3' 4' 5'
1/2"=1'-0"

dish wireless.

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PROJECT INFORMATION

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314 6TH STREET
RACINE, WI 53403

SHEET TITLE

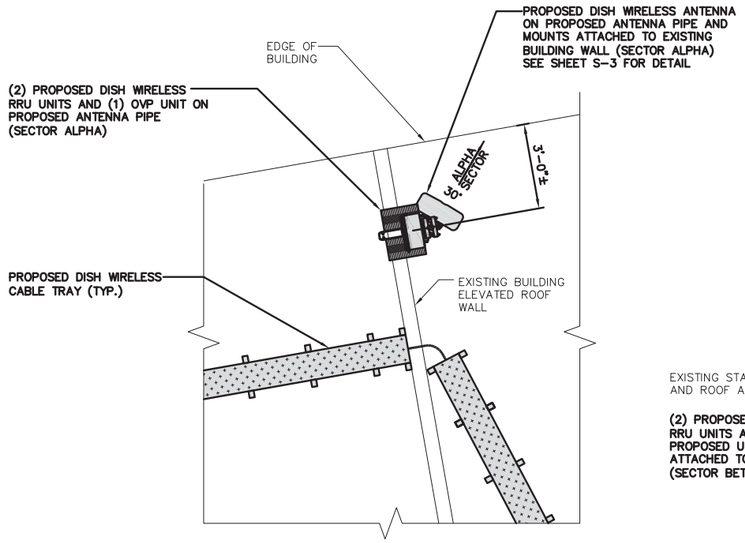
ENLARGED EQUIPMENT PLAN

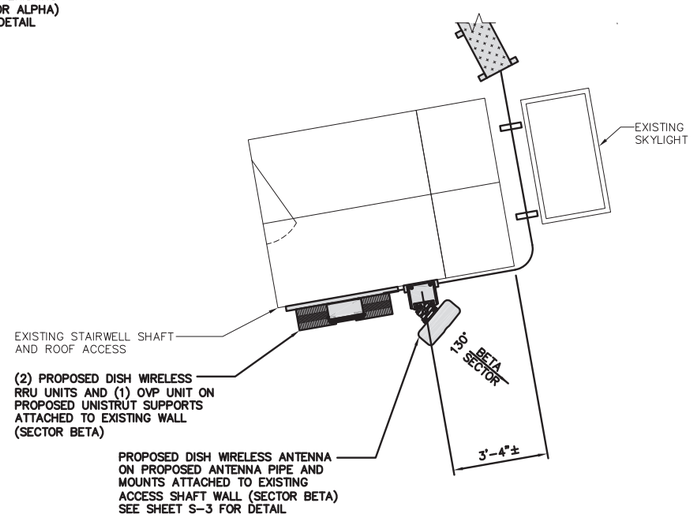
SHEET NUMBER

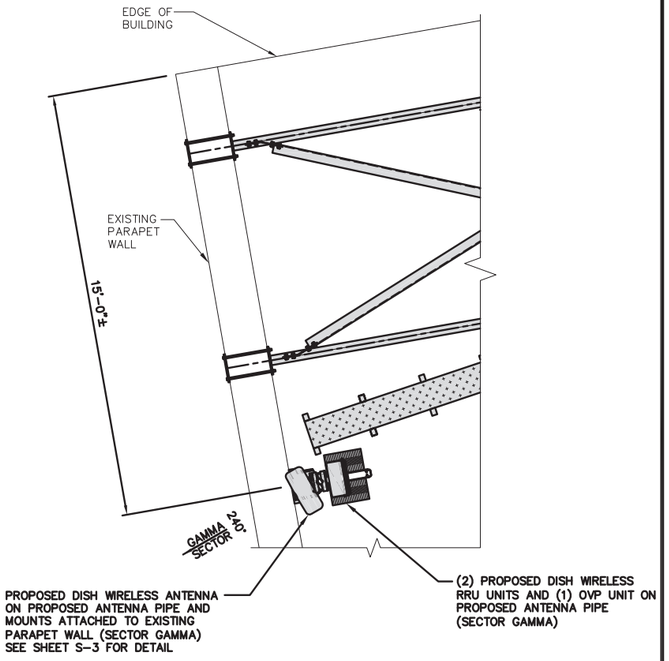
A-2A

NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNA SPECIFICATIONS – REFER TO ANTENNA SCHEDULE AND TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS







ANTENNA PLAN

12" 6" 0 1' 2' 3' 4' 5' 6' 7'
3/8"=1'-0"

1

NOT USED

12" 6" 0 1' 2' 3' 4' 5'
1/2"=1'-0"

2

ANTENNA SCHEDULE

SECTOR	POSITION	ANTENNA						TRANSMISSION CABLE
		EXISTING OR PROPOSED	MANUFACTURER – MODEL NUMBER	TECHNOLOGY	SIZE (HxW)	AZIMUTH	RAD CENTER	FEED LINE TYPE AND LENGTH
ALPHA	A1	PROPOSED	COMMSCOPE FFVV-65B-R2	5G	72.0" x 19.6"	30°	59'-0"	(1) HIGH-CAPACITY HYBRID CABLE (75'±)
BETA	B1	PROPOSED	COMMSCOPE FFVV-65B-R2	5G	72.0" x 19.6"	130°	59'-0"	(1) HIGH-CAPACITY HYBRID CABLE (125'±)
GAMMA	C1	PROPOSED	COMMSCOPE FFVV-65B-R2	5G	72.0" x 19.6"	240°	59'-0"	(1) HIGH-CAPACITY HYBRID CABLE (25'±)

SECTOR	POSITION	RRH	
		MANUFACTURER – MODEL NUMBER	TECHNOLOGY
ALPHA	A1	FUJITSU – TA08025-B604	5G
	A1	FUJITSU – TA08025-B605	5G
BETA	B1	FUJITSU – TA08025-B604	5G
	B1	FUJITSU – TA08025-B605	5G
GAMMA	C1	FUJITSU – TA08025-B604	5G
	C1	FUJITSU – TA08025-B605	5G

NOTES

1. CONTRACTOR TO REFER TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS.
2. ANTENNA AND RRH MODELS MAY CHANGE DUE TO EQUIPMENT AVAILABILITY. ALL EQUIPMENT CHANGES MUST BE APPROVED AND REMAIN IN COMPLIANCE WITH THE PROPOSED DESIGN AND STRUCTURAL ANALYSES.

NO SCALE

3

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RFDS REV #: 2

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PROJECT INFORMATION
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314 6TH STREET
RACINE, WI 53403

SHEET TITLE
ANTENNA PLAN, ELEVATION AND SCHEDULE

SHEET NUMBER
A-3

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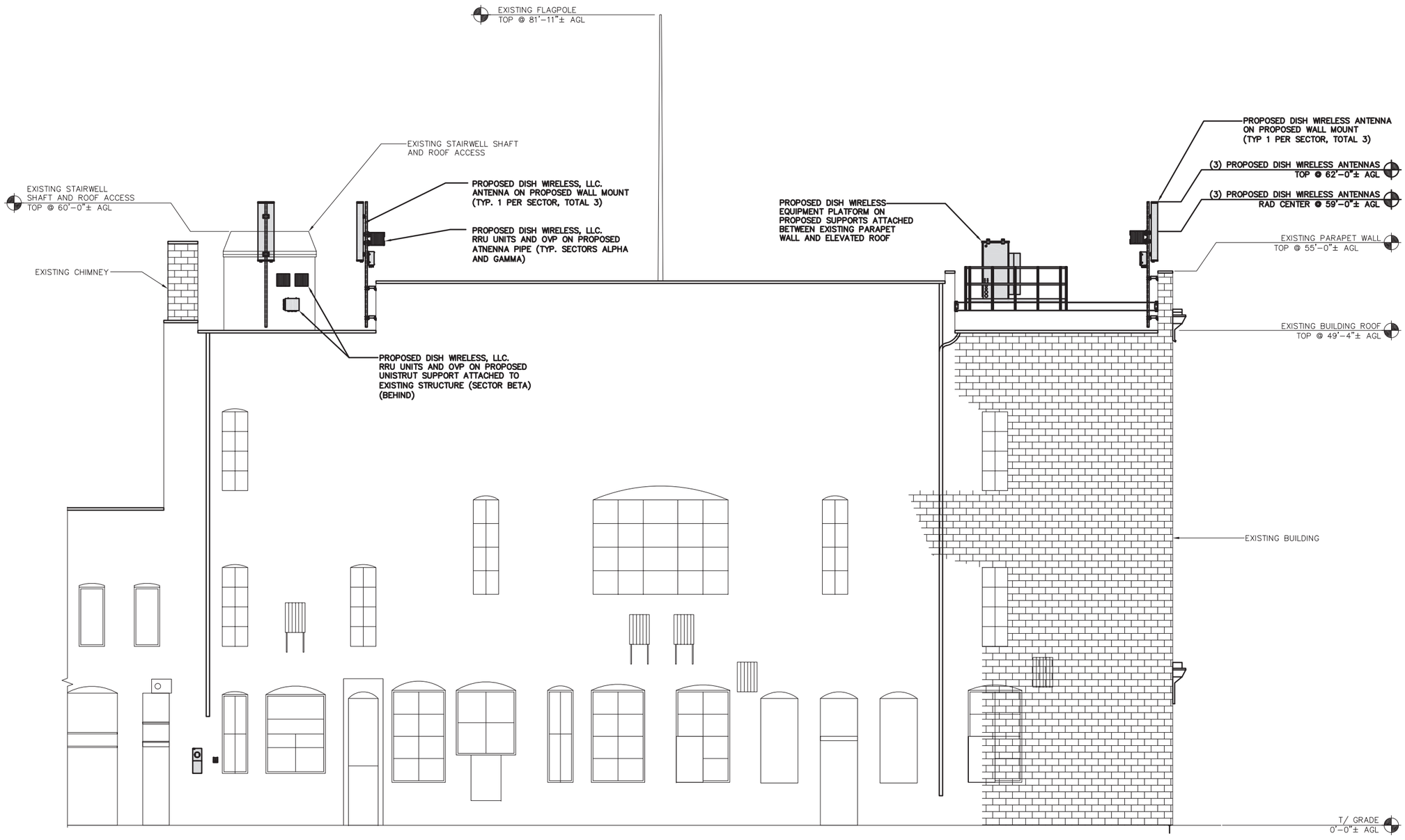

BUILDING NORTH ELEVATION

6' 4' 2' 0 5' 10'
3/16"=1'-0"

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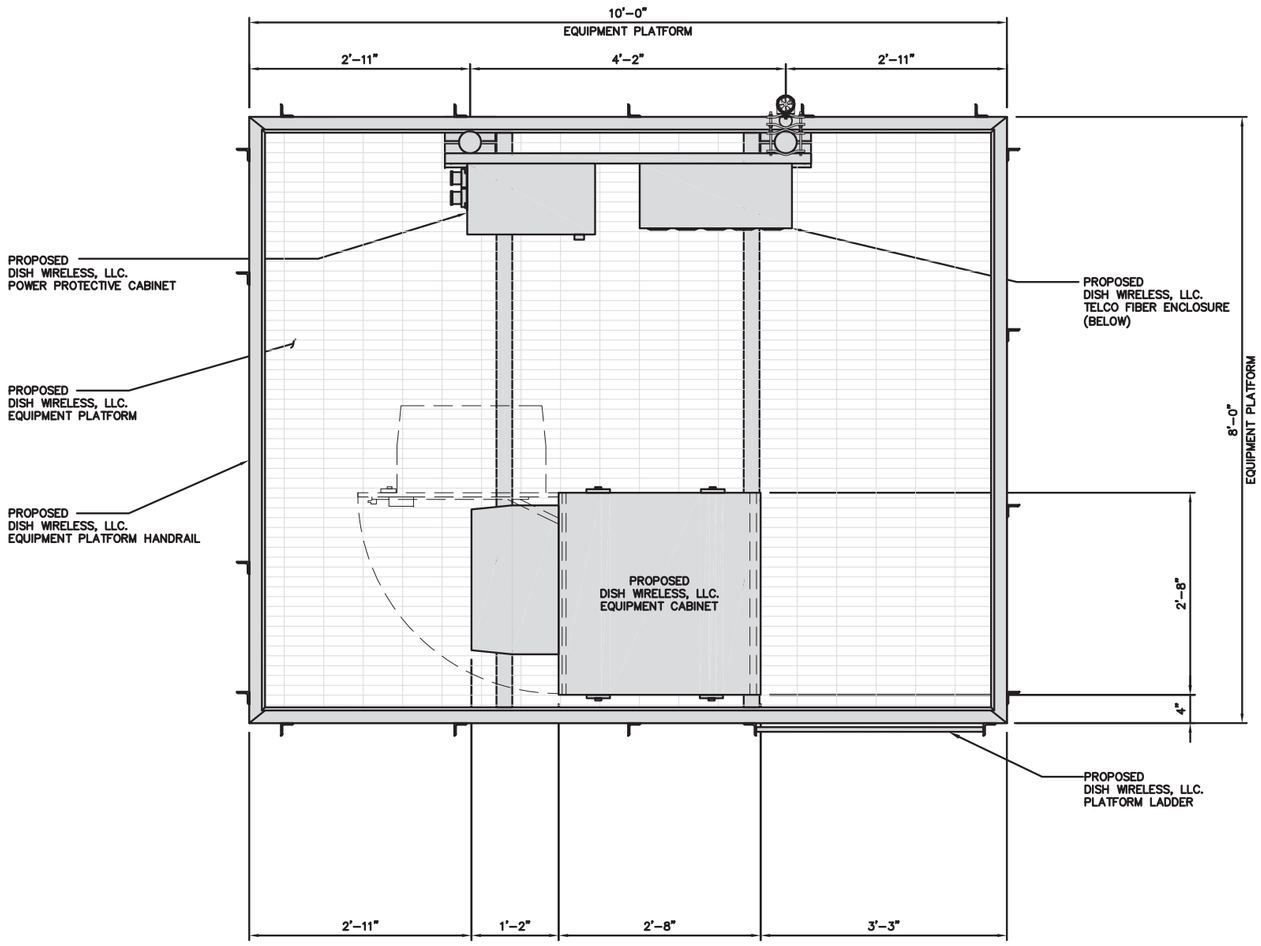
RACINE, WI 53403

SHEET TITLE

BUILDING ELEVATION

SHEET NUMBER

A-4



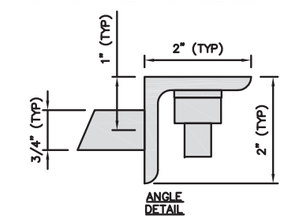
PLATFORM EQUIPMENT PLAN

12" 9" 6" 3" 0 1' 2'
1"=1'-0"

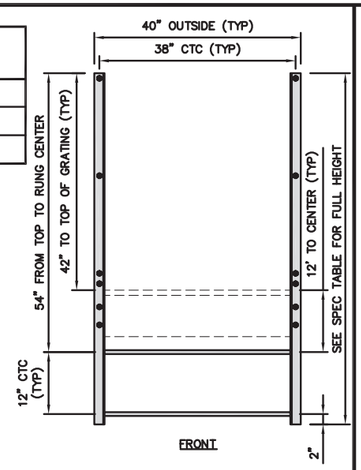
1

EQL.2 PLATFORM ACCESS LADDER	
RUNG WELDMENT QTY	2
TOTAL HEIGHT	68"
TOTAL WEIGHT	47.62 lbs

NOTES:
- (EQL.2 SHOWN FOR CLARITY PURPOSES)
- ALL DIMENSIONS SHOW AS "TYP" WILL BE THE SAME FOR ALL LADDER ASSEMBLIES



ANGLE DETAIL

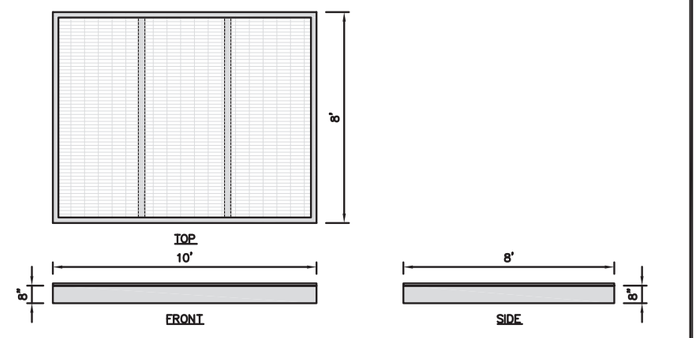


FRONT

STEEL PLATFORM LADDER DETAIL

4

COMMSCOPE - EQP810 STEEL PLATFORM	
TOTAL WEIGHT	±1017.8 lbs
MAX LOAD CAPACITY	10,000 lbs



STEEL PLATFORM DETAIL

5

NOT USED

NO SCALE

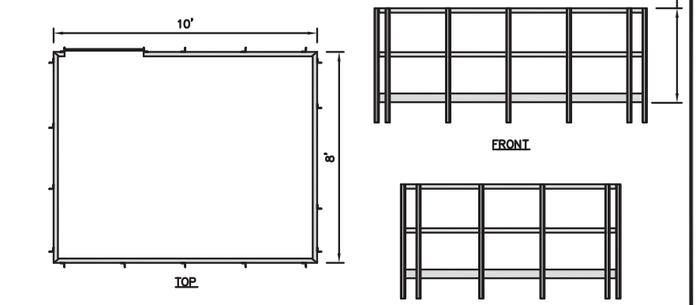
2

NOT USED

NO SCALE

3

COMMSCOPE EQHR810 PLATFORM HANDRAIL KIT	
TOTAL WEIGHT	±645.09 lbs



PLATFORM HANDRAIL KIT DETAIL

6

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DRAWN BY:	CHECKED BY:	APPROVED BY:
LA	DZ	DS

RFDS REV #: 2

PERMITTING DOCUMENTS

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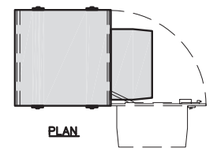
A&E PROJECT NUMBER
2021.0030.0004

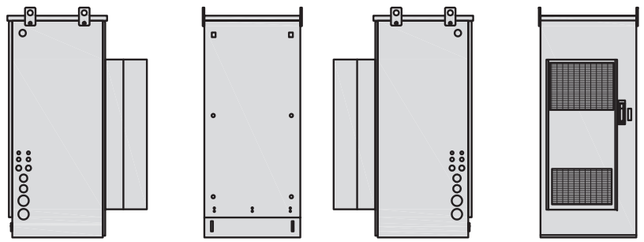
DISH Wireless L.L.C.
PROJECT INFORMATION
MWMKE00116B
314 6TH STREET
RACINE, WI 53403

SHEET TITLE
EQUIPMENT PLATFORM AND H-FRAME DETAILS

SHEET NUMBER
A-5

CHARLES INDUSTRY HEX CUBE–PM639155N4	
DIMENSIONS (HxWxD):	74"x32"x32"
POWER PLANT:	–48VDC ABB/600W
TOTAL WEIGHT (EMPTY)	408 LBS

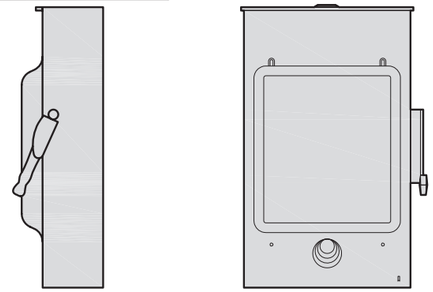

PLAN


SIDE BACK SIDE FRONT

CABINET DETAIL | NO SCALE | 1

SQUARE D SAFETY SWITCHES D224NRB	
ENCLOSURE DIM (HxWxD)	29.25"x19.00"x8.50"
ENCLOSURE TYPE	NEMA 3R RAINPROOF
UL LISTED	FILE E–2875

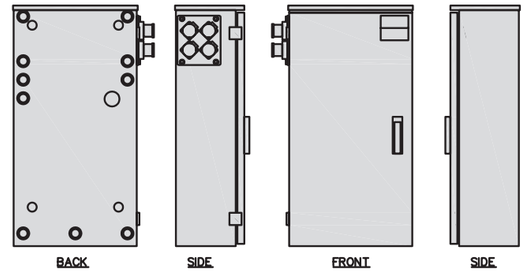

TOP


SIDE FRONT

SAFETY SWITCH DETAIL | NO SCALE | 2

RAYCAP PPC RDIAC–2465–P–240–MTS	
ENCLOSURE DIMENSIONS (HxWxD):	39"x22.855"x12.593
WEIGHT:	80 lbs
OPERATING AC VOLTAGE	240/120 1 PHASE 3W+G

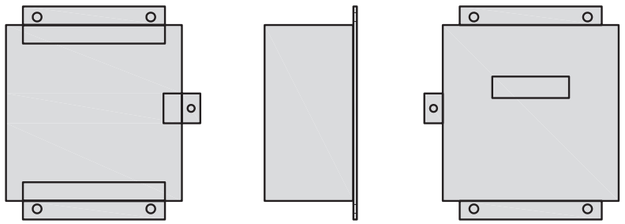

TOP


BACK SIDE FRONT SIDE

POWER PROTECTION CABINET (PPC) DETAIL | NO SCALE | 3

LEVITON 1N240–21 SUBMETER	
WATTAGE	3
AMPS	200
VOLTS AC	120, 208, 240
PHASE	1

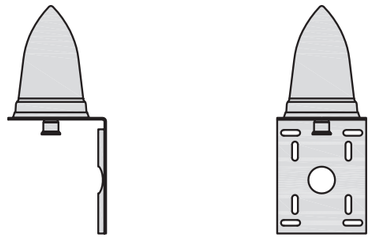

PLAN


BACK SIDE FRONT

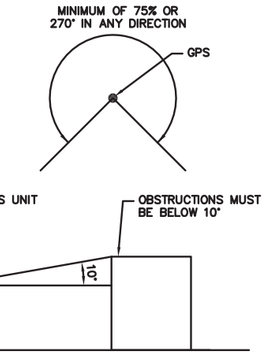
E–MON D–MON DETAIL | NO SCALE | 4

PCTEL GPSGL–TMG–SPI–40NCB	
DIMENSIONS (DIAxH) MM/INCH	81x184mm 3.2"x7.25"
WEIGHT W/ACCESSORIES	075 lbs
CONNECTOR	N–FEMALE
FREQUENCY RANGE	1590 ± 30MHz

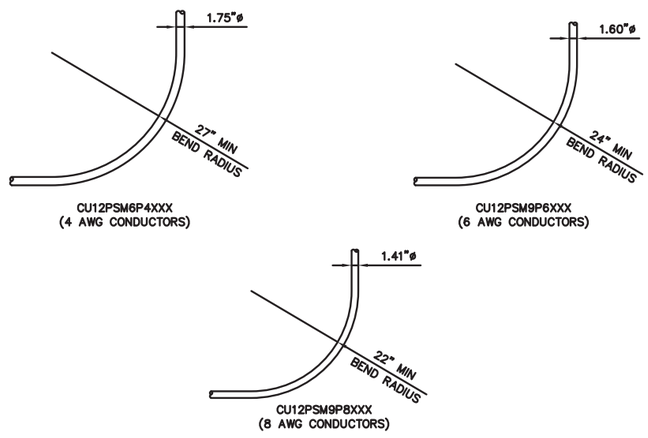

TOP


BACK SIDE

GPS DETAIL | NO SCALE | 5

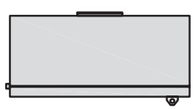


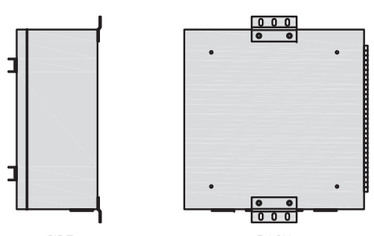
GPS MINIMUM SKY VIEW REQUIREMENTS | NO SCALE | 6



CABLES UNLIMITED HYBRID CABLE MINIMUM BEND RADIUSES | NO SCALE | 7

CHARLES CFIT–PF2020DSH1 FIBER TELCO ENCLOSURE	
ENCLOSURE DIMS (HxWxD)	20"x20"x9"
ENCLOSURE WEIGHT	20 lbs
MOUNTING	WALL
COMPLIANCE	TYPE 4


FRONT


SIDE BACK FRONT

FIBER TELCO ENCLOSURE DETAIL | NO SCALE | 8

NOT USED | NO SCALE | 9

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DISH Wireless L.L.C.
PROJECT INFORMATION

MWMKE00116B
314 6TH STREET
RACINE, WI 53403

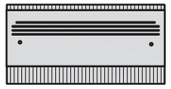
SHEET TITLE

EQUIPMENT DETAILS

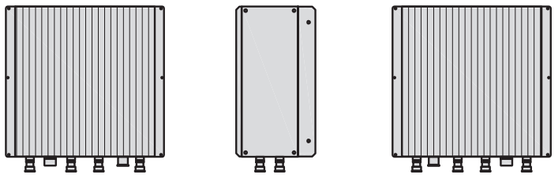
SHEET NUMBER

A-6

FUJITSU DUAL BAND TA08025-B604	
DIMENSIONS (HxWxD)	14.9"x15.7"x7.8"
WEIGHT	63.9 lbs
CONNECTOR TYPE	4.3-10 RF CONNECTOR
POWER SUPPLY	DC -58~-36V



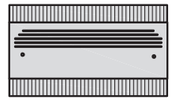
PLAN



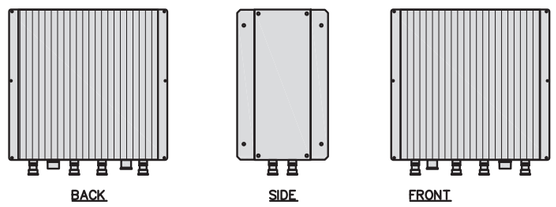
BACK SIDE FRONT

RRH DETAIL | NO SCALE | 1

FUJITSU TRIPLE BAND TA08025-B605	
DIMENSIONS (HxWxD)	14.9"x15.7"x9"
WEIGHT	74.95 lbs
CONNECTOR TYPE	4.3-10 RF CONNECTOR
POWER SUPPLY	DC -58~-36V



PLAN

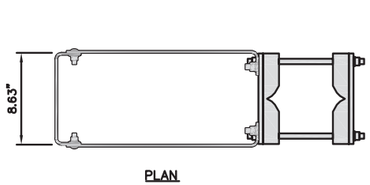


BACK SIDE FRONT

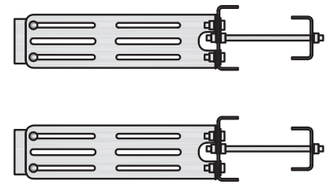
RRH DETAIL | NO SCALE | 2

COMMSCOPE RR-FA2 LARGE STABILIZER	
DIMENSIONS (HxWxD)	16.4"x8.5"x18"
WEIGHT	39.2 lbs

DESIGN NOTES:
MOUNT WILL FIT LEGS UP TO:
- 5.6" ROUND
- 6.0" 60° ANGLE
- 4.5" 90° ANGLE



PLAN



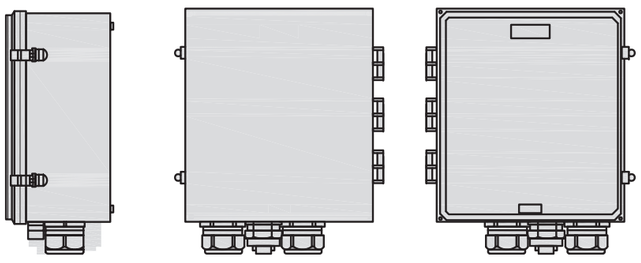
SIDE

NOTE:
OR DISH Wireless L.L.C.
APPROVED EQUIVALENT

RRH MOUNT DETAIL | NO SCALE | 3

RAYCAP RDIDC-4045-PF-48 SURGE PROTECTION DEVICE (OVP)	
DIMENSIONS (HxWxD)	14" x 16" x 8"
WEIGHT	21.85 LBS

PLAN

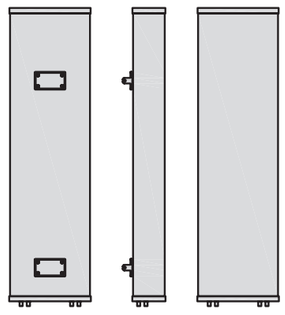


SIDE BACK FRONT

SURGE PROTECTION DEVICE DETAIL (OVP) | NO SCALE | 4

COMMSCOPE FFVV-65B-R2	
DIMENSIONS (HxWxD)(MM/IN)	1828x498x197 72"x19.6"x7.8"
RF CONNECTOR INTERFACE	4.3-10 FEMALE
WEIGHT	70.8 lbs
WEIGHT WITH BRACKETS	98.1 lbs

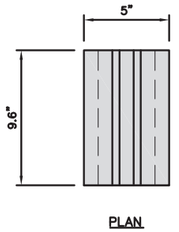
PLAN



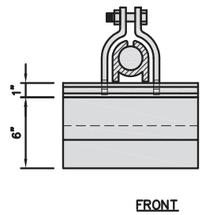
BACK SIDE FRONT

ANTENNA DETAIL | NO SCALE | 5

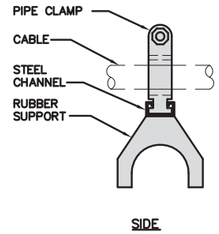
DURA-BLOK DB10 ROOFTOP CABLE SUPPORT	
DIMENSIONS (HxWxL)	5"x6"x9.6"
WEIGHT/ VOLUME	5.28 LBS
ULTIMATE LOAD CAPACITY	500 LBS
NOTE: NON-PENETRATING	



PLAN



FRONT

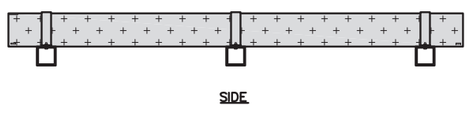


SIDE

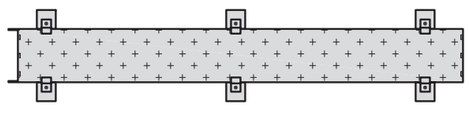
ROOFTOP CABLE SUPPORT DETAIL | NO SCALE | 6

COMMSCOPE RT-CB4D ROOFTOP COVER KIT		MOUNTING	NON-PENETRATING
DIMENSIONS (HxWxL)	7"x 11.25"x 96"	INCLUDED PRODUCTS:	RTCB4D.01 CHANNEL (1)
WEIGHT/ VOLUME	85.98 LBS		MT-F1598 SLEEPERS (3)
			RTCUH HARDWARE
			RTHC.01 HOLD-DOWN CLAMPS (6)

END



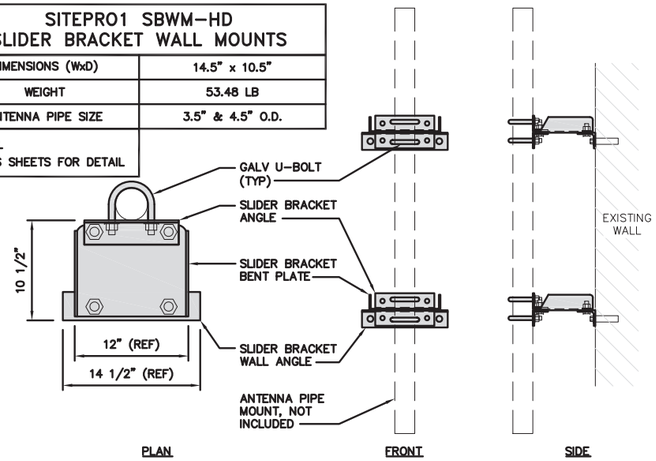
SIDE



PLAN

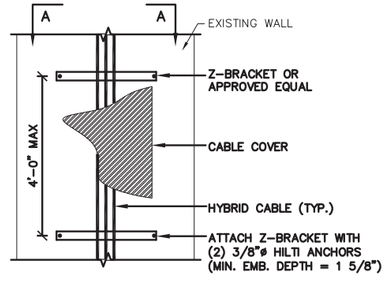
ROOFTOP CABLE TRAY DETAIL | NO SCALE | 7

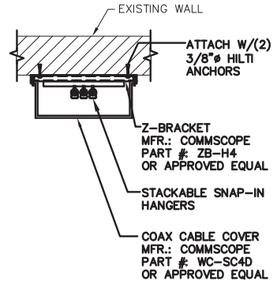
SITEPRO1 SBWM-HD SLIDER BRACKET WALL MOUNTS	
DIMENSIONS (WxD)	14.5" x 10.5"
WEIGHT	53.48 LB
ANTENNA PIPE SIZE	3.5" & 4.5" O.D.
NOTE: SEE S SHEETS FOR DETAIL	



PLAN FRONT SIDE

ANTENNA WALL MOUNT DETAIL | NO SCALE | 8





SECTION "A-A"

CABLE W/COVER WALL MOUNT DETAIL | NO SCALE | 9

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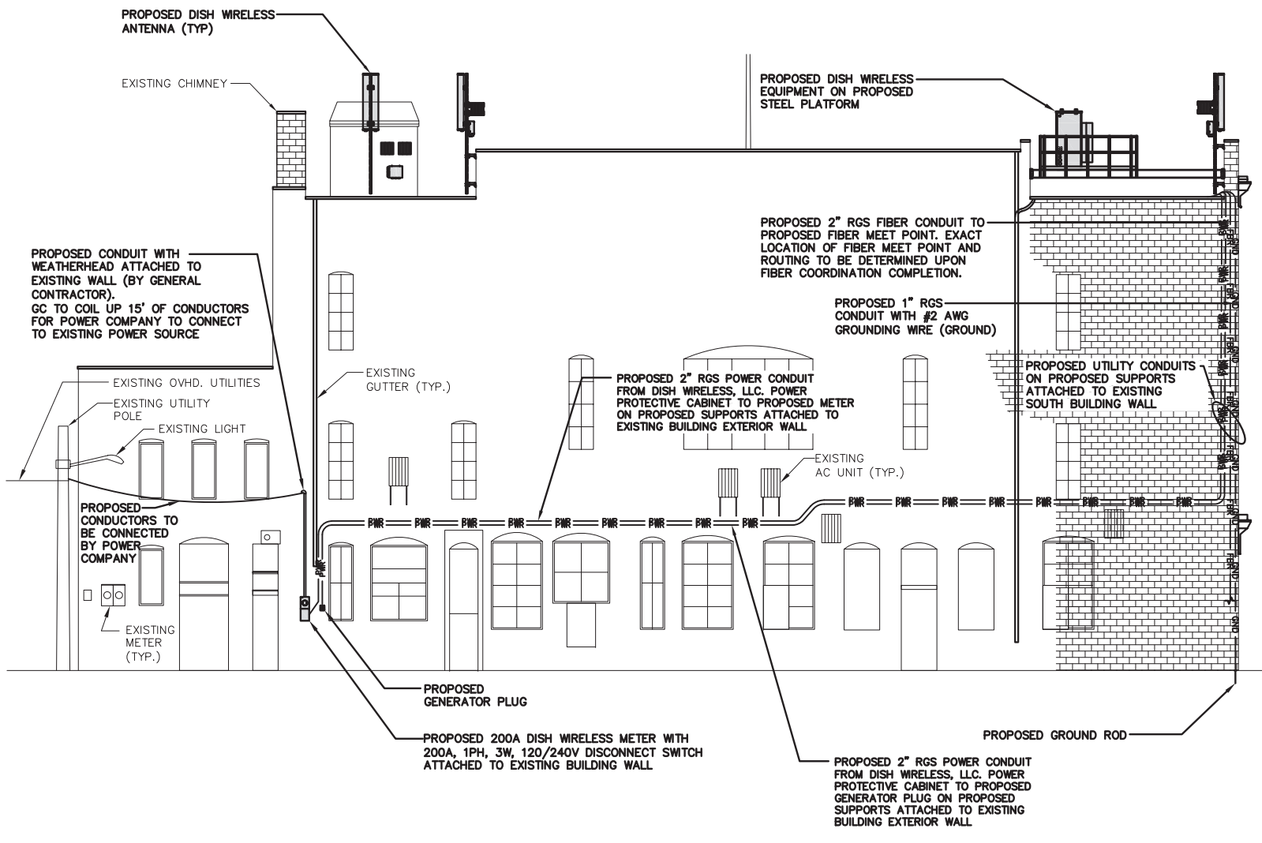
A-7

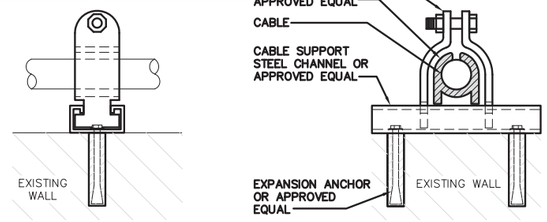


UTILITY RISER DIAGRAM | NO SCALE | 1

CABLE/CONDUIT WALL MOUNT SUPPORT

UNISTRUT TYPE	GRAINGER P1000T
UNISTRUT DIMENSIONS (HxWxL)	1 5/8"x 1 5/8"x 12"
WEIGHT/ VOLUME	1.85 LB PER FOOT
ULTIMATE LOAD CAPACITY	718.5 LB

NOTES:
1. ALL HARDWARE AND PARTS SHALL BE HOT DIPPED GALVANIZED WITH LOCK WASHERS AND HEAVY HEX NUTS.
2. VERTICAL CABLE MOUNT: 4'-0" MAX. UNISTRUT SEPARATION
3. HORIZONTAL CABLE MOUNT: 3'-0" MAX UNISTRUT SEPARATION



PLAN | SIDE

CABLE/CONDUIT WALL MOUNT SUPPORT DETAIL | NO SCALE | 2

NOT USED | NO SCALE | 3

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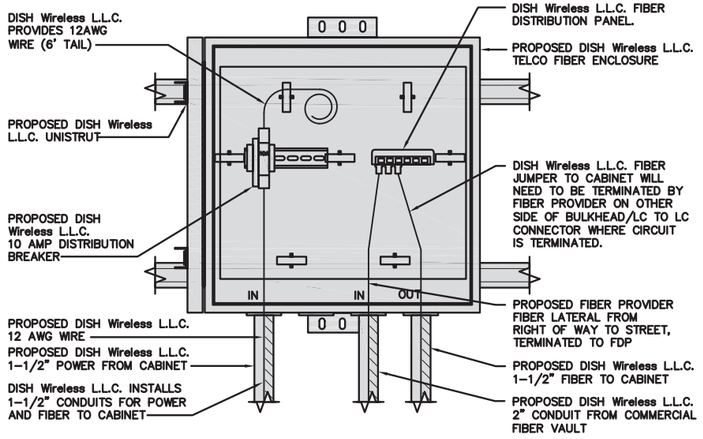
SHEET TITLE
UTILITY RISER DIAGRAM

SHEET NUMBER
E-1

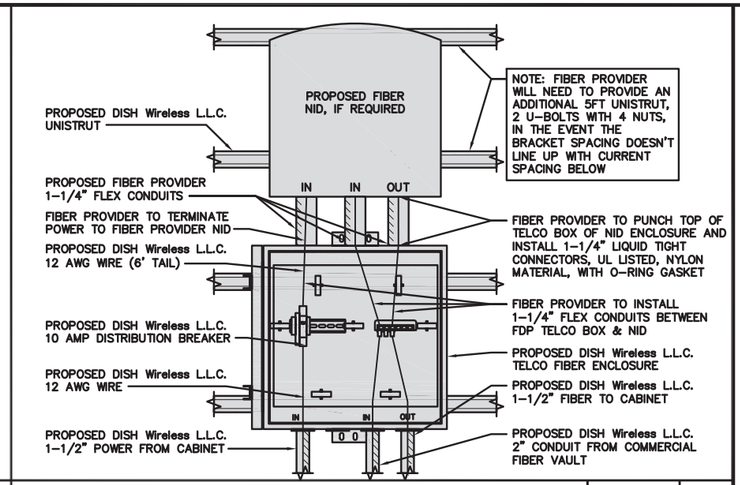
DC POWER WIRING SHALL BE COLOR CODED AT EACH END FOR IDENTIFYING +24V AND −48V CONDUCTORS. RED MARKINGS SHALL IDENTIFY +24V AND BLUE MARKINGS SHALL IDENTIFY −48V.

1. CONTRACTOR SHALL INSPECT THE EXISTING CONDITIONS PRIOR TO SUBMITTING A BID. ANY QUESTIONS ARISING DURING THE BID PERIOD IN REGARDS TO THE CONTRACTOR'S FUNCTIONS, THE SCOPE OF WORK, OR ANY OTHER ISSUE RELATED TO THIS PROJECT SHALL BE BROUGHT UP DURING THE BID PERIOD WITH THE PROJECT MANAGER FOR CLARIFICATION, NOT AFTER THE CONTRACT HAS BEEN AWARDED.
2. ALL ELECTRICAL WORK SHALL BE DONE IN ACCORDANCE WITH CURRENT NATIONAL ELECTRICAL CODES AND ALL STATE AND LOCAL CODES, LAWS, AND ORDINANCES. PROVIDE ALL COMPONENTS AND WIRING SIZES AS REQUIRED TO MEET NEC STANDARDS.
3. LOCATION OF EQUIPMENT, CONDUIT AND DEVICES SHOWN ON THE DRAWINGS ARE APPROXIMATE AND SHALL BE COORDINATED WITH FIELD CONDITIONS PRIOR TO CONSTRUCTION.
4. CONDUIT ROUGH-IN SHALL BE COORDINATED WITH THE MECHANICAL EQUIPMENT TO AVOID LOCATION CONFLICTS. VERIFY WITH THE MECHANICAL EQUIPMENT CONTRACTOR AND COMPLY AS REQUIRED.
5. CONTRACTOR SHALL PROVIDE ALL BREAKERS, CONDUITS AND CIRCUITS AS REQUIRED FOR A COMPLETE SYSTEM.
6. CONTRACTOR SHALL PROVIDE PULL BOXES AND JUNCTION BOXES AS REQUIRED BY THE NEC ARTICLE 314.
7. CONTRACTOR SHALL PROVIDE ALL STRAIN RELIEF AND CABLE SUPPORTS FOR ALL CABLE ASSEMBLIES. INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS.
8. ALL DISCONNECTS AND CONTROLLING DEVICES SHALL BE PROVIDED WITH ENGRAVED PHENOLIC NAMEPLATES INDICATING EQUIPMENT CONTROLLED, BRANCH CIRCUITS INSTALLED ON, AND PANEL FIELD LOCATIONS FED FROM.
9. INSTALL AN EQUIPMENT GROUNDING CONDUCTOR IN ALL CONDUITS PER THE SPECIFICATIONS AND NEC 250. THE EQUIPMENT GROUNDING CONDUCTORS SHALL BE BONDED AT ALL JUNCTION BOXES, PULL BOXES, AND ALL DISCONNECT SWITCHES, AND EQUIPMENT CABINETS.
10. ALL NEW MATERIAL SHALL HAVE A U.L. LABEL.
11. PANEL SCHEDULE LOADING AND CIRCUIT ARRANGEMENTS REFLECT POST-CONSTRUCTION EQUIPMENT.
12. CONTRACTOR SHALL BE RESPONSIBLE FOR AS-BUILT PANEL SCHEDULE AND SITE DRAWINGS.

ELECTRICAL NOTES | NO SCALE | 1

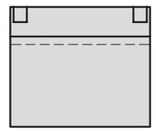


DARK TELCO BOX – INTERIOR WIRING LAYOUT | NO SCALE | 2



LIT TELCO BOX – INTERIOR WIRING LAYOUT (OPTIONAL) | NO SCALE | 3

GFCI OUTLET 2CKUR TWO-GFCI RECEPTACLE COVER	
DIMENSIONS (HxWxD)	6.25"x5.25"x4.5"
WEIGHT	1.1LB
NUMBER OF GANGS	2
VERTICAL COVER	2CKU



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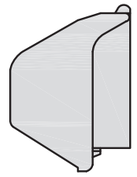

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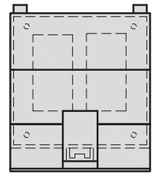

FRONT

GFCI OUTLET DETAIL | NO SCALE | 4

NOT USED | NO SCALE | 5

NOT USED | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8

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PROFESSIONAL ENGINEER

DRAWN BY:	CHECKED BY:	APPROVED BY:
LA	DZ	DS

RFDS REV #: 2

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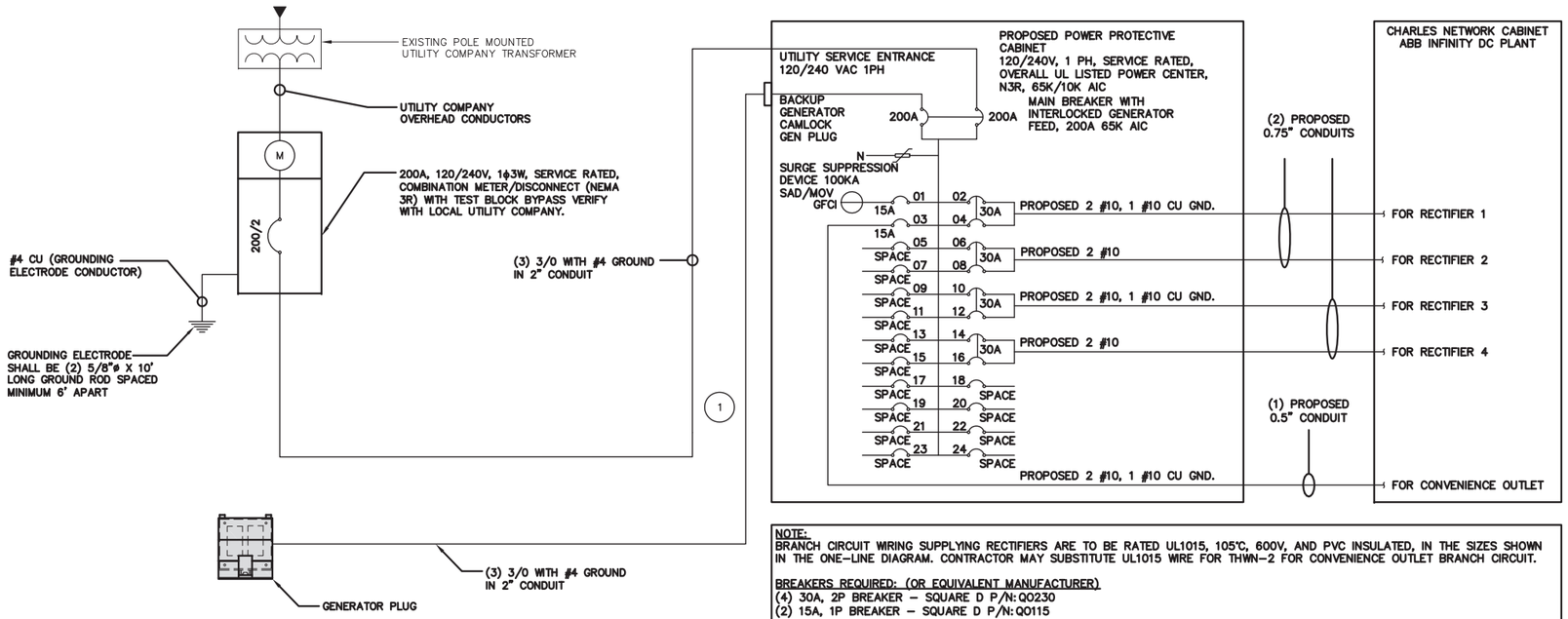
A&E PROJECT NUMBER
2021.0030.0004

DISH Wireless L.L.C.
PROJECT INFORMATION
MWMKE00116B
314 6TH STREET
RACINE, WI 53403

SHEET TITLE
ELECTRICAL DETAILS

SHEET NUMBER
E-2



NOTE:
BRANCH CIRCUIT WIRING SUPPLYING RECTIFIERS ARE TO BE RATED UL1015, 105'C, 600V, AND PVC INSULATED, IN THE SIZES SHOWN IN THE ONE-LINE DIAGRAM. CONTRACTOR MAY SUBSTITUTE UL1015 WIRE FOR THWN-2 FOR CONVENIENCE OUTLET BRANCH CIRCUIT.

BREAKERS REQUIRED: (OR EQUIVALENT MANUFACTURER)
(4) 30A, 2P BREAKER - SQUARE D P/N: QO230
(2) 15A, 1P BREAKER - SQUARE D P/N: QO115

PPC ONE-LINE DIAGRAM — NO SCALE — 1

NOTES

THE ENGINEER OF RECORD HAS PERFORMED ALL REQUIRED SHORT CIRCUIT CALCULATIONS AND THE AIC RATINGS FOR EACH DEVICE IS ADEQUATE TO PROTECT THE EQUIPMENT AND THE ELECTRICAL SYSTEM.

THE ENGINEER OF RECORD HAS PERFORMED ALL REQUIRED VOLTAGE DROP CALCULATIONS AND ALL BRANCH CIRCUIT AND FEEDERS COMPLY WITH THE NEC (LISTED ON T-1) ARTICLE 210.19(A)(1) FPN NO. 4.

THE (2) CONDUITS WITH (4) CURRENT CARRYING CONDUCTORS EACH, SHALL APPLY THE ADJUSTMENT FACTOR OF 80% PER 2014/17 NEC TABLE 310.15(B)(3)(a) OR 2020 NEC TABLE 310.15(C)(1) FOR UL1015 WIRE.

#12 FOR 15A-20A/1P BREAKER: 0.8 x 30A = 24.0A
#10 FOR 25A-30A/2P BREAKER: 0.8 x 40A = 32.0A
#8 FOR 35A-40A/2P BREAKER: 0.8 x 55A = 44.0A
#6 FOR 45A-60A/2P BREAKER: 0.8 x 75A = 60.0A

CONDUIT SIZING: AT 40% FILL PER NEC CHAPTER 9, TABLE 4, ARTICLE 358.
0.5" CONDUIT - 0.122 SQ. IN AREA
0.75" CONDUIT - 0.213 SQ. IN AREA
2.0" CONDUIT - 1.316 SQ. IN AREA
3.0" CONDUIT - 2.907 SQ. IN AREA

CABINET CONVENIENCE OUTLET CONDUCTORS (1 CONDUIT): USING THWN-2, CU.

#10 - 0.0211 SQ. IN X 2 = 0.0422 SQ. IN
#10 - 0.0211 SQ. IN X 1 = 0.0211 SQ. IN <GROUND
TOTAL = 0.0633 SQ. IN

0.5" CONDUIT IS ADEQUATE TO HANDLE THE TOTAL OF (3) WIRES, INCLUDING GROUND WIRE, AS INDICATED ABOVE.

RECTIFIER CONDUCTORS (2 CONDUITS): USING UL1015, CU.

#10 - 0.0266 SQ. IN X 4 = 0.1064 SQ. IN
#10 - 0.0082 SQ. IN X 1 = 0.0082 SQ. IN <BARE GROUND
TOTAL = 0.1146 SQ. IN

0.75" CONDUIT IS ADEQUATE TO HANDLE THE TOTAL OF (5) WIRES, INCLUDING GROUND WIRE, AS INDICATED ABOVE.

PPC FEED CONDUCTORS (1 CONDUIT): USING THWN, CU.

3/0 - 0.2679 SQ. IN X 3 = 0.8037 SQ. IN
#4 - 0.2043 SQ. IN X 1 = 0.2043 SQ. IN <GROUND
TOTAL = 1.0080 SQ. IN

2.0" CONDUIT IS ADEQUATE TO HANDLE THE TOTAL OF (4) WIRES, INCLUDING GROUND WIRE, AS INDICATED ABOVE.

(1) OPTIONAL ALUMINUM SERVICE CONDUCTOR:
- 4/0 AL + #2 GRD MAY BE USED INSTEAD OF 3/0 CU + #4 GRD IF THE TOTAL LENGTH OF THE CONDUCTOR IS LESS THAN 300 FT FROM THE TRANSFORMER.
- ALUMINUM CONDUCTORS MUST BE 90'C TO CARRY THE FULL 200A LOAD REQUIRED
- ALUMINUM TO COPPER BUSS CONNECTIONS MUST MEET AND CONFORM TO ANSI AND BE UL LISTED. USE ANTI CORROSION CONDUCTIVE LUBRICANT ON CONNECTIONS

PROPOSED CHARLES PANEL SCHEDULE

LOAD SERVED	VOLT AMPS (WATTS) L1	VOLT AMPS (WATTS) L2	TRIP	CKT #	PHASE	CKT #	TRIP	VOLT AMPS (WATTS) L1	VOLT AMPS (WATTS) L2	LOAD SERVED
PPC GFCI OUTLET	180		15A	1	A	2	30A	2880		ABB/GE INFINITY RECTIFIER 1
CHARLES GFCI OUTLET		180	15A	3	B	4			2880	
-SPACE-				5	A	6	30A	2880		ABB/GE INFINITY RECTIFIER 2
-SPACE-				7	B	8			2880	
-SPACE-				9	A	10	30A	2880		ABB/GE INFINITY RECTIFIER 3
-SPACE-				11	B	12			2880	
-SPACE-				13	A	14	30A	2880		ABB/GE INFINITY RECTIFIER 4
-SPACE-				15	B	16			2880	
-SPACE-				17	A	18				-SPACE-
-SPACE-				19	B	20				-SPACE-
-SPACE-				21	A	22				-SPACE-
-SPACE-				23	B	24				-SPACE-
VOLTAGE AMPS	180	180						11520	11520	
200A MCB, 1ϕ, 24 SPACE, 120/240V			L1		L2					
MB RATING: 65,000 AIC			11700		11700		VOLTAGE AMPS			
			98		98		AMPS			
			98				MAX AMPS			
			123				MAX 125%			

PANEL SCHEDULE — NO SCALE — 2

NOT USED — NO SCALE — 3

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A&E PROJECT NUMBER
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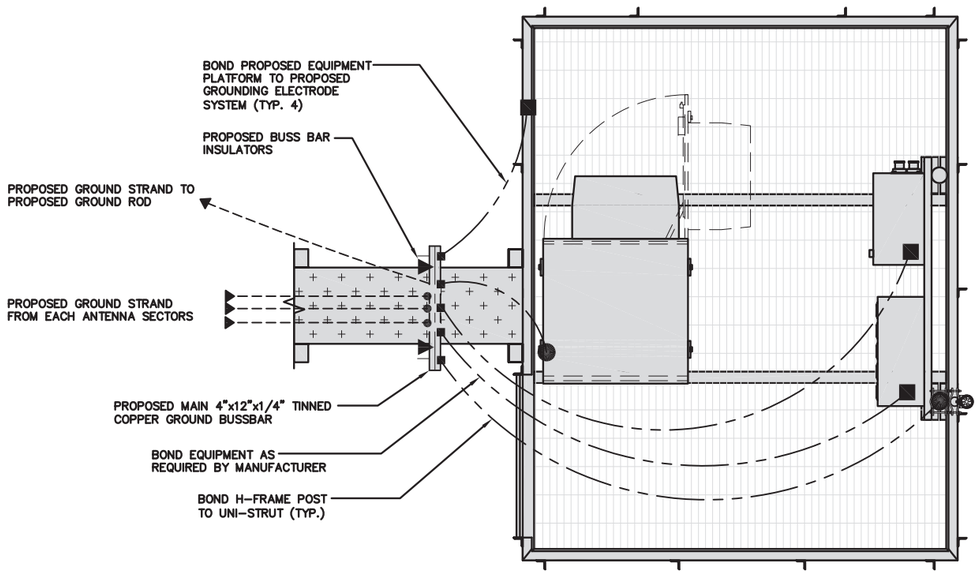
DISH Wireless L.L.C.
PROJECT INFORMATION
MWMKE00116B
314 6TH STREET
RACINE, WI 53403

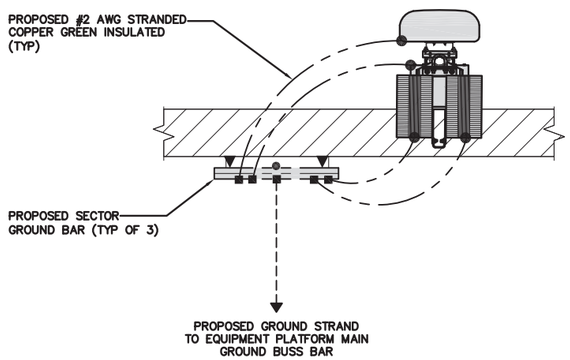
SHEET TITLE
ELECTRICAL ONE-LINE AND PANEL SCHEDULE

SHEET NUMBER
E-3



TYPICAL ROOFTOP EQUIPMENT GROUNDING PLAN

NO SCALE | 1



GROUNDING PLAN

NO SCALE | 2

- EXOTHERMIC CONNECTION
- MECHANICAL CONNECTION
- GROUND BUS BAR
- GROUND ROD
- TEST GROUND ROD WITH INSPECTION SLEEVE
- #6 AWG STRANDED & INSULATED
- #2 AWG SOLID COPPER TINNED
- BUSS BAR INSULATOR

GROUNDING LEGEND

1. GROUNDING IS SHOWN DIAGRAMMATICALLY ONLY.
2. CONTRACTOR SHALL GROUND ALL EQUIPMENT AS A COMPLETE SYSTEM. GROUNDING SHALL BE IN COMPLIANCE WITH NEC SECTION 250 AND DISH Wireless L.L.C. GROUNDING AND BONDING REQUIREMENTS AND MANUFACTURER'S SPECIFICATIONS.
3. ALL GROUND CONDUCTORS SHALL BE COPPER; NO ALUMINUM CONDUCTORS SHALL BE USED.
4. NO EXOTHERMIC WELDING ON ROOFTOP

GROUNDING ROOFTOP KEY NOTES

(A) EXTERIOR GROUND RING: #2 AWG SOLID COPPER, BURIED AT A DEPTH OF AT LEAST 30 INCHES BELOW GRADE, OR 6 INCHES BELOW THE FROST LINE AND APPROXIMATELY 24 INCHES FROM THE EXTERIOR WALL OR FOOTING.

(B) ROOFTOP GROUND SYSTEM: THE GROUND SYSTEM USING MINIMUM #2 AWG SOLID COPPER CONDUCTORS.

(C) INTERIOR GROUND RING: #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTOR EXTENDED AROUND THE PERIMETER OF THE EQUIPMENT AREA. ALL NON-TELECOMMUNICATIONS RELATED METALLIC OBJECTS FOUND WITHIN A SITE SHALL BE GROUNDED TO THE INTERIOR GROUND RING WITH #6 AWG STRANDED GREEN INSULATED CONDUCTOR.

(D) BOND TO INTERIOR GROUND RING: #2 AWG SOLID TINNED COPPER WIRE PRIMARY BONDS SHALL BE PROVIDED AT LEAST AT FOUR POINTS ON THE INTERIOR GROUND RING, LOCATED AT THE CORNERS OF THE BUILDING OR ROOM.

(E) GROUND ROD: UL LISTED COPPER CLAD STEEL. MINIMUM 1/2" DIAMETER BY EIGHT FEET LONG. GROUND RODS SHALL BE INSTALLED WITH INSPECTION SLEEVES. GROUND RODS SHALL BE DRIVEN TO THE DEPTH OF GROUND RING CONDUCTOR.

(F) CELL REFERENCE GROUND BAR (CRGB): POINT OF GROUND REFERENCE FOR ALL COMMUNICATIONS EQUIPMENT FRAMES. ALL BONDS ARE MADE WITH #2 AWG UNLESS NOTED OTHERWISE STRANDED GREEN INSULATED COPPER CONDUCTORS. BOND TO COMMON BUILDING GROUND SYSTEM WITH (2) #2 SOLID TINNED COPPER CONDUCTORS.

(G) HATCH PLATE GROUND BAR: BOND TO THE COMMON BUILDING GROUND SYSTEM WITH TWO #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTORS. WHEN A HATCH-PLATE AND A CELL REFERENCE GROUND BAR ARE BOTH PRESENT, THE CRGB MUST BE CONNECTED TO THE HATCH-PLATE AND TO THE INTERIOR GROUND RING USING (2) TWO #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTORS EACH.

(H) EXTERIOR CABLE ENTRY PORT GROUND BARS: LOCATED AT THE ENTRANCE TO THE CELL SITE ROOM. BOND TO GROUND RING WITH A #2 AWG SOLID TINNED COPPER CONDUCTORS WITH MECHANICAL CONNECTIONS.

(I) TELCO GROUND BAR: BOND TO BOTH CELL REFERENCE GROUND BAR OR EXTERIOR GROUND RING.

(J) FRAME BONDING: THE BONDING POINT FOR TELECOM EQUIPMENT FRAMES SHALL BE THE GROUND BUS THAT IS NOT ISOLATED FROM THE EQUIPMENTS METAL FRAMEWORK.

(K) INTERIOR UNIT BONDS: METAL FRAMES, CABINETS AND INDIVIDUAL METALLIC UNITS LOCATED WITH THE AREA OF THE INTERIOR GROUND RING REQUIRE A #6 AWG STRANDED GREEN INSULATED COPPER BOND TO THE INTERIOR GROUND RING.

(L) FENCE AND GATE GROUNDING: METAL FENCES SHALL BE BONDED TO THE COMMON BUILDING GROUND SYSTEM WITH A #2 AWG SOLID TINNED COPPER CONDUCTOR AT AN INTERVAL NOT EXCEEDING 25 FEET. BONDS SHALL BE MADE AT EACH GATE POST AND ACROSS GATE OPENINGS.

(M) EXTERIOR UNIT BONDS: METALLIC OBJECTS, EXTERNAL TO OR MOUNTED TO THE BUILDING, SHALL BE BONDED TO THE COMMON BUILDING GROUND SYSTEM. USING #2 TINNED SOLID COPPER WIRE

(N) ICE BRIDGE SUPPORTS: EACH ICE BRIDGE LEG SHALL BE BONDED TO THE GROUND RING WITH #2 AWG BARE TINNED COPPER CONDUCTOR. PROVIDE EXOTHERMIC WELDS AT BOTH THE ICE BRIDGE LEG AND BURIED GROUND RING.

(O) DURING ALL DC POWER SYSTEM CHANGES INCLUDING DC SYSTEM CHANGE OUTS, RECTIFIER REPLACEMENTS OR ADDITIONS, BREAKER DISTRIBUTION CHANGES, BATTERY ADDITIONS, BATTERY REPLACEMENTS AND INSTALLATIONS OR CHANGES TO DC CONVERTER SYSTEMS IT SHALL BE REQUIRED THAT SERVICE CONTRACTORS VERIFY ALL DC POWER SYSTEMS ARE EQUIPPED WITH A MASTER DC SYSTEM RETURN GROUND CONDUCTOR FROM THE DC POWER SYSTEM COMMON RETURN BUS DIRECTLY CONNECTED TO THE CELL SITE REFERENCE GROUND BAR

(P) ROOFTOP COLLECTOR BUSS BAR IS TO BE MECHANICALLY BONDED TO COMMON BUILDING GROUND SYSTEM.

REFER TO DISH Wireless L.L.C. GROUNDING NOTES.

GROUNDING KEY NOTES

NO SCALE | 3

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LA	DZ	DS

RFDS REV #: 2

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A&E PROJECT NUMBER

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DISH Wireless L.L.C.
PROJECT INFORMATION

MWMKE00116B
314 6TH STREET
RACINE, WI 53403

SHEET TITLE

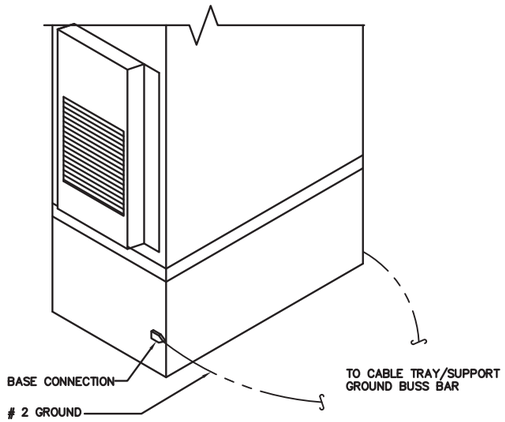
GROUNDING PLANS AND NOTES

SHEET NUMBER

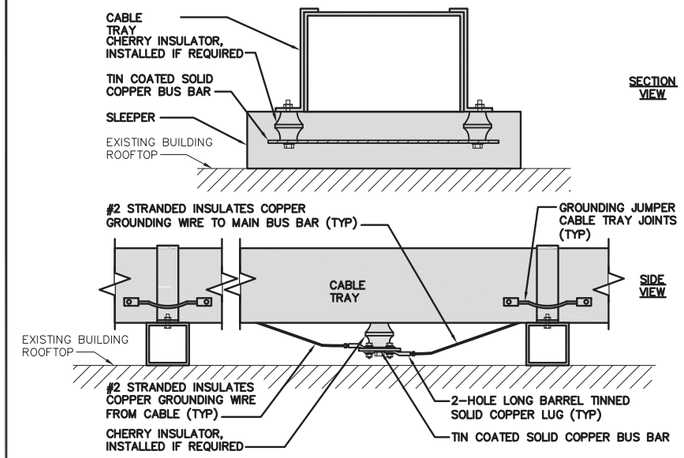
G-1

1. EXOTHERMIC WELD (2) TWO, #2 AWG BARE TINNED SOLID COPPER CONDUCTORS TO GROUND BAR. ROUTE CONDUCTORS TO BURIED GROUND RING AND PROVIDE PARALLEL EXOTHERMIC WELD.
2. ALL EXTERIOR GROUNDING HARDWARE SHALL BE STAINLESS STEEL 3/8" DIAMETER OR LARGER. ALL HARDWARE 18-8 STAINLESS STEEL INCLUDING LOCK WASHERS, COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING.
3. FOR GROUND BOND TO STEEL ONLY: COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING.
4. DO NOT INSTALL CABLE GROUNDING KIT AT A BEND AND ALWAYS DIRECT GROUND CONDUCTOR DOWN TO GROUNDING BUS.
5. NUT & WASHER SHALL BE PLACED ON THE FRONT SIDE OF THE GROUND BAR AND BOLTED ON THE BACK SIDE.
6. ALL GROUNDING PARTS AND EQUIPMENT TO BE SUPPLIED AND INSTALLED BY CONTRACTOR.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING ADDITIONAL GROUND BAR AS REQUIRED.
8. ENSURE THE WIRE INSULATION TERMINATION IS WITHIN 1/8" OF THE BARREL (NO SHINERS).

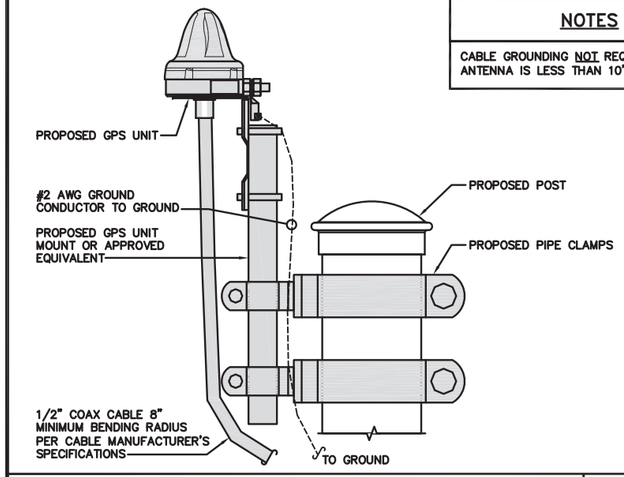
TYPICAL GROUNDING NOTES | NO SCALE | 1



OUTDOOR CABINET GROUNDING | NO SCALE | 2



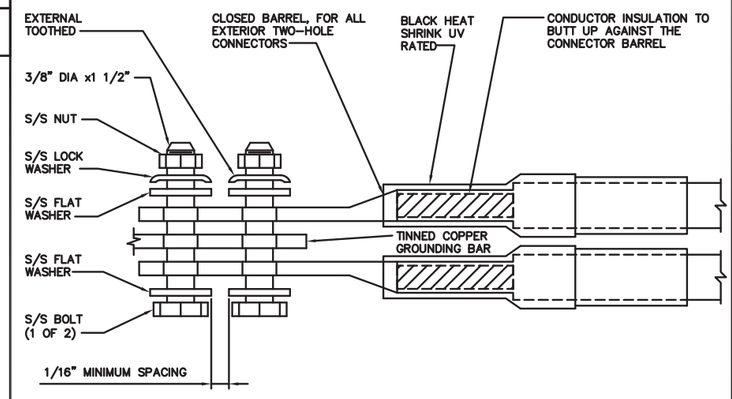
TYPICAL CABLE TRAY GROUND BUSS BAR | NO SCALE | 3



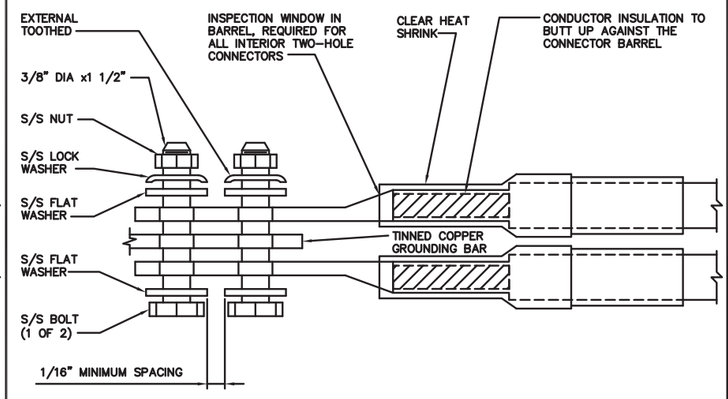
NOTES

CABLE GROUNDING NOT REQUIRED WHEN ANTENNA IS LESS THAN 10' FROM CABINET

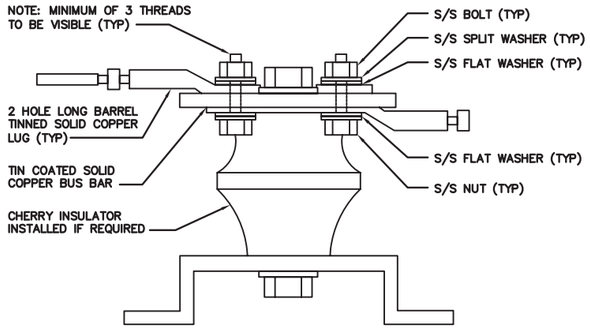
TYPICAL GPS UNIT GROUNDING | NO SCALE | 4



TYPICAL EXTERIOR TWO HOLE LUG | NO SCALE | 5



TYPICAL INTERIOR TWO HOLE LUG | NO SCALE | 6



LUG DETAIL | NO SCALE | 7

NOT USED | NO SCALE | 8

NOT USED | NO SCALE | 9

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SHEET TITLE

GROUNDING DETAILS

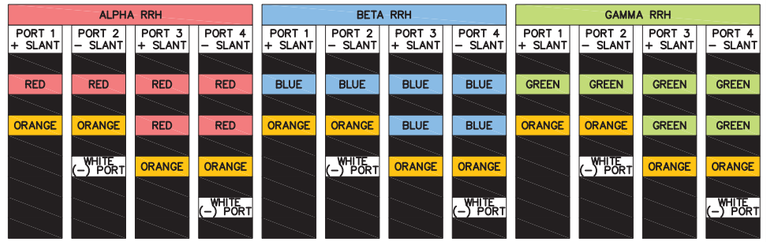
SHEET NUMBER

G-2

HYBRID/DISCREET CABLES — 3/4" TAPE WIDTHS WITH 3/4" SPACING

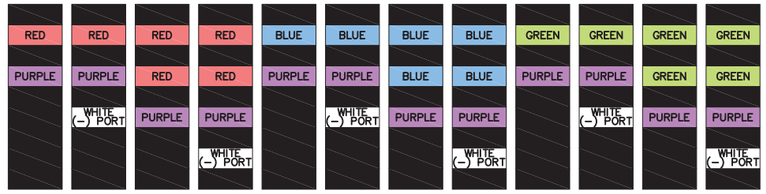
LOW–BAND RRH
(600 MHz N71 BASEBAND) +
(850 MHz N26 BAND) +
(700 MHz N29 BAND) – OPTIONAL PER MARKET

ADD FREQUENCY COLOR TO SECTOR BAND
(CBRS WILL USE YELLOW BAND)



MID–BAND RRH
(AWS BANDS N66+N70)

ADD FREQUENCY COLOR TO SECTOR BAND
(CBRS WILL USE YELLOW BANDS)



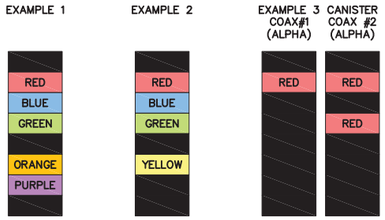
HYBRID/DISCREET CABLES

INCLUDE SECTOR BANDS BEING SUPPORTED ALONG WITH FREQUENCY BANDS.

EXAMPLE 1 – HYBRID, OR DISCREET, SUPPORTS ALL SECTORS, BOTH LOW–BANDS AND MID–BANDS.

EXAMPLE 2 – HYBRID, OR DISCREET, SUPPORTS CBRS ONLY, ALL SECTORS.

EXAMPLE 3 – MAIN COAX WITH GROUND MOUNTED RRHs.

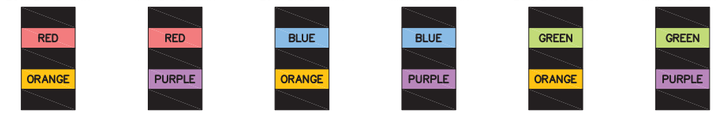


FIBER JUMPERS TO RRHs

LOW–BAND HHR FIBER CABLES HAVE SECTOR STRIPE ONLY.

POWER CABLES TO RRHs

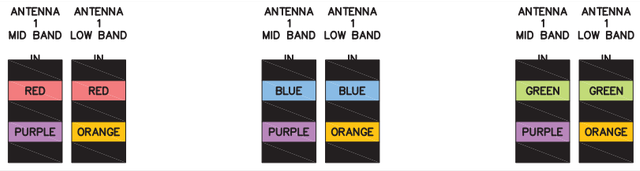
LOW–BAND RRH POWER CABLES HAVE SECTOR STRIPE ONLY



RET MOTORS AT ANTENNAS

RET CONTROL IS HANDLED BY THE MID–BAND RRH WHEN ONE SET OF RET PORTS EXIST ON ANTENNA.

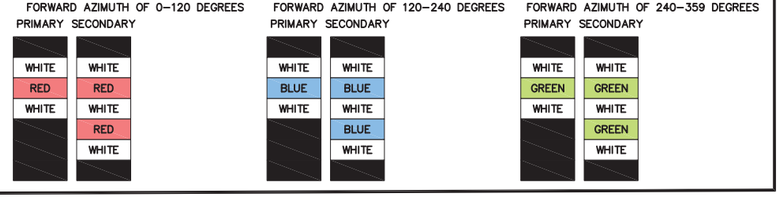
SEPARATE RET CABLES ARE USED WHEN ANTENNA PORTS PROVIDE INPUTS FOR BOTH LOW AND MID BANDS.



MICROWAVE RADIO LINKS

LINKS WILL HAVE A 1.5–2 INCH WHITE WRAP WITH THE AZIMUTH COLOR OVERLAPPING IN THE MIDDLE.
ADD ADDITIONAL SECTOR COLOR BANDS FOR EACH ADDITIONAL MW RADIO.

MICROWAVE CABLES WILL REQUIRE P–TOUCH LABELS INSIDE THE CABINET TO IDENTIFY THE LOCAL AND REMOTE SITE ID's.



RF CABLE COLOR CODES | NO SCALE | 1

LOW BANDS (N71+N26) OPTIONAL – (N29): ORANGE

AWS (N66+N70+H–BLOCK): PURPLE

CBRS TECH (3 GHz): YELLOW

NEGATIVE SLANT PORT ON ANT/RRH: WHITE

ALPHA SECTOR: RED

BETA SECTOR: BLUE

GAMMA SECTOR: GREEN

COLOR IDENTIFIER | NO SCALE | 2

NOT USED | NO SCALE | 3

NOT USED | NO SCALE | 4

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RFDS REV #: 2

PERMITTING DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	03/31/2022	ISSUED FOR REVIEW
B	05/11/2022	ISSUED FOR REVIEW
0	07/07/2022	ISSUED FOR PERMITTING

A&E PROJECT NUMBER
2021.0030.0004

DISH Wireless L.L.C.
PROJECT INFORMATION
MWMKE00116B
314 6TH STREET
RACINE, WI 53403

SHEET TITLE
RF
CABLE COLOR CODE

SHEET NUMBER
RF-1

LEGEND

EXOTHERMIC CONNECTION

MECHANICAL CONNECTION

BUSS BAR INSULATOR

CHEMICAL ELECTROLYTIC GROUNDING SYSTEM

TEST CHEMICAL ELECTROLYTIC GROUNDING SYSTEM — T

EXOTHERMIC WITH INSPECTION SLEEVE

GROUNDING BAR

GROUND ROD

TEST GROUND ROD WITH INSPECTION SLEEVE — T

SINGLE POLE SWITCH — $

DUPLEX RECEPTACLE

DUPLEX GFCI RECEPTACLE — GFCI

FLUORESCENT LIGHTING FIXTURE (2) TWO LAMPS 48–T8 — F

SMOKE DETECTION (DC) — SD

EMERGENCY LIGHTING (DC)

SECURITY LIGHT W/PHOTOCELL LITHONIA ALXW LED–1–25A400/51K–SR4–120–PE–DDBTXD

CHAIN LINK FENCE — X — X — X — X

WOOD/WROUGHT IRON FENCE

WALL STRUCTURE

LEASE AREA

PROPERTY LINE (PL)

SETBACKS

ICE BRIDGE

CABLE TRAY

WATER LINE — W — W — W — W — W

UNDERGROUND POWER — UGP — UGP — UGP — UGP — UGP

UNDERGROUND TELCO — UGT — UGT — UGT — UGT — UGT

OVERHEAD POWER — OHP — OHP — OHP — OHP

OVERHEAD TELCO — OHT — OHT — OHT — OHT

UNDERGROUND TELCO/POWER — UGT/P — UGT/P — UGT/P — UGT/P

ABOVE GROUND POWER — AGP — AGP — AGP — AGP — AGP

ABOVE GROUND TELCO — AGT — AGT — AGT — AGT — AGT

ABOVE GROUND TELCO/POWER — AGT/P — AGT/P — AGT/P — AGT/P

WORKPOINT — W.P.

SECTION REFERENCE — XX / X–X

DETAIL REFERENCE — XX / X–X

ABBREVIATIONS

AB	ANCHOR BOLT
ABV	ABOVE
AC	ALTERNATING CURRENT
ADDL	ADDITIONAL
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AGL	ABOVE GROUND LEVEL
AIC	AMPERAGE INTERRUPTION CAPACITY
ALUM	ALUMINUM
ALT	ALTERNATE
ANT	ANTENNA
APPROX	APPROXIMATE
ARCH	ARCHITECTURAL
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
BATT	BATTERY
BLDG	BUILDING
BLK	BLOCK
BLKG	BLOCKING
BM	BEAM
BTC	BARE TINNED COPPER CONDUCTOR
BOF	BOTTOM OF FOOTING
CAB	CABINET
CANT	CANTILEVERED
CHG	CHARGING
CLG	CEILING
CLR	CLEAR
COL	COLUMN
COMM	COMMON
CONC	CONCRETE
CONSTR	CONSTRUCTION
DBL	DOUBLE
DC	DIRECT CURRENT
DEPT	DEPARTMENT
DF	DOUGLAS FIR
DIA	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DWG	DRAWING
DWL	DOWEL
EA	EACH
EC	ELECTRICAL CONDUCTOR
EL.	ELEVATION
ELEC	ELECTRICAL
EMT	ELECTRICAL METALLIC TUBING
ENG	ENGINEER
EQ	EQUAL
EXP	EXPANSION
EXT	EXTERIOR
EW	EACH WAY
FAB	FABRICATION
FF	FINISH FLOOR
FG	FINISH GRADE
FIF	FACILITY INTERFACE FRAME
FIN	FINISH(ED)
FLR	FLOOR
FDN	FOUNDATION
FOC	FACE OF CONCRETE
FOM	FACE OF MASONRY
FOS	FACE OF STUD
FOW	FACE OF WALL
FS	FINISH SURFACE
FT	FOOT
FTG	FOOTING
GA	GAUGE
GEN	GENERATOR
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GLB	GLUE LAMINATED BEAM
GLV	GALVANIZED
GPS	GLOBAL POSITIONING SYSTEM
GND	GROUND
GSM	GLOBAL SYSTEM FOR MOBILE
HDG	HOT DIPPED GALVANIZED
HDR	HEADER
HGR	HANGER
HVAC	HEAT/VENTILATION/AIR CONDITIONING
HT	HEIGHT
IGR	INTERIOR GROUND RING
IN	INCH
INT	INTERIOR
LB(S)	POUND(S)
LF	LINEAR FEET
LTE	LONG TERM EVOLUTION
MAS	MASONRY
MAX	MAXIMUM
MB	MACHINE BOLT
MECH	MECHANICAL
MFR	MANUFACTURER
MGB	MASTER GROUND BAR
MIN	MINIMUM
MISC	MISCELLANEOUS
MTL	METAL
MTS	MANUAL TRANSFER SWITCH
MW	MICROWAVE
NEC	NATIONAL ELECTRIC CODE
NM	NEWTON METERS
NO.	NUMBER
#	NUMBER
NTS	NOT TO SCALE
OC	ON–CENTER
OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
OPNG	OPENING
P/C	PRECAST CONCRETE
PCS	PERSONAL COMMUNICATION SERVICES
PCU	PRIMARY CONTROL UNIT
PRC	PRIMARY RADIO CABINET
PP	POLARIZING PRESERVING
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	PRESSURE TREATED
PWR	POWER CABINET
QTY	QUANTITY
RAD	RADIUS
RECT	RECTIFIER
REF	REFERENCE
REINF	REINFORCEMENT
REQ'D	REQUIRED
RET	REMOTE ELECTRIC TILT
RF	RADIO FREQUENCY
RMC	RIGID METALLIC CONDUIT
RRH	REMOTE RADIO HEAD
RRU	REMOTE RADIO UNIT
RWY	RACEWAY
SCH	SCHEDULE
SHT	SHEET
SIAD	SMART INTEGRATED ACCESS DEVICE
SIM	SIMILAR
SPEC	SPECIFICATION
SQ	SQUARE
SS	STAINLESS STEEL
STD	STANDARD
STL	STEEL
TEMP	TEMPORARY
THK	THICKNESS
TMA	TOWER MOUNTED AMPLIFIER
TN	TOE NAIL
TOA	TOP OF ANTENNA
TOC	TOP OF CURB
TOF	TOP OF FOUNDATION
TOP	TOP OF PLATE (PARAPET)
TOS	TOP OF STEEL
TOW	TOP OF WALL
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION
TYP	TYPICAL
UG	UNDERGROUND
UL	UNDERWRITERS LABORATORY
UNO	UNLESS NOTED OTHERWISE
UMTS	UNIVERSAL MOBILE TELECOMMUNICATIONS SYSTEM
UPS	UNITERRUPTIBLE POWER SYSTEM (DC POWER PLANT)
VIF	VERIFIED IN FIELD
W	WIDE
W/	WITH
WD	WOOD
WP	WEATHERPROOF
WT	WEIGHT

dish wireless.

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MWMKE00116B
314 6TH STREET
RACINE, WI 53403

SHEET TITLE

LEGEND AND ABBREVIATIONS

SHEET NUMBER

GN-1

SIGN TYPES		
TYPE	COLOR	COLOR CODE PURPOSE
INFORMATION	GREEN	**"INFORMATIONAL SIGN"** TO NOTIFY OTHERS OF SITE OWNERSHIP & CONTACT NUMBER AND POTENTIAL RF EXPOSURE.
NOTICE	BLUE	**"NOTICE BEYOND THIS POINT"** RF FIELDS BEYOND THIS POINT MAY EXCEED THE FCC GENERAL PUBLIC EXPOSURE LIMIT. OBEY ALL POSTED SIGNS AND SITE GUIDELINES FOR WORKING IN RF ENVIRONMENTS. IN ACCORDANCE WITH FEDERAL COMMUNICATIONS COMMISSION RULES ON RADIO FREQUENCY EMISSIONS 47 CFR-1.1307(b)
CAUTION	YELLOW	**"CAUTION BEYOND THIS POINT"** RF FIELDS BEYOND THIS POINT MAY EXCEED THE FCC GENERAL PUBLIC EXPOSURE LIMIT. OBEY ALL POSTED SIGNS AND SITE GUIDELINES FOR WORKING IN RF ENVIRONMENTS. IN ACCORDANCE WITH FEDERAL COMMUNICATIONS COMMISSION RULES ON RADIO FREQUENCY EMISSIONS 47 CFR-1.1307(b)
WARNING	ORANGE/RED	**"WARNING BEYOND THIS POINT"** RF FIELDS AT THIS SITE EXCEED FCC RULES FOR HUMAN EXPOSURE. FAILURE TO OBEY ALL POSTED SIGNS AND SITE GUIDELINES FOR WORKING IN RF ENVIRONMENTS COULD RESULT IN SERIOUS INJURY. IN ACCORDANCE WITH FEDERAL COMMUNICATIONS COMMISSION RULES ON RADIO FREQUENCY EMISSIONS 47 CFR-1.1307(b)

SIGN PLACEMENT:

- RF SIGNAGE PLACEMENT SHALL FOLLOW THE RECOMMENDATIONS OF AN EXISTING EME REPORT, CREATED BY A THIRD PARTY PREVIOUSLY AUTHORIZED BY DISH Wireless L.L.C.
- INFORMATION SIGN (GREEN) SHALL BE LOCATED ON EXISTING DISH Wireless L.L.C EQUIPMENT.
  A) IF THE INFORMATION SIGN IS A STICKER, IT SHALL BE PLACED ON EXISTING DISH Wireless L.L.C EQUIPMENT CABINET.
  B) IF THE INFORMATION SIGH IS A METAL SIGN IT SHALL BE PLACED ON EXISTING DISH Wireless L.L.C H-FRAME WITH A SECURE ATTACH METHOD.
- IF EME REPORT IS NOT AVAILABLE AT THE TIME OF CREATION OF CONSTRUCTION DOCUMENTS; PLEASE CONTACT DISH Wireless L.L.C. CONSTRUCTION MANAGER FOR FURTHER INSTRUCTION ON HOW TO PROCEED.

NOTES:

1. FOR DISH Wireless L.L.C. LOGO, SEE DISH Wireless L.L.C. DESIGN SPECIFICATIONS (PROVIDED BY DISH Wireless L.L.C.)
2. SITE ID SHALL BE APPLIED TO SIGNS USING "LASER ENGRAVING" OR ANY OTHER WEATHER RESISTANT METHOD (DISH Wireless L.L.C. APPROVAL REQUIRED)
3. TEXT FOR SIGNAGE SHALL INDICATE CORRECT SITE NAME AND NUMBER AS PER DISH Wireless L.L.C. CONSTRUCTION MANAGER RECOMMENDATIONS.
4. CABINET/SHELTER MOUNTING APPLICATION REQUIRES ANOTHER PLATE APPLIED TO THE FACE OF THE CABINET WITH WATER PROOF POLYURETHANE ADHESIVE
5. ALL SIGNS WILL BE SECURED WITH EITHER STAINLESS STEEL ZIP TIES OR STAINLESS STEEL TECH SCREWS
6. ALL SIGNS TO BE 8.5"x11" AND MADE WITH 0.04" OF ALUMINUM MATERIAL

INFORMATION

This is an access point to an area with transmitting antennas.

Obey all signs and barriers beyond this point.
Call the DISH Wireless L.L.C. NOC at 1-866-624-6874

Site ID: _____

THIS SIGN IS FOR REFERENCE PURPOSES ONLY

NOTICE

Transmitting Antenna(s)

Radio frequency fields beyond this point MAY *EXCEED* the FCC Occupational exposure limit.

Obey all posted signs and site guidelines for working in radio frequency environments.

Call the DISH Wireless L.L.C. NOC at 1-866-624-6874 prior to working beyond this point.

Site ID: _____

dish

THIS SIGN IS FOR REFERENCE PURPOSES ONLY

CAUTION

Transmitting Antenna(s)

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dish

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Site ID: _____

dish

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RF SIGNAGE

dish wireless.
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PROJECT INFORMATION
MWMKE00116B
314 6TH STREET
RACINE, WI 53403

SHEET TITLE
RF SIGNAGE

SHEET NUMBER
GN-2

SITE ACTIVITY REQUIREMENTS:

1. NOTICE TO PROCEED – NO WORK SHALL COMMENCE PRIOR TO CONTRACTOR RECEIVING A WRITTEN NOTICE TO PROCEED (NTP) AND THE ISSUANCE OF A PURCHASE ORDER. PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE DISH Wireless L.L.C. AND TOWER OWNER NOC & THE DISH Wireless L.L.C. AND TOWER OWNER CONSTRUCTION MANAGER.

2. "LOOK UP" – DISH Wireless L.L.C. AND TOWER OWNER SAFETY CLIMB REQUIREMENT:

THE INTEGRITY OF THE SAFETY CLIMB AND ALL COMPONENTS OF THE CLIMBING FACILITY SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER MODIFICATION, MOUNT REINFORCEMENTS, AND/OR EQUIPMENT INSTALLATIONS SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF THE SAFETY CLIMB OR ANY COMPONENTS OF THE CLIMBING FACILITY ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO: PINCHING OF THE WIRE ROPE, BENDING OF THE WIRE ROPE FROM ITS SUPPORTS, DIRECT CONTACT OR CLOSE PROXIMITY TO THE WIRE ROPE WHICH MAY CAUSE FRICTIONAL WEAR, IMPACT TO THE ANCHORAGE POINTS IN ANY WAY, OR TO IMPEDE/BLOCK ITS INTENDED USE. ANY COMPROMISED SAFETY CLIMB, INCLUDING EXISTING CONDITIONS MUST BE TAGGED OUT AND REPORTED TO YOUR DISH Wireless L.L.C. AND DISH Wireless L.L.C. AND TOWER OWNER POC OR CALL THE NOC TO GENERATE A SAFETY CLIMB MAINTENANCE AND CONTRACTOR NOTICE TICKET.

3. PRIOR TO THE START OF CONSTRUCTION, ALL REQUIRED JURISDICTIONAL PERMITS SHALL BE OBTAINED. THIS INCLUDES, BUT IS NOT LIMITED TO, BUILDING, ELECTRICAL, MECHANICAL, FIRE, FLOOD ZONE, ENVIRONMENTAL, AND ZONING. AFTER ONSITE ACTIVITIES AND CONSTRUCTION ARE COMPLETED, ALL REQUIRED PERMITS SHALL BE SATISFIED AND CLOSED OUT ACCORDING TO LOCAL JURISDICTIONAL REQUIREMENTS.

4. ALL CONSTRUCTION MEANS AND METHODS; INCLUDING BUT NOT LIMITED TO, ERECTION PLANS, RIGGING PLANS, CLIMBING PLANS, AND RESCUE PLANS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR RESPONSIBLE FOR THE EXECUTION OF THE WORK CONTAINED HEREIN, AND SHALL MEET ANSI/ASSE A10.48 (LATEST EDITION); FEDERAL, STATE, AND LOCAL REGULATIONS; AND ANY APPLICABLE INDUSTRY CONSENSUS STANDARDS RELATED TO THE CONSTRUCTION ACTIVITIES BEING PERFORMED. ALL RIGGING PLANS SHALL ADHERE TO ANSI/ASSE A10.48 (LATEST EDITION) AND DISH Wireless L.L.C. AND TOWER OWNER STANDARDS, INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION, TO CERTIFY THE SUPPORTING STRUCTURE(S) IN ACCORDANCE WITH ANSI/TIA–322 (LATEST EDITION).

5. ALL SITE WORK TO COMPLY WITH DISH Wireless L.L.C. AND TOWER OWNER INSTALLATION STANDARDS FOR CONSTRUCTION ACTIVITIES ON DISH Wireless L.L.C. AND TOWER OWNER TOWER SITE AND LATEST VERSION OF ANSI/TIA–1019–A–2012 "STANDARD FOR INSTALLATION, ALTERATION, AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS."

6. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY DISH Wireless L.L.C. AND TOWER OWNER PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.

7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.

8. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.

9. THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES INCLUDING PRIVATE LOCATES SERVICES PRIOR TO THE START OF CONSTRUCTION.

10. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY CONTRACTOR. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING AND EXCAVATION E) CONSTRUCTION SAFETY PROCEDURES.

11. ALL SITE WORK SHALL BE AS INDICATED ON THE STAMPED CONSTRUCTION DRAWINGS AND DISH PROJECT SPECIFICATIONS, LATEST APPROVED REVISION.

12. CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH AT THE COMPLETION OF THE WORK. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.

13. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF DISH Wireless L.L.C. AND TOWER OWNER, AND/OR LOCAL UTILITIES.

14. THE CONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE REQUIRED BY LOCAL JURISDICTION AND SIGNAGE REQUIRED ON INDIVIDUAL PIECES OF EQUIPMENT, ROOMS, AND SHELTERS.

15. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE CARRIER'S EQUIPMENT AND TOWER AREAS.

16. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.

17. THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION AS SPECIFIED ON THE CONSTRUCTION DRAWINGS AND/OR PROJECT SPECIFICATIONS.

18. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.

19. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.

20. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS AND RADIOS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.

21. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.

22. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.

GENERAL NOTES:

1.FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:

CONTRACTOR: GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION

CARRIER: DISH Wireless L.L.C.

STRUCTURE OWNER: SEE T–1 FOR INFO

2. THESE DRAWINGS HAVE BEEN PREPARED USING STANDARDS OF PROFESSIONAL CARE AND COMPLETENESS NORMALLY EXERCISED UNDER SIMILAR CIRCUMSTANCES BY REPUTABLE ENGINEERS IN THIS OR SIMILAR LOCALITIES. IT IS ASSUMED THAT THE WORK DEPICTED WILL BE PERFORMED BY AN EXPERIENCED CONTRACTOR AND/OR WORKPEOPLE WHO HAVE A WORKING KNOWLEDGE OF THE APPLICABLE CODE STANDARDS AND REQUIREMENTS AND OF INDUSTRY ACCEPTED STANDARD GOOD PRACTICE. AS NOT EVERY CONDITION OR ELEMENT IS (OR CAN BE) EXPLICITLY SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL USE INDUSTRY ACCEPTED STANDARD GOOD PRACTICE FOR MISCELLANEOUS WORK NOT EXPLICITLY SHOWN.

3. THESE DRAWINGS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE MEANS OR METHODS OF CONSTRUCTION. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY FOR PROTECTION OF LIFE AND PROPERTY DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, FORMWORK, SHORING, ETC. SITE VISITS BY THE ENGINEER OR HIS REPRESENTATIVE WILL NOT INCLUDE INSPECTION OF THESE ITEMS AND IS FOR STRUCTURAL OBSERVATION OF THE FINISHED STRUCTURE ONLY.

4. NOTES AND DETAILS IN THE CONSTRUCTION DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE SHOWN, CONSTRUCTION SHALL CONFORM TO SIMILAR WORK ON THE PROJECT, AND/OR AS PROVIDED FOR IN THE CONTRACT DOCUMENTS. WHERE DISCREPANCIES OCCUR BETWEEN PLANS, DETAILS, GENERAL NOTES, AND SPECIFICATIONS, THE GREATER, MORE STRICT REQUIREMENTS, SHALL GOVERN. IF FURTHER CLARIFICATION IS REQUIRED CONTACT THE ENGINEER OF RECORD.

5. SUBSTANTIAL EFFORT HAS BEEN MADE TO PROVIDE ACCURATE DIMENSIONS AND MEASUREMENTS ON THE DRAWINGS TO ASSIST IN THE FABRICATION AND/OR PLACEMENT OF CONSTRUCTION ELEMENTS BUT IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY THE DIMENSIONS, MEASUREMENTS, AND/OR CLEARANCES SHOWN IN THE CONSTRUCTION DRAWINGS PRIOR TO FABRICATION OR CUTTING OF ANY NEW OR EXISTING CONSTRUCTION ELEMENTS. IF IT IS DETERMINED THAT THERE ARE DISCREPANCIES AND/OR CONFLICTS WITH THE CONSTRUCTION DRAWINGS THE ENGINEER OF RECORD IS TO BE NOTIFIED AS SOON AS POSSIBLE.

6. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING CONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CARRIER POC AND TOWER OWNER.

7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.

8. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.

9. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.

10. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CARRIER AND TOWER OWNER PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.

11. CONTRACTOR IS TO PERFORM A SITE INVESTIGATION, BEFORE SUBMITTING BIDS, TO DETERMINE THE BEST ROUTING OF ALL CONDUITS FOR POWER, AND TELCO AND FOR GROUNDING CABLES AS SHOWN IN THE POWER, TELCO, AND GROUNDING PLAN DRAWINGS.

12. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF DISH Wireless L.L.C. AND TOWER OWNER

13. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.

14. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.

dish wireless.
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RFDS REV #: 2

PERMITTING DOCUMENTS

SUBMITTALS

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0	07/07/2022	ISSUED FOR PERMITTING

A&E PROJECT NUMBER

2021.0030.0004

DISH Wireless L.L.C.
PROJECT INFORMATION

MWMKE00116B
314 6TH STREET
RACINE, WI 53403

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-3

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST-IN-PLACE CONCRETE.

2. UNLESS NOTED OTHERWISE, SOIL BEARING PRESSURE USED FOR DESIGN OF SLABS AND FOUNDATIONS IS ASSUMED TO BE 1000 psf.

3. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH (f'c) OF 3000 psi AT 28 DAYS, UNLESS NOTED OTHERWISE. NO MORE THAN 90 MINUTES SHALL ELAPSE FROM BATCH TIME TO TIME OF PLACEMENT UNLESS APPROVED BY THE ENGINEER OF RECORD. TEMPERATURE OF CONCRETE SHALL NOT EXCEED 90°f AT TIME OF PLACEMENT.

4. CONCRETE EXPOSED TO FREEZE-THAW CYCLES SHALL CONTAIN AIR ENTRAINING ADMIXTURES. AMOUNT OF AIR ENTRAINMENT TO BE BASED ON SIZE OF AGGREGATE AND F3 CLASS EXPOSURE (VERY SEVERE). CEMENT USED TO BE TYPE II PORTLAND CEMENT WITH A MAXIMUM WATER-TO-CEMENT RATIO (W/C) OF 0.45.

5. ALL STEEL REINFORCING SHALL CONFORM TO ASTM A615. ALL WELDED WIRE FABRIC (WWF) SHALL CONFORM TO ASTM A185. ALL SPLICES SHALL BE CLASS "B" TENSION SPLICES, UNLESS NOTED OTHERWISE. ALL HOOKS SHALL BE STANDARD 90 DEGREE HOOKS, UNLESS NOTED OTHERWISE. YIELD STRENGTH (Fy) OF STANDARD DEFORMED BARS ARE AS FOLLOWS:

#4 BARS AND SMALLER 40 ksi

#5 BARS AND LARGER 60 ksi

6. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:

- CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH 3"
- CONCRETE EXPOSED TO EARTH OR WEATHER:
- #6 BARS AND LARGER 2"
- #5 BARS AND SMALLER 1-1/2"
- CONCRETE NOT EXPOSED TO EARTH OR WEATHER:
- SLAB AND WALLS 3/4"
- BEAMS AND COLUMNS 1-1/2"

7. A TOOLED EDGE OR A 3/4" CHAMFER SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNLESS NOTED OTHERWISE, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.

ELECTRICAL INSTALLATION NOTES:

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES/ORDINANCES.

2. CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED AND TRIP HAZARDS ARE ELIMINATED.

3. WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.

4. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.

4.1. ALL EQUIPMENT SHALL BEAR THE UNDERWRITERS LABORATORIES LABEL OF APPROVAL, AND SHALL CONFORM TO REQUIREMENT OF THE NATIONAL ELECTRICAL CODE.

4.2. ALL OVERCURRENT DEVICES SHALL HAVE AN INTERRUPTING CURRENT RATING THAT SHALL BE GREATER THAN THE SHORT CIRCUIT CURRENT TO WHICH THEY ARE SUBJECTED, 22,000 AIC MINIMUM. VERIFY AVAILABLE SHORT CIRCUIT CURRENT DOES NOT EXCEED THE RATING OF ELECTRICAL EQUIPMENT IN ACCORDANCE WITH ARTICLE 110.24 NEC OR THE MOST CURRENT ADOPTED CODE PRE THE GOVERNING JURISDICTION.

5. EACH END OF EVERY POWER PHASE CONDUCTOR, GROUNDING CONDUCTOR, AND TELCO CONDUCTOR OR CABLE SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2" PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA.

6. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH LAMICOID TAGS SHOWING THEIR RATED VOLTAGE, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING AND BRANCH CIRCUIT ID NUMBERS (i.e. PANEL BOARD AND CIRCUIT ID'S).

7. PANEL BOARDS (ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.

8. TIE WRAPS ARE NOT ALLOWED.

9. ALL POWER AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE COPPER CONDUCTOR (#14 OR LARGER) WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.

10. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE COPPER CONDUCTOR (#6 OR LARGER) WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.

11. POWER AND CONTROL WIRING IN FLEXIBLE CORD SHALL BE MULTI-CONDUCTOR, TYPE SOOW CORD (#14 OR LARGER) UNLESS OTHERWISE SPECIFIED.

12. POWER AND CONTROL WIRING FOR USE IN CABLE TRAY SHALL BE MULTI-CONDUCTOR, TYPE TC CABLE (#14 OR LARGER), WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.

13. ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP-STYLE, COMPRESSION WIRE LUGS AND WIRE NUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRE NUTS SHALL BE RATED FOR OPERATION NOT LESS THAN 75° C (90° C IF AVAILABLE).

14. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.

15. ELECTRICAL METALLIC TUBING (EMT), INTERMEDIATE METAL CONDUIT (IMC), OR RIGID METAL CONDUIT (RMC) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.

16. ELECTRICAL METALLIC TUBING (EMT) OR METAL-CLAD CABLE (MC) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.

17. SCHEDULE 40 PVC UNDERGROUND ON STRAIGHTS AND SCHEDULE 80 PVC FOR ALL ELBOWS/90s AND ALL APPROVED ABOVE GRADE PVC CONDUIT.

18. LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.

19. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SET SCREW FITTINGS ARE NOT ACCEPTABLE.

20. CABINETS, BOXES AND WIRE WAYS SHALL BE LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND THE NEC.

21. WIREWAYS SHALL BE METAL WITH AN ENAMEL FINISH AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS (WIREMOLD SPECMATE WIREWAY).

22. SLOTTED WIRING DUCT SHALL BE PVC AND INCLUDE COVER (PANDUIT TYPE E OR EQUAL).

23. CONDUITS SHALL BE FASTENED SECURELY IN PLACE WITH APPROVED NON-PERFORATED STRAPS AND HANGERS. EXPLOSIVE DEVICES (i.e. POWDER-ACTUATED) FOR ATTACHING HANGERS TO STRUCTURE WILL NOT BE PERMITTED. CLOSELY FOLLOW THE LINES OF THE STRUCTURE, MAINTAIN CLOSE PROXIMITY TO THE STRUCTURE AND KEEP CONDUITS IN TIGHT ENVELOPES. CHANGES IN DIRECTION TO ROUTE AROUND OBSTACLES SHALL BE MADE WITH CONDUIT OUTLET BODIES. CONDUIT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER. PARALLEL AND PERPENDICULAR TO STRUCTURE WALL AND CEILING LINES. ALL CONDUIT SHALL BE FISHED TO CLEAR OBSTRUCTIONS. ENDS OF CONDUITS SHALL BE TEMPORARILY CAPPED FLUSH TO FINISH GRADE TO PREVENT CONCRETE, PLASTER OR DIRT FROM ENTERING. CONDUITS SHALL BE RIGIDLY CLAMPED TO BOXES BY GALVANIZED MALLEABLE IRON BUSHING ON INSIDE AND GALVANIZED MALLEABLE IRON LOCKNUT ON OUTSIDE AND INSIDE.

24. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES AND PULL BOXES SHALL BE GALVANIZED OR EPOXY-COATED SHEET STEEL. SHALL MEET OR EXCEED UL 50 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND NEMA 3 (OR BETTER) FOR EXTERIOR LOCATIONS.

25. METAL RECEPTACLE, SWITCH AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY-COATED OR NON-CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.

26. NONMETALLIC RECEPTACLE, SWITCH AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2 (NEWEST REVISION) AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.

27. THE CONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CARRIER AND/OR DISH Wireless L.L.C. AND TOWER OWNER BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.

28. THE CONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD LIFE AND PROPERTY.

29. INSTALL LAMICOID LABEL ON THE METER CENTER TO SHOW "DISH Wireless L.L.C.".

30. ALL EMPTY/SPARE CONDUITS THAT ARE INSTALLED ARE TO HAVE A METERED MULE TAPE PULL CORD INSTALLED.

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RACINE, WI 53403

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-4

GROUNDING NOTES:

1. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION AND AC POWER GES'S) SHALL BE BONDED TOGETHER AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.

2. THE CONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS, THE CONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.

3. THE CONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT AND PROVIDE TESTING RESULTS.

4. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.

5. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.

6. EACH CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, #6 STRANDED COPPER OR LARGER FOR INDOOR BTS; #2 BARE SOLID TINNED COPPER FOR OUTDOOR BTS.

7. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED BACK TO BACK CONNECTIONS ON OPPOSITE SIDE OF THE GROUND BUS ARE PERMITTED.

8. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING SHALL BE #2 SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.

9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.

10. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.

11. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.

12. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR AND EXTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS.

13. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.

14. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.

15. APPROVED ANTIOXIDANT COATINGS (i.e. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.

16. ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.

17. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.

18. BOND ALL METALLIC OBJECTS WITHIN 6 ft OF MAIN GROUND RING WITH (1) #2 BARE SOLID TINNED COPPER GROUND CONDUCTOR.

19. GROUND CONDUCTORS USED FOR THE FACILITY GROUNDING AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON-METALLIC MATERIAL SUCH AS PVC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (i.e., NONMETALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.

20. ALL GROUNDS THAT TRANSITION FROM BELOW GRADE TO ABOVE GRADE MUST BE #2 BARE SOLID TINNED COPPER IN 3/4" NON-METALLIC, FLEXIBLE CONDUIT FROM 24" BELOW GRADE TO WITHIN 3" TO 6" OF CAD-WELD TERMINATION POINT. THE EXPOSED END OF THE CONDUIT MUST BE SEALED WITH SILICONE CAULK. (ADD TRANSITIONING GROUND STANDARD DETAIL AS WELL).

21. BUILDINGS WHERE THE MAIN GROUNDING CONDUCTORS ARE REQUIRED TO BE ROUTED TO GRADE, THE CONTRACTOR SHALL ROUTE TWO GROUNDING CONDUCTORS FROM THE ROOFTOP, TOWERS, AND WATER TOWERS GROUNDING RING, TO THE EXISTING GROUNDING SYSTEM, THE GROUNDING CONDUCTORS SHALL NOT BE SMALLER THAN 2/0 COPPER. ROOFTOP GROUNDING RING SHALL BE BONDED TO THE EXISTING GROUNDING SYSTEM, THE BUILDING STEEL COLUMNS, LIGHTNING PROTECTION SYSTEM, AND BUILDING MAIN WATER LINE (FERROUS OR NONFERROUS METAL PIPING ONLY). DO NOT ATTACH GROUNDING TO FIRE SPRINKLER SYSTEM PIPES.

dish wireless.

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SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-5

STRUCTURAL NOTES:

APPLICABLE CODES

1. DESIGN & CONSTRUCTION OF ALL WORK SHALL CONFORM TO THE FOLLOWING CODES:

   2018 WISCONSIN COMMERCIAL BUILDING CODE
   TIA-222-H

DESIGN LOADS:

WIND LOAD:

107 MPH BASIC DESIGN WIND SPEED PER TIA-222-H

SEISMIC LOAD:

SS = 0.084	SDS = 0.089
S1 = 0.051	SD1 = 0.082
SOIL SITE CLASS (ASSUMED)	D
SEISMIC DESIGN CATEGORY	B

GENERAL NOTES

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FOLLOWING ALL LAWS, REGULATIONS, AND RULES SET FORTH BY FEDERAL, STATE, AND LOCAL AUTHORITIES WITH JURISDICTION OVER THE PROJECT. THIS RESPONSIBILITY IS IN EFFECT REGARDLESS OF WHETHER THE LAW, ORDINANCE, REGULATION OR RULE IS MENTIONED IN THESE SPECIFICATIONS.
2. ALL WORK SHALL BE COMPLETED AS INDICATED ON THE DRAWINGS, PROJECT SPECIFICATIONS, AND THE CONSTRUCTION CONTRACT DOCUMENTS.
3. THE CONTRACTOR SHALL HAVE AND MAINTAIN A VALID CONTRACTOR'S LICENSE FOR THE LOCATION IN WHICH THE WORK IS TO BE PERFORMED. FOR JURISDICTIONS THAT LICENSE INDIVIDUAL TRADES, THE TRADESMAN OR SUBCONTRACTOR PERFORMING THOSE TRADES SHALL BE LICENSED.
4. FOLLOW ALL APPLICABLE RULES AND REGULATIONS OF THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) AND STATE LAW AS DEFINED IN THE FEDERAL OCCUPATIONAL SAFETY AND HEALTH ACT.
5. PRIOR TO THE SUBMISSION OF THE BID, THE CONTRACTOR SHALL VISIT THE JOB SITE, VERIFY ALL DIMENSIONS AND BECOME FAMILIAR WITH THE FIELD CONDITIONS. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE PROJECT MANAGER.
6. DRAWING PLANS SHALL NOT BE SCALED.
7. THE CONTRACTOR SHALL NOT PROCEED WITH ANY WORK NOT CLEARLY IDENTIFIED ON THE DRAWINGS WITHOUT THE PRIOR WRITTEN APPROVAL OF THE PROJECT MANAGER.
8. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS UNLESS SPECIFICALLY OTHERWISE NOTED.
9. ALL MEANS AND METHODS OF CONSTRUCTION DEALING WITH TOWER CONSTRUCTION AND SAFETY, STEEL ERECTION, EXCAVATIONS, TRENCHING, SCAFFOLDING, FORMWORK, ELECTRICAL, AND WORK IN CONFINED SPACES ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INITIATING, MAINTAINING, AND SUPERVISING ALL SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK.
11. THE CONTRACTOR SHALL BE EXPERIENCED IN THE PERFORMANCE OF WORK SIMILAR TO THAT DESCRIBED HEREIN. BY ACCEPTANCE OF THIS ASSIGNMENT, THE CONTRACTOR IS ATTESTING THAT HE DOES HAVE SUFFICIENT EXPERIENCE AND ABILITY AND THAT HE IS KNOWLEDGEABLE OF THE WORK TO BE PERFORMED.
12. THE CONTRACTOR SHALL PROVIDE SUFFICIENT TEMPORARY BRACING AND/OR SHORING OF ALL STRUCTURAL AND NON-STRUCTURAL ELEMENTS DURING CONSTRUCTION UNTIL ALL STRUCTURAL ELEMENTS HAVE BEEN PROPERLY INSTALLED.
13. INCORRECTLY FABRICATED, DAMAGED, OR OTHERWISE MISFITTING OR NONCONFORMING MATERIALS SHALL BE REPORTED TO THE PROJECT MANAGER AND ENGINEER, AND SHALL REQUIRE APPROVAL PRIOR TO PERFORMING ANY REMEDIAL OR CORRECTIVE ACTION.

STRUCTURAL STEEL NOTES:

1. STRUCTURAL STEEL MATERIALS CONFORM TO THE LATEST EDITION OF APPLICABLE STANDARDS AND TO ALL APPLICABLE CODES AND REQUIREMENTS OF LOCAL AUTHORITIES HAVING JURISDICTION, WHICHEVER IS MORE STRINGENT. ALL STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH THE LATEST APPLICABLE REQUIREMENTS OF AISC, ASTM, ACI, CRSI, AWS AND ALL OTHER APPLICABLE STANDARDS
2. ALL NEW STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING, UNLESS NOTED OTHERWISE ON THE DRAWINGS:
   ASTM A36 (Fy = 36 KSI) M-SHAPES, S-SHAPES, ANGLES, PLATES (U.N.O.)
   ASTM A992 (Fy = 50 KSI) W-SHAPES, CHANNELS (U.N.O.)
   ASTM A500 Gr C (Fy = 50 KSI) ROUND AND SQUARE HSS
3. STEEL PIPE SHALL COMPLY WITH ASTM A53 GRADE B. MAY BE SUBSTITUTED WITH ASTM 500 GRADE C (ROUND HSS)
4. ALL STRUCTURAL STEEL SHALL BE HOT DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A153 AND A123, INCLUDING CONNECTION HARDWARE (BOLTS, WASHERS, NUTS, AND PINS), PLATES, SPACERS, AND FILLERS.
5. CONNECTIONS:
   A. CONTRACTOR SHALL PROVIDE ALL HARDWARE REQUIRED TO COMPLETE FIELD ERECTION OF STRUCTURE AS INDICATED BY CONTRACT DOCUMENTS OR THESE SPECIFICATIONS.
   B. HIGH STRENGTH THREADED FASTENERS SHALL BE INSTALLED IN ACCORDANCE WITH AISC SPECIFICATIONS FOR STRUCTURAL JOINTS USING ASTM A-325 BOLTS. USE A-325N BEARING-TYPE CONNECTION BOLTS UNLESS NOTED OTHERWISE.
   C. GRATING AND PLATES SHALL BE FASTENED WITH SADDLE CLIPS. THE NECESSARY HOLES TO COMPLETE ALL PHASES OF CONSTRUCTION SHALL BE PROVIDED AND CALLED OUT ON THE APPROVED SHOP DRAWINGS. ALL HOLES SHALL BE DRILLED OR PUNCHED PERPENDICULAR TO METAL SURFACES, FLAME CUT OR BURNED HOLES WILL NOT BE PERMITTED.
   D. ALL UNFINISHED THREADED FASTENERS SHALL COMPLY WITH ASTM A-307, GRADE A, REGULAR LOW-CARBON STEEL BOLTS AND NUTS WITH HEXAGONAL HEADS.
   E. ALL HIGH STRENGTH THREADED FASTENERS SHALL BE HEAVY HEXAGONAL BOLTS AND NUTS WITH HARDENED WASHERS, ALL FROM QUENCHED AND TEMPERED MEDIUM CARBON STEEL COMPLYING WITH ASTM A-325.

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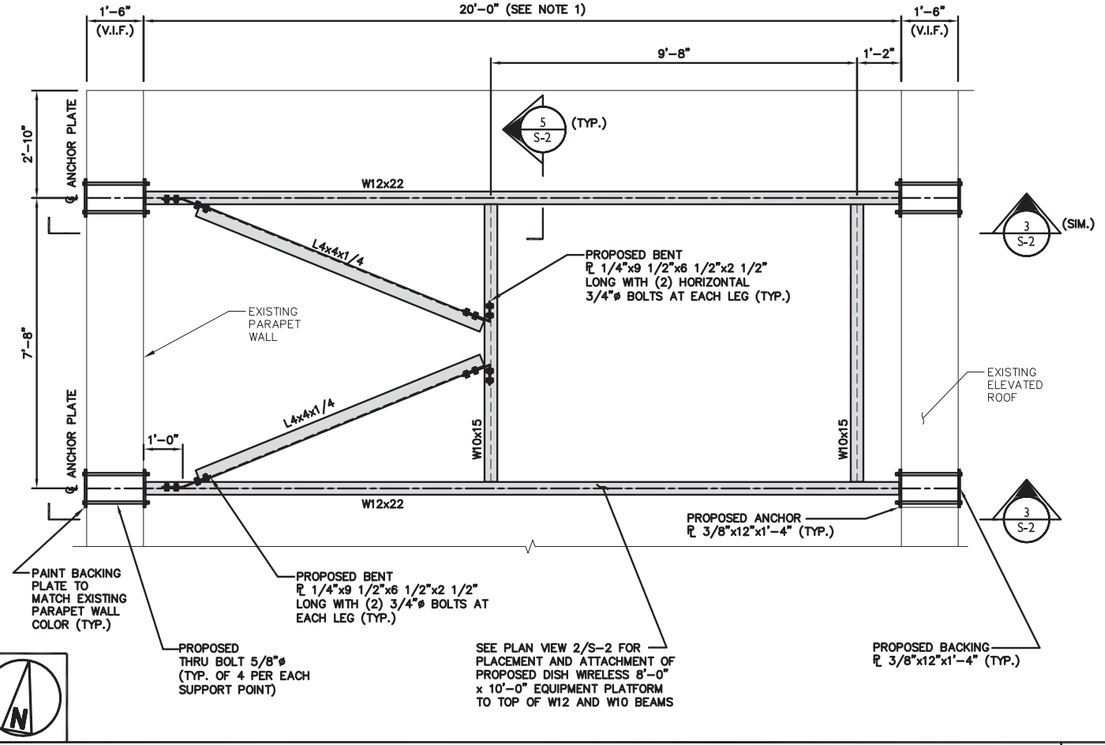
S-1



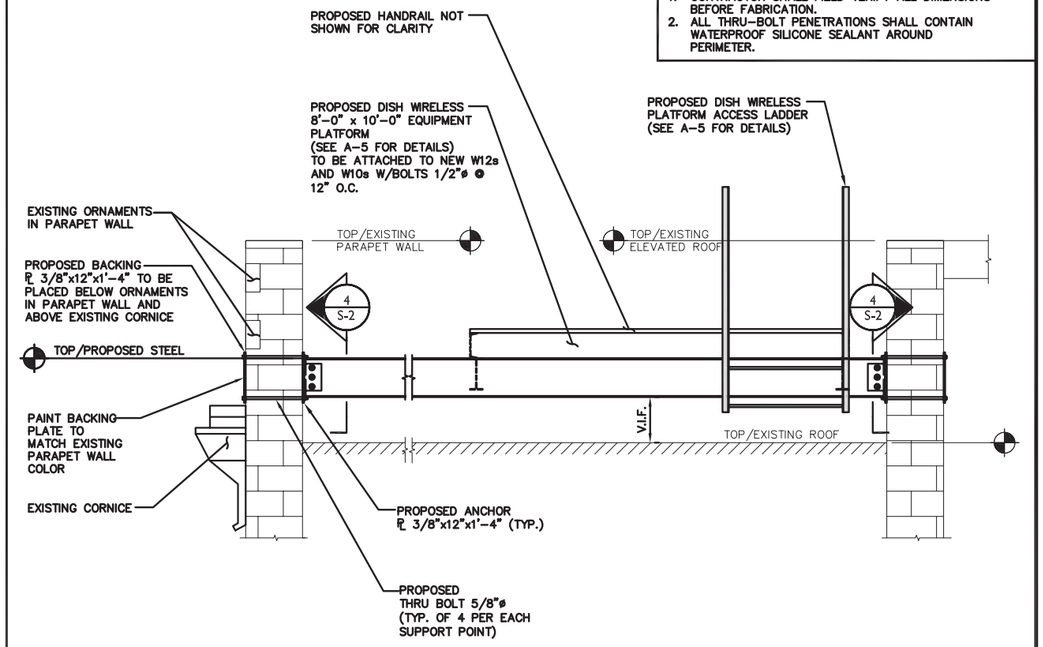
EQUIPMENT PLATFORM SUPPORT FRAMING PLAN

12" 6" 0 1' 2' 3' 4' 5'
1/2"=1'-0"

1

NOTES

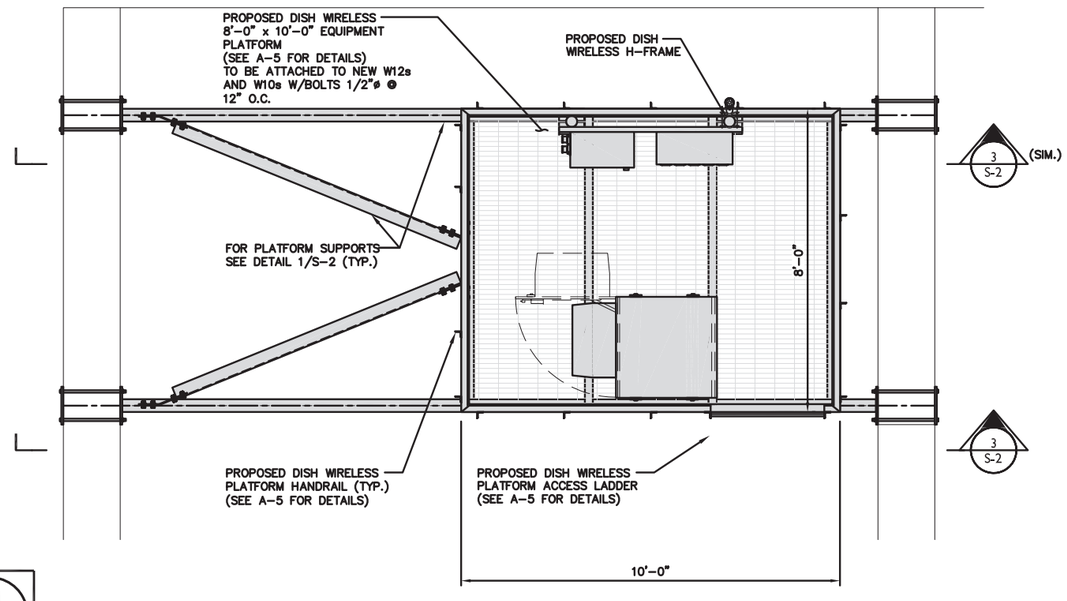
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS BEFORE FABRICATION.
2. ALL THRU-BOLT PENETRATIONS SHALL CONTAIN WATERPROOF SILICONE SEALANT AROUND PERIMETER.



SECTION

12" 6" 0 1' 2' 3' 4' 5'
1/2"=1'-0"

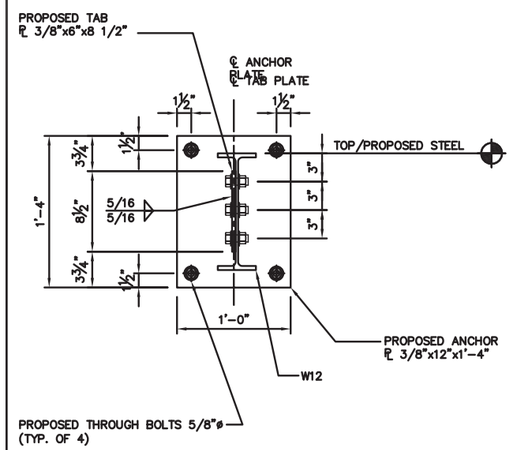
3



EQUIPMNET PLATFORM - PLAN VIEW

12" 6" 0 1' 2' 3' 4' 5'
1/2"=1'-0"

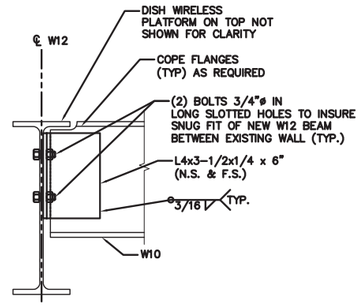
2



SECTION

12" 9" 6" 3" 0 1'
1 1/2"=1'-0"

4



W10 TO W12 CONNECTION

TYP. SECTION

NO SCALE

5

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PROFESSIONAL ENGINEER

Jul 7 2022

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LA	DZ	DS

RFDS REV #: 2

PERMITTING DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	03/31/2022	ISSUED FOR REVIEW
B	05/11/2022	ISSUED FOR REVIEW
0	07/07/2022	ISSUED FOR PERMITTING

A&E PROJECT NUMBER
2021.0030.0004

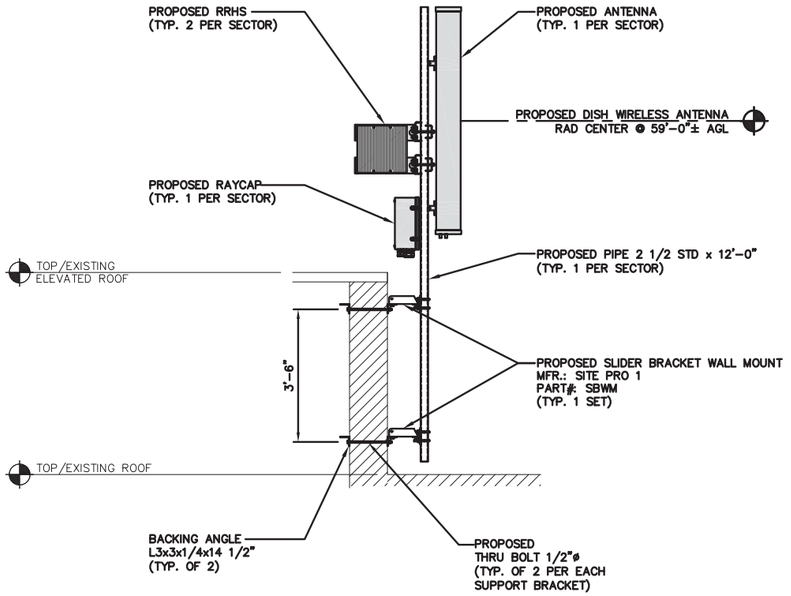
DISH Wireless L.L.C.
PROJECT INFORMATION
MWMKE00116B
314 6TH STREET
RACINE, WI 53403

SHEET TITLE
STRUCTURAL DETAILS

SHEET NUMBER
S-2

NOTES

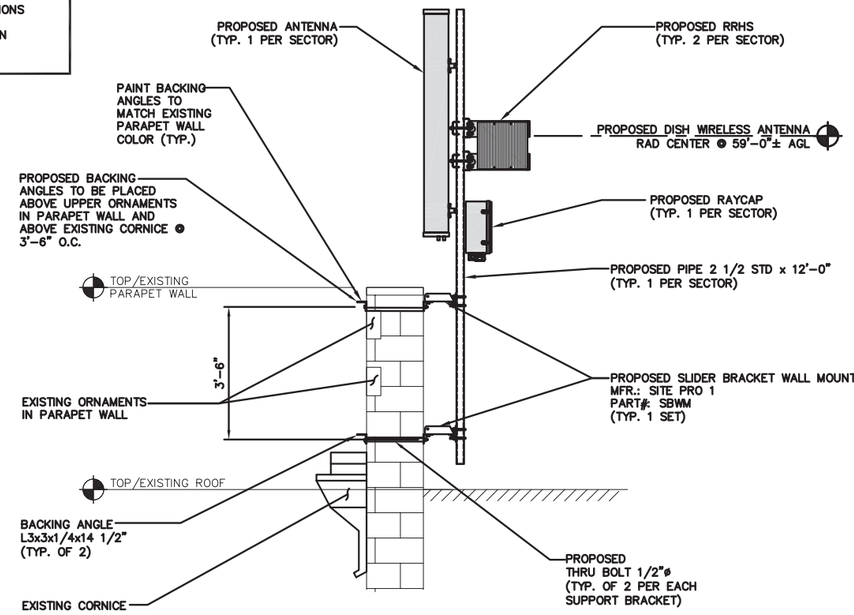
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS BEFORE FABRICATION.
2. ALL THRU-BOLT PENETRATIONS SHALL CONTAIN WATERPROOF SILICONE SEALANT AROUND PERIMETER.



ANTENNA MOUNT SECTOR ALPHA

12" 6" 0 1' 2' 3' 4' 5'
1/2"=1'-0"

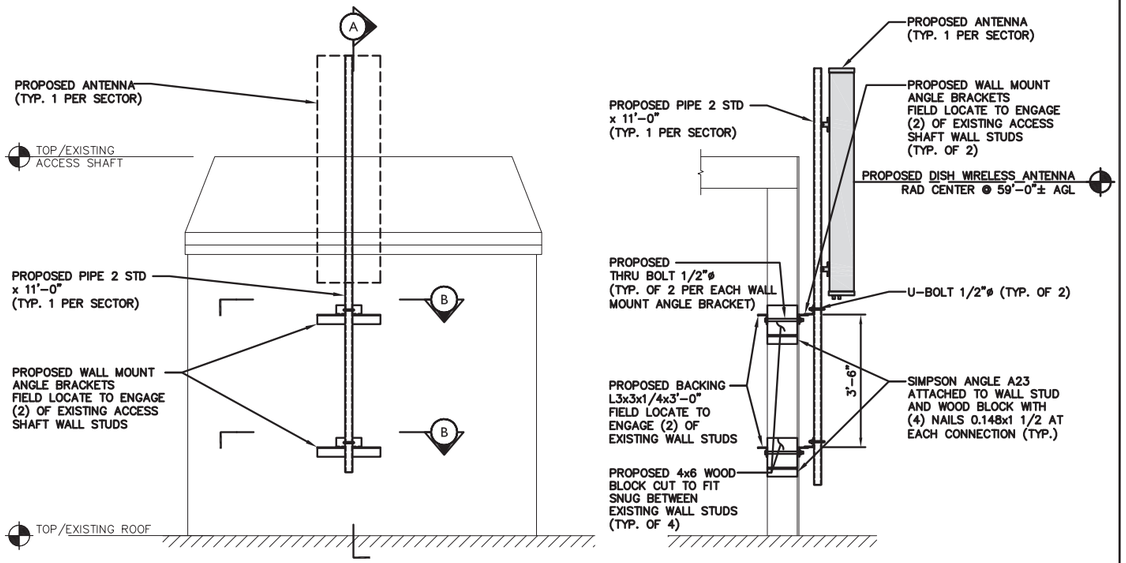
1



ANTENNA MOUNT SECTOR GAMMA

12" 6" 0 1' 2' 3' 4' 5'
1/2"=1'-0"

2



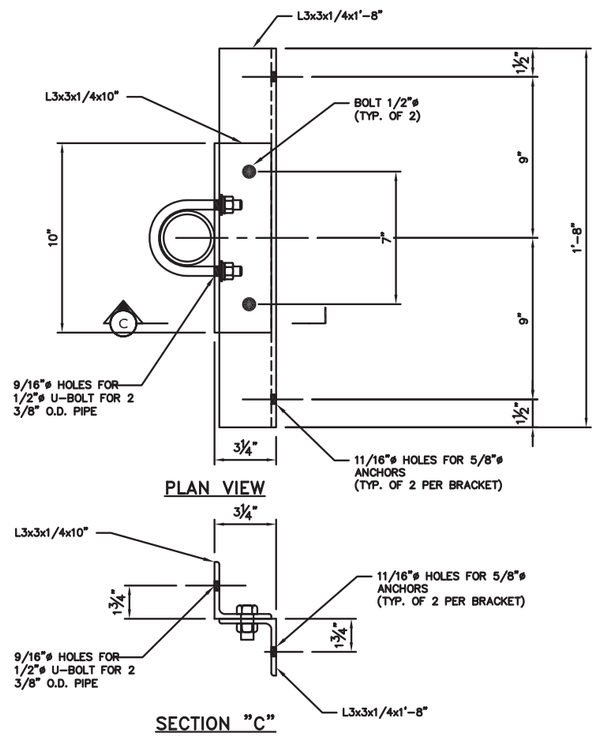
SECTION "A"

SECTION "B"

ANTENNA MOUNT SECTOR BETA

12" 6" 0 1' 2' 3' 4' 5'
1/2"=1'-0"

3



SECTION "C"

WALL MOUNT ANGLE BRACKET ASSEMBLY DETAIL

NO SCALE

4

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DISH Wireless L.L.C.
PROJECT INFORMATION

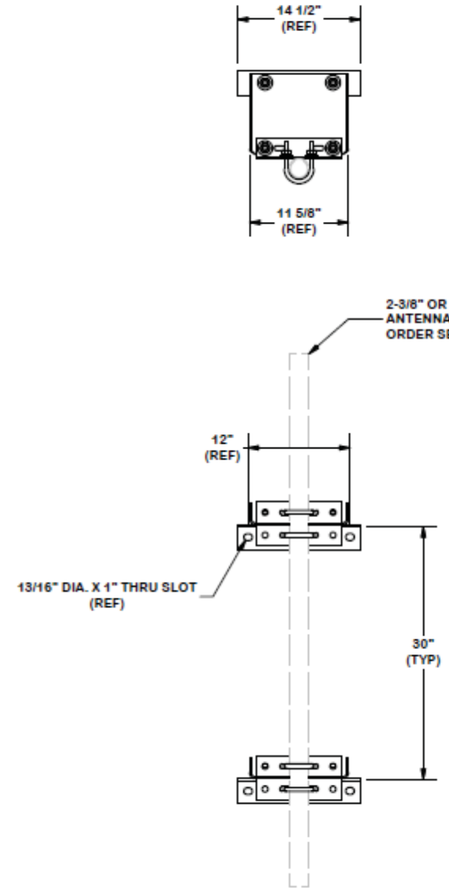
MWMKE00116B
314 6TH STREET
RACINE, WI 53403

SHEET TITLE

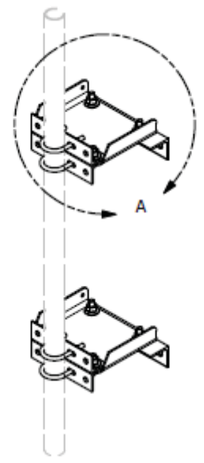
STRUCTURAL DETAILS

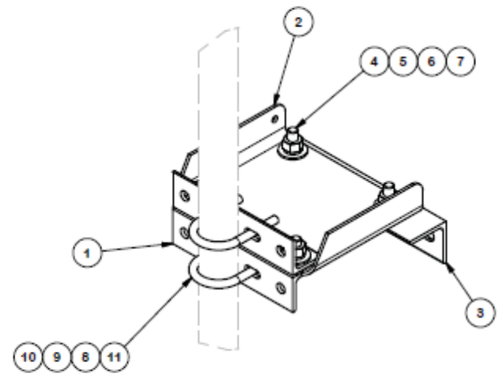
SHEET NUMBER

S-3



PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	4	X-SLD-A	SLIDER BRACKET ANGLE	10 in	3.28	13.12
2	2	X-SLD-BP	SLIDER BRACKET BENT PLATE	15 3/4 in	8.13	16.26
3	2	X-SLD3	SLIDER BRACKET WALL ANGLE	14 1/2 in	6.10	12.20
4	8	G5802	5/8" x 2" HDG HEX BOLT GR5		0.27	2.16
5	8	G58FW	5/8" HDG USS FLATWASHER	1/8 in	0.07	0.56
6	8	G58LW	5/8" HDG LOCKWASHER		0.03	0.21
7	8	G58NUT	5/8" HDG HEAVY 2H HEX NUT		0.13	1.04
8	8	G12FW	1/2" HDG USS FLATWASHER	3/32 in	0.03	0.27
9	8	G12LW	1/2" HDG LOCKWASHER	1/8 in	0.01	0.11
10	8	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	0.57
11	4	X-UB1212	1/2" X 2-1/2" X 4-1/2" X 2" GALV. U-BOLT		0.66	2.65
11	4	X-UB1300	1/2" X 3" X 5" X 2" GALV U-BOLT		0.74	2.95
					TOTAL WT. #	51.93





DETAIL A

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: SLIDER BRACKET WALL MOUNT 2-3/8" & 2-7/8" O.D. PIPE

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

CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.	PAGE
	BMC 3/8/2011		SBWM	1 OF 1

CLASS	SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
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Jul 7 2022

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RFDS REV #: 2

PERMITTING DOCUMENTS

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2021.0030.0004

DISH Wireless L.L.C.
PROJECT INFORMATION
MWMKE00116B
314 6TH STREET
RACINE, WI 53403

SHEET TITLE
MOUNTING SPECIFICATIONS

SHEET NUMBER
S-4

STRUCTURAL ANALYSIS REPORT

STRUCTURE: ROOFTOP

PREPARED FOR: DISH Wireless

CARRIER: DISH Wireless

SITE NUMBER : MWMKE00116B

SITE LOCATION:
314 6th Street
Racine, WI 53403
N42.72684, W87.784674

DATE: June 2, 2022

RESULTS
PASS (MAX STRESS RATIO: 64.9%)

Jul 7 2022

Barbara T. Kotecki, P.E.

Fullerton Engineering Consultants, LLC
1100 E. Woodfield Road, Suite 500
Schaumburg, IL 60173
Tel: 847.908.8400
www.fullertonengineering.com

Project Number: 2021.0030.0004

Summary

The structural analysis was performed by Fullerton, as requested by the client, to determine the conformance of existing structure with the governing 2018 Wisconsin Commercial Building Code and the industry standard, TIA-222-H (Structural Standards for Steel Antenna Supporting Structures, Antennas, and Small Wind Turbine Support Structures). The analysis considers the relevant structural properties, the existing and proposed appurtenances, and the required loading criteria.

Conclusion

Component	% Capacity	Pass / Fail
New Wall Mounts (Sector Alpha)	56.1%	PASS
New Wall Mounts (Sector Beta)	64.9%	PASS
New Wall Mounts (Sector Gamma)	51.6%	PASS
New Equipment Platform (Sector Gamma)	36.5%	PASS
Structural Rating (max from all components) = 64.9%		**PASS**

Sources

The following documents for the existing structure were made available for our structural analysis.

Reference Document	Date
RFDS Revision 2 provided by Dish	08/31/2021
Construction Drawings by Fullerton Engineering Consultants	Latest Version
Field Investigation Report by Fullerton Engineering	10/04/2021
Site Visit Photos	10/01/2021, 12/13/2021

Appurtenance Loading Schedule

EQUIPMENT		
ELEVATION (Ft)	**QTY.**	**MANUFACTURER/MODEL**
59’-0”	1	(N) Commscope FFVV-65B-R2
	1	(N) Fujitsu TA08025-B605 RRH Unit
	1	(N) Fujitsu TA08025-B604 RRH Unit
	1	(N) Raycap RDIDC-3045-PF-48 OVP
Rooftop	1	(N) Charles HEX CUBE-PM639155N4 (74”H x 32”W x 32”D – 1067.14#)
	1	(N) Raycap PPC RDIAC-2465-P-240-MTS
	1	(N) Charles CFIT-PF2020DSH1 Fiber Telco Enclosure

(E) denotes existing loading

(N) denotes proposed loading

- New appurtenances will be mounted on new wall mounts (Site Pro 1 Part# SBWM) in Sector Alpha and Gamma and new wall mount angles on Sector Beta.
- New equipment cabinet will be installed on new steel equipment platform attached to existing parapet wall and elevated roof wall..

Assumptions

This analysis is based on the theoretical capacity of the members and is not a condition assessment of the tower. The analysis is based solely on the information supplied, and the results, in turn, are only as accurate as data extracted from this information. Fullerton has been instructed by the client to assume the information supplied is accurate, and Fullerton has made no independent determination of its accuracy. The exception to the previous statement is if Fullerton has been contracted by the client to provide an independent structural mapping report of the tower and related appurtenances, in which case Fullerton has made an independent determination of the accuracy of the information resulting from the mapping report.

- Member sizes and geometry are considered accurate as supplied. The material grade is as per data supplied and/or as assumed and stated in the materials section.
- The existing structure is assumed to have been properly maintained in accordance with the TIA/EIA standard and/or its original manufacturer's recommendations. The existing structure is assumed to be in good condition with no structural defects and with no deterioration to its member capacities.
- The antenna configuration is as supplied and/or stated in the analysis section. It is assumed to be complete and accurate. All antennas, mounts, remote radios, cables, and cable supports are assumed to be properly installed and supported as per the manufacturer's requirements.
- The antennas, mounts, remote radios, cables, and cable supports, and lines stated in the appurtenance loading schedule represent Fullerton's understanding of the overall antenna configuration. If the actual configuration is different than above, then this analysis is invalid. Please refer to this report for the projected wind areas used in the calculations for antennas and mounts. If variations or discrepancies are identified, please inform Fullerton.
- Some assumptions are made regarding antenna and mount sizes and their projected areas based on a best interpretation of the data supplied and a best knowledge of antenna type and industry practice.
- All welds and connections are assumed to develop at least the member capacity, unless determined otherwise and explicitly stated in this report.
- All prior structural modifications, if any, are assumed to be as per date supplied/ available, to be properly installed and to be fully effective.

Scope and Limitations

The engineering services rendered by Fullerton Engineering Consultants, LLC (Fullerton) in connection with this structural analysis are limited to an analysis of the structure, size, and capacity of its members. Fullerton does not analyze the fabrication, including welding and connection capacities, except as included in this report.

The information and conclusions contained in this report were determined by application of the current engineering standards and analysis procedures and formulae, and Fullerton assumes no obligation to revise any of the information or conclusions contained in this report in the event such engineering and analysis procedures and formulae are hereafter modified or revised.

Fullerton makes no warranties, expressed, or implied in connection with this report and disclaims any liability arising from original design, material, fabrication, and erection deficiencies or the “as-built” condition of this tower.

Installation procedures are not within the scope of this report and should be performed and evaluated by a competent tower erection contractor.

Structural Calculations

Analysis and Design Criteria

Type of Structure	Rooftop	
Elevation of Antenna Centerline Above Ground	$z := 59ft$	
Structure Height Above Grade	$h := 49.25ft$	
Mid-Point of Structure	$h_{mid} := \frac{h}{2}$	
Mean Elevation of Structure above Sea Level	$Z_s := 624.28$ ft	
Risk Category	II	*ANSI/TIA-222-H: Table 2-1*
Basic Wind Speed (no ice): 3-Second Gust	$V := 107$ *mph*	*ANSI/TIA-222-H: ANNEX B*
Basic Wind Speed (with ice): 3-Second Gust	$V_i := 40$ *mph*	*ANSI/TIA-222-H: ANNEX B*
Basic Wind Speed (maintenance): 3-Second Gust	$V_m := 30$ *mph*	*ANSI/TIA-222-H: Section 16.3*
Ice Thickness	$t_i := 1.5in$	*ANSI/TIA-222-H: ANNEX B*
Exposure Category	C	*ANSI/TIA-222-H: Section 2.6.5.1.2*
Topographic Category	1	*ANSI/TIA-222-H: Section 2.6.6.2.1*
Height of Crest Above Surrounding Terrain	$H := 5ft$	
Gust Effect Factor	$G_h := 1$	*ANSI/TIA-222-H, Section 16.6*

Ground Elevation Factor	$K_e = 0.98$	*ANSI/TIA-222-H: Section 2.6.8*
Wind Direction Probability Factor	$K_d = 0.95$	*ANSI/TIA-222-H: Table 2-2*
Velocity Pressure Coefficient	$K_z = 1.13$	*ANSI/TIA-222-H: Section 2.6.5.2*
Topographic Factor	$K_{zt} = 1$	*ANSI/TIA-222-H: Section 2.6.6.2.1*
Rooftop Wind Speed-Up Factor	$K_s = 1$	*ANSI/TIA-222-H: Section 2.6.7*
$q_z := 0.00256 \cdot K_z \cdot K_{zt} \cdot K_s \cdot K_e \cdot K_d \cdot V^2 \cdot psf$	$q_z = 30.83 \cdot psf$	*Velocity Pressure ANSI/TIA-222-H: Section 2.6.11.6*
$q_{zi} := 0.00256 \cdot K_z \cdot K_{zt} \cdot K_s \cdot K_e \cdot K_d \cdot V_i^2 \cdot psf$	$q_{zi} = 4.31 \cdot psf$	*Velocity Pressure ANSI/TIA-222-H: Section 2.6.11.6*
$q_{zm} := 0.00256 \cdot K_z \cdot K_{zt} \cdot K_s \cdot K_e \cdot K_d \cdot V_m^2 \cdot psf$	$q_{zm} = 2.42 \cdot psf$	*Velocity Pressure ANSI/TIA-222-H: Section 2.6.11.6*

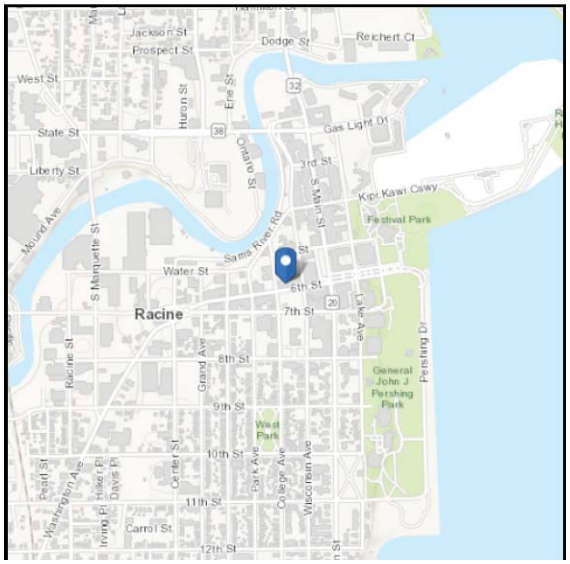
SITE INFORMATION; Seismic Lateral Design

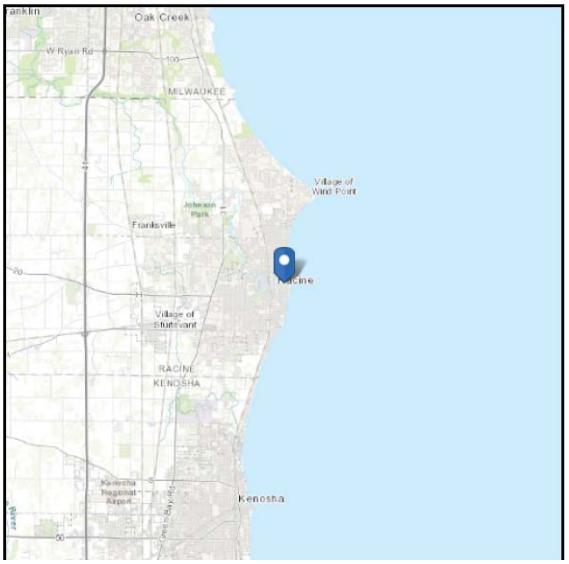
ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 624.28 ft (NAVD 88)
Latitude: 42.72684
Longitude: -87.784674





Seismic

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

Results:

S_S :	0.084	S_{D1} :	0.082
S_1 :	0.051	T_L :	12
F_a :	1.6	PGA :	0.041
F_v :	2.4	PGA_M :	0.065
S_{MS} :	0.134	F_{PGA} :	1.6
S_{M1} :	0.123	I_e :	1
S_{DS} :	0.089	C_v :	0.7

Seismic Design Category B

Importance Factor (Earthquake)	$I_e := 1.0$	*ANSI/TIA-222-H: Table 2-3*
Site Class	D - Stiff Soil (Default)	*ANSI/TIA-222-H: Table 2-10*
Seismic Design Category	B	
MCE.R Ground Motion (period=0.2s)	$S_S := 0.084$	
MCE.R Ground Motion (period=1.0s)	$S_1 := 0.051$	
Seismic Design Value at 0.2s	$S_{DS} := 0.089$	
Long-Period Site Coefficient, Fv	$F_V = 2.4$	*ANSI/TIA-222-H, Table 2-12*
Seismic Design Value at 1.0s	$S_{D1} := 0.076$	$S_{D1} = 0.076$
Long-period Transition Period (s)	$T_L := 12$	
Response Modification Coefficient	$R := 2$	*ANSI/TIA-222-H, 16.7*

$$C_{scalc} := \frac{(S_{DS} \cdot I_e)}{R}$$

$C_{scalc} = 0.04$

Seismic Response Coefficient
ANSI/TIA-222-H: 2.7.7.1.1

$C_{smin1} := 0.044 \cdot S_{DS} \cdot I_e$

$C_{smin1} = 0$

$C_{smin2} := 0.03$

$C_{smin2} = 0.03$

$$C_{smin3} := \begin{cases} \frac{(0.8 \cdot S_1 \cdot I_e)}{R} & \text{if } S_1 \geq 0.6 \\ C_{scalc} & \text{otherwise} \end{cases}$$

$C_{smin3} = 0.04$

$C_s := \max(C_{scalc}, C_{smin1}, C_{smin2}, C_{smin3})$

$C_s = 0.04$

$$A_{s1} := \begin{cases} 1 & \text{if } z \geq h_{mid} \\ \frac{(3 \cdot h_{mid}) - (2 \cdot z)}{h_{mid}} & \text{otherwise} \end{cases}$$

$A_{s1} = 1$

Amplification Factor
ANSI/TIA-222-H: 2.7.8.1 and 16.7

$$A_s := \begin{cases} A_{s1} & \text{if Structure} = 1 \\ A_{s1} & \text{if Structure} = 2 \\ A_{s1} & \text{if Structure} = 3 \\ 3 & \text{if Structure} = 4 \\ 3 & \text{if Structure} = 5 \end{cases}$$

$A_s = 3$

New Commscope FFVV-65B-R2 Antenna

Height	***Width/Diameter***	***Depth/Diameter***	***Weight***	***Shape***
height := 72in	width := 19.6in	depth := 7.8in	weight := 98.1lbf	◉ Flat ○ Round

$DL_1 := weight$	$\frac{DL_1}{2} = 49.05\ lbf$	*Dead Load*
$F_{F1} := F_F$	$\frac{F_{F1}}{2} = 170.24\ lbf$	*Wind Load on Front Face*
$F_{S1} := F_S$	$\frac{F_{S1}}{2} = 79.77\ lbf$	*Wind Load on Side Face*
$DL_{1i} := DL_{ice}$	$\frac{DL_{1i}}{2} = 67.71\ lbf$	*Dead Load Ice*
$F_{F1i} := F_{Fi}$	$\frac{F_{F1i}}{2} = 28.49\ lbf$	*Wind Load with Ice on Front Face*
$F_{S1i} := F_{Si}$	$\frac{F_{S1i}}{2} = 15.48\ lbf$	*Wind Load with Ice on Side Face*
$F_{F1m} := F_{Fm}$	$\frac{F_{F1m}}{2} = 13.46\ lbf$	*Wind Load (maintenance) on Front Face*
$F_{S1m} := F_{Sm}$	$\frac{F_{S1m}}{2} = 6.33\ lbf$	*Wind Load (maintenance) on Side Face*
$F_{Eh1} := weight \cdot A_s \cdot C_s$	$\frac{F_{Eh1}}{2} = 6.55\ lbf$	*Lateral Earthquake Load*
$F_{Ev1} := 0.2 \cdot S_{DS} \cdot weight$	$\frac{F_{Ev1}}{2} = 0.87\ lbf$	*Vertical Earthquake Load*

New Fujitsu TA08025-B605 Radio

Height	***Width/Diameter***	***Depth/Diameter***	***Weight***	***Shape***
height := 15.75in	width := 14.96in	depth := 9.06in	weight := 74.95lbf	(•) Flat ( ) Round

$DL_2 := weight$	$\frac{DL_2}{2} = 37.48\,lbf$	*Dead Load*
$F_{F2} := F_F$	$\frac{F_{F2}}{2} = 27.24\,lbf$	*Wind Load on Front Face*
$F_{S2} := F_S$	$\frac{F_{S2}}{2} = 16.5\,lbf$	*Wind Load on Side Face*
$DL_{2i} := DL_{ice}$	$\frac{DL_{2i}}{2} = 23.09\,lbf$	*Dead Load Ice*
$F_{F2i} := F_{Fi}$	$\frac{F_{F2i}}{2} = 5.55\,lbf$	*Wind Load with Ice on Front Face*
$F_{S2i} := F_{Si}$	$\frac{F_{S2i}}{2} = 3.74\,lbf$	*Wind Load with Ice on Side Face*
$F_{F2m} := F_{Fm}$	$\frac{F_{F2m}}{2} = 2.14\,lbf$	*Wind Load (maintenance) on Front Face*
$F_{S2m} := F_{Sm}$	$\frac{F_{S2m}}{2} = 1.3\,lbf$	*Wind Load (maintenance) on Side Face*
$F_{Eh2} := weight \cdot A_s \cdot C_s$	$\frac{F_{Eh2}}{2} = 5\,lbf$	*Lateral Earthquake Load*
$F_{Ev2} := 0.2 \cdot S_{DS} \cdot weight$	$\frac{F_{Ev2}}{2} = 0.67\,lbf$	*Vertical Earthquake Load*

New Fujitsu TA08025-B604 Radio

Height	***Width/Diameter***	***Depth/Diameter***	***Weight***	***Shape***
height := 15.75in	width := 14.96in	depth := 7.87in	weight := 63.93lbf	(•) Flat ( ) Round

$DL_3 := weight$	$\frac{DL_3}{2} = 31.96\ lbf$	*Dead Load*
$F_{F3} := F_F$	$\frac{F_{F3}}{2} = 27.24\ lbf$	*Wind Load on Front Face*
$F_{S3} := F_S$	$\frac{F_{S3}}{2} = 14.33\ lbf$	*Wind Load on Side Face*
$DL_{3i} := DL_{ice}$	$\frac{DL_{3i}}{2} = 20.85\ lbf$	*Dead Load Ice*
$F_{F3i} := F_{Fi}$	$\frac{F_{F3i}}{2} = 5.55\ lbf$	*Wind Load with Ice on Front Face*
$F_{S3i} := F_{Si}$	$\frac{F_{S3i}}{2} = 3.38\ lbf$	*Wind Load with Ice on Side Face*
$F_{F3m} := F_{Fm}$	$\frac{F_{F3m}}{2} = 2.14\ lbf$	*Wind Load (maintenance) on Front Face*
$F_{S3m} := F_{Sm}$	$\frac{F_{S3m}}{2} = 1.13\ lbf$	*Wind Load (maintenance) on Side Face*
$F_{Eh3} := weight \cdot A_S \cdot C_S$	$\frac{F_{Eh3}}{2} = 4.27\ lbf$	*Lateral Earthquake Load*
$F_{Ev3} := 0.2 \cdot S_{DS} \cdot weight$	$\frac{F_{Ev3}}{2} = 0.57\ lbf$	*Vertical Earthquake Load*

New Raycap RDIDC-4045-PF-48

Height	***Width/Diameter***	***Depth/Diameter***	***Weight***	***Shape***
height := 16.58in	width := 14.58in	depth := 8.46in	weight := 21.85lbf	(•) Flat ( ) Round

$DL_4 := weight$	$\frac{DL_4}{2} = 10.93\ lbf$	*Dead Load*
$F_{F4} := F_F$	$\frac{F_{F4}}{2} = 27.95\ lbf$	*Wind Load on Front Face*
$F_{S4} := F_S$	$\frac{F_{S4}}{2} = 16.22\ lbf$	*Wind Load on Side Face*
$DL_{4i} := DL_{ice}$	$\frac{DL_{4i}}{2} = 22.29\ lbf$	*Dead Load Ice*
$F_{F4i} := F_{Fi}$	$\frac{F_{F4i}}{2} = 5.67\ lbf$	*Wind Load with Ice on Front Face*
$F_{S4i} := F_{Si}$	$\frac{F_{S4i}}{2} = 3.72\ lbf$	*Wind Load with Ice on Side Face*
$F_{F4m} := F_{Fm}$	$\frac{F_{F4m}}{2} = 2.2\ lbf$	*Wind Load (maintenance) on Front Face*
$F_{S4m} := F_{Sm}$	$\frac{F_{S4m}}{2} = 1.27\ lbf$	*Wind Load (maintenance) on Side Face*
$F_{Eh4} := weight \cdot A_s \cdot C_s$	$\frac{F_{Eh4}}{2} = 1.46\ lbf$	*Lateral Earthquake Load*
$F_{Ev4} := 0.2 \cdot S_{DS} \cdot weight$	$\frac{F_{Ev4}}{2} = 0.19\ lbf$	*Vertical Earthquake Load*

Antenna Mounting Pipe

$H_{pipe} := 12 \cdot ft$

$Pipe := 2.5$

$Wt_{p1} := Weight_{total}$ $Wt_{p1} = 69.6\,lbf$ *Total Weight of Pipe*

$F_{p1} := F_p$ $F_{p1} = 95.89\,lbf$ *Wind Load*

$F_{p1\_linear} := F_{p\_linear}$ $F_{p1\_linear} = 8 \cdot plf$ *Linear Wind Load on Pipe*

$DL_{ice.p1} := DL_{ice}$ $DL_{ice.p1} = 104.18\,lbf$ *Total Weight of Ice*

$DL_{ice.p1\_linear} := \frac{DL_{ice}}{H_{pipe}}$ $DL_{ice.p1\_linear} = 8.68 \cdot plf$ *Linear Ice Load on Pipe*

$F_{p1i} := F_{pi}$ $F_{p1i} = 28.44\,lbf$ *Wind Load with Ice*

$F_{p1i\_linear} := F_{pi\_linear}$ $F_{p1i\_linear} = 2 \cdot plf$ *Linear Wind Load with Ice on Pipe*

$F_{p1m} := F_{pm}$ $F_{p1m} = 7.54\,lbf$ *Wind Load (maintenance)*

$F_{p1m\_linear} := F_{pm\_linear}$ $F_{p1m\_linear} = 1 \cdot plf$ *Linear Wind Load (maintenance) on Pipe*

$F_{Ehp1} := Weight_{total} \cdot A_S \cdot C_S$ $F_{Ehp1} = 9.29\,lbf$ *Total Lateral Earthquake Load*

$F_{Ehp1\_linear} := \frac{F_{Ehp1}}{H_{pipe}}$ $F_{Ehp1\_linear} = 0.77 \cdot plf$ *Linear Lateral Earthquake Load*

$F_{Evp1} := 0.2 \cdot S_{DS} \cdot Weight_{total}$ $F_{Evp1} = 1.24\,lbf$ *Total Vertical Earthquake Load*

$F_{Evp1\_linear} := \frac{F_{Evp1}}{H_{pipe}}$ $F_{Evp1\_linear} = 0.1 \cdot plf$ *Linear Vertical Earthquake Load*

SBWM:

Height	***Width/Diameter***	***Depth/Diameter***	***Weight***	***Shape***
height := 14in	width := 11.4in	depth := 2.5in	weight := 8.13plf	(•) Flat ( ) Round

$F_{FM1\_linear} := F_{F\_linear}$	$F_{FM1\_linear} = 32 \cdot plf$	*Linear Wind Load on Front Face*
$F_{SM1\_linear} := F_{S\_linear}$	$F_{SM1\_linear} = 8 \cdot plf$	*Linear Wind Load on Side Face*
$DL_{ice.M1\_linear} := \frac{DL_{ice}}{height}$	$DL_{ice.M1\_linear} = 15.48 \cdot plf$	*Linear Ice Load on Member*
$F_{FiM1\_linear} := F_{Fi\_linear}$	$F_{FiM1\_linear} = 7 \cdot plf$	*Linear Wind Load with Ice on Front Face*
$F_{SiM1\_linear} := F_{Si\_linear}$	$F_{SiM1\_linear} = 3 \cdot plf$	*Linear Wind Load with Ice on Side Face*
$F_{FmM1\_linear} := F_{Fm\_linear}$	$F_{FmM1\_linear} = 2 \cdot plf$	*Linear Wind Load (maintenance) on Front Face*
$F_{SmM1\_linear} := F_{Sm\_linear}$	$F_{SmM1\_linear} = 1 \cdot plf$	*Linear Wind Load (maintenance) on Side Face*
$F_{FM1} := F_F$	$F_{FM1} = 36.9 \cdot lbf$	*Wind Load on Front Face*
$F_{SM1} := F_S$	$F_{SM1} = 9.02 \cdot lbf$	*Wind Load on Side Face*
$F_{FiM1} := F_{Fi}$	$F_{FiM1} = 8.09 \cdot lbf$	*Wind Load with Ice on Front Face*
$F_{SiM1} := F_{Si}$	$F_{SiM1} = 3.21 \cdot lbf$	*Wind Load with Ice on Side Face*
$F_{FmM1} := F_{Fm}$	$F_{FmM1} = 2.9\ lbf$	*Wind Load (maintenance) on Front Face*
$F_{SmM1} := F_{Sm}$	$F_{SmM1} = 0.74\ lbf$	*Wind Load (maintenance) on Side Face*
$DL_{ice.M1} := DL_{ice}$	$DL_{ice.M1} = 18.06\ lbf$	*Total Weight of Ice*
$Wt_{M1} := Weight_{total}$	$Wt_{M1} = 9.48\ lbf$	*Total Weight of member*
$F_{EhM1} := Weight_{total} \cdot A_S \cdot C_S$	$F_{EhM1} = 1.27\ lbf$	*Total Lateral Earthquake Load*
$F_{EhM1\_linear} := \frac{F_{EhM1}}{height}$	$F_{EhM1\_linear} = 1.09 \cdot plf$	*Linear Lateral Earthquake Load*
$F_{EvM1} := 0.2 \cdot S_{DS} \cdot Weight_{total}$	$F_{EvM1} = 0.17\ lbf$	*Total Vertical Earthquake Load*
$F_{EvM1\_linear} := \frac{F_{EvM1}}{height}$	$F_{EvM1\_linear} = 0.14 \cdot plf$	*Linear Vertical Earthquake Load*

Antenna Mounting Pipe

$H_{pipe} := 9 \cdot ft$

$Pipe := 2.0$

$Wt_{p2} := Weight_{total}$ $Wt_{p2} = 32.94\,lbf$ *Total Weight of Pipe*

$F_{p2} := F_p$ $F_{p2} = 59.43\,lbf$ *Wind Load*

$F_{p2\_linear} := F_{p\_linear}$ $F_{p2\_linear} = 7 \cdot plf$ *Linear Wind Load on Pipe*

$DL_{ice.p2} := DL_{ice}$ $DL_{ice.p2} = 69.39\,lbf$ *Total Weight of Ice*

$DL_{ice.p2\_linear} := \frac{DL_{ice}}{H_{pipe}}$ $DL_{ice.p2\_linear} = 7.71 \cdot plf$ *Linear Ice Load on Pipe*

$F_{p2i} := F_{pi}$ $F_{p2i} = 18.12\,lbf$ *Wind Load with Ice*

$F_{p2i\_linear} := F_{pi\_linear}$ $F_{p2i\_linear} = 2 \cdot plf$ *Linear Wind Load with Ice on Pipe*

$F_{p2m} := F_{pm}$ $F_{p2m} = 4.67\,lbf$ *Wind Load (maintenance)*

$F_{p2m\_linear} := F_{pm\_linear}$ $F_{p2m\_linear} = 1 \cdot plf$ *Linear Wind Load (maintenance) on Pipe*

$F_{Ehp2} := Weight_{total} \cdot A_S \cdot C_S$ $F_{Ehp2} = 4.4\,lbf$ *Total Lateral Earthquake Load*

$F_{Ehp2\_linear} := \frac{F_{Ehp2}}{H_{pipe}}$ $F_{Ehp2\_linear} = 0.49 \cdot plf$ *Linear Lateral Earthquake Load*

$F_{Evp2} := 0.2 \cdot S_{DS} \cdot Weight_{total}$ $F_{Evp2} = 0.59\,lbf$ *Total Vertical Earthquake Load*

$F_{Evp2\_linear} := \frac{F_{Evp2}}{H_{pipe}}$ $F_{Evp2\_linear} = 0.07 \cdot plf$ *Linear Vertical Earthquake Load*

Mounting Pipe

$H_{pipe} := 11.5 \cdot ft$

$Pipe := 3.0$

$Wt_{p2} := Weight_{total}$ $Wt_{p2} = 87.17\,lbf$ *Total Weight of Pipe*

$F_{p2} := F_p$ $F_{p2} = 111.68\,lbf$ *Wind Load*

$F_{p2\_linear} := F_{p\_linear}$ $F_{p2\_linear} = 10 \cdot plf$ *Linear Wind Load on Pipe*

$DL_{ice.p2} := DL_{ice}$ $DL_{ice.p2} = 113.68\,lbf$ *Total Weight of Ice*

$DL_{ice.p2\_linear} := \frac{DL_{ice}}{H_{pipe}}$ $DL_{ice.p2\_linear} = 9.89 \cdot plf$ *Linear Ice Load on Pipe*

$F_{p2i} := F_{pi}$ $F_{p2i} = 28.29\,lbf$ *Wind Load with Ice*

$F_{p2i\_linear} := F_{pi\_linear}$ $F_{p2i\_linear} = 2 \cdot plf$ *Linear Wind Load with Ice on Pipe*

$F_{p2m} := F_{pm}$ $F_{p2m} = 8.78\,lbf$ *Wind Load (maintenance)*

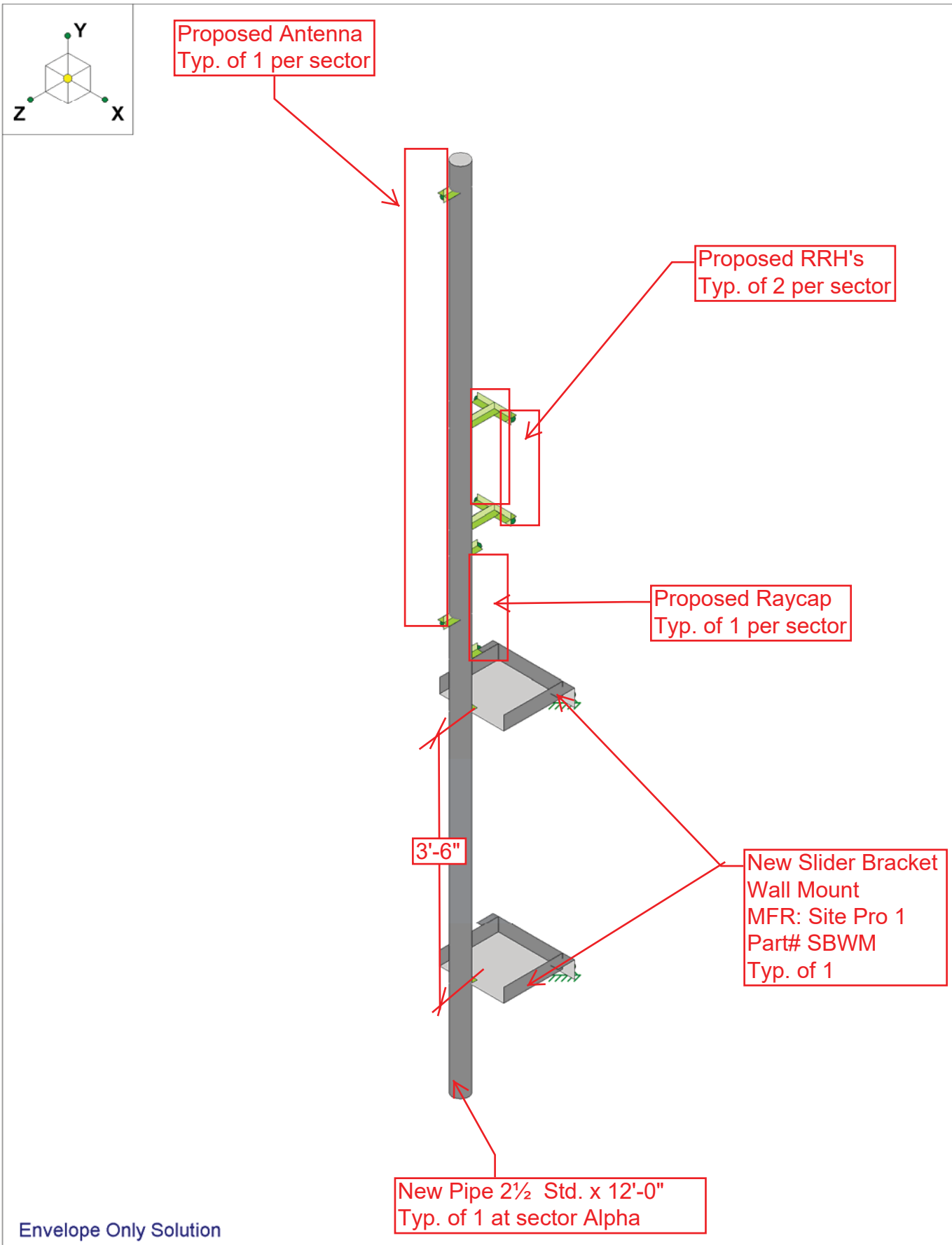
$F_{p2m\_linear} := F_{pm\_linear}$ $F_{p2m\_linear} = 1 \cdot plf$ *Linear Wind Load (maintenance) on Pipe*

$F_{Ehp2} := Weight_{total} \cdot A_S \cdot C_S$ $F_{Ehp2} = 11.64\,lbf$ *Total Lateral Earthquake Load*

$F_{Ehp2\_linear} := \frac{F_{Ehp2}}{H_{pipe}}$ $F_{Ehp2\_linear} = 1.01 \cdot plf$ *Linear Lateral Earthquake Load*

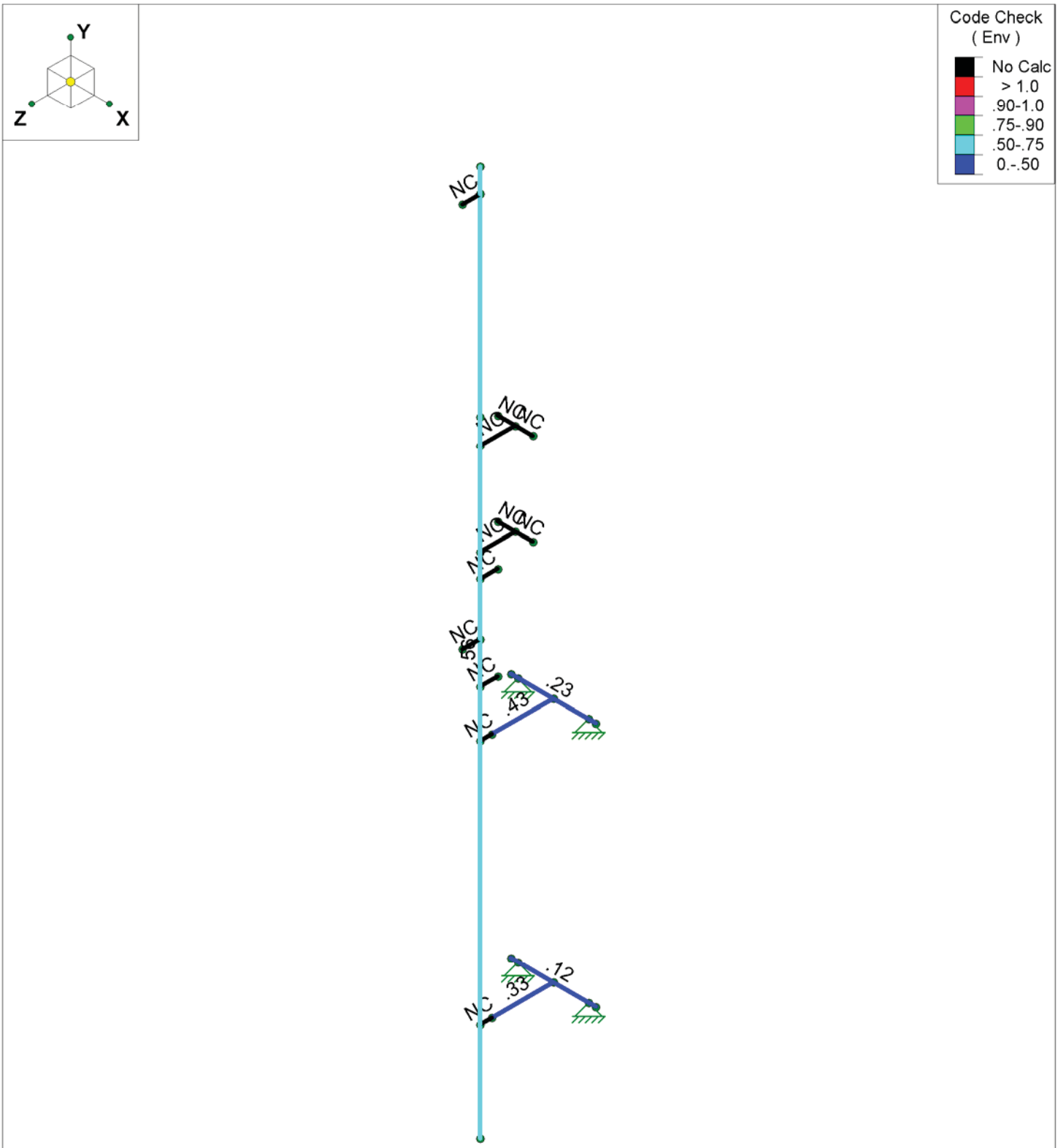
$F_{Evp2} := 0.2 \cdot S_{DS} \cdot Weight_{total}$ $F_{Evp2} = 1.55\,lbf$ *Total Vertical Earthquake Load*

$F_{Evp2\_linear} := \frac{F_{Evp2}}{H_{pipe}}$ $F_{Evp2\_linear} = 0.13 \cdot plf$ *Linear Vertical Earthquake Load*



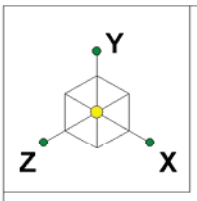
Envelope Only Solution

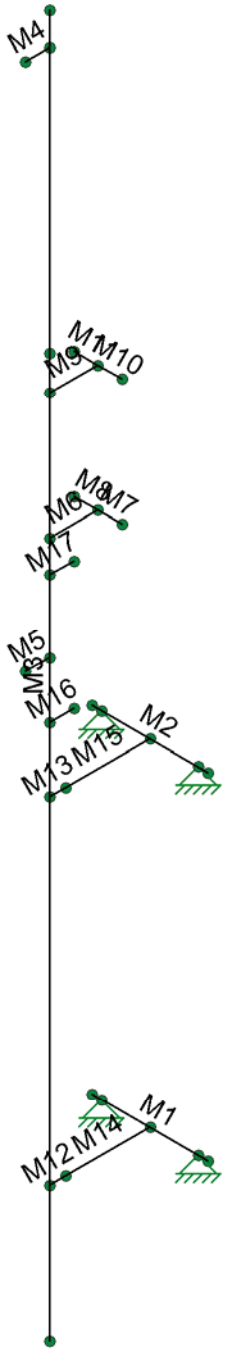
Fullerton Engineering Cons...		SK - 1
AA	Mount Analysis (Sector Alpha)	June 2, 2022 at 8:37 AM
MWMKE00116B	Rendered	MWMKE00120 - Mount Analysis (S...



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

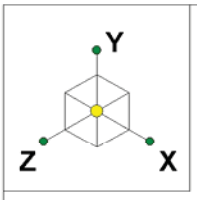
Fullerton Engineering Cons...		SK - 2
AA	Mount Analysis (Sector Alpha)	June 2, 2022 at 8:37 AM
MWMKE00116B	Unity Bending	MWMKE00120 - Mount Analysis (S...

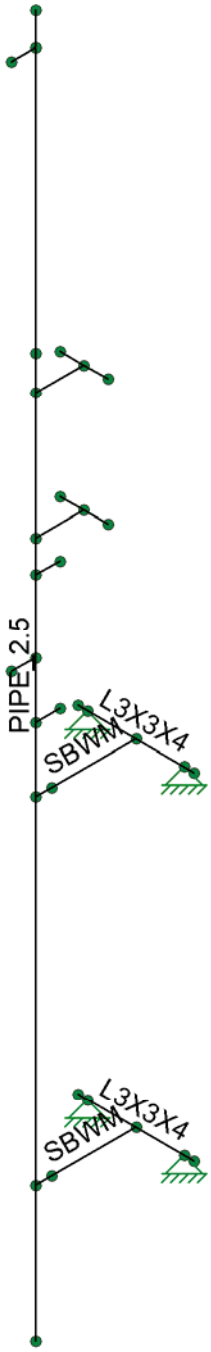




Envelope Only Solution

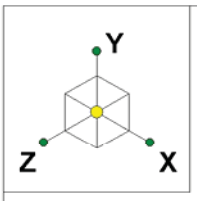
Fullerton Engineering Cons...		SK - 3
AA	Mount Analysis (Sector Alpha)	June 2, 2022 at 8:38 AM
MWMKE00116B	Members	MWMKE00120 - Mount Analysis (S...

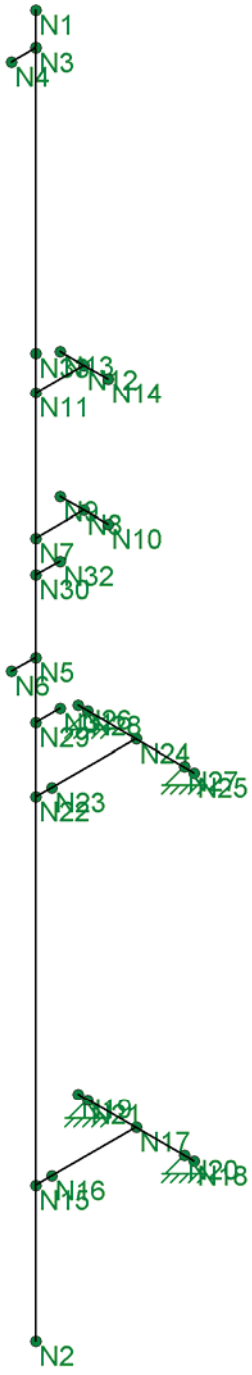




Envelope Only Solution

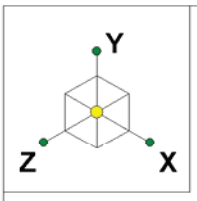
Fullerton Engineering Cons...		SK - 4
AA	Mount Analysis (Sector Alpha)	June 2, 2022 at 8:38 AM
MWMKE00116B	Shapes	MWMKE00120 - Mount Analysis (S...

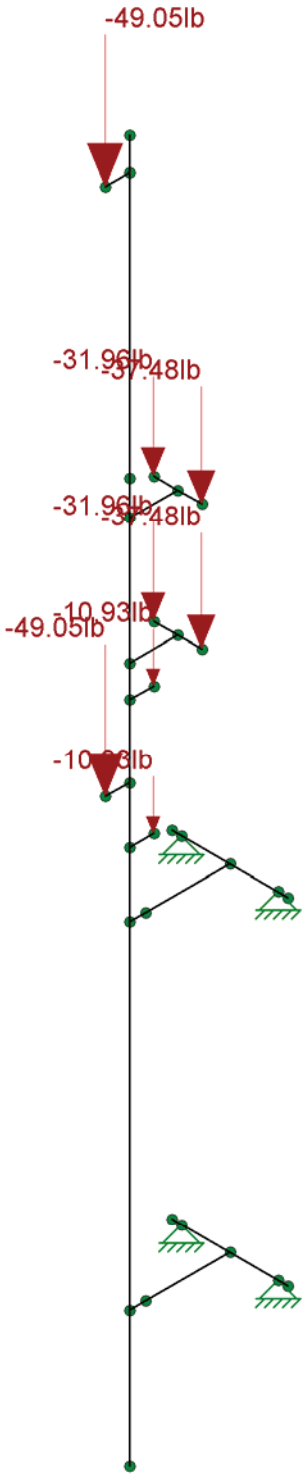




Envelope Only Solution

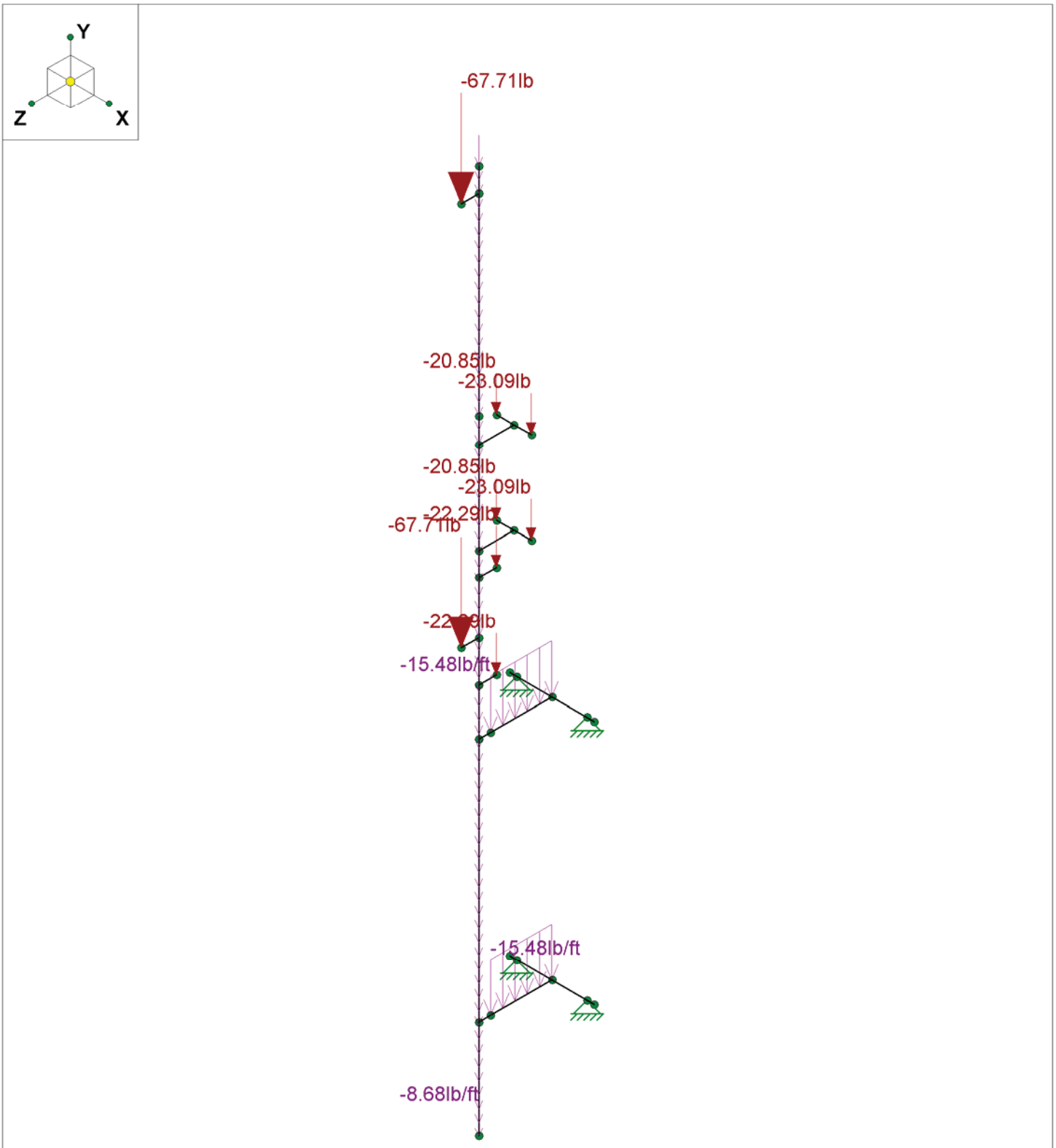
Fullerton Engineering Cons...		SK - 5
AA	Mount Analysis (Sector Alpha)	June 2, 2022 at 8:38 AM
MWMKE00116B	Nodes	MWMKE00120 - Mount Analysis (S...





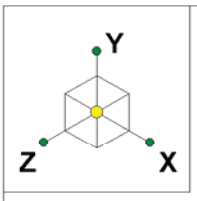
Loads: BLC 1, DL
Envelope Only Solution

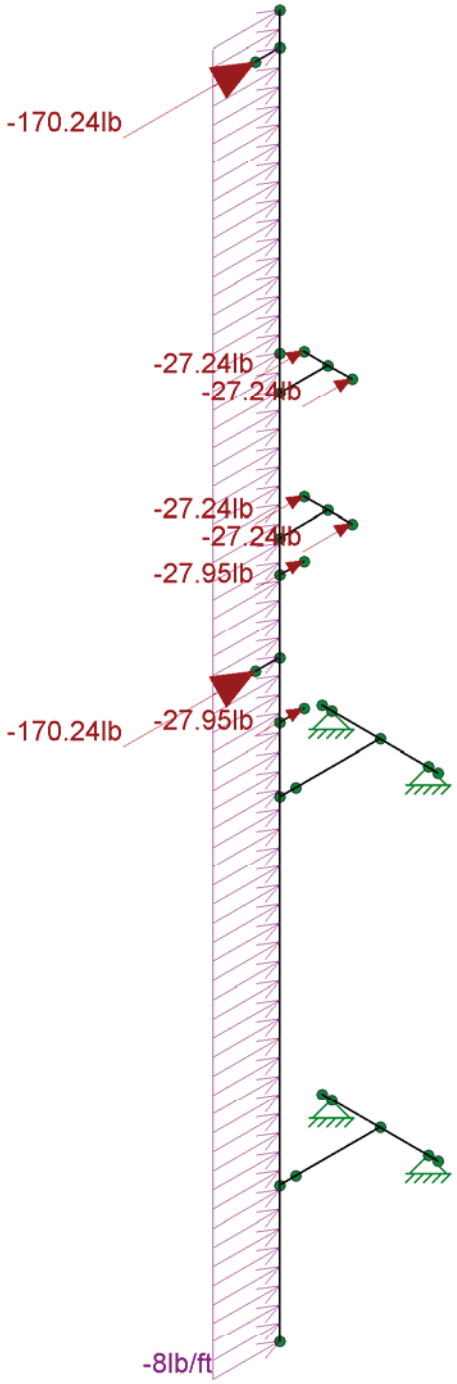
Fullerton Engineering Cons...		SK - 6
AA	Mount Analysis (Sector Alpha)	June 2, 2022 at 8:39 AM
MWMKE00116B	Dead Load	MWMKE00120 - Mount Analysis (S...



Loads: BLC 2, DLi
Envelope Only Solution

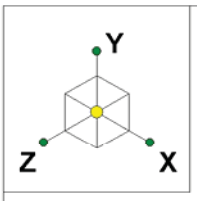
Fullerton Engineering Cons...		SK - 7
AA	Mount Analysis (Sector Alpha)	June 2, 2022 at 8:39 AM
MWMKE00116B	Dead Load with Ice	MWMKE00120 - Mount Analysis (S...

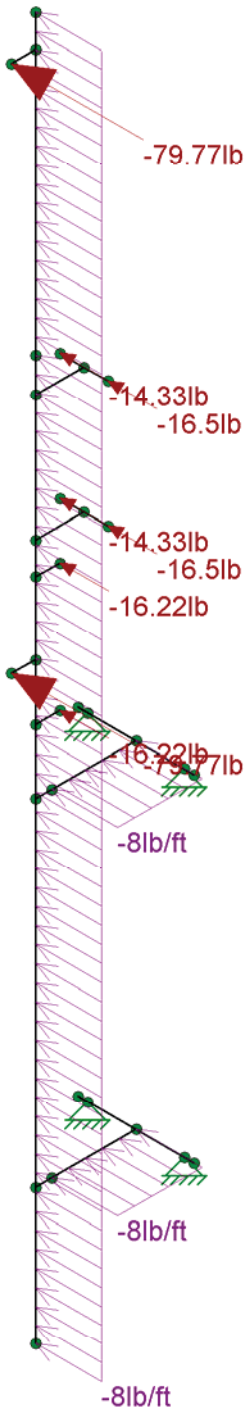




Loads: BLC 3, WL(0)
Envelope Only Solution

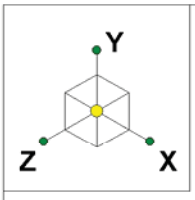
Fullerton Engineering Cons...		SK - 8
AA	Mount Analysis (Sector Alpha)	June 2, 2022 at 8:39 AM
MWMKE00116B	Wind Load Z	MWMKE00120 - Mount Analysis (S...

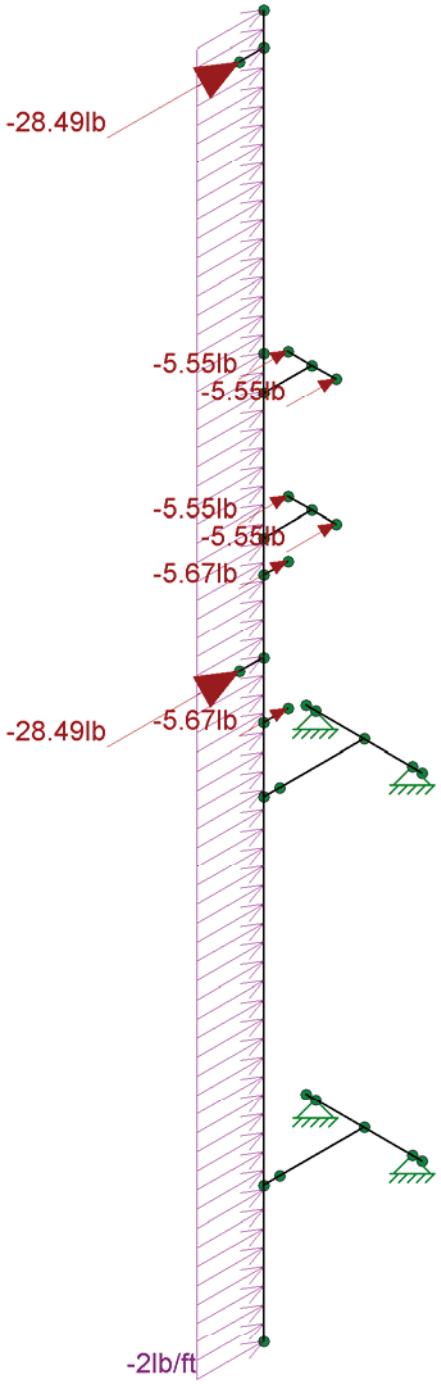




Loads: BLC 4, WL(90)
Envelope Only Solution

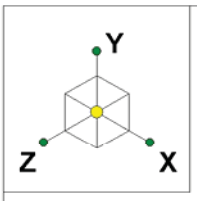
Fullerton Engineering Cons...		SK - 9
AA	Mount Analysis (Sector Alpha)	June 2, 2022 at 8:40 AM
MWMKE00116B	Wind Load X	MWMKE00120 - Mount Analysis (S...

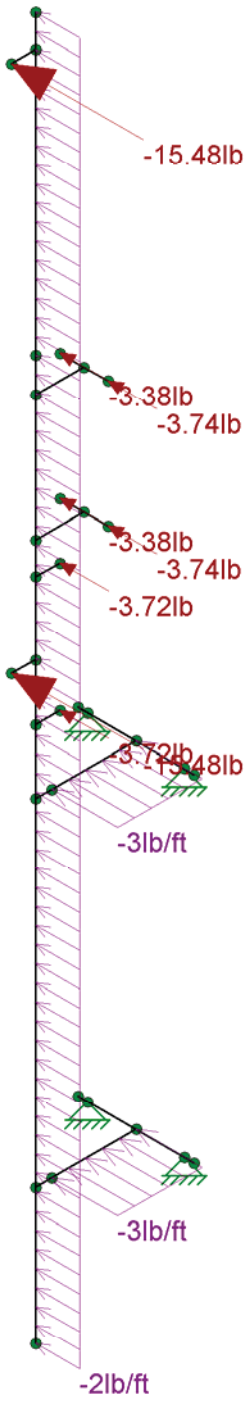




Loads: BLC 5, WL.i(0)
Envelope Only Solution

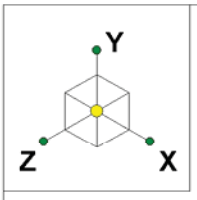
Fullerton Engineering Cons...		SK - 10
AA	Mount Analysis (Sector Alpha)	June 2, 2022 at 8:40 AM
MWMKE00116B	Wind Load with Ice Z	MWMKE00120 - Mount Analysis (S...

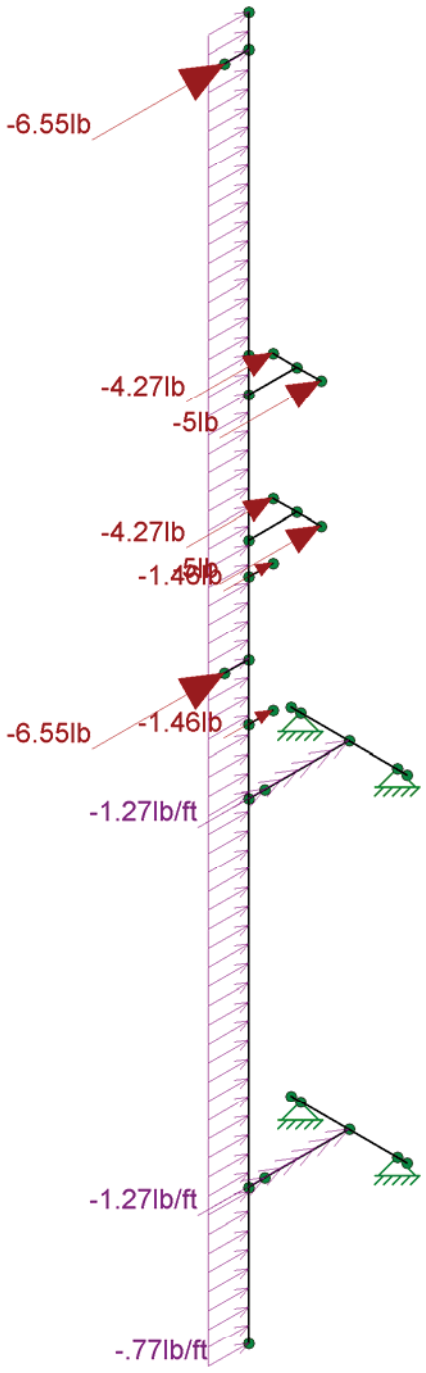




Loads: BLC 6, WL.i(90)
Envelope Only Solution

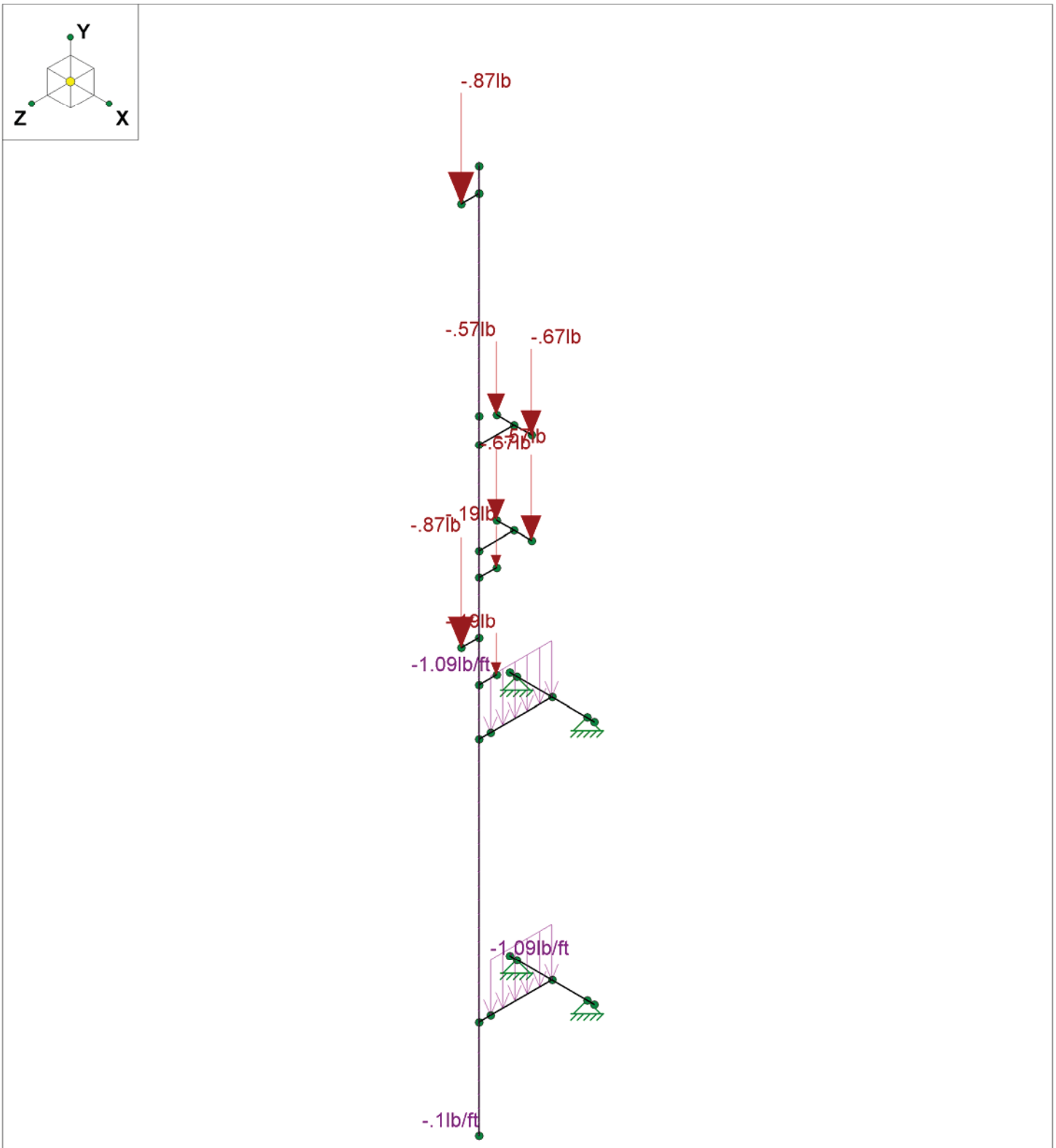
Fullerton Engineering Cons...		SK - 11
AA	Mount Analysis (Sector Alpha)	June 2, 2022 at 8:41 AM
MWMKE00116B	Wind Load with Ice X	MWMKE00120 - Mount Analysis (S...





Loads: BLC 8, EH(0)
Envelope Only Solution

Fullerton Engineering Cons...		SK - 12
AA	Mount Analysis (Sector Alpha)	June 2, 2022 at 8:41 AM
MWMKE00116B	Seismic Load (Lateral)	MWMKE00120 - Mount Analysis (S...



Loads: BLC 10, EV
Envelope Only Solution

Fullerton Engineering Cons...		SK - 13
AA	Mount Analysis (Sector Alpha)	June 2, 2022 at 8:42 AM
MWMKE00116B	Seismic Load (Vertical)	MWMKE00120 - Mount Analysis (S...

(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 (in/sec^2)	386.4
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 15th(360-16): LRFD
Adjust Stiffness?	Yes(Iterative)
RISAConnection Code	AISC 15th(360-16): LRFD
Cold Formed Steel Code	AISI S100-16: LRFD
Wood Code	None
Wood Temperature	< 100F
Concrete Code	None
Masonry Code	None
Aluminum Code	None - Building
Stainless Steel Code	None

(Global) Model Settings, Continued

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

Seismic Code	ASCE 7-16
Seismic Base Elevation (in)	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	1
Cd X	1
Rho Z	1
Rho X	1

Hot Rolled Steel Design Parameters

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torq...	Kyy	Kzz	Cb	Function
1	M1	L3X3X4	14.5	12	12	12	12	12	2.1	2.1		Lateral
2	M2	L3X3X4	14.5	12	12	12	12	12	2.1	2.1		Lateral
3	M3	PIPE_2.5	144	48	48	48	48	48	2.1	2.1		Lateral
4	M14	SBWM	10.5			Lbyy			.65	.65		Lateral
5	M15	SBWM	10.5			Lbyy			.65	.65		Lateral

Material Takeoff

	Material	Size	Pieces	Length[in]	Weight[LB]
1	General				
2	RIGID		12	40	0
3	Total General		12	40	0
4					
5	Hot Rolled Steel				
6	A36 Gr.36	L3X3X4	2	29	11.842
7	A36 Gr.36	SBWM	2	21	17.936

Material Takeoff (Continued)

	Material	Size	Pieces	Length[in]	Weight[LB]
8	A53 Gr. B	PIPE_2.5	1	144	65.742
9	Total HR Steel		5	194	95.519

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribut...	Area(Me...	Surface(...
1	DL	None		-1		8				
2	DLi	None				8		3		
3	WL(0)	None				8		1		
4	WL(90)	None				8		3		
5	WL.i(0)	None				8		1		
6	WL.i(90)	None				8		3		
7	T	None								
8	EH(0)	None				8		3		
9	EH(90)	None				8		3		
10	EV	None				8		3		
11	WM(0)	None								
12	WM(90)	None								

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	1.4*DL	Yes	Y		1	1.4																		
2	1.2*DL + 1.0* WL(0)	Yes	Y		1	1.2	3	1																
3	1.2*DL + 1.0* WL(3...	Yes	Y		1	1.2	3	.869	4	.5														
4	1.2*DL + 1.0* WL(6...	Yes	Y		1	1.2	3	.5	4	.869														
5	1.2*DL + 1.0*WL(90)	Yes	Y		1	1.2	4	1																
6	1.2*DL + 1.0*WL(1...	Yes	Y		1	1.2	3	-.5	4	.869														
7	1.2*DL +1.0*WL(15...	Yes	Y		1	1.2	3	-.869	4	.5														
8	1.2*DL + 1.0 * WL(...	Yes	Y		1	1.2	3	-1																
9	1.2*DL + 1.0* WL(2...	Yes	Y		1	1.2	3	-.869	4	-.5														
10	1.2*DL + 1.0* WL(2...	Yes	Y		1	1.2	3	-.5	4	-.869														
11	1.2*DL + 1.0*WL(2...	Yes	Y		1	1.2	4	-1																
12	1.2*DL + 1.0*WL(3...	Yes	Y		1	1.2	3	.5	4	-.869														
13	1.2*DL +1.0*WL(33...	Yes	Y		1	1.2	3	.869	4	-.5														
14	1.2*DL+1.0*DLi+1....	Yes	Y		1	1.2	2	1	5	1	7	1												
15	1.2*DL+1.0*DLi+1....	Yes	Y		1	1.2	2	1	5	.866	6	.5	7	1										
16	1.2*DL+1.0*DLi+1....	Yes	Y		1	1.2	2	1	5	.5	6	.866	7	1										
17	1.2*DL+1.0*DLi+1....	Yes	Y		1	1.2	2	1	6	1	7	1												
18	1.2*DL+1.0*DLi+1....	Yes	Y		1	1.2	2	1	5	-.5	6	.866	7	1										
19	1.2*DL+1.0*DLi+1....	Yes	Y		1	1.2	2	1	5	-.866	6	.5	7	1										
20	1.2*DL+1.0*DLi+1....	Yes	Y		1	1.2	2	1	5	-1	7	1												
21	1.2*DL+1.0*DLi+1....	Yes	Y		1	1.2	2	1	5	-.866	6	-.5	7	1										
22	1.2*DL+1.0*DLi+1....	Yes	Y		1	1.2	2	1	5	-.5	6	-.866	7	1										
23	1.2*DL+1.0*DLi+1....	Yes	Y		1	1.2	2	1	6	-1	7	1												
24	1.2*DL+1.0*DLi+1....	Yes	Y		1	1.2	2	1	5	.5	6	-.866	7	1										
25	1.2*DL+1.0*DLi+1....	Yes	Y		1	1.2	2	1	5	.866	6	-.5	7	1										
26	1.2*DL+1.0*EH(0)+...	Yes	Y		1	1.2	8	1	10	1														
27	1.2*DL+1.0*EH(0)+...	Yes	Y		1	1.2	8	1	10	-1														
28	1.2*DL+1.0*EH(90)...	Yes	Y		1	1.2	9	1	10	1														
29	1.2*DL+1.0*EH(90)...	Yes	Y		1	1.2	9	1	10	-1														
30	1.2*DL+1.0*EH(18...	Yes	Y		1	1.2	8	-1	10	1														
31	1.2*DL+1.0*EH(18...	Yes	Y		1	1.2	8	-1	10	-1														
32	1.2*DL+1.0*EH(27...	Yes	Y		1	1.2	9	-1	10	1														
33	1.2*DL+1.0*EH(27...	Yes	Y		1	1.2	9	-1	10	-1														
34	0.9*DL+1.0*EH(0)-...	Yes	Y		1	.9	8	1	10	-1														

Load Combinations (Continued)

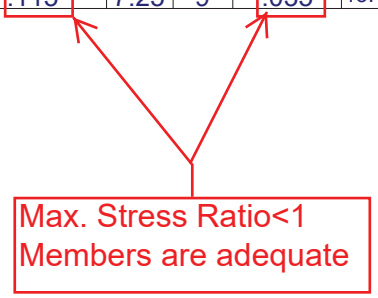
	Description	So...	P...	S...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...
35	0.9*DL+1.0*EH(0)-...	Yes	Y		1	.9	8	1	10	1														
36	0.9*DL+1.0*EH(90)...	Yes	Y		1	.9	9	1	10	-1														
37	0.9*DL+1.0*EH(90)...	Yes	Y		1	.9	9	1	10	1														
38	0.9*DL+1.0*EH(18...	Yes	Y		1	.9	8	-1	10	-1														
39	0.9*DL+1.0*EH(18...	Yes	Y		1	.9	8	-1	10	1														
40	0.9*DL+1.0*EH(27...	Yes	Y		1	.9	9	-1	10	-1														
41	0.9*DL+1.0*EH(27...	Yes	Y		1	.9	9	-1	10	1														
42	1.2*DL+1.5*LM1+1...	Yes	Y		1	1.2	13	1.5	11	1														
43	1.2*DL+1.5*LM1+1...	Yes	Y		1	1.2	13	1.5	11	.866	12	.5												
44	1.2*DL+1.5*LM1+1...	Yes	Y		1	1.2	13	1.5	11	.5	12	.866												
45	1.2*DL+1.5*LM1+1...	Yes	Y		1	1.2	13	1.5	12	1														
46	1.2*DL+1.5*LM1+1...	Yes	Y		1	1.2	13	1.5	11	-.5	12	.866												
47	1.2*DL+1.5*LM1+1...	Yes	Y		1	1.2	13	1.5	11	-.866	12	.5												
48	1.2*DL+1.5*LM1+1...	Yes	Y		1	1.2	13	1.5	11	-1														
49	1.2*DL+1.5*LM1+1...	Yes	Y		1	1.2	13	1.5	11	-.866	12	-.5												
50	1.2*DL+1.5*LM1+1...	Yes	Y		1	1.2	13	1.5	11	-.5	12	-.866												
51	1.2*DL+1.5*LM1+1...	Yes	Y		1	1.2	13	1.5	12	-1														
52	1.2*DL+1.5*LM1+1...	Yes	Y		1	1.2	13	1.5	11	.5	12	-.866												
53	1.2*DL+1.5*LM1+1...	Yes	Y		1	1.2	13	1.5	11	.866	12	-.5												

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-in]	LC	MY [lb-in]	LC	MZ [lb-in]	LC
1	N28	max	234.481	5	930.532	4	681.405	3	0	53	0	53	0	53
2		min	-234.961	11	-696.816	10	-783.269	9	0	1	0	1	0	1
3	N27	max	234.481	5	934.716	12	682.422	13	0	53	0	53	0	53
4		min	-234.961	11	-692.632	6	-782.25	7	0	1	0	1	0	1
5	N21	max	53.144	11	507.455	9	336.424	9	0	53	0	53	0	53
6		min	-52.664	5	-320.423	3	-234.439	3	0	1	0	1	0	1
7	N20	max	53.144	11	506.583	7	335.406	7	0	53	0	53	0	53
8		min	-52.664	5	-321.295	13	-235.457	13	0	1	0	1	0	1
9	Totals:	max	363.633	5	824.362	14	601.301	2						
10		min	-363.633	11	311.216	38	-601.301	8						

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

	Member	Shape	Code Check	Loc[in]	LC	Shear Ch...	Loc[in]	Dir	LC	phi*Pnc ...	phi*Pnt [...	phi*Mn ...	phi*Mn ...	Cb	Eqn
1	M3	PIPE 2.5	.561	60	2	.045	58.5		8	28468.4...	50715	43155	43155	1	H1-1b
2	M15	SBWM	.432	0	13	.150	4.266	z	12	82203.8...	97588.8	31644.4...	356724	1.526	H1-1b
3	M14	SBWM	.334	0	8	.060	4.922	z	9	82203.8...	97588.8	31644.4...	356724	1.495	H1-1b
4	M2	L3X3X4	.235	7.25	10	.064	1.359	y	12	42313.8...	46656	20257.6...	45068.9...	1	H2-1
5	M1	L3X3X4	.115	7.25	9	.035	13.1...	y	9	42313.8...	46656	20257.6...	45068.9...	1	H2-1



Wall Mount Connection Calculations (Sector Alpha)

New wall mounts will be attached to existing elevated roof wall via Thru-Bolts ½" Ø

Maximum Reactions from Risa Mount Analysis per one thru-bolt:

Envelope Joint Reactions

	Joint		X [lb]	L...	Y [lb]	L...	Z [lb]	L...	MX [lb-i...	L...	MY [lb-i...	L...	MZ [lb-i...	L...
1	N28	max	234.481	5	930.532	4	681.405	3	0	53	0	53	0	53
2		min	-234.961	11	-696.816	10	-783.269	9	0	1	0	1	0	1
3	N27	max	234.481	5	934.716	12	682.422	13	0	53	0	53	0	53
4		min	-234.961	11	-692.632	6	-782.25	7	0	1	0	1	0	1
5	N20	max	53.144	11	506.583	7	335.406	7	0	53	0	53	0	53
6		min	-52.664	5	-321.295	13	-235.457	13	0	1	0	1	0	1
7	N21	max	53.144	11	507.455	9	336.424	9	0	53	0	53	0	53
8		min	-52.664	5	-320.423	3	-234.439	3	0	1	0	1	0	1
9	Totals:	max	363.633	5	824.362	14	601.301	2						
10		min	-363.633	11	311.216	38	-601.301	8						

$X := 234.961\text{lbf}$ — *Maximum Factored Reaction - X direction*

$Y := 930.532\text{lbf}$ — *Maximum Factored Reaction - Y direction*

$Z := 783.269\text{lbf}$ — *Maximum Factored Reaction - Z direction*

$P_t := Z$ $\quad P_t = 783.27\ \text{lbf}$ — *Factored Tensile Force*

$P_v := \sqrt{X^2 + Y^2}$ $\quad P_v = 959.74\ \text{lbf}$ — *Factored Shear Force*

$d_b := 0.5\text{in}$ — *Diameter of thru-bolt*

$A_b := 0.25\pi \cdot d_b^2$ $\quad A_b = 0.2 \cdot \text{in}^2$ — *Area of thru-bolt*

$P_{t\_bolt} := P_t$ $\quad P_{t\_bolt} = 783.27\ \text{lbf}$ — *Tension at each thru-bolt*

$P_{v\_bolt} := P_v$ $\quad P_{v\_bolt} = 959.74\ \text{lbf}$ — *Shear at each thru-bolt*

Tensile and Shear Strength of Thru-Bolts

$F_{nt} := 45ksi$ — *Nominal tensile strength per AISC 360, Table J3.2*

$F_{nv} := 27ksi$ — *Nominal shear strength per AISC 360, Table J3.2*

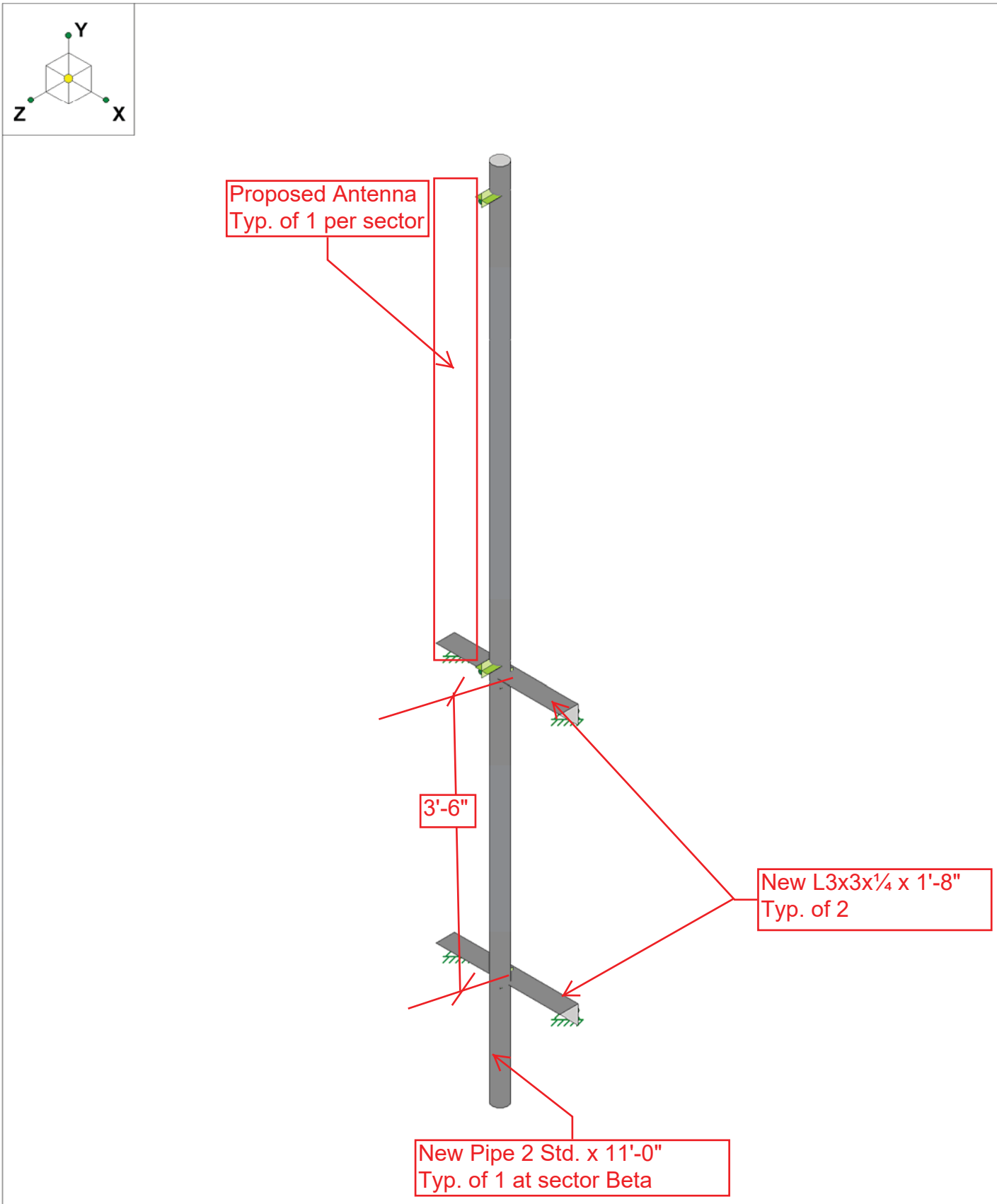
$\phi_{bolt} := 0.75$ — *Resistance Factor (LRFD - AISC 360, Section J3-6)*

$R_{nt} := \phi_{bolt} \cdot F_{nt} \cdot A_b$ $\quad R_{nt} = 6.63 \cdot kip$ — *Design Nominal Tensile Strength (AISC 360, Section J3-1)*

$R_{nv} := \phi_{bolt} \cdot F_{nv} \cdot A_b$ $\quad R_{nv} = 3.98 \cdot kip$ — *Design Nominal Shear Strength (AISC 360, Section J3-1)*

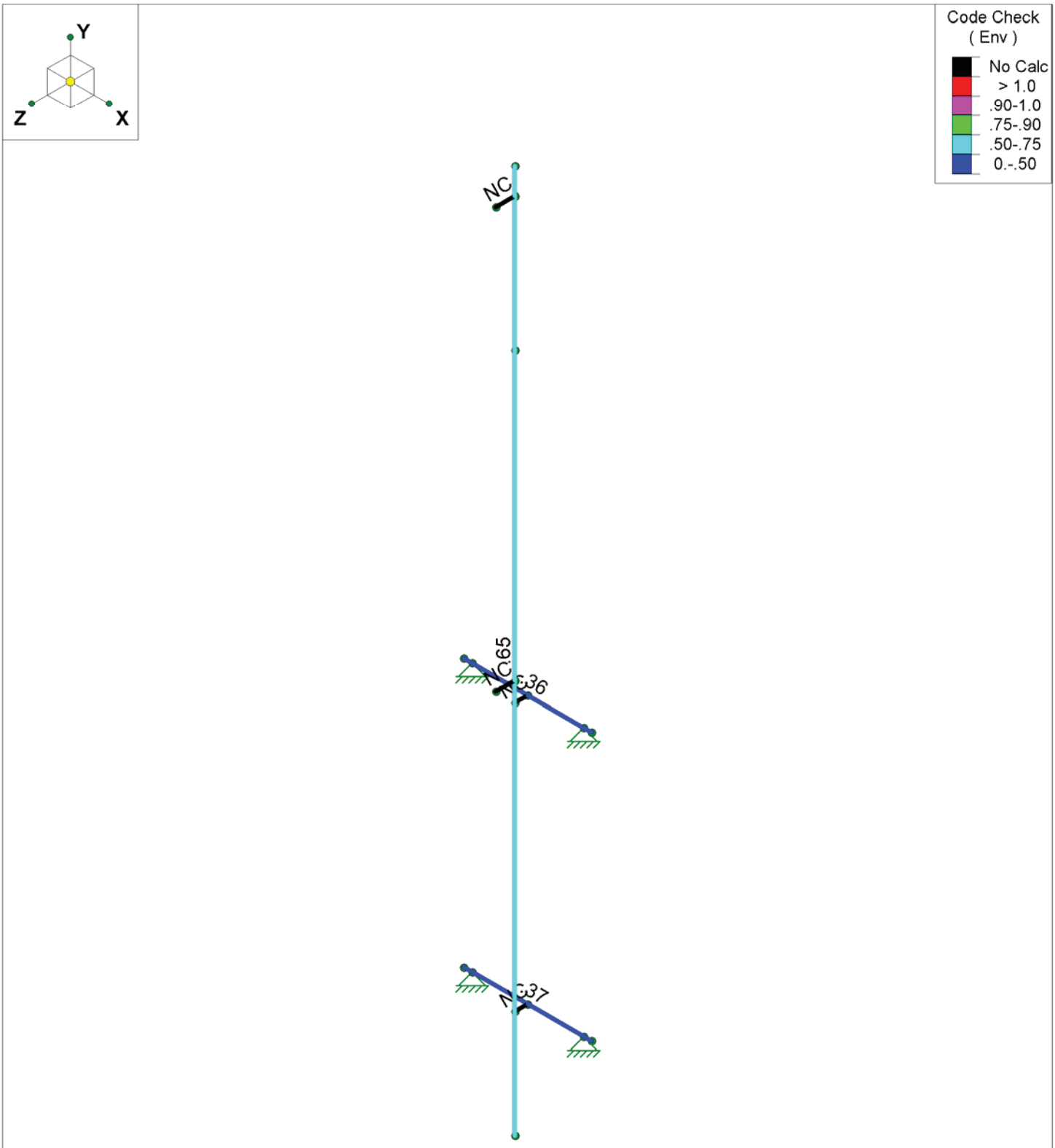
$\frac{P_{t\_bolt}}{R_{nt}} = 11.82 \cdot \%$ ***< 30%*** $\qquad \frac{P_{v\_bolt}}{R_{nv}} = 24.14 \cdot \%$ ***< 30%***

Check = "Thru-Bolts are adequate. Effects of combined stress don't need to be investigated because ratio of either tension or shear is under 30%"



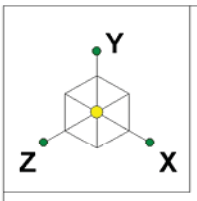
Envelope Only Solution

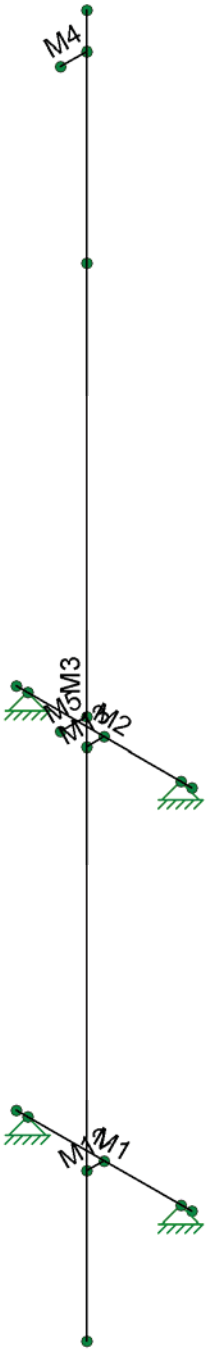
Fullerton Engineering Cons...		SK - 1
AA	Mount Analysis (Sector Beta)	June 2, 2022 at 10:23 AM
MWMKE00116B	Rendered	MWMKE00120 - Mount Analysis (S...



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

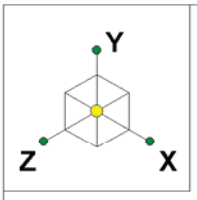
Fullerton Engineering Cons...		SK - 2
AA	Mount Analysis (Sector Beta)	June 2, 2022 at 10:23 AM
MWMKE00116B	Unity Bending	MWMKE00120 - Mount Analysis (S...

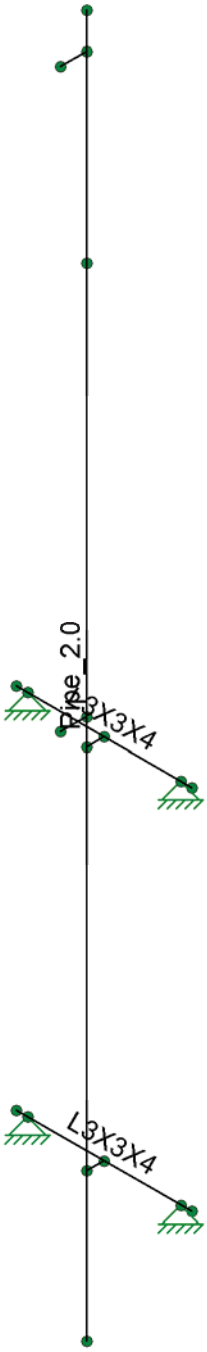




Envelope Only Solution

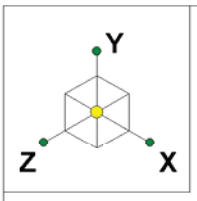
Fullerton Engineering Cons...		SK - 3
AA	Mount Analysis (Sector Beta)	June 2, 2022 at 10:23 AM
MWMKE00116B	Members	MWMKE00120 - Mount Analysis (S...

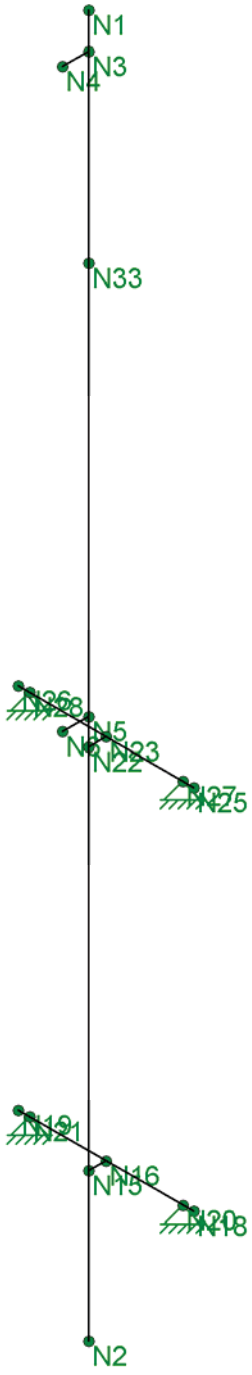




Envelope Only Solution

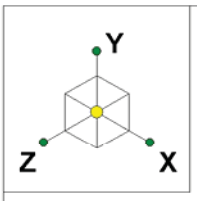
Fullerton Engineering Cons...		SK - 4
AA	Mount Analysis (Sector Beta)	June 2, 2022 at 10:24 AM
MWMKE00116B	Shapes	MWMKE00120 - Mount Analysis (S...

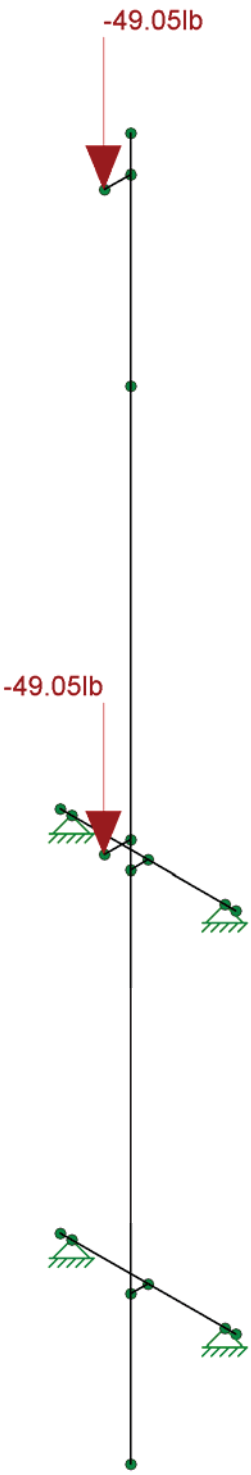




Envelope Only Solution

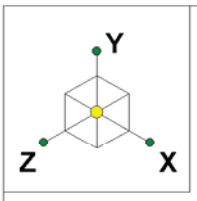
Fullerton Engineering Cons...		SK - 5
AA	Mount Analysis (Sector Beta)	June 2, 2022 at 10:25 AM
MWMKE00116B	Shapes	MWMKE00120 - Mount Analysis (S...

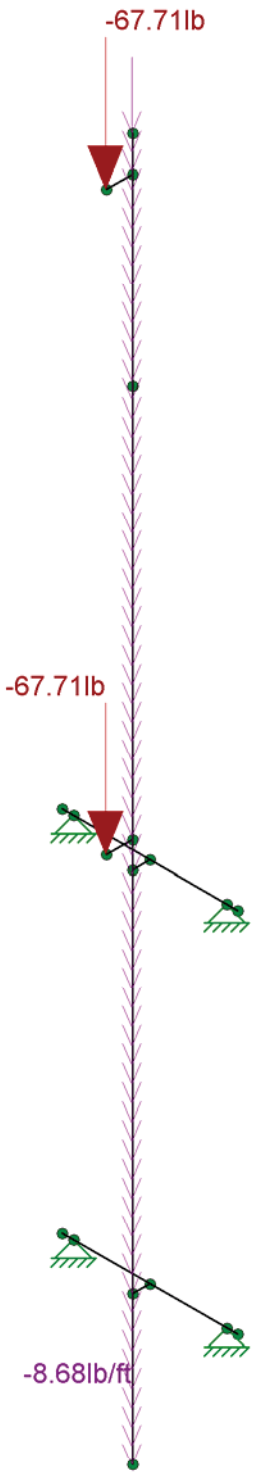




Loads: BLC 1, DL
Envelope Only Solution

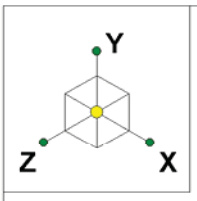
Fullerton Engineering Cons...		SK - 6
AA	Mount Analysis (Sector Beta)	June 2, 2022 at 10:25 AM
MWMKE00116B	Dead Load	MWMKE00120 - Mount Analysis (S...

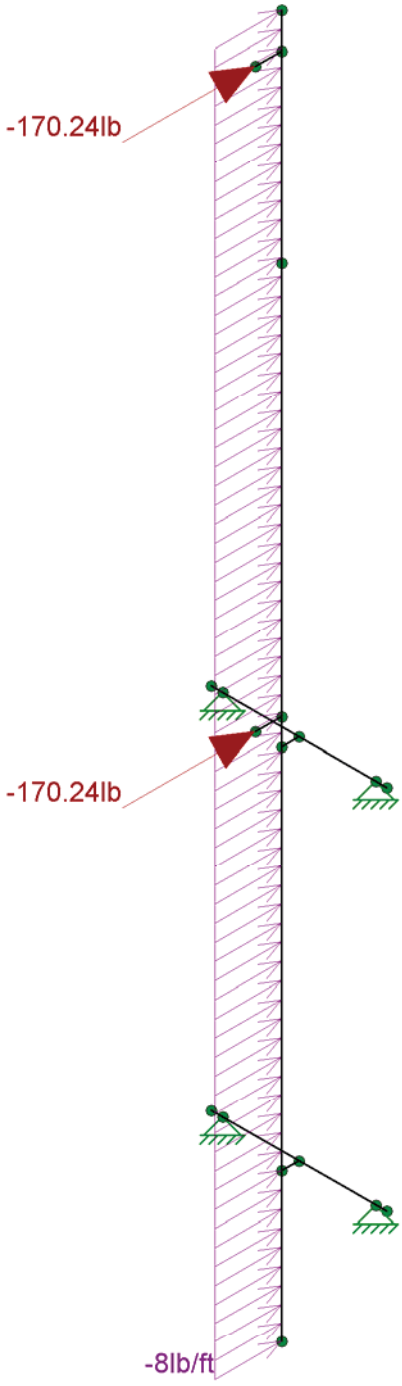




Loads: BLC 2, DLi
Envelope Only Solution

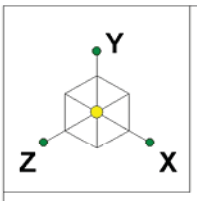
Fullerton Engineering Cons...		SK - 7
AA	Mount Analysis (Sector Beta)	June 2, 2022 at 10:26 AM
MWMKE00116B	Dead Load with Ice	MWMKE00120 - Mount Analysis (S...

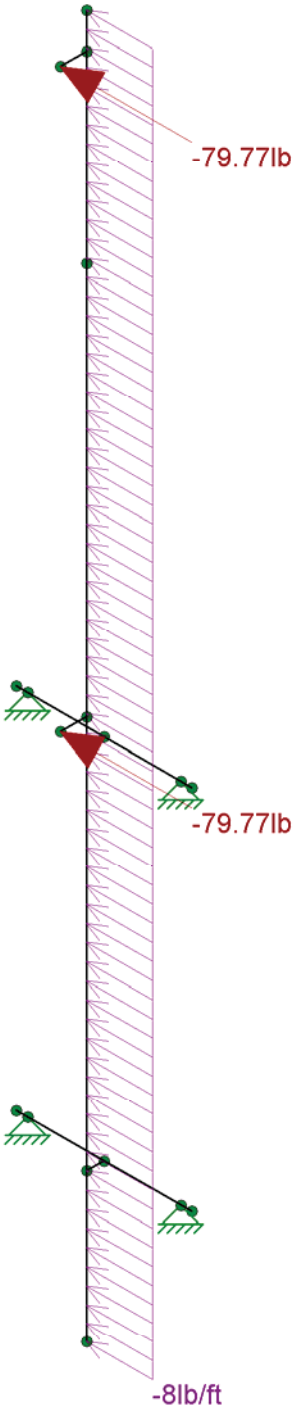




Loads: BLC 3, WL(0)
Envelope Only Solution

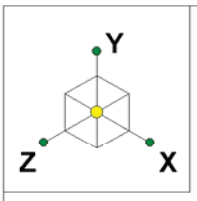
Fullerton Engineering Cons...		SK - 8
AA	Mount Analysis (Sector Beta)	June 2, 2022 at 10:26 AM
MWMKE00116B	Wind Load Z	MWMKE00120 - Mount Analysis (S...

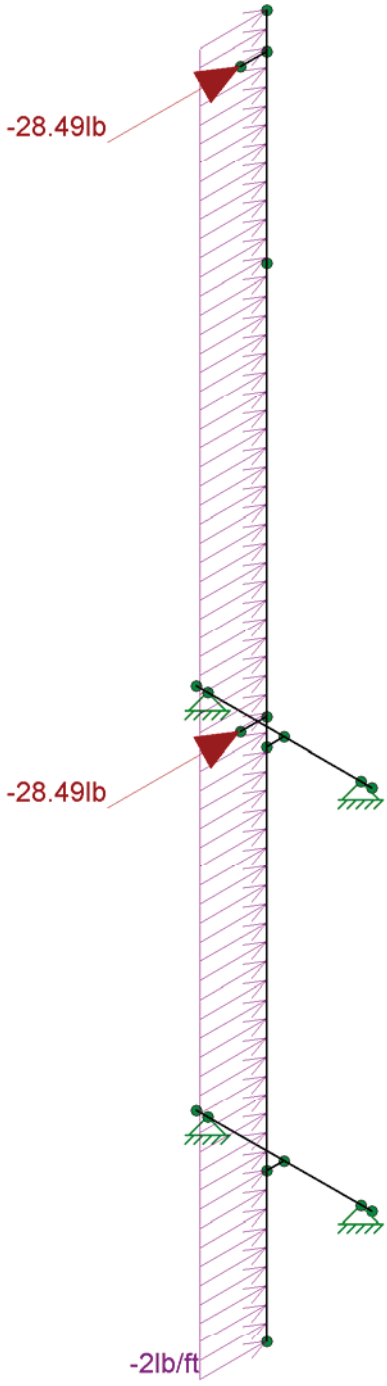




Loads: BLC 4, WL(90)
Envelope Only Solution

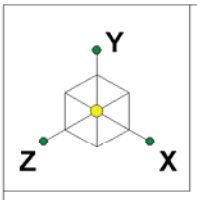
Fullerton Engineering Cons...		SK - 9
AA	Mount Analysis (Sector Beta)	June 2, 2022 at 10:27 AM
MWMKE00116B	Wind Load X	MWMKE00120 - Mount Analysis (S...

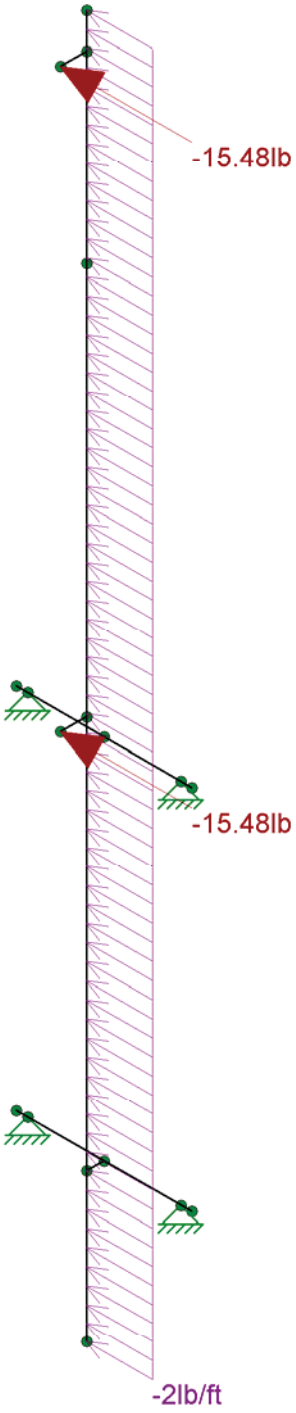




Loads: BLC 5, WL.i(0)
Envelope Only Solution

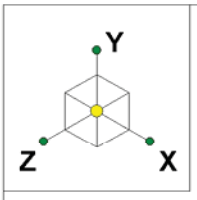
Fullerton Engineering Cons...		SK - 10
AA	Mount Analysis (Sector Beta)	June 2, 2022 at 10:27 AM
MWMKE00116B	Wind Load with Ice Z	MWMKE00120 - Mount Analysis (S...

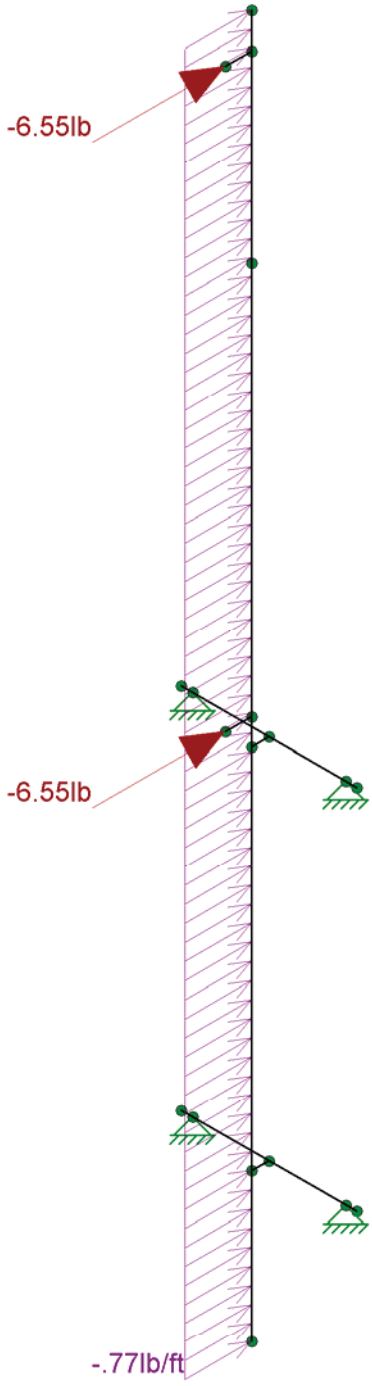




Loads: BLC 6, WL.i(90)
Envelope Only Solution

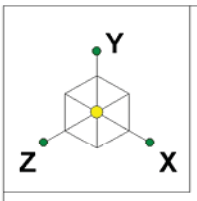
Fullerton Engineering Cons...		SK - 11
AA	Mount Analysis (Sector Beta)	June 2, 2022 at 10:28 AM
MWMKE00116B	Wind Load with Ice X	MWMKE00120 - Mount Analysis (S...

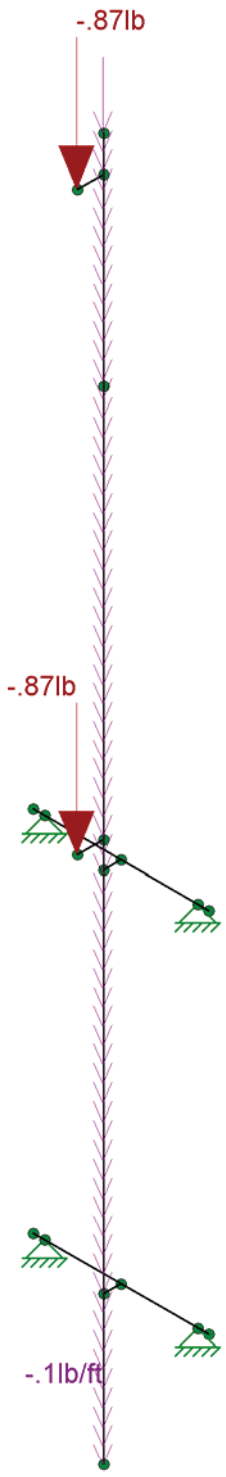




Loads: BLC 8, EH(0)
Envelope Only Solution

Fullerton Engineering Cons...		SK - 12
AA	Mount Analysis (Sector Beta)	June 2, 2022 at 10:28 AM
MWMKE00116B	Seismic Load (Lateral)	MWMKE00120 - Mount Analysis (S...





Loads: BLC 10, EV
Envelope Only Solution

Fullerton Engineering Cons...		SK - 13
AA	Mount Analysis (Sector Beta)	June 2, 2022 at 10:29 AM
MWMKE00116B	Seismic Load (Vertical)	MWMKE00120 - Mount Analysis (S...

(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 (in/sec^2)	386.4
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 15th(360-16): LRFD
Adjust Stiffness?	Yes(Iterative)
RISAConnection Code	AISC 15th(360-16): LRFD
Cold Formed Steel Code	AISI S100-16: LRFD
Wood Code	None
Wood Temperature	< 100F
Concrete Code	None
Masonry Code	None
Aluminum Code	None - Building
Stainless Steel Code	None

(Global) Model Settings, Continued

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

Seismic Code	ASCE 7-16
Seismic Base Elevation (in)	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	1
Cd X	1
Rho Z	1
Rho X	1

Hot Rolled Steel Design Parameters

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torq...	Kyy	Kzz	Cb	Function
1	M1	L3X3X4	20	12	12	12	12	12	2.1	2.1		Lateral
2	M2	L3X3X4	20	12	12	12	12	12	2.1	2.1		Lateral
3	M3	Pipe_2.0	132	48	48	48	48	48	2.1	2.1		Lateral

Material Takeoff

	Material	Size	Pieces	Length[in]	Weight[LB]
1	General				
2	RIGID		4	10	0
3	Total General		4	10	0
4					
5	Hot Rolled Steel				
6	A36 Gr.36	L3X3X4	2	40	16.333
7	A53 Gr. B	Pipe_2.0	1	132	38.179
8	Total HR Steel		3	172	54.513

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribut...	Area(Me...	Surface(...
1	DL	None		-1		2				
2	DLi	None				2		1		
3	WL(0)	None				2		1		
4	WL(90)	None				2		1		
5	WL.i(0)	None				2		1		
6	WL.i(90)	None				2		1		
7	T	None								
8	EH(0)	None				2		1		
9	EH(90)	None				2		1		
10	EV	None				2		1		
11	WM(0)	None								
12	WM(90)	None								

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	1.4*DL	Yes	Y		1	1.4																		
2	1.2*DL + 1.0* WL(0)	Yes	Y		1	1.2	3	1																
3	1.2*DL + 1.0* WL(3...	Yes	Y		1	1.2	3	.869	4	.5														
4	1.2*DL + 1.0* WL(6...	Yes	Y		1	1.2	3	.5	4	.869														
5	1.2*DL + 1.0*WL(90)	Yes	Y		1	1.2	4	1																
6	1.2*DL + 1.0*WL(1...	Yes	Y		1	1.2	3	-.5	4	.869														
7	1.2*DL +1.0*WL(15...	Yes	Y		1	1.2	3	-.869	4	.5														
8	1.2*DL + 1.0 * WL(...	Yes	Y		1	1.2	3	-1																
9	1.2*DL + 1.0* WL(2...	Yes	Y		1	1.2	3	-.869	4	-.5														
10	1.2*DL + 1.0* WL(2...	Yes	Y		1	1.2	3	-.5	4	-.869														
11	1.2*DL + 1.0*WL(2...	Yes	Y		1	1.2	4	-1																
12	1.2*DL + 1.0*WL(3...	Yes	Y		1	1.2	3	.5	4	-.869														
13	1.2*DL +1.0*WL(33...	Yes	Y		1	1.2	3	.869	4	-.5														
14	1.2*DL+1.0*DLi+1....	Yes	Y		1	1.2	2	1	5	1	7	1												
15	1.2*DL+1.0*DLi+1....	Yes	Y		1	1.2	2	1	5	.866	6	.5	7	1										
16	1.2*DL+1.0*DLi+1....	Yes	Y		1	1.2	2	1	5	.5	6	.866	7	1										
17	1.2*DL+1.0*DLi+1....	Yes	Y		1	1.2	2	1	6	1	7	1												
18	1.2*DL+1.0*DLi+1....	Yes	Y		1	1.2	2	1	5	-.5	6	.866	7	1										
19	1.2*DL+1.0*DLi+1....	Yes	Y		1	1.2	2	1	5	-.866	6	.5	7	1										
20	1.2*DL+1.0*DLi+1....	Yes	Y		1	1.2	2	1	5	-1	7	1												
21	1.2*DL+1.0*DLi+1....	Yes	Y		1	1.2	2	1	5	-.866	6	-.5	7	1										
22	1.2*DL+1.0*DLi+1....	Yes	Y		1	1.2	2	1	5	-.5	6	-.866	7	1										
23	1.2*DL+1.0*DLi+1....	Yes	Y		1	1.2	2	1	6	-1	7	1												
24	1.2*DL+1.0*DLi+1....	Yes	Y		1	1.2	2	1	5	.5	6	-.866	7	1										
25	1.2*DL+1.0*DLi+1....	Yes	Y		1	1.2	2	1	5	.866	6	-.5	7	1										
26	1.2*DL+1.0*EH(0)+..	Yes	Y		1	1.2	8	1	10	1														
27	1.2*DL+1.0*EH(0)+..	Yes	Y		1	1.2	8	1	10	-1														
28	1.2*DL+1.0*EH(90)..	Yes	Y		1	1.2	9	1	10	1														
29	1.2*DL+1.0*EH(90)..	Yes	Y		1	1.2	9	1	10	-1														
30	1.2*DL+1.0*EH(18...	Yes	Y		1	1.2	8	-1	10	1														
31	1.2*DL+1.0*EH(18...	Yes	Y		1	1.2	8	-1	10	-1														
32	1.2*DL+1.0*EH(27...	Yes	Y		1	1.2	9	-1	10	1														
33	1.2*DL+1.0*EH(27...	Yes	Y		1	1.2	9	-1	10	-1														
34	0.9*DL+1.0*EH(0)-...	Yes	Y		1	.9	8	1	10	-1														
35	0.9*DL+1.0*EH(0)-...	Yes	Y		1	.9	8	1	10	1														
36	0.9*DL+1.0*EH(90)..	Yes	Y		1	.9	9	1	10	-1														
37	0.9*DL+1.0*EH(90)..	Yes	Y		1	.9	9	1	10	1														
38	0.9*DL+1.0*EH(18...	Yes	Y		1	.9	8	-1	10	-1														
39	0.9*DL+1.0*EH(18...	Yes	Y		1	.9	8	-1	10	1														

Load Combinations (Continued)

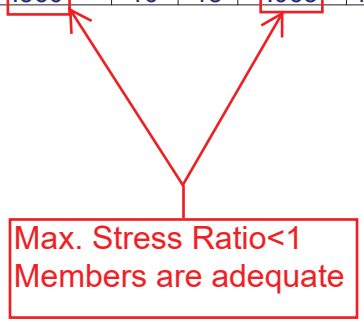
	Description	So...	P...	S...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...
40	0.9*DL+1.0*EH(27...	Yes	Y		1	.9	9	-1	10	-1														
41	0.9*DL+1.0*EH(27...	Yes	Y		1	.9	9	-1	10	1														
42	1.2*DL+1.5*LM1+1...	Yes	Y		1	1.2	13	1.5	11	1														
43	1.2*DL+1.5*LM1+1...	Yes	Y		1	1.2	13	1.5	11	.866	12	.5												
44	1.2*DL+1.5*LM1+1...	Yes	Y		1	1.2	13	1.5	11	.5	12	.866												
45	1.2*DL+1.5*LM1+1...	Yes	Y		1	1.2	13	1.5	12	1														
46	1.2*DL+1.5*LM1+1...	Yes	Y		1	1.2	13	1.5	11	-.5	12	.866												
47	1.2*DL+1.5*LM1+1...	Yes	Y		1	1.2	13	1.5	11	-.866	12	.5												
48	1.2*DL+1.5*LM1+1...	Yes	Y		1	1.2	13	1.5	11	-1														
49	1.2*DL+1.5*LM1+1...	Yes	Y		1	1.2	13	1.5	11	-.866	12	-.5												
50	1.2*DL+1.5*LM1+1...	Yes	Y		1	1.2	13	1.5	11	-.5	12	-.866												
51	1.2*DL+1.5*LM1+1...	Yes	Y		1	1.2	13	1.5	12	-1														
52	1.2*DL+1.5*LM1+1...	Yes	Y		1	1.2	13	1.5	11	.5	12	-.866												
53	1.2*DL+1.5*LM1+1...	Yes	Y		1	1.2	13	1.5	11	.866	12	-.5												

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-in]	LC	MY [lb-in]	LC	MZ [lb-in]	LC
1	N20	max	.437	17	893.01	8	162.534	8	0	53	0	53	0	53
2		min	-.437	23	-767.5	2	-147.418	2	0	1	0	1	0	1
3	N21	max	.437	17	893.01	8	162.534	8	0	53	0	53	0	53
4		min	-.437	23	-767.5	2	-147.418	2	0	1	0	1	0	1
5	N27	max	124.15	5	942.076	13	361.653	2	0	53	0	53	0	53
6		min	-124.15	11	-885.639	7	-376.768	8	0	1	0	1	0	1
7	N28	max	124.15	5	942.076	3	361.653	2	0	53	0	53	0	53
8		min	-124.15	11	-885.639	9	-376.768	8	0	1	0	1	0	1
9	Totals:	max	247.535	5	414.035	14	428.47	2						
10		min	-247.535	11	134.511	38	-428.469	8						

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

	Member	Shape	Code Check	Loc[in]	LC	Shear Ch...	Loc[in]	Dir	LC	phi*Pnc ...	phi*Pnt [...	phi*Mn ...	phi*Mn ...	Cb	Eqn
1	M3	Pipe 2.0	.649	59.1...	8	.049	59.1...		13	13787.8...	32130	22459.5	22459.5	1	H1-1b
2	M1	L3X3X4	.367	10	8	.061	1.25	y	8	42313.8...	46656	20257.6...	45068.9...	1	H2-1
3	M2	L3X3X4	.360	10	13	.065	1.25	y	13	42313.8...	46656	20257.6...	45068.9...	1	H2-1



Wall Mount Connection Calculations (Sector Beta)

New wall mounts will be attached to existing stairwell wall via Thru-Bolts ½" Ø

Maximum Reactions from Risa Mount Analysis per one thru-bolt:

Envelope Joint Reactions

	Joint		X [lb]	L...	Y [lb]	L...	Z [lb]	L...	MX [lb-i...	L...	MY [lb-i...	L...	MZ [lb-i...	L...
1	N27	max	124.15	5	942.076	13	361.653	2	0	53	0	53	0	53
2		min	-124.15	11	-885.639	7	-376.768	8	0	1	0	1	0	1
3	N28	max	124.15	5	942.076	3	361.653	2	0	53	0	53	0	53
4		min	-124.15	11	-885.639	9	-376.768	8	0	1	0	1	0	1
5	N20	max	.437	17	893.01	8	162.534	8	0	53	0	53	0	53
6		min	-.437	23	-767.5	2	-147.418	2	0	1	0	1	0	1
7	N21	max	.437	17	893.01	8	162.534	8	0	53	0	53	0	53
8		min	-.437	23	-767.5	2	-147.418	2	0	1	0	1	0	1
9	Totals:	max	247.535	5	414.035	14	428.47	2						
10		min	-247.535	11	134.511	38	-428.469	8						

$X := 124.15\,lbf$ *Maximum Factored Reaction - X direction*

$Y := 942.076\,lbf$ *Maximum Factored Reaction - Y direction*

$Z := 376.768\,lbf$ *Maximum Factored Reaction - Z direction*

$P_t := Z$ $P_t = 376.77\,lbf$ *Factored Tensile Force*

$P_v := \sqrt{X^2 + Y^2}$ $P_v = 950.22\,lbf$ *Factored Shear Force*

$d_b := 0.5in$ *Diameter of thru-bolt*

$A_b := 0.25\pi \cdot d_b^2$ $A_b = 0.2 \cdot in^2$ *Area of thru-bolt*

$P_{t\_bolt} := P_t$ $P_{t\_bolt} = 376.77\,lbf$ *Tension at each thru-bolt*

$P_{v\_bolt} := P_v$ $P_{v\_bolt} = 950.22\,lbf$ *Shear at each thru-bolt*

Tensile and Shear Strength of Thru-Bolts

$F_{nt} := 45ksi$ — *Nominal tensile strength per AISC 360, Table J3.2*

$F_{nv} := 27ksi$ — *Nominal shear strength per AISC 360, Table J3.2*

$\Phi_{bolt} := 0.75$ — *Resistance Factor (LRFD - AISC 360, Section J3-6)*

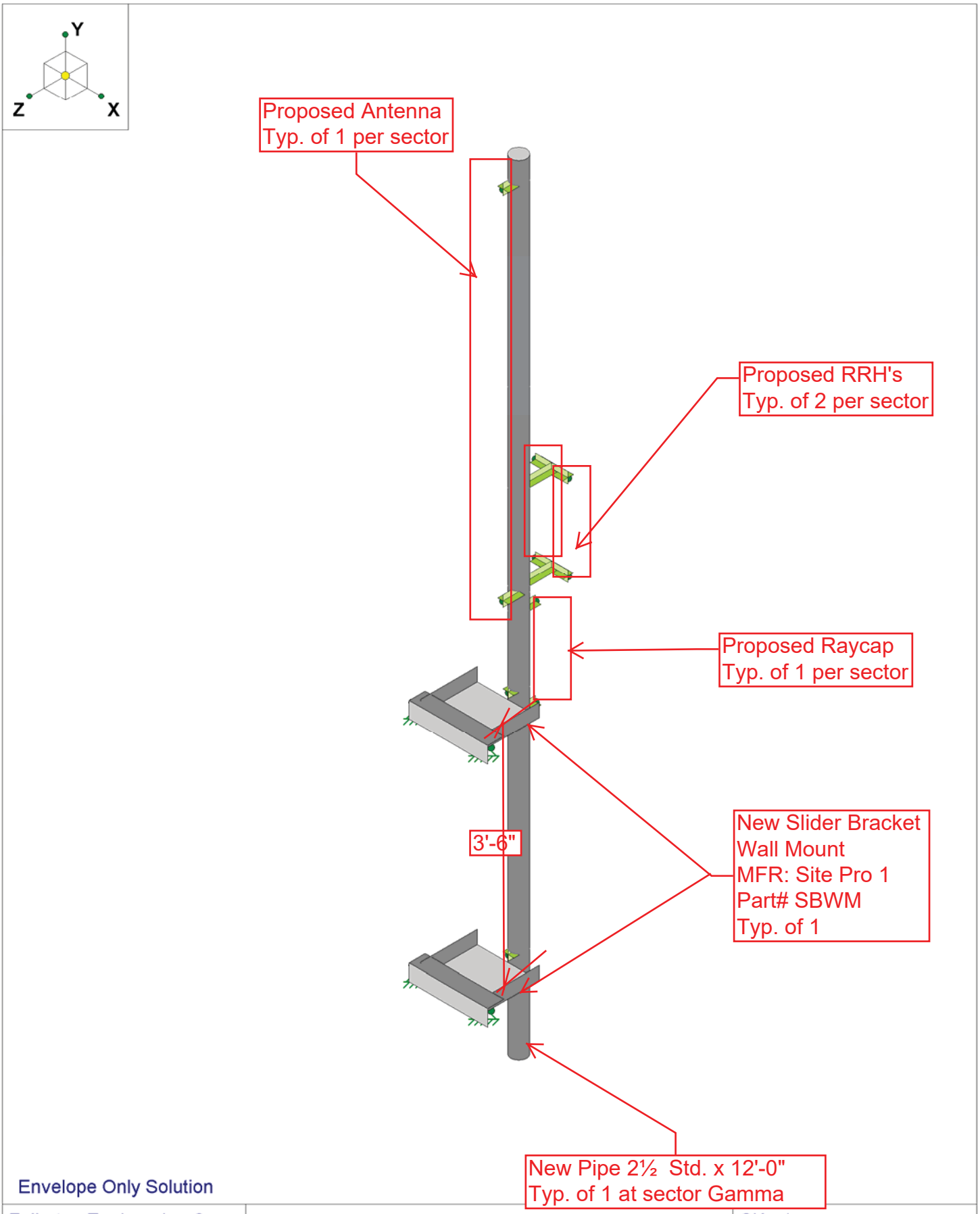
$R_{nt} := \Phi_{bolt} \cdot F_{nt} \cdot A_b$ $\quad R_{nt} = 6.63 \cdot kip$ — *Design Nominal Tensile Strength (AISC 360, Section J3-1)*

$R_{nv} := \Phi_{bolt} \cdot F_{nv} \cdot A_b$ $\quad R_{nv} = 3.98 \cdot kip$ — *Design Nominal Shear Strength (AISC 360, Section J3-1)*

$\frac{P_{t\_bolt}}{R_{nt}} = 5.69 \cdot \%$ ***< 30%***

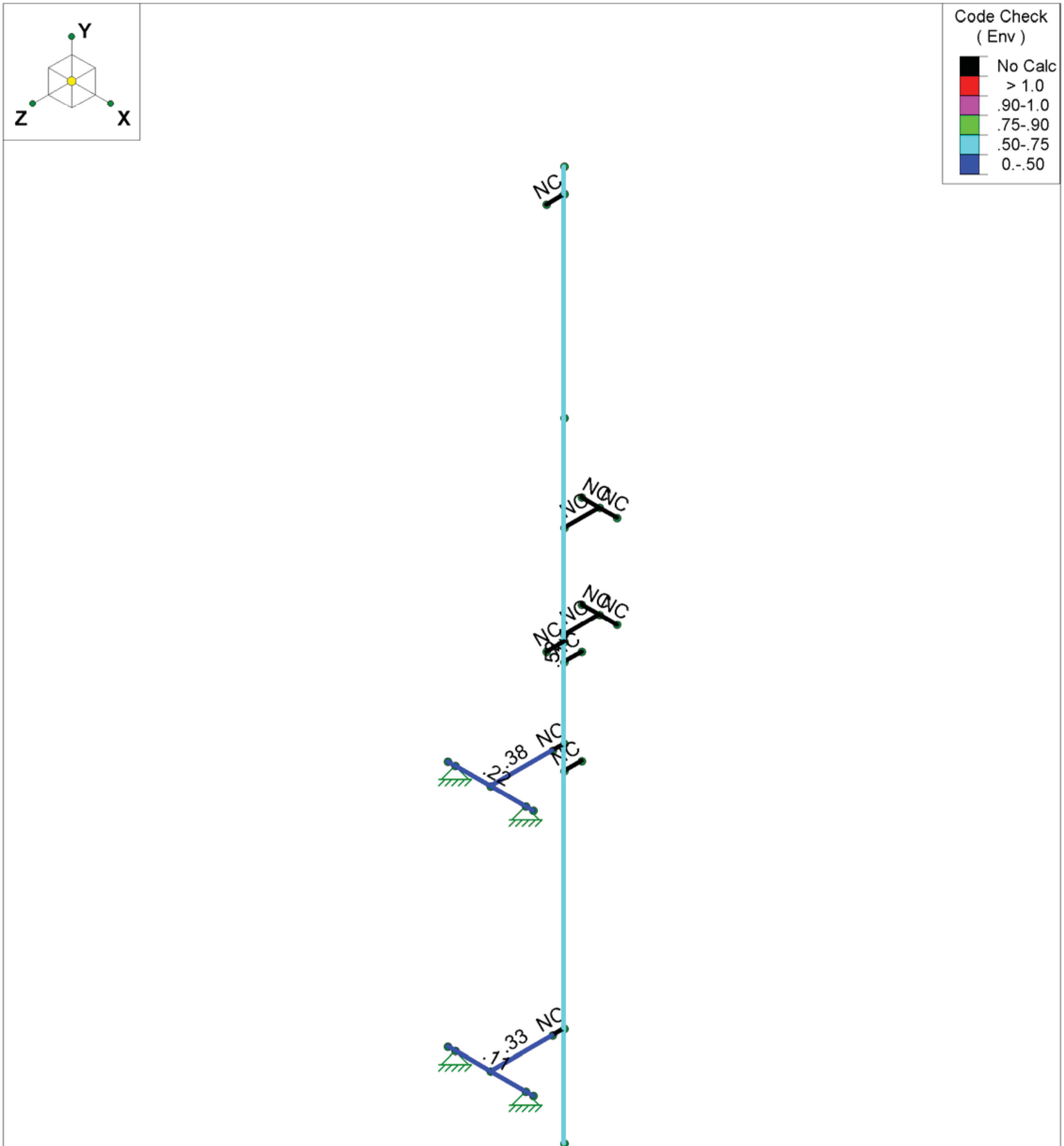
$\frac{P_{v\_bolt}}{R_{nv}} = 23.9 \cdot \%$ ***< 30%***

Check = "Thru-Bolts are adequate. Effects of combined stress don't need to be investigated because ratio of either tension or shear is under 30%"



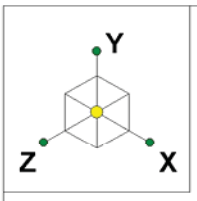
Envelope Only Solution

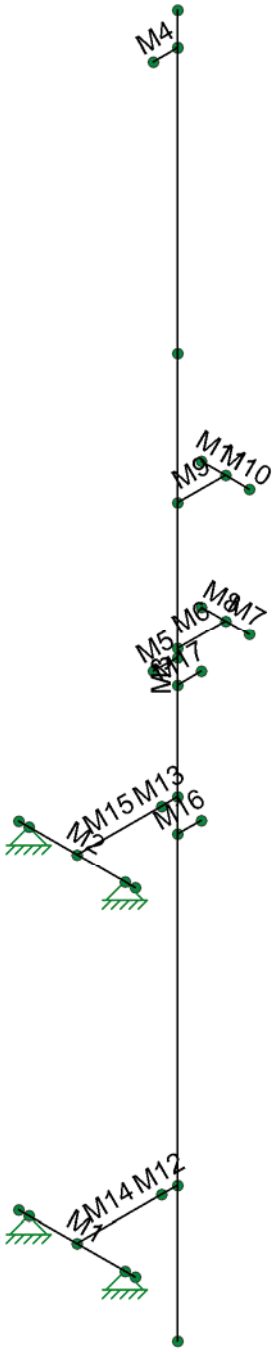
Fullerton Engineering Cons...		SK - 1
AA	Mount Analysis (Sector Gamma)	June 2, 2022 at 9:21 AM
MWMKE00116B	Rendered	MWMKE00120 - Mount Analysis (S...



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

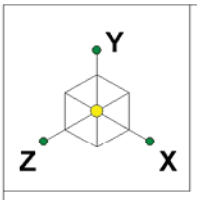
Fullerton Engineering Cons...		SK - 2
AA	Mount Analysis (Sector Gamma)	June 2, 2022 at 9:21 AM
MWMKE00116B	Unity Bending	MWMKE00120 - Mount Analysis (S...

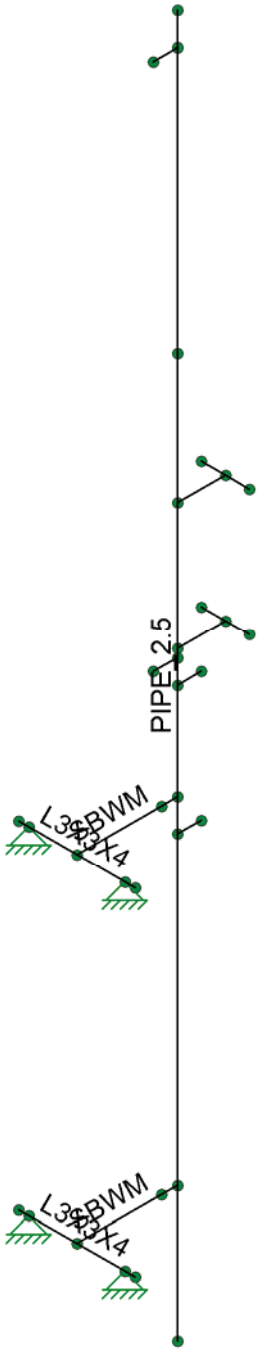




Envelope Only Solution

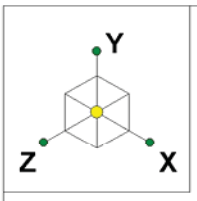
Fullerton Engineering Cons...		SK - 3
AA	Mount Analysis (Sector Gamma)	June 2, 2022 at 9:22 AM
MWMKE00116B	Members	MWMKE00120 - Mount Analysis (S...

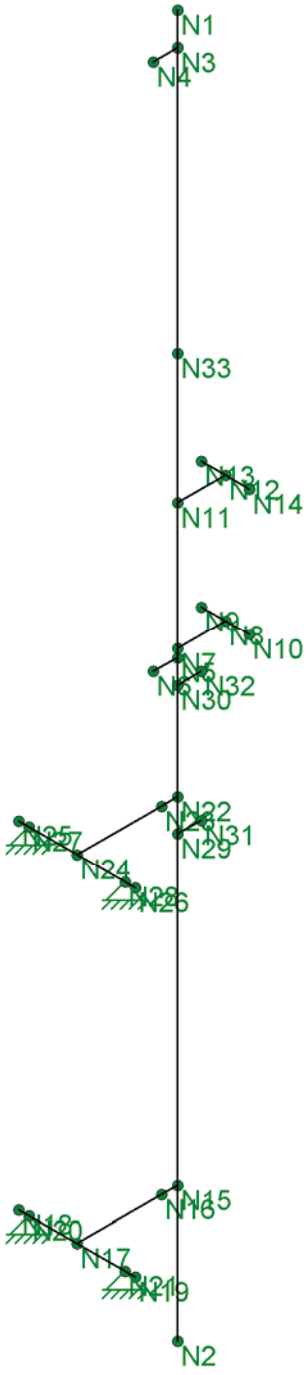




Envelope Only Solution

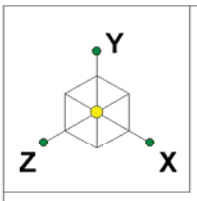
Fullerton Engineering Cons...		SK - 4
AA	Mount Analysis (Sector Gamma)	June 2, 2022 at 9:23 AM
MWMKE00116B	Shapes	MWMKE00120 - Mount Analysis (S...

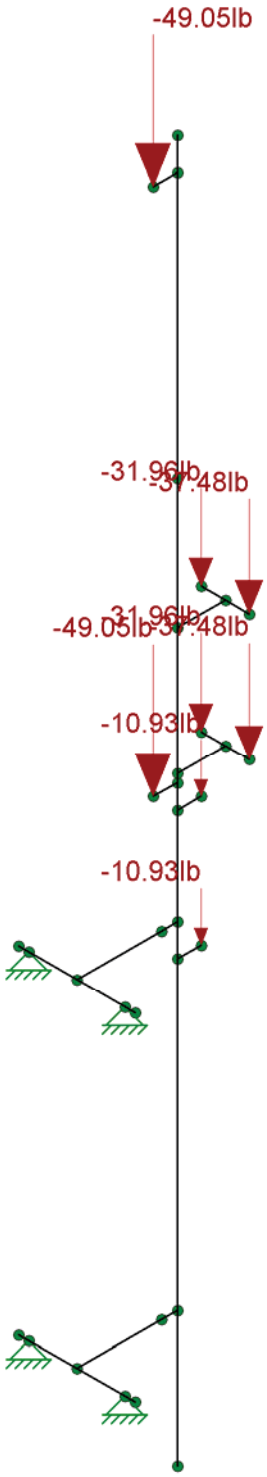




Envelope Only Solution

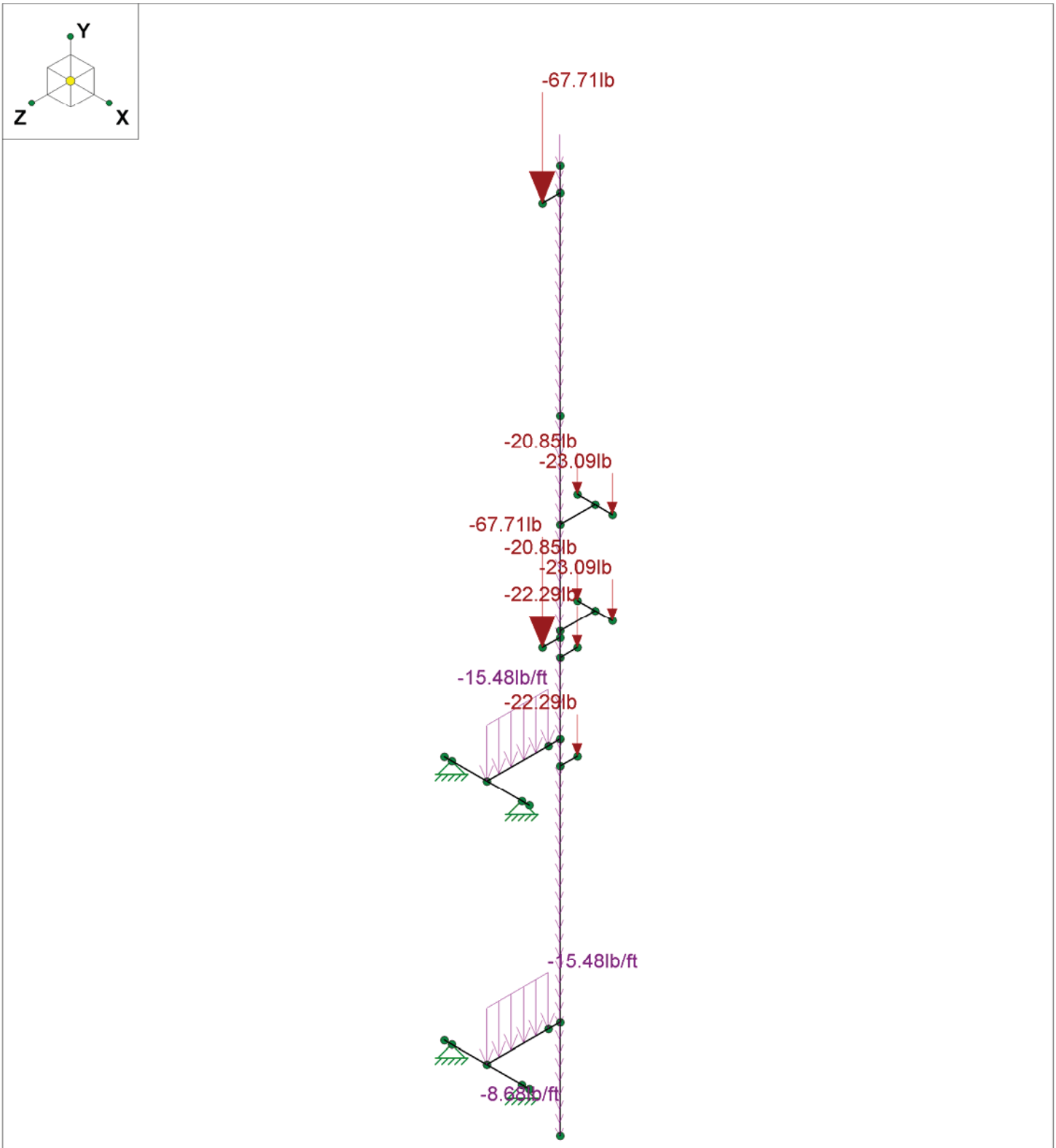
Fullerton Engineering Cons...		SK - 5
AA	Mount Analysis (Sector Gamma)	June 2, 2022 at 9:59 AM
MWMKE00116B	Nodes	MWMKE00120 - Mount Analysis (S...





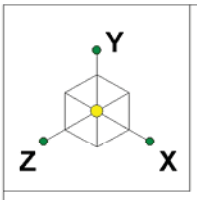
Loads: BLC 1, DL
Envelope Only Solution

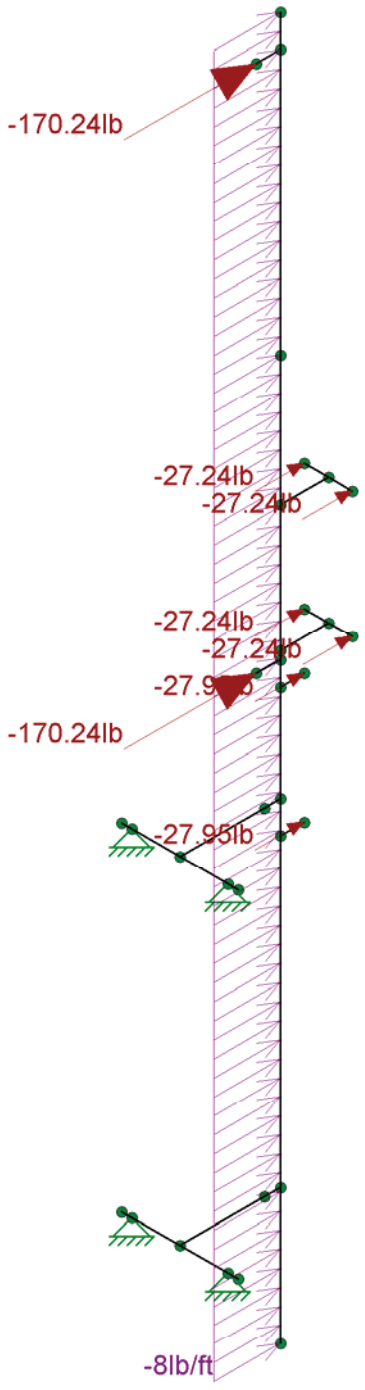
Fullerton Engineering Cons...		SK - 6
AA	Mount Analysis (Sector Gamma)	June 2, 2022 at 10:00 AM
MWMKE00116B	Dead Load	MWMKE00120 - Mount Analysis (S...



Loads: BLC 2, DLi
Envelope Only Solution

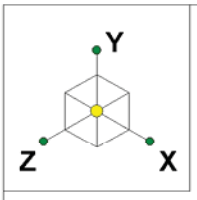
Fullerton Engineering Cons...		SK - 7
AA	Mount Analysis (Sector Gamma)	June 2, 2022 at 10:00 AM
MWMKE00116B	Dead Load with Ice	MWMKE00120 - Mount Analysis (S...

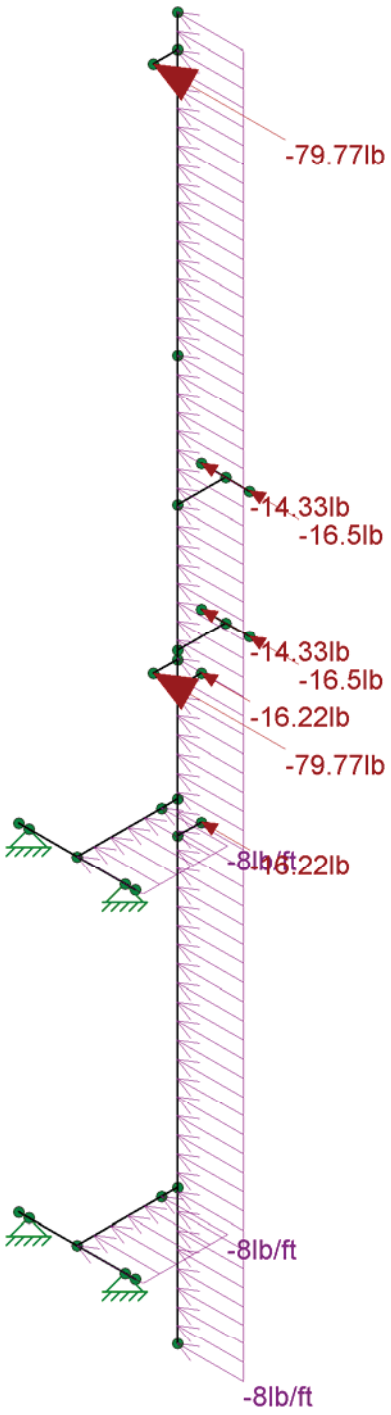




Loads: BLC 3, WL(0)
Envelope Only Solution

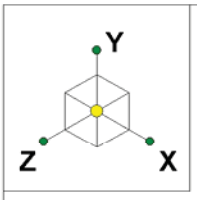
Fullerton Engineering Cons...		SK - 8
AA	Mount Analysis (Sector Gamma)	June 2, 2022 at 10:00 AM
MWMKE00116B	Wind Load Z	MWMKE00120 - Mount Analysis (S...

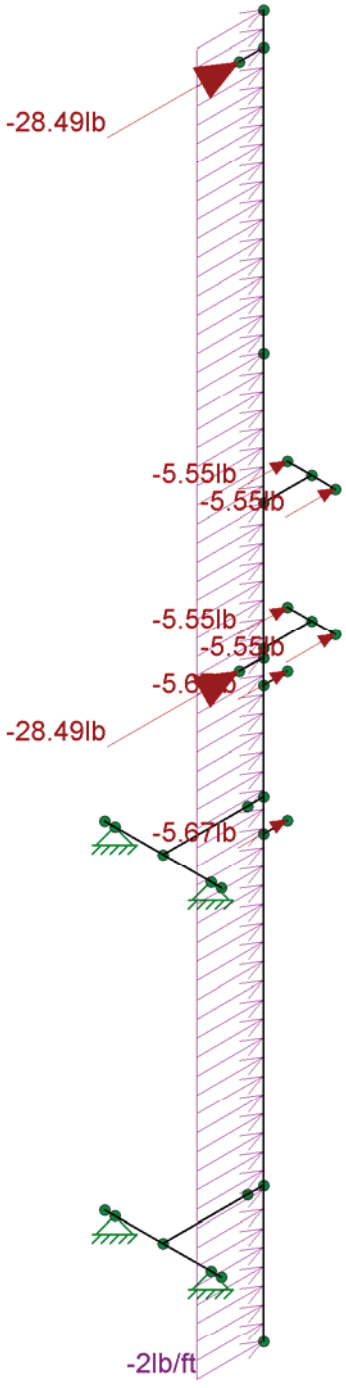




Loads: BLC 4, WL(90)
Envelope Only Solution

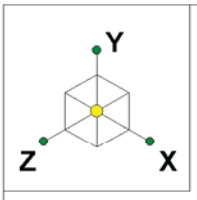
Fullerton Engineering Cons...		SK - 9
AA	Mount Analysis (Sector Gamma)	June 2, 2022 at 10:01 AM
MWMKE00116B	Wind Load X	MWMKE00120 - Mount Analysis (S...

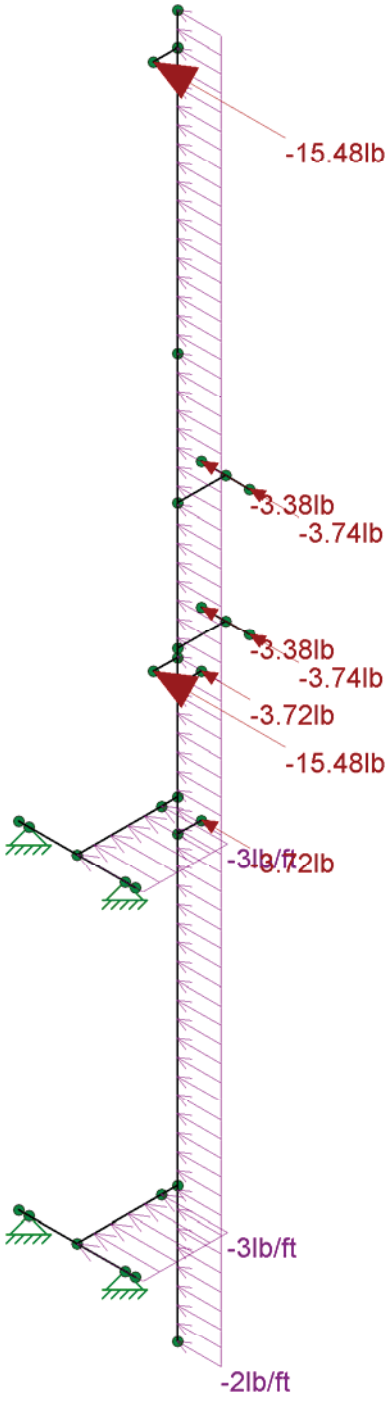




Loads: BLC 5, WL.i(0)
Envelope Only Solution

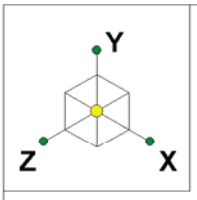
Fullerton Engineering Cons...		SK - 10
AA	Mount Analysis (Sector Gamma)	June 2, 2022 at 10:01 AM
MWMKE00116B	Wind Load with Ice Z	MWMKE00120 - Mount Analysis (S...

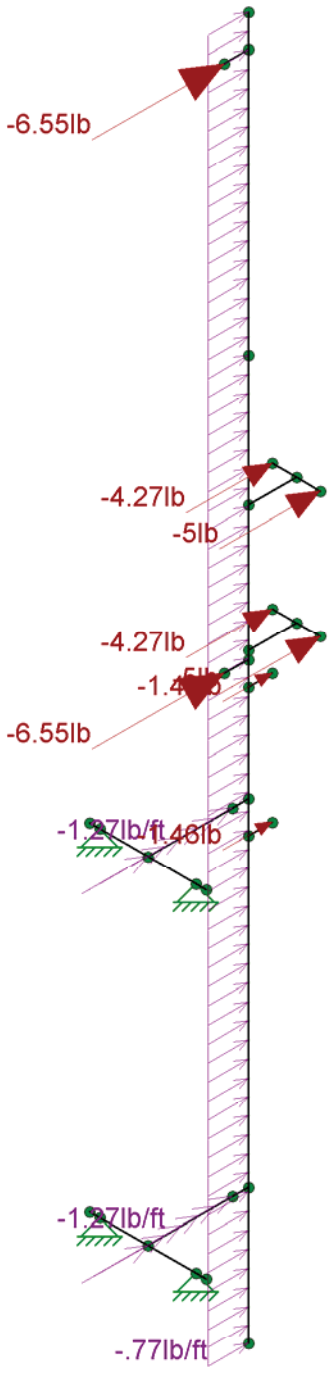




Loads: BLC 6, WL.i(90)
Envelope Only Solution

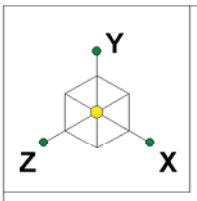
Fullerton Engineering Cons...		SK - 11
AA	Mount Analysis (Sector Gamma)	June 2, 2022 at 10:01 AM
MWMKE00116B	Wind Load with Ice X	MWMKE00120 - Mount Analysis (S...

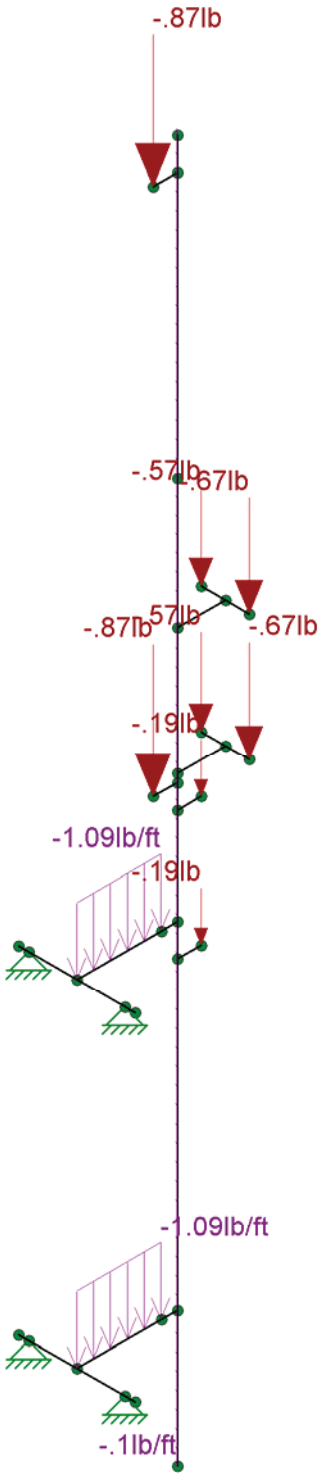




Loads: BLC 8, EH(0)
Envelope Only Solution

Fullerton Engineering Cons...		SK - 12
AA	Mount Analysis (Sector Gamma)	June 2, 2022 at 10:02 AM
MWMKE00116B	Seismic Load (Lateral)	MWMKE00120 - Mount Analysis (S...





Loads: BLC 10, EV
Envelope Only Solution

Fullerton Engineering Cons...		SK - 13
AA	Mount Analysis (Sector Gamma)	June 2, 2022 at 10:02 AM
MWMKE00116B	Seismic Load (Vertical)	MWMKE00120 - Mount Analysis (S...

(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 (in/sec^2)	386.4
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 15th(360-16): LRFD
Adjust Stiffness?	Yes(Iterative)
RISAConnection Code	AISC 15th(360-16): LRFD
Cold Formed Steel Code	AISI S100-16: LRFD
Wood Code	None
Wood Temperature	< 100F
Concrete Code	None
Masonry Code	None
Aluminum Code	None - Building
Stainless Steel Code	None

(Global) Model Settings, Continued

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

Seismic Code	ASCE 7-16
Seismic Base Elevation (in)	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	1
Cd X	1
Rho Z	1
Rho X	1

Hot Rolled Steel Design Parameters

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torq...	Kyy	Kzz	Cb	Function
1	M1	L3X3X4	14.5	12	12	12	12	12	2.1	2.1		Lateral
2	M2	L3X3X4	14.5	12	12	12	12	12	2.1	2.1		Lateral
3	M3	PIPE_2.5	144	48	48	48	48	48	2.1	2.1		Lateral
4	M14	SBWM	10.5			Lbyy			.65	.65		Lateral
5	M15	SBWM	10.5			Lbyy			.65	.65		Lateral

Material Takeoff

	Material	Size	Pieces	Length[in]	Weight[LB]
1	General				
2	RIGID		12	40	0
3	Total General		12	40	0
4					
5	Hot Rolled Steel				
6	A36 Gr.36	L3X3X4	2	29	11.842
7	A36 Gr.36	SBWM	2	21	17.936

Material Takeoff (Continued)

	Material	Size	Pieces	Length[in]	Weight[LB]
8	A53 Gr. B	PIPE_2.5	1	144	65.742
9	Total HR Steel		5	194	95.519

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribut...	Area(Me...	Surface(...
1	DL	None		-1		8				
2	DLi	None				8		3		
3	WL(0)	None				8		1		
4	WL(90)	None				8		3		
5	WL.i(0)	None				8		1		
6	WL.i(90)	None				8		3		
7	T	None								
8	EH(0)	None				8		3		
9	EH(90)	None				8		3		
10	EV	None				8		3		
11	WM(0)	None								
12	WM(90)	None								

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	1.4*DL	Yes	Y		1	1.4																		
2	1.2*DL + 1.0* WL(0)	Yes	Y		1	1.2	3	1																
3	1.2*DL + 1.0* WL(3...	Yes	Y		1	1.2	3	.869	4	.5														
4	1.2*DL + 1.0* WL(6...	Yes	Y		1	1.2	3	.5	4	.869														
5	1.2*DL + 1.0*WL(90)	Yes	Y		1	1.2	4	1																
6	1.2*DL + 1.0*WL(1...	Yes	Y		1	1.2	3	-.5	4	.869														
7	1.2*DL +1.0*WL(15...	Yes	Y		1	1.2	3	-.869	4	.5														
8	1.2*DL + 1.0 * WL(...	Yes	Y		1	1.2	3	-1																
9	1.2*DL + 1.0* WL(2...	Yes	Y		1	1.2	3	-.869	4	-.5														
10	1.2*DL + 1.0* WL(2...	Yes	Y		1	1.2	3	-.5	4	-.869														
11	1.2*DL + 1.0*WL(2...	Yes	Y		1	1.2	4	-1																
12	1.2*DL + 1.0*WL(3...	Yes	Y		1	1.2	3	.5	4	-.869														
13	1.2*DL +1.0*WL(33...	Yes	Y		1	1.2	3	.869	4	-.5														
14	1.2*DL+1.0*DLi+1....	Yes	Y		1	1.2	2	1	5	1	7	1												
15	1.2*DL+1.0*DLi+1....	Yes	Y		1	1.2	2	1	5	.866	6	.5	7	1										
16	1.2*DL+1.0*DLi+1....	Yes	Y		1	1.2	2	1	5	.5	6	.866	7	1										
17	1.2*DL+1.0*DLi+1....	Yes	Y		1	1.2	2	1	6	1	7	1												
18	1.2*DL+1.0*DLi+1....	Yes	Y		1	1.2	2	1	5	-.5	6	.866	7	1										
19	1.2*DL+1.0*DLi+1....	Yes	Y		1	1.2	2	1	5	-.866	6	.5	7	1										
20	1.2*DL+1.0*DLi+1....	Yes	Y		1	1.2	2	1	5	-1	7	1												
21	1.2*DL+1.0*DLi+1....	Yes	Y		1	1.2	2	1	5	-.866	6	-.5	7	1										
22	1.2*DL+1.0*DLi+1....	Yes	Y		1	1.2	2	1	5	-.5	6	-.866	7	1										
23	1.2*DL+1.0*DLi+1....	Yes	Y		1	1.2	2	1	6	-1	7	1												
24	1.2*DL+1.0*DLi+1....	Yes	Y		1	1.2	2	1	5	.5	6	-.866	7	1										
25	1.2*DL+1.0*DLi+1....	Yes	Y		1	1.2	2	1	5	.866	6	-.5	7	1										
26	1.2*DL+1.0*EH(0)+...	Yes	Y		1	1.2	8	1	10	1														
27	1.2*DL+1.0*EH(0)+...	Yes	Y		1	1.2	8	1	10	-1														
28	1.2*DL+1.0*EH(90)...	Yes	Y		1	1.2	9	1	10	1														
29	1.2*DL+1.0*EH(90)...	Yes	Y		1	1.2	9	1	10	-1														
30	1.2*DL+1.0*EH(18...	Yes	Y		1	1.2	8	-1	10	1														
31	1.2*DL+1.0*EH(18...	Yes	Y		1	1.2	8	-1	10	-1														
32	1.2*DL+1.0*EH(27...	Yes	Y		1	1.2	9	-1	10	1														
33	1.2*DL+1.0*EH(27...	Yes	Y		1	1.2	9	-1	10	-1														
34	0.9*DL+1.0*EH(0)-...	Yes	Y		1	.9	8	1	10	-1														

Load Combinations (Continued)

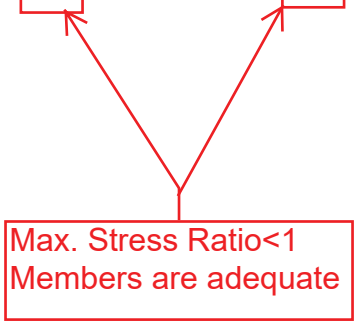
	Description	So...	P...	S...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...
35	0.9*DL+1.0*EH(0)-...	Yes	Y		1	.9	8	1	10	1														
36	0.9*DL+1.0*EH(90)..	Yes	Y		1	.9	9	1	10	-1														
37	0.9*DL+1.0*EH(90)..	Yes	Y		1	.9	9	1	10	1														
38	0.9*DL+1.0*EH(18...	Yes	Y		1	.9	8	-1	10	-1														
39	0.9*DL+1.0*EH(18...	Yes	Y		1	.9	8	-1	10	1														
40	0.9*DL+1.0*EH(27...	Yes	Y		1	.9	9	-1	10	-1														
41	0.9*DL+1.0*EH(27...	Yes	Y		1	.9	9	-1	10	1														
42	1.2*DL+1.5*LM1+1..	Yes	Y		1	1.2	13	1.5	11	1														
43	1.2*DL+1.5*LM1+1..	Yes	Y		1	1.2	13	1.5	11	.866	12	.5												
44	1.2*DL+1.5*LM1+1..	Yes	Y		1	1.2	13	1.5	11	.5	12	.866												
45	1.2*DL+1.5*LM1+1..	Yes	Y		1	1.2	13	1.5	12	1														
46	1.2*DL+1.5*LM1+1..	Yes	Y		1	1.2	13	1.5	11	-.5	12	.866												
47	1.2*DL+1.5*LM1+1..	Yes	Y		1	1.2	13	1.5	11	-.866	12	.5												
48	1.2*DL+1.5*LM1+1..	Yes	Y		1	1.2	13	1.5	11	-1														
49	1.2*DL+1.5*LM1+1..	Yes	Y		1	1.2	13	1.5	11	-.866	12	-.5												
50	1.2*DL+1.5*LM1+1..	Yes	Y		1	1.2	13	1.5	11	-.5	12	-.866												
51	1.2*DL+1.5*LM1+1..	Yes	Y		1	1.2	13	1.5	12	-1														
52	1.2*DL+1.5*LM1+1..	Yes	Y		1	1.2	13	1.5	11	.5	12	-.866												
53	1.2*DL+1.5*LM1+1..	Yes	Y		1	1.2	13	1.5	11	.866	12	-.5												

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-in]	LC	MY [lb-in]	LC	MZ [lb-in]	LC
1	N20	max	46.155	11	496.353	13	188.413	7	0	53	0	53	0	53
2		min	-45.676	5	-258.408	7	-325.429	13	0	1	0	1	0	1
3	N21	max	46.155	11	495.484	3	189.428	9	0	53	0	53	0	53
4		min	-45.676	5	-259.277	9	-324.414	3	0	1	0	1	0	1
5	N27	max	227.497	5	835.703	6	771.33	13	0	53	0	53	0	53
6		min	-227.976	11	-652.485	12	-634.437	7	0	1	0	1	0	1
7	N28	max	227.497	5	839.875	10	770.315	3	0	53	0	53	0	53
8		min	-227.976	11	-648.312	4	-635.451	9	0	1	0	1	0	1
9	Totals:	max	363.641	5	824.364	14	601.315	2						
10		min	-363.641	11	311.216	38	-601.319	8						

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

	Member	Shape	Code Check	Loc[in]	LC	Shear Ch...	Loc[in]	Dir	LC	phi*Pnc ...	phi*Pnt [...	phi*Mn ...	phi*Mn ...	Cb	Eqn
1	M3	PIPE 2.5	.516	60	2	.045	58.5		2	28468.4...	50715	43155	43155	1	H1-1b
2	M15	SBWM	.384	0	9	.136	4.375	z	10	82203.8...	97588.8	31644.4...	356724	1.531	H1-1b
3	M14	SBWM	.327	0	2	.058	5.031	z	13	82203.8...	97588.8	31644.4...	356724	1.495	H1-1b
4	M2	L3X3X4	.221	7.25	12	.058	13.1...	y	10	42313.8...	46656	20257.6...	45068.9...	1	H2-1
5	M1	L3X3X4	.113	7.25	13	.034	1.359	y	13	42313.8...	46656	20257.6...	45068.9...	1	H2-1



Wall Mount Connection Calculations (Sector Gamma)

New wall mounts will be attached to existing parapet wall via Thru-Bolts ½" Ø

Maximum Reactions from Risa Mount Analysis per one thru-bolt:

Envelope Joint Reactions

	Joint		X [lb]	L...	Y [lb]	L...	Z [lb]	L...	MX [lb-i...	L...	MY [lb-i...	L...	MZ [lb-i...	L...
1	N20	max	46.155	11	496.353	13	188.413	7	0	53	0	53	0	53
2		min	-45.676	5	-258.408	7	-325.429	13	0	1	0	1	0	1
3	N21	max	46.155	11	495.484	3	189.428	9	0	53	0	53	0	53
4		min	-45.676	5	-259.277	9	-324.414	3	0	1	0	1	0	1
5	N27	max	227.497	5	835.703	6	771.33	13	0	53	0	53	0	53
6		min	-227.976	11	-652.485	12	-634.437	7	0	1	0	1	0	1
7	N28	max	227.497	5	839.875	10	770.315	3	0	53	0	53	0	53
8		min	-227.976	11	-648.312	4	-635.451	9	0	1	0	1	0	1
9	Totals:	max	363.641	5	824.364	14	601.315	2						
10		min	-363.641	11	311.216	38	-601.319	8						

$X := 227.976\,lbf$ — *Maximum Factored Reaction - X direction*

$Y := 839.875\,lbf$ — *Maximum Factored Reaction - Y direction*

$Z := 635.451\,lbf$ — *Maximum Factored Reaction - Z direction*

$P_t := Z$ $\quad P_t = 635.45\,lbf$ — *Factored Tensile Force*

$P_v := \sqrt{X^2 + Y^2}$ $\quad P_v = 870.27\,lbf$ — *Factored Shear Force*

$d_b := 0.5in$ — *Diameter of thru-bolt*

$A_b := 0.25\pi \cdot d_b^2$ $\quad A_b = 0.2 \cdot in^2$ — *Area of thru-bolt*

$P_{t\_bolt} := P_t$ $\quad P_{t\_bolt} = 635.45\,lbf$ — *Tension at each thru-bolt*

$P_{v\_bolt} := P_v$ $\quad P_{v\_bolt} = 870.27\,lbf$ — *Shear at each thru-bolt*

Tensile and Shear Strength of Thru-Bolts

$F_{nt} := 45ksi$ — *Nominal tensile strength per AISC 360, Table J3.2*

$F_{nv} := 27ksi$ — *Nominal shear strength per AISC 360, Table J3.2*

$\Phi_{bolt} := 0.75$ — *Resistance Factor (LRFD - AISC 360, Section J3-6)*

$R_{nt} := \Phi_{bolt} \cdot F_{nt} \cdot A_b$ $\quad R_{nt} = 6.63 \cdot kip$ — *Design Nominal Tensile Strength (AISC 360, Section J3-1)*

$R_{nv} := \Phi_{bolt} \cdot F_{nv} \cdot A_b$ $\quad R_{nv} = 3.98 \cdot kip$ — *Design Nominal Shear Strength (AISC 360, Section J3-1)*

$\frac{P_{t\_bolt}}{R_{nt}} = 9.59 \cdot \%$ ***< 30%*** $\qquad \frac{P_{v\_bolt}}{R_{nv}} = 21.89 \cdot \%$ ***< 30%***

Check = "Thru-Bolts are adequate. Effects of combined stress don't need to be investigated because ratio of either tension or shear is under 30%"

New Charles HEX Cube-PM639155N4 Cabinet

Height	*Width/Diameter*	*Depth/Diameter*	*Weight*	*Shape*
height := 74in	width := 32in	depth := 32in	weight := 1067.14lbf	(•) Flat ( ) Round

$DL_{11} := weight$	$DL_{11} = 1067.14\,lbf$	*Dead Load*
$F_{F11} := F_F$	$F_{F11} = 547.55\,lbf$	*Wind Load on Front Face*
$F_{S11} := F_S$	$F_{S11} = 547.55\,lbf$	*Wind Load on Side Face*
$DL_{11i} := DL_{ice}$	$DL_{11i} = 468.11\,lbf$	*Dead Load Ice*
$F_{F11i} := F_{Fi}$	$F_{F11i} = 87.74\,lbf$	*Wind Load with Ice on Front Face*
$F_{S11i} := F_{Si}$	$F_{S11i} = 87.74\,lbf$	*Wind Load with Ice on Side Face*
$F_{F11m} := F_{Fm}$	$F_{F11m} = 43.04\,lbf$	*Wind Load (maintenance) on Front Face*
$F_{S11m} := F_{Sm}$	$F_{S11m} = 43.04\,lbf$	*Wind Load (maintenance) on Side Face*
$F_{Eh11} := weight \cdot A_S \cdot C_s$	$F_{Eh11} = 142.46\,lbf$	*Lateral Earthquake Load*
$F_{Ev11} := 0.2 \cdot S_{DS} \cdot weight$	$F_{Ev11} = 19\,lbf$	*Vertical Earthquake Load*

New Charles CFIT-PF2020DSH1 Fiber Telco Enclosure

Height	*Width/Diameter*	*Depth/Diameter*	*Weight*	*Shape*
height := 20in	width := 20in	depth := 9in	weight := 20lbf	(•) Flat ( ) Round

$DL_{11} := weight$ $\frac{DL_{11}}{2} = 10\,lbf$ *Dead Load*

$F_{F11} := F_F$ $\frac{F_{F11}}{2} = 46.25\,lbf$ *Wind Load on Front Face*

$F_{S11} := F_S$ $\frac{F_{S11}}{2} = 20.81\,lbf$ *Wind Load on Side Face*

$DL_{11i} := DL_{ice}$ $\frac{DL_{11i}}{2} = 29.44\,lbf$ *Dead Load Ice*

$F_{F11i} := F_{Fi}$ $\frac{F_{F11i}}{2} = 8.68\,lbf$ *Wind Load with Ice on Front Face*

$F_{S11i} := F_{Si}$ $\frac{F_{S11i}}{2} = 4.56\,lbf$ *Wind Load with Ice on Side Face*

$F_{F11m} := F_{Fm}$ $\frac{F_{F11m}}{2} = 3.64\,lbf$ *Wind Load (maintenance) on Front Face*

$F_{S11m} := F_{Sm}$ $\frac{F_{S11m}}{2} = 1.64\,lbf$ *Wind Load (maintenance) on Side Face*

$F_{Eh11} := weight \cdot A_S \cdot C_s$ $\frac{F_{Eh11}}{2} = 1.34\,lbf$ *Lateral Earthquake Load*

$F_{Ev11} := 0.2 \cdot S_{DS} \cdot weight$ $\frac{F_{Ev11}}{2} = 0.18\,lbf$ *Vertical Earthquake Load*

New Raycap PPC RDIAC-2465-P-240-MTS

Height	*Width/Diameter*	*Depth/Diameter*	*Weight*	*Shape*
height := 39in	width := 22.9in	depth := 12.6in	weight := 80lbf	(•) Flat ( ) Round

$DL_{11} := weight$ $\frac{DL_{11}}{2} = 40\,lbf$ *Dead Load*

$F_{F11} := F_F$ $\frac{F_{F11}}{2} = 103.25\,lbf$ *Wind Load on Front Face*

$F_{S11} := F_S$ $\frac{F_{S11}}{2} = 58.07\,lbf$ *Wind Load on Side Face*

$DL_{11i} := DL_{ice}$ $\frac{DL_{11i}}{2} = 59.78\,lbf$ *Dead Load Ice*

$F_{F11i} := F_{Fi}$ $\frac{F_{F11i}}{2} = 17.77\,lbf$ *Wind Load with Ice on Front Face*

$F_{S11i} := F_{Si}$ $\frac{F_{S11i}}{2} = 10.82\,lbf$ *Wind Load with Ice on Side Face*

$F_{F11m} := F_{Fm}$ $\frac{F_{F11m}}{2} = 8.12\,lbf$ *Wind Load (maintenance) on Front Face*

$F_{S11m} := F_{Sm}$ $\frac{F_{S11m}}{2} = 4.61\,lbf$ *Wind Load (maintenance) on Side Face*

$F_{Eh11} := weight \cdot A_S \cdot C_s$ $\frac{F_{Eh11}}{2} = 5.34\,lbf$ *Lateral Earthquake Load*

$F_{Ev11} := 0.2 \cdot S_{DS} \cdot weight$ $\frac{F_{Ev11}}{2} = 0.71\,lbf$ *Vertical Earthquake Load*

C8x11.5:

Height	***Width/Diameter***	***Depth/Diameter***	***Weight***	***Shape***
height := 120in	width := 8in	depth := 2.26in	weight := 11.5plf	(•) Flat ( ) Round

$F_{FM1\_linear} := F_{F\_linear}$	$F_{FM1\_linear} = 31 \cdot plf$	*Linear Wind Load on Front Face*
$F_{SM1\_linear} := F_{S\_linear}$	$F_{SM1\_linear} = 10 \cdot plf$	*Linear Wind Load on Side Face*
$DL_{ice.M1\_linear} := \frac{DL_{ice}}{height}$	$DL_{ice.M1\_linear} = 10.73 \cdot plf$	*Linear Ice Load on Member*
$F_{FiM1\_linear} := F_{Fi\_linear}$	$F_{FiM1\_linear} = 6 \cdot plf$	*Linear Wind Load with Ice on Front Face*
$F_{SiM1\_linear} := F_{Si\_linear}$	$F_{SiM1\_linear} = 3 \cdot plf$	*Linear Wind Load with Ice on Side Face*
$F_{FM1} := F_F$	$F_{FM1} = 308.3 \cdot lbf$	*Wind Load on Front Face*
$F_{SM1} := F_S$	$F_{SM1} = 104.51 \cdot lbf$	*Wind Load on Side Face*
$F_{FiM1} := F_{Fi}$	$F_{FiM1} = 56.88 \cdot lbf$	*Wind Load with Ice on Front Face*
$F_{SiM1} := F_{Si}$	$F_{SiM1} = 34.67 \cdot lbf$	*Wind Load with Ice on Side Face*
$DL_{ice.M1} := DL_{ice}$	$DL_{ice.M1} = 107.28\,lbf$	*Total Weight of Ice*
$Wt_{M1} := Weight_{total}$	$Wt_{M1} = 115\,lbf$	*Total Weight of member*
$F_{EhM1} := Weight_{total} \cdot A_S \cdot C_s$	$F_{EhM1} = 15.35\,lbf$	*Total Lateral Earthquake Load*
$F_{EhM1\_linear} := \frac{F_{EhM1}}{height}$	$F_{EhM1\_linear} = 1.54 \cdot plf$	*Linear Lateral Earthquake Load*
$F_{EvM1} := 0.2 \cdot S_{DS} \cdot Weight_{total}$	$F_{EvM1} = 2.05\,lbf$	*Total Vertical Earthquake Load*
$F_{EvM1\_linear} := \frac{F_{EvM1}}{height}$	$F_{EvM1\_linear} = 0.2 \cdot plf$	*Linear Vertical Earthquake Load*

C12x20.7:

Height	***Width/Diameter***	***Depth/Diameter***	***Weight***	***Shape***
height := 36in	width := 12in	depth := 2.94in	weight := 20.7plf	(•) Flat ( ) Round

$F_{FM1\_linear} := F_{F\_linear}$	$F_{FM1\_linear} = 34 \cdot plf$	*Linear Wind Load on Front Face*
$F_{SM1\_linear} := F_{S\_linear}$	$F_{SM1\_linear} = 11 \cdot plf$	*Linear Wind Load on Side Face*
$DL_{ice.M1\_linear} := \frac{DL_{ice}}{height}$	$DL_{ice.M1\_linear} = 13.05 \cdot plf$	*Linear Ice Load on Member*
$F_{FiM1\_linear} := F_{Fi\_linear}$	$F_{FiM1\_linear} = 6 \cdot plf$	*Linear Wind Load with Ice on Front Face*
$F_{SiM1\_linear} := F_{Si\_linear}$	$F_{SiM1\_linear} = 3 \cdot plf$	*Linear Wind Load with Ice on Side Face*
$F_{FM1} := F_F$	$F_{FM1} = 101.74 \cdot lbf$	*Wind Load on Front Face*
$F_{SM1} := F_S$	$F_{SM1} = 32.12 \cdot lbf$	*Wind Load on Side Face*
$F_{FiM1} := F_{Fi}$	$F_{FiM1} = 19.28 \cdot lbf$	*Wind Load with Ice on Front Face*
$F_{SiM1} := F_{Si}$	$F_{SiM1} = 8.87 \cdot lbf$	*Wind Load with Ice on Side Face*
$DL_{ice.M1} := DL_{ice}$	$DL_{ice.M1} = 39.16\ lbf$	*Total Weight of Ice*
$Wt_{M1} := Weight_{total}$	$Wt_{M1} = 62.1\ lbf$	*Total Weight of member*
$F_{EhM1} := Weight_{total} \cdot A_S \cdot C_S$	$F_{EhM1} = 8.29\ lbf$	*Total Lateral Earthquake Load*
$F_{EhM1\_linear} := \frac{F_{EhM1}}{height}$	$F_{EhM1\_linear} = 2.76 \cdot plf$	*Linear Lateral Earthquake Load*
$F_{EvM1} := 0.2 \cdot S_{DS} \cdot Weight_{total}$	$F_{EvM1} = 1.11\ lbf$	*Total Vertical Earthquake Load*
$F_{EvM1\_linear} := \frac{F_{EvM1}}{height}$	$F_{EvM1\_linear} = 0.37 \cdot plf$	*Linear Vertical Earthquake Load*

L2x2x1/4:

Height	***Width/Diameter***	***Depth/Diameter***	***Weight***	***Shape***
height := 96in	width := 2in	depth := 2in	weight := 3.19plf	(•) Flat ( ) Round

$F_{FM1\_linear} := F_{F\_linear}$ $F_{FM1\_linear} = 9 \cdot plf$ *Linear Wind Load on Front Face*

$F_{SM1\_linear} := F_{S\_linear}$ $F_{SM1\_linear} = 9 \cdot plf$ *Linear Wind Load on Side Face*

$DL_{ice.M1\_linear} := \frac{DL_{ice}}{height}$ $DL_{ice.M1\_linear} = 10.23 \cdot plf$ *Linear Ice Load on Member*

$F_{FiM1\_linear} := F_{Fi\_linear}$ $F_{FiM1\_linear} = 3 \cdot plf$ *Linear Wind Load with Ice on Front Face*

$F_{SiM1\_linear} := F_{Si\_linear}$ $F_{SiM1\_linear} = 3 \cdot plf$ *Linear Wind Load with Ice on Side Face*

$F_{FM1} := F_F$ $F_{FM1} = 73.99 \cdot lbf$ *Wind Load on Front Face*

$F_{SM1} := F_S$ $F_{SM1} = 73.99 \cdot lbf$ *Wind Load on Side Face*

$F_{FiM1} := F_{Fi}$ $F_{FiM1} = 24.97 \cdot lbf$ *Wind Load with Ice on Front Face*

$F_{SiM1} := F_{Si}$ $F_{SiM1} = 24.97 \cdot lbf$ *Wind Load with Ice on Side Face*

$DL_{ice.M1} := DL_{ice}$ $DL_{ice.M1} = 81.83\,lbf$ *Total Weight of Ice*

$Wt_{M1} := Weight_{total}$ $Wt_{M1} = 25.52\,lbf$ *Total Weight of member*

$F_{EhM1} := Weight_{total} \cdot A_S \cdot C_S$ $F_{EhM1} = 3.41\,lbf$ *Total Lateral Earthquake Load*

$F_{EhM1\_linear} := \frac{F_{EhM1}}{height}$ $F_{EhM1\_linear} = 0.43 \cdot plf$ *Linear Lateral Earthquake Load*

$F_{EvM1} := 0.2 \cdot S_{DS} \cdot Weight_{total}$ $F_{EvM1} = 0.45\,lbf$ *Total Vertical Earthquake Load*

$F_{EvM1\_linear} := \frac{F_{EvM1}}{height}$ $F_{EvM1\_linear} = 0.06 \cdot plf$ *Linear Vertical Earthquake Load*

L4x4x1/4:

Height	***Width/Diameter***	***Depth/Diameter***	***Weight***	***Shape***
height := 120in	width := 4in	depth := 4in	weight := 6.60plf	(•) Flat ( ) Round

$F_{FM1\_linear} := F_{F\_linear}$ $F_{FM1\_linear} = 18 \cdot plf$ *Linear Wind Load on Front Face*

$F_{SM1\_linear} := F_{S\_linear}$ $F_{SM1\_linear} = 18 \cdot plf$ *Linear Wind Load on Side Face*

$DL_{ice.M1\_linear} := \frac{DL_{ice}}{height}$ $DL_{ice.M1\_linear} = 14.14 \cdot plf$ *Linear Ice Load on Member*

$F_{FiM1\_linear} := F_{Fi\_linear}$ $F_{FiM1\_linear} = 4 \cdot plf$ *Linear Wind Load with Ice on Front Face*

$F_{SiM1\_linear} := F_{Si\_linear}$ $F_{SiM1\_linear} = 4 \cdot plf$ *Linear Wind Load with Ice on Side Face*

$F_{FM1} := F_F$ $F_{FM1} = 184.98 \cdot lbf$ *Wind Load on Front Face*

$F_{SM1} := F_S$ $F_{SM1} = 184.98 \cdot lbf$ *Wind Load on Side Face*

$F_{FiM1} := F_{Fi}$ $F_{FiM1} = 41.4 \cdot lbf$ *Wind Load with Ice on Front Face*

$F_{SiM1} := F_{Si}$ $F_{SiM1} = 41.4 \cdot lbf$ *Wind Load with Ice on Side Face*

$DL_{ice.M1} := DL_{ice}$ $DL_{ice.M1} = 141.37\ lbf$ *Total Weight of Ice*

$Wt_{M1} := Weight_{total}$ $Wt_{M1} = 66\ lbf$ *Total Weight of member*

$F_{EhM1} := Weight_{total} \cdot A_S \cdot C_s$ $F_{EhM1} = 8.81\ lbf$ *Total Lateral Earthquake Load*

$F_{EhM1\_linear} := \frac{F_{EhM1}}{height}$ $F_{EhM1\_linear} = 0.88 \cdot plf$ *Linear Lateral Earthquake Load*

$F_{EvM1} := 0.2 \cdot S_{DS} \cdot Weight_{total}$ $F_{EvM1} = 1.17\ lbf$ *Total Vertical Earthquake Load*

$F_{EvM1\_linear} := \frac{F_{EvM1}}{height}$ $F_{EvM1\_linear} = 0.12 \cdot plf$ *Linear Vertical Earthquake Load*

P1000 Unistrut:

Height	***Width/Diameter***	***Depth/Diameter***	***Weight***	***Shape***
height := 58in	width := 1.625in	depth := 1.625in	weight := 1.52plf	(•) Flat ( ) Round

$F_{FM1\_linear} := F_{F\_linear}$	$F_{FM1\_linear} = 8 \cdot plf$	*Linear Wind Load on Front Face*
$F_{SM1\_linear} := F_{S\_linear}$	$F_{SM1\_linear} = 8 \cdot plf$	*Linear Wind Load on Side Face*
$DL_{ice.M1\_linear} := \frac{DL_{ice}}{height}$	$DL_{ice.M1\_linear} = 9.59 \cdot plf$	*Linear Ice Load on Member*
$F_{FiM1\_linear} := F_{Fi\_linear}$	$F_{FiM1\_linear} = 3 \cdot plf$	*Linear Wind Load with Ice on Front Face*
$F_{SiM1\_linear} := F_{Si\_linear}$	$F_{SiM1\_linear} = 3 \cdot plf$	*Linear Wind Load with Ice on Side Face*
$F_{FM1} := F_F$	$F_{FM1} = 36.32 \cdot lbf$	*Wind Load on Front Face*
$F_{SM1} := F_S$	$F_{SM1} = 36.32 \cdot lbf$	*Wind Load on Side Face*
$F_{FiM1} := F_{Fi}$	$F_{FiM1} = 12.59 \cdot lbf$	*Wind Load with Ice on Front Face*
$F_{SiM1} := F_{Si}$	$F_{SiM1} = 12.59 \cdot lbf$	*Wind Load with Ice on Side Face*
$DL_{ice.M1} := DL_{ice}$	$DL_{ice.M1} = 46.36\ lbf$	*Total Weight of Ice*
$Wt_{M1} := Weight_{total}$	$Wt_{M1} = 7.35\ lbf$	*Total Weight of member*
$F_{EhM1} := Weight_{total} \cdot A_S \cdot C_S$	$F_{EhM1} = 0.98\ lbf$	*Total Lateral Earthquake Load*
$F_{EhM1\_linear} := \frac{F_{EhM1}}{height}$	$F_{EhM1\_linear} = 0.2 \cdot plf$	*Linear Lateral Earthquake Load*
$F_{EvM1} := 0.2 \cdot S_{DS} \cdot Weight_{total}$	$F_{EvM1} = 0.13\ lbf$	*Total Vertical Earthquake Load*
$F_{EvM1\_linear} := \frac{F_{EvM1}}{height}$	$F_{EvM1\_linear} = 0.03 \cdot plf$	*Linear Vertical Earthquake Load*

H-Frame Vertical Pipe

$H_{pipe} := 5 \cdot ft$

$Pipe := 3.0$

$Wt_{p2} := Weight_{total}$ $Wt_{p2} = 37.9\,lbf$ *Total Weight of Pipe*

$F_{p2} := F_p$ $F_{p2} = 41.49\,lbf$ *Wind Load*

$F_{p2\_linear} := F_{p\_linear}$ $F_{p2\_linear} = 8 \cdot plf$ *Linear Wind Load on Pipe*

$DL_{ice.p2} := DL_{ice}$ $DL_{ice.p2} = 49.43\,lbf$ *Total Weight of Ice*

$DL_{ice.p2\_linear} := \frac{DL_{ice}}{H_{pipe}}$ $DL_{ice.p2\_linear} = 9.89 \cdot plf$ *Linear Ice Load on Pipe*

$F_{p2i} := F_{pi}$ $F_{p2i} = 9.71\,lbf$ *Wind Load with Ice*

$F_{p2i\_linear} := F_{pi\_linear}$ $F_{p2i\_linear} = 2 \cdot plf$ *Linear Wind Load with Ice on Pipe*

$F_{Ehp2} := Weight_{total} \cdot A_S \cdot C_S$ $F_{Ehp2} = 5.06\,lbf$ *Total Lateral Earthquake Load*

$F_{Ehp2\_linear} := \frac{F_{Ehp2}}{H_{pipe}}$ $F_{Ehp2\_linear} = 1.01 \cdot plf$ *Linear Lateral Earthquake Load*

$F_{Evp2} := 0.2 \cdot S_{DS} \cdot Weight_{total}$ $F_{Evp2} = 0.67\,lbf$ *Total Vertical Earthquake Load*

$F_{Evp2\_linear} := \frac{F_{Evp2}}{H_{pipe}}$ $F_{Evp2\_linear} = 0.13 \cdot plf$ *Linear Vertical Earthquake Load*

PL3/8x3:

Height	***Width/Diameter***	***Depth/Diameter***	***Weight***	***Shape***
height := 120in	width := 3in	depth := 0.375in	weight := 3.83plf	(•) Flat ( ) Round

$F_{FM1\_linear} := F_{F\_linear}$ $F_{FM1\_linear} = 14 \cdot plf$ *Linear Wind Load on Front Face*

$F_{SM1\_linear} := F_{S\_linear}$ $F_{SM1\_linear} = 2 \cdot plf$ *Linear Wind Load on Side Face*

$DL_{ice.M1\_linear} := \frac{DL_{ice}}{height}$ $DL_{ice.M1\_linear} = 7 \cdot plf$ *Linear Ice Load on Member*

$F_{FiM1\_linear} := F_{Fi\_linear}$ $F_{FiM1\_linear} = 4 \cdot plf$ *Linear Wind Load with Ice on Front Face*

$F_{SiM1\_linear} := F_{Si\_linear}$ $F_{SiM1\_linear} = 2 \cdot plf$ *Linear Wind Load with Ice on Side Face*

$F_{FM1} := F_F$ $F_{FM1} = 138.74 \cdot lbf$ *Wind Load on Front Face*

$F_{SM1} := F_S$ $F_{SM1} = 17.34 \cdot lbf$ *Wind Load on Side Face*

$F_{FiM1} := F_{Fi}$ $F_{FiM1} = 37.53 \cdot lbf$ *Wind Load with Ice on Front Face*

$F_{SiM1} := F_{Si}$ $F_{SiM1} = 23.58 \cdot lbf$ *Wind Load with Ice on Side Face*

$DL_{ice.M1} := DL_{ice}$ $DL_{ice.M1} = 69.97\ lbf$ *Total Weight of Ice*

$Wt_{M1} := Weight_{total}$ $Wt_{M1} = 38.3\ lbf$ *Total Weight of member*

$F_{EhM1} := Weight_{total} \cdot A_S \cdot C_s$ $F_{EhM1} = 5.11\ lbf$ *Total Lateral Earthquake Load*

$F_{EhM1\_linear} := \frac{F_{EhM1}}{height}$ $F_{EhM1\_linear} = 0.51 \cdot plf$ *Linear Lateral Earthquake Load*

$F_{EvM1} := 0.2 \cdot S_{DS} \cdot Weight_{total}$ $F_{EvM1} = 0.68\ lbf$ *Total Vertical Earthquake Load*

$F_{EvM1\_linear} := \frac{F_{EvM1}}{height}$ $F_{EvM1\_linear} = 0.07 \cdot plf$ *Linear Vertical Earthquake Load*

W12x22:

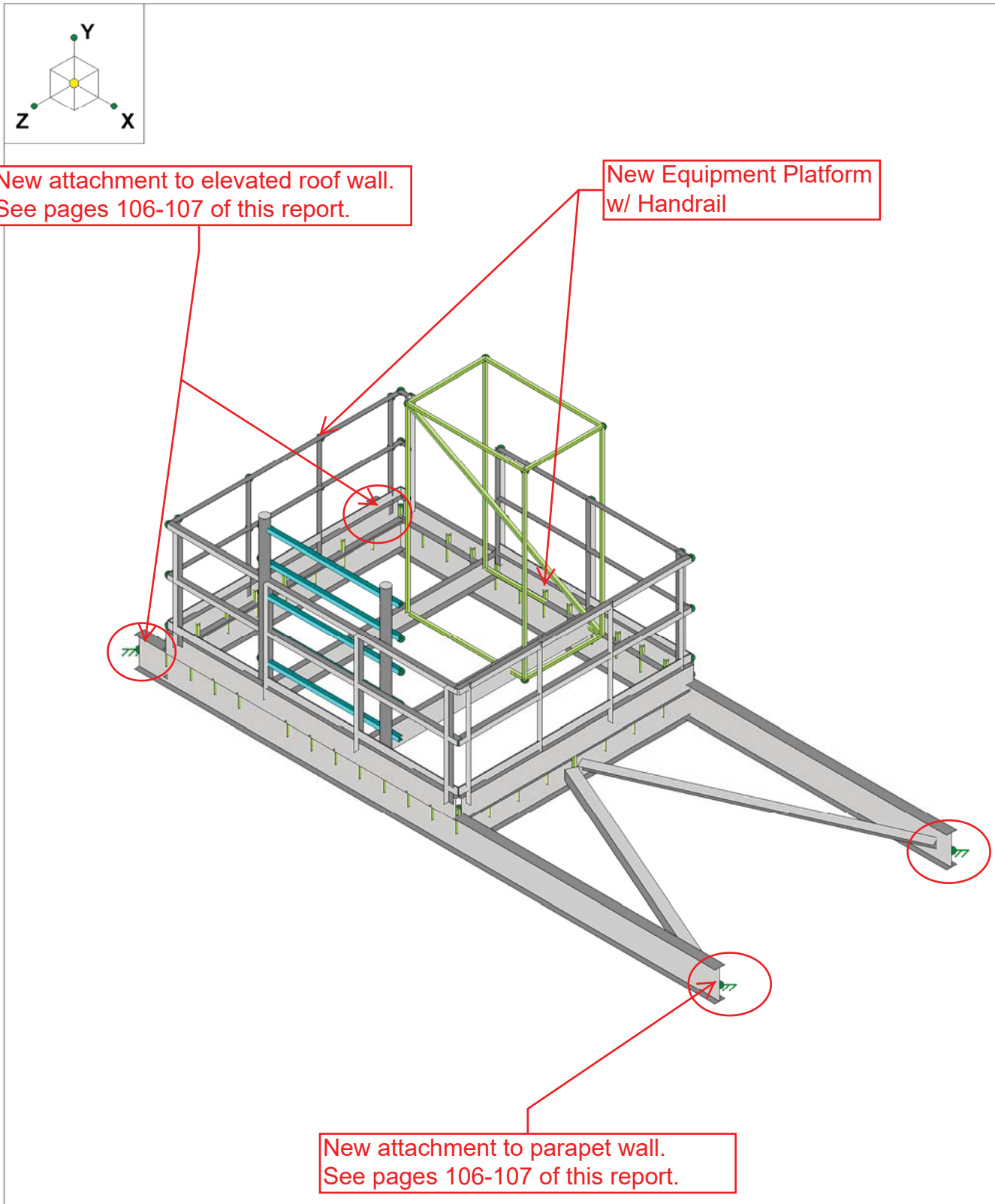
Height	***Width/Diameter***	***Depth/Diameter***	***Weight***	***Shape***
height := 96in	width := 12.3in	depth := 4in	weight := 22plf	(•) Flat ( ) Round

$F_{FM1\_linear} := F_{F\_linear}$	$F_{FM1\_linear} = 41 \cdot plf$	*Linear Wind Load on Front Face*
$F_{SM1\_linear} := F_{S\_linear}$	$F_{SM1\_linear} = 18 \cdot plf$	*Linear Wind Load on Side Face*
$DL_{ice.M1\_linear} := \frac{DL_{ice}}{height}$	$DL_{ice.M1\_linear} = 14.29 \cdot plf$	*Linear Ice Load on Member*
$F_{FiM1\_linear} := F_{Fi\_linear}$	$F_{FiM1\_linear} = 7 \cdot plf$	*Linear Wind Load with Ice on Front Face*
$F_{SiM1\_linear} := F_{Si\_linear}$	$F_{SiM1\_linear} = 4 \cdot plf$	*Linear Wind Load with Ice on Side Face*
$F_{FM1} := F_F$	$F_{FM1} = 324.64 \cdot lbf$	*Wind Load on Front Face*
$F_{SM1} := F_S$	$F_{SM1} = 145.52 \cdot lbf$	*Wind Load on Side Face*
$F_{FiM1} := F_{Fi}$	$F_{FiM1} = 56.79 \cdot lbf$	*Wind Load with Ice on Front Face*
$F_{SiM1} := F_{Si}$	$F_{SiM1} = 31.2 \cdot lbf$	*Wind Load with Ice on Side Face*
$DL_{ice.M1} := DL_{ice}$	$DL_{ice.M1} = 114.31\ lbf$	*Total Weight of Ice*
$Wt_{M1} := Weight_{total}$	$Wt_{M1} = 176\ lbf$	*Total Weight of member*
$F_{EhM1} := Weight_{total} \cdot A_S \cdot C_s$	$F_{EhM1} = 23.5\ lbf$	*Total Lateral Earthquake Load*
$F_{EhM1\_linear} := \frac{F_{EhM1}}{height}$	$F_{EhM1\_linear} = 2.94 \cdot plf$	*Linear Lateral Earthquake Load*
$F_{EvM1} := 0.2 \cdot S_{DS} \cdot Weight_{total}$	$F_{EvM1} = 3.13\ lbf$	*Total Vertical Earthquake Load*
$F_{EvM1\_linear} := \frac{F_{EvM1}}{height}$	$F_{EvM1\_linear} = 0.39 \cdot plf$	*Linear Vertical Earthquake Load*

W10x22:

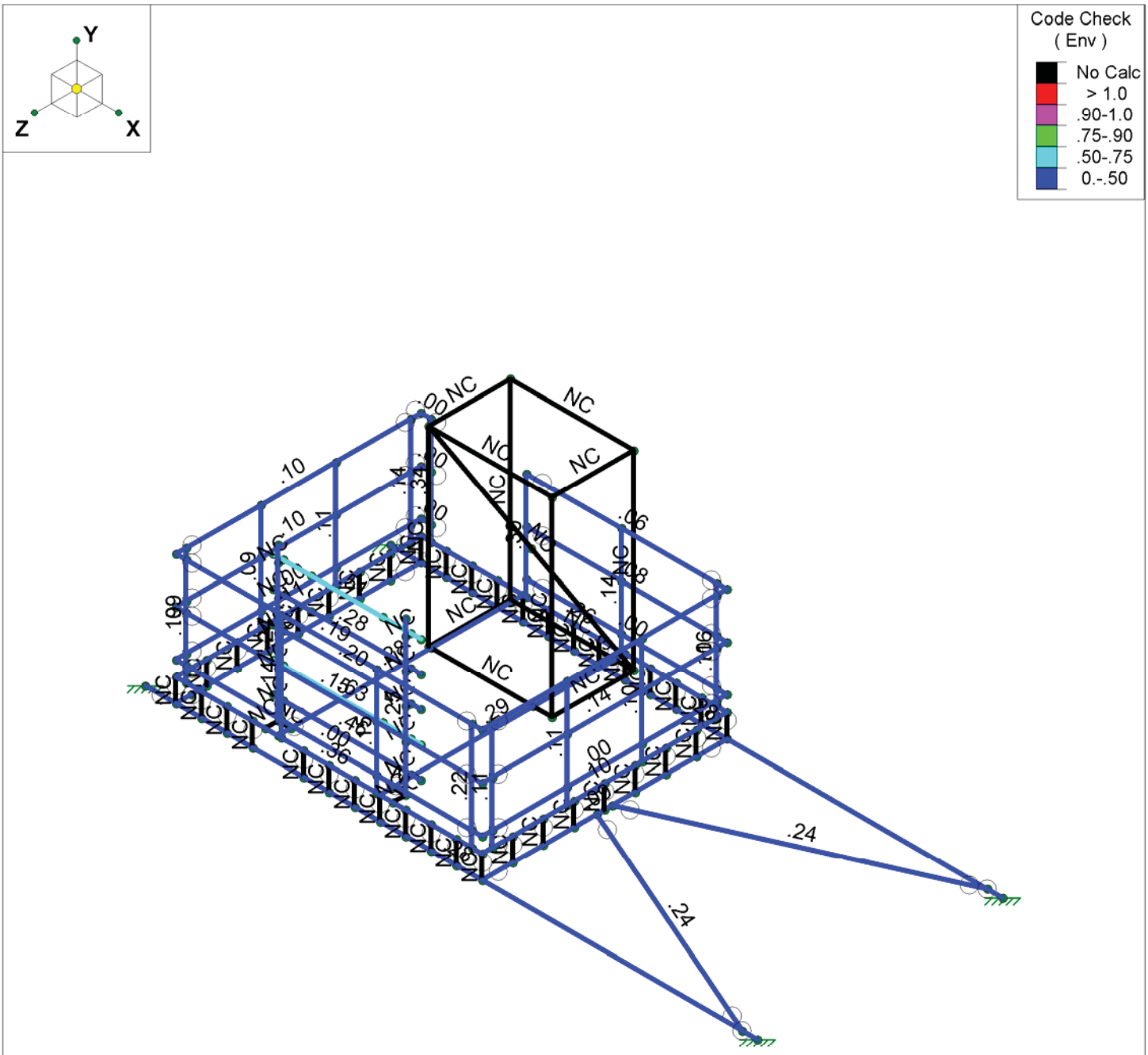
Height	***Width/Diameter***	***Depth/Diameter***	***Weight***	***Shape***
height := 288in	width := 10.2in	depth := 5.75in	weight := 22plf	(•) Flat ( ) Round

$F_{FM1\_linear} := F_{F\_linear}$	$F_{FM1\_linear} = 47 \cdot plf$	*Linear Wind Load on Front Face*
$F_{SM1\_linear} := F_{S\_linear}$	$F_{SM1\_linear} = 27 \cdot plf$	*Linear Wind Load on Side Face*
$DL_{ice.M1\_linear} := \frac{DL_{ice}}{height}$	$DL_{ice.M1\_linear} = 17.45 \cdot plf$	*Linear Ice Load on Member*
$F_{FiM1\_linear} := F_{Fi\_linear}$	$F_{FiM1\_linear} = 8 \cdot plf$	*Linear Wind Load with Ice on Front Face*
$F_{SiM1\_linear} := F_{Si\_linear}$	$F_{SiM1\_linear} = 6 \cdot plf$	*Linear Wind Load with Ice on Side Face*
$F_{FM1} := F_F$	$F_{FM1} = 1132.09 \cdot lbf$	*Wind Load on Front Face*
$F_{SM1} := F_S$	$F_{SM1} = 638.19 \cdot lbf$	*Wind Load on Side Face*
$F_{FiM1} := F_{Fi}$	$F_{FiM1} = 198.5 \cdot lbf$	*Wind Load with Ice on Front Face*
$F_{SiM1} := F_{Si}$	$F_{SiM1} = 140.03 \cdot lbf$	*Wind Load with Ice on Side Face*
$DL_{ice.M1} := DL_{ice}$	$DL_{ice.M1} = 418.79\ lbf$	*Total Weight of Ice*
$Wt_{M1} := Weight_{total}$	$Wt_{M1} = 528\ lbf$	*Total Weight of member*
$F_{EhM1} := Weight_{total} \cdot A_S \cdot C_S$	$F_{EhM1} = 70.49\ lbf$	*Total Lateral Earthquake Load*
$F_{EhM1\_linear} := \frac{F_{EhM1}}{height}$	$F_{EhM1\_linear} = 2.94 \cdot plf$	*Linear Lateral Earthquake Load*
$F_{EvM1} := 0.2 \cdot S_{DS} \cdot Weight_{total}$	$F_{EvM1} = 9.4\ lbf$	*Total Vertical Earthquake Load*
$F_{EvM1\_linear} := \frac{F_{EvM1}}{height}$	$F_{EvM1\_linear} = 0.39 \cdot plf$	*Linear Vertical Earthquake Load*



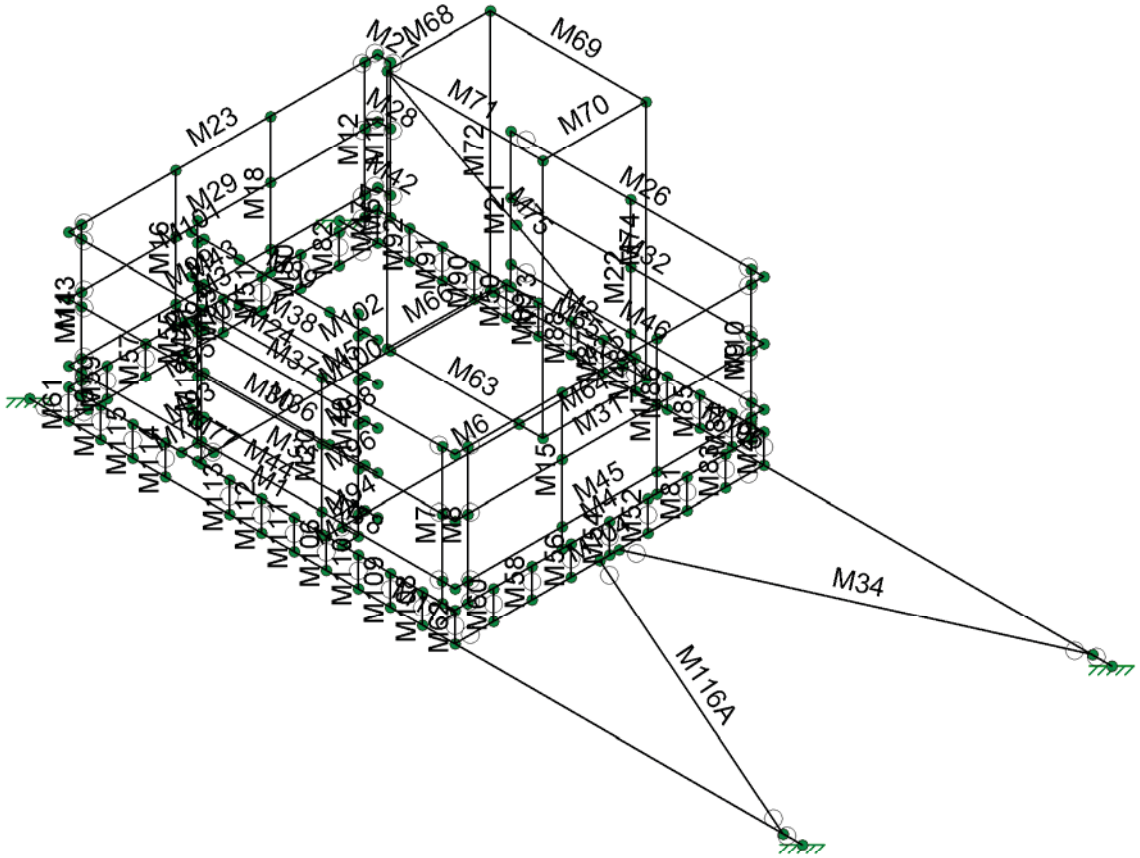
Envelope Only Solution

Fullerton Engineering Cons...		SK - 2
AA	Equipment Platform	June 2, 2022 at 1:51 PM
MWMKE00116	Rendered	MWMKE00116 - Equipment Platfor...



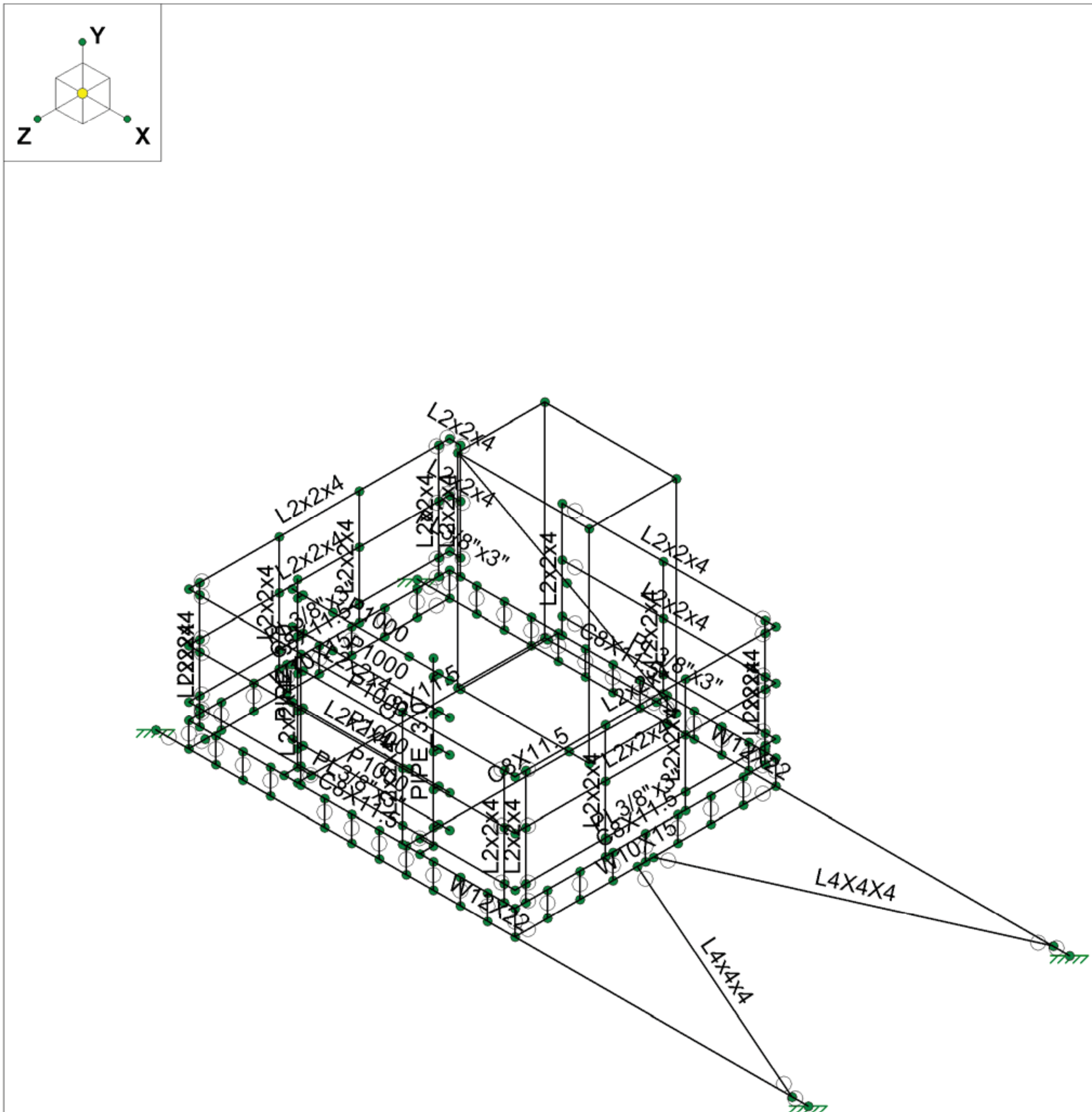
Member Code Checks Displayed (Enveloped)
Envelope Only Solution

Fullerton Engineering Cons...		SK - 3
AA	Equipment Platform	June 2, 2022 at 1:51 PM
MWMKE00116	Unity Bending	MWMKE00116 - Equipment Platfor...



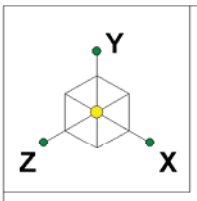
Envelope Only Solution

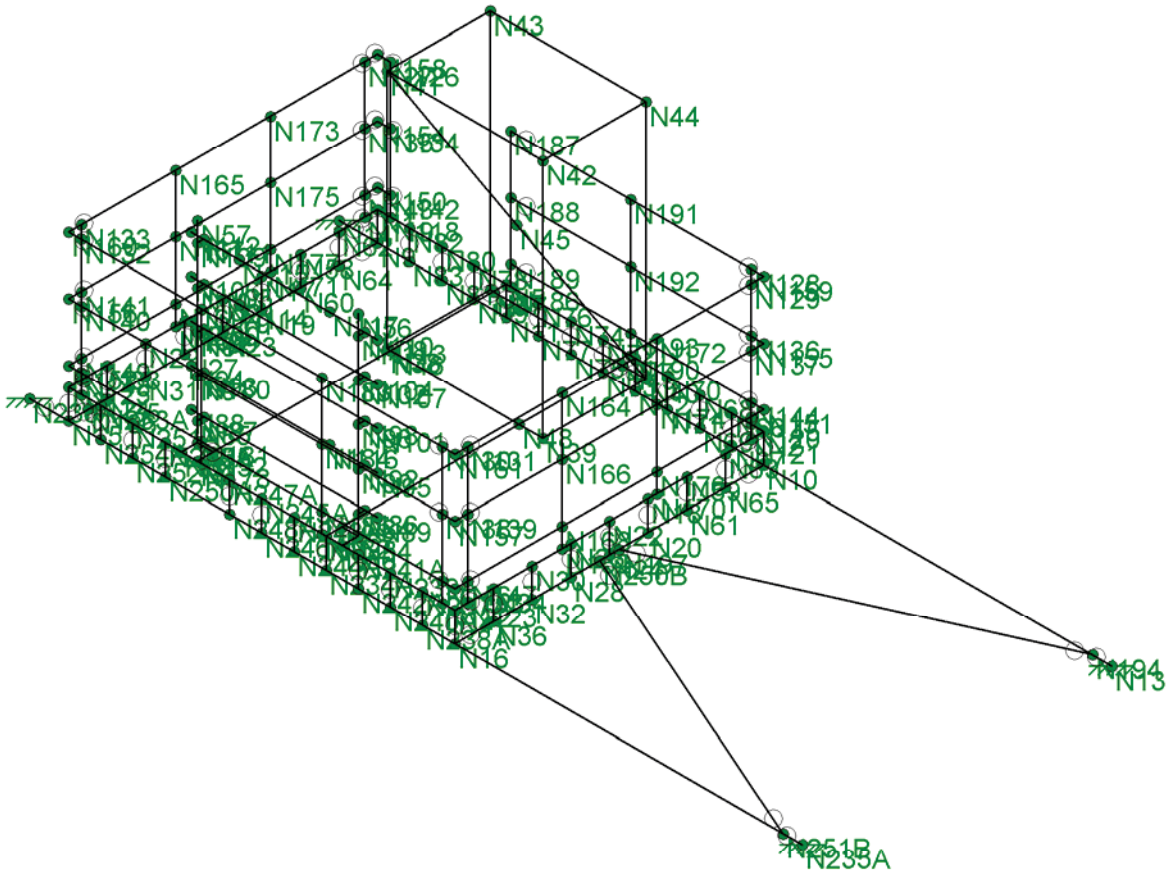
Fullerton Engineering Cons...		SK - 4
AA	Equipment Platform	June 2, 2022 at 1:52 PM
MWMKE00116	Members	MWMKE00116 - Equipment Platfor...



Envelope Only Solution

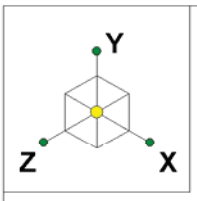
Fullerton Engineering Cons...		SK - 5
AA	Equipment Platform	June 2, 2022 at 1:52 PM
MWMKE00116	Shapes	MWMKE00116 - Equipment Platfor...

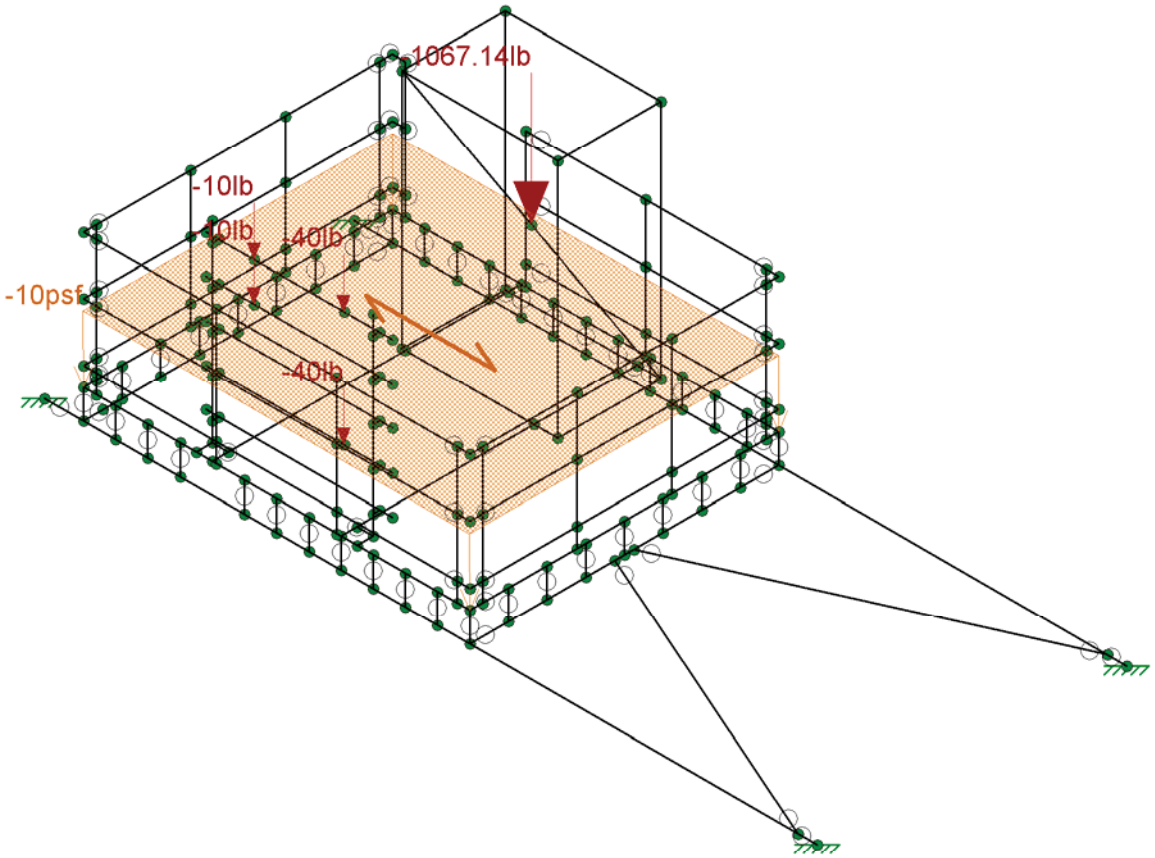




Envelope Only Solution

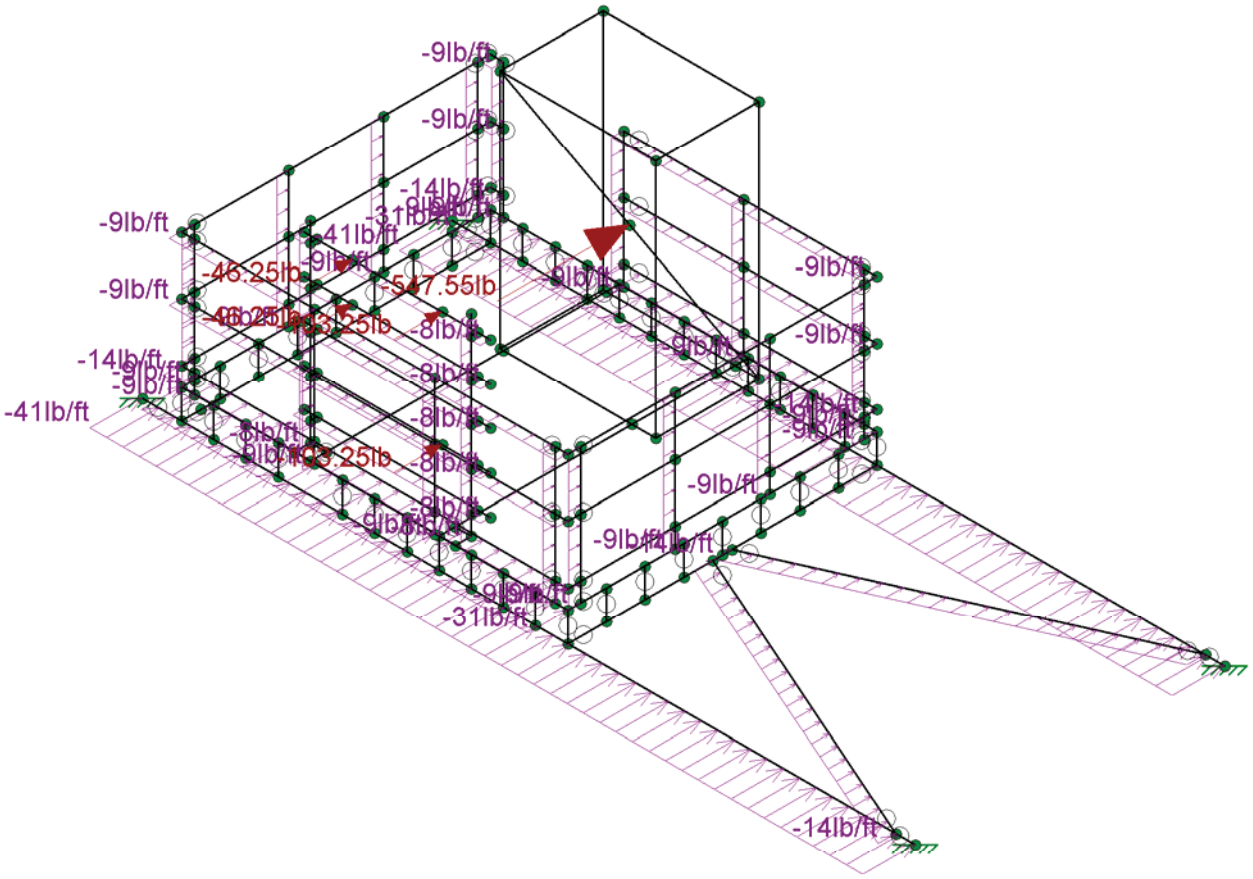
Fullerton Engineering Cons...		SK - 6
AA	Equipment Platform	June 2, 2022 at 1:52 PM
MWMKE00116	Nodes	MWMKE00116 - Equipment Platfor...





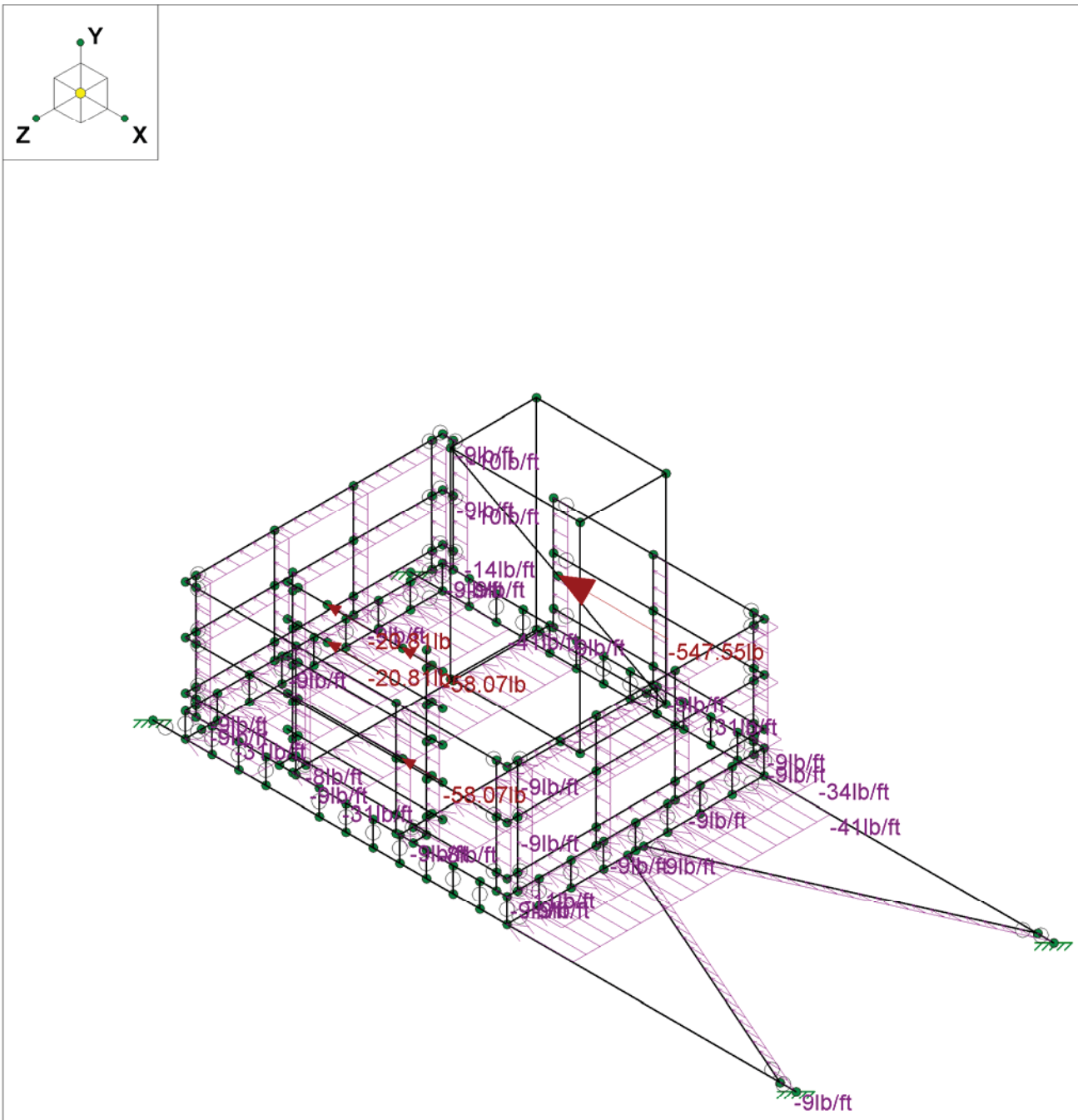
Loads: BLC 1, DL
Envelope Only Solution

Fullerton Engineering Cons...		SK - 7
AA	Equipment Platform	June 2, 2022 at 1:53 PM
MWMKE00116	Dead Load	MWMKE00116 - Equipment Platfor...



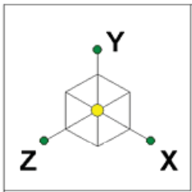
Loads: BLC 2, WL(0)
Envelope Only Solution

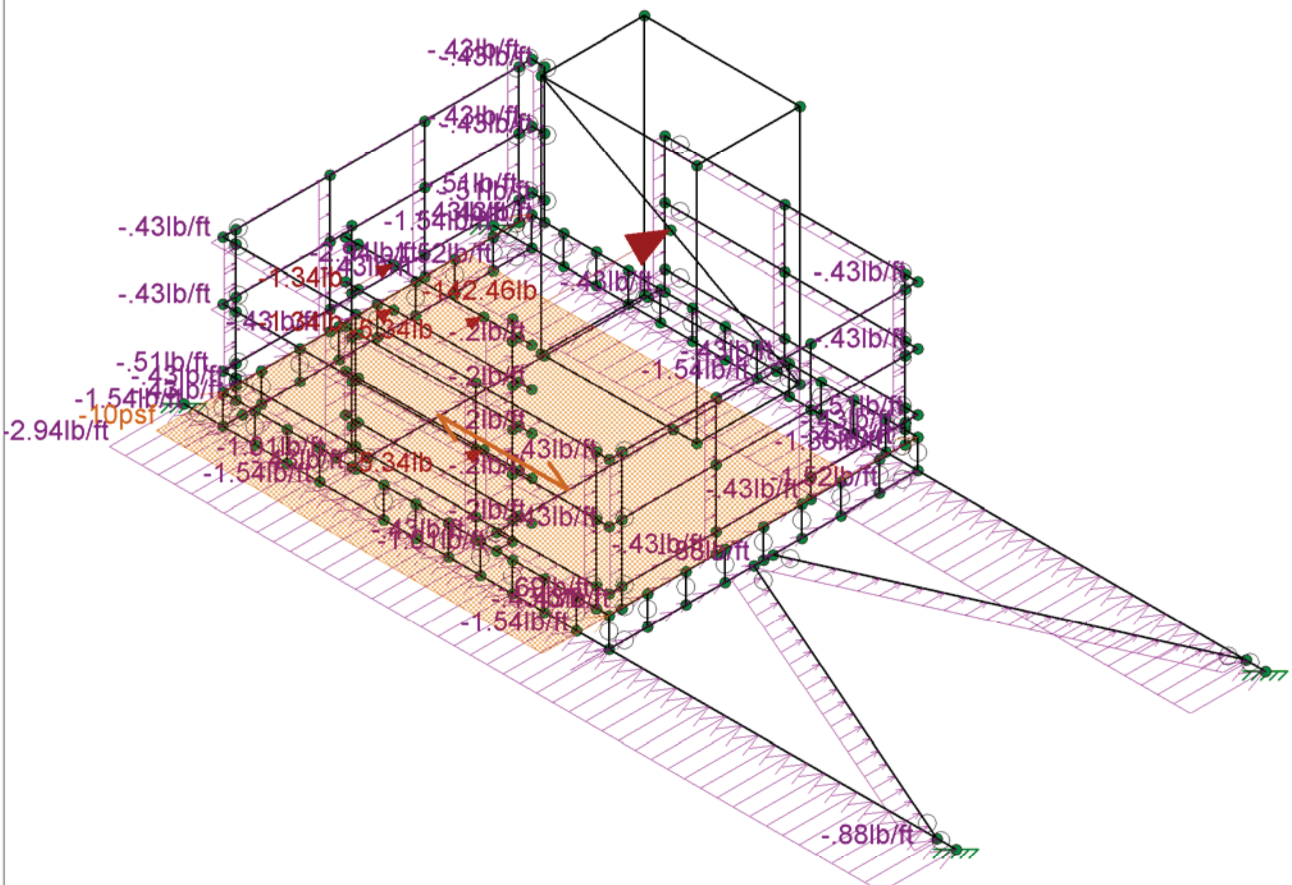
Fullerton Engineering Cons...		SK - 8
AA	Equipment Platform	June 2, 2022 at 1:54 PM
MWMKE00116	Wind Load Z	MWMKE00116 - Equipment Platfor...



Loads: BLC 3, WL(90)
Envelope Only Solution

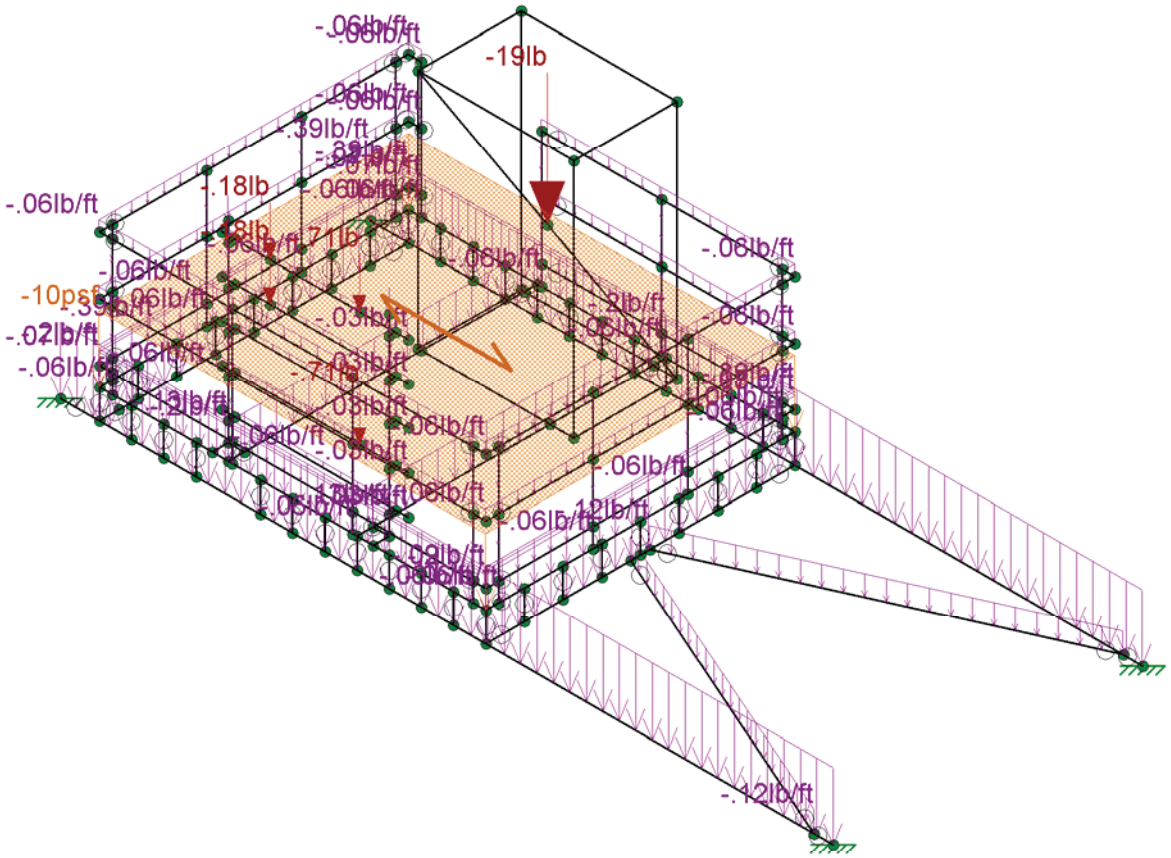
Fullerton Engineering Cons...		SK - 9
AA	Equipment Platform	June 2, 2022 at 1:54 PM
MWMKE00116	Wind Load X	MWMKE00116 - Equipment Platfor...





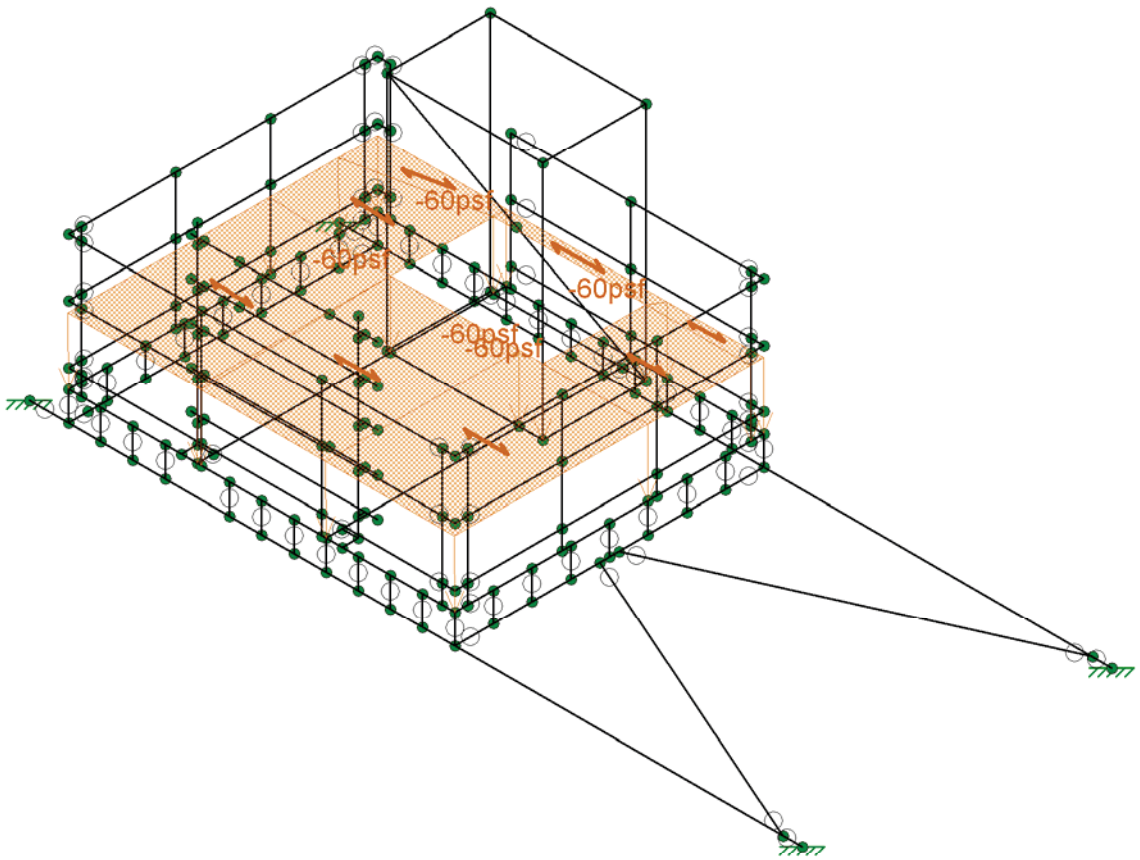
Loads: BLC 4, EH(0)
Envelope Only Solution

Fullerton Engineering Cons...		SK - 10
AA	Equipment Platform	June 2, 2022 at 1:54 PM
MWMKE00116	Seismic Load (Lateral)	MWMKE00116 - Equipment Platfor...



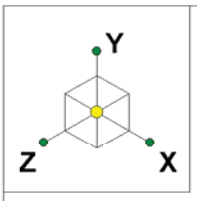
Loads: BLC 6, EV
Envelope Only Solution

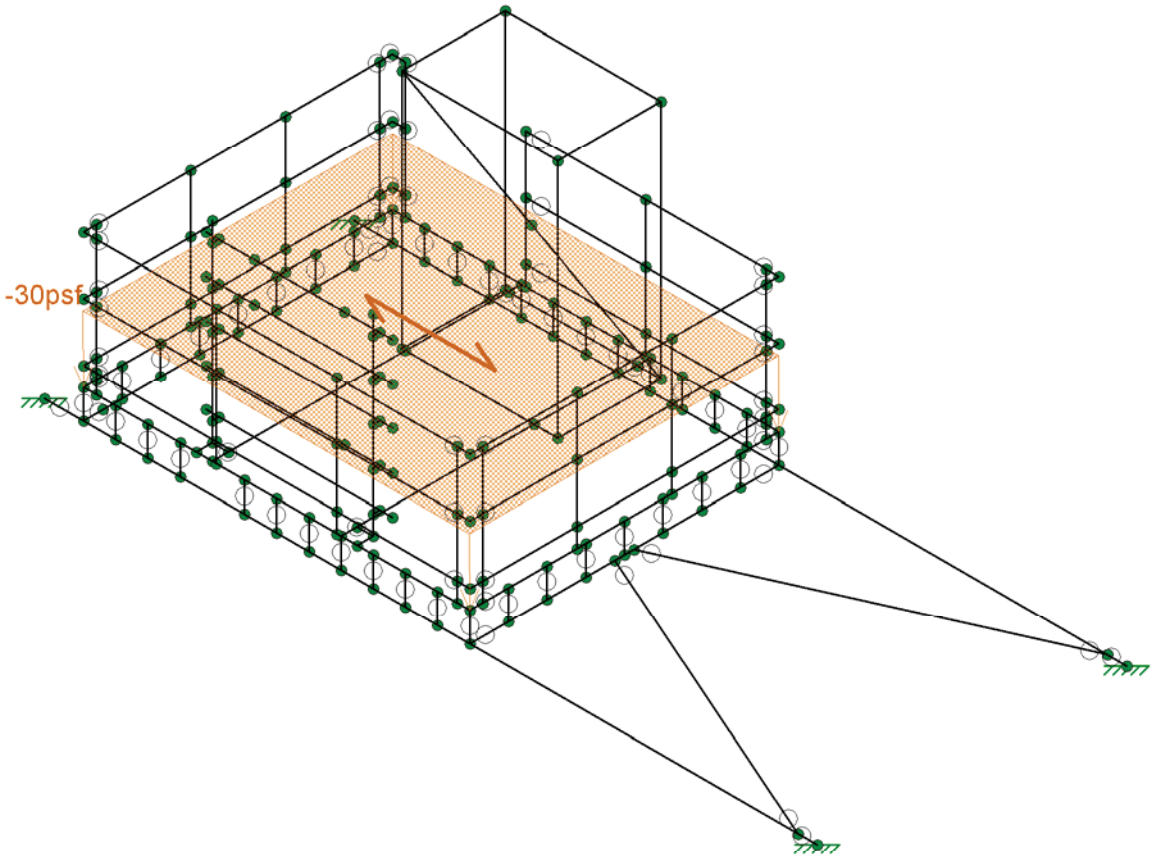
Fullerton Engineering Cons...		SK - 11
AA	Equipment Platform	June 2, 2022 at 1:55 PM
MWMKE00116	Seismic Load (Vertical)	MWMKE00116 - Equipment Platfor...



Loads: BLC 7, LL
Envelope Only Solution

Fullerton Engineering Cons...		SK - 12
AA	Equipment Platform	June 2, 2022 at 1:55 PM
MWMKE00116	Live Load	MWMKE00116 - Equipment Platfor...





Loads: BLC 8, SL
Envelope Only Solution

Fullerton Engineering Cons...		SK - 13
AA	Equipment Platform	June 2, 2022 at 1:56 PM
MWMKE00116	Snow Load	MWMKE00116 - Equipment Platfor...

(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 (in/sec^2)	386.4
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 15th(360-16): LRFD
Adjust Stiffness?	Yes(Iterative)
RISAConnection Code	AISC 15th(360-16): LRFD
Cold Formed Steel Code	AISI S100-16: LRFD
Wood Code	None
Wood Temperature	< 100F
Concrete Code	None
Masonry Code	None
Aluminum Code	None - Building
Stainless Steel Code	None

(Global) Model Settings, Continued

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

Seismic Code	ASCE 7-16
Seismic Base Elevation (in)	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	1
Cd X	1
Rho Z	1
Rho X	1

Hot Rolled Steel Design Parameters

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torq...	Kyy	Kzz	Cb	Function
1	M1	C8X11.5	120	0	0	0	0	0	.65	.65		Lateral
2	M2	C8X11.5	120	0	0	0	0	0	.65	.65		Lateral
3	M3	C8X11.5	96	0	0	0	0	0	1	1		Lateral
4	M4	C8X11.5	96	0	0	0	0	0	1	1		Lateral
5	M5	C8X11.5	96	0	0	0	0	0	1	1		Lateral
6	M6	C8X11.5	96	0	0	0	0	0	1	1		Lateral
7	M7	L2x2x4	42			Lbyy			.65	.65		Lateral
8	M8	L2x2x4	42			Lbyy			.65	.65		Lateral
9	M9	L2x2x4	42			Lbyy			.65	.65		Lateral
10	M10	L2x2x4	42			Lbyy			.65	.65		Lateral
11	M11	L2x2x4	42			Lbyy			.65	.65		Lateral
12	M12	L2x2x4	42			Lbyy			.65	.65		Lateral
13	M13	L2x2x4	42			Lbyy			.65	.65		Lateral
14	M14	L2x2x4	42			Lbyy			.65	.65		Lateral
15	M15	L2x2x4	42			Lbyy			.65	.65		Lateral
16	M16	L2x2x4	42			Lbyy			.65	.65		Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torq...	Kyy	Kzz	Cb	Function
17	M17	L2x2x4	42			Lbyy			.65	.65		Lateral
18	M18	L2x2x4	42			Lbyy			.65	.65		Lateral
19	M19	L2x2x4	42			Lbyy			.65	.65		Lateral
20	M20	L2x2x4	42			Lbyy			.65	.65		Lateral
21	M21	L2x2x4	42			Lbyy			.65	.65		Lateral
22	M22	L2x2x4	42			Lbyy			.65	.65		Lateral
23	M23	L2x2x4	96			Lbyy			1	1		Lateral
24	M24	L2x2x4	120			Lbyy			1	1		Lateral
25	M25	L2x2x4	96			Lbyy			1	1		Lateral
26	M26	L2x2x4	78.667			Lbyy			1	1		Lateral
27	M27	L2x2x4	4			Lbyy			1	1		Lateral
28	M28	L2x2x4	4			Lbyy			1	1		Lateral
29	M29	L2x2x4	96			Lbyy			1	1		Lateral
30	M30	L2x2x4	120			Lbyy			1	1		Lateral
31	M31	L2x2x4	96			Lbyy			1	1		Lateral
32	M32	L2x2x4	78.667			Lbyy			1	1		Lateral
33	M34	L4X4X4	111.485			Lbyy						Lateral
34	M40	PIPE_3.0	60	60	60	60	60	60	2.1	2.1		Lateral
35	M41	PIPE_3.0	60	60	60	60	60	60	2.1	2.1		Lateral
36	M42	PL3/8"x3"	4			Lbyy			1	1		Lateral
37	M43	PL3/8"x3"	96			Lbyy			1	1		Lateral
38	M44	PL3/8"x3"	120			Lbyy			1	1		Lateral
39	M45	PL3/8"x3"	96			Lbyy			1	1		Lateral
40	M46	PL3/8"x3"	78.667			Lbyy			1	1		Lateral
41	M103	W10X15	96	0	0	0	0	0	.8	.8		Lateral
42	M104	W10X15	96	0	0	0	0	0	.8	.8		Lateral
43	M105	W12X22	240	84	84	84	84	84	1	1		Lateral
44	M117	W12X22	240	84	84	84	84	84	1	1		Lateral
45	M116A	L4x4x4	111.485			Lbyy						Lateral

Material Takeoff

	Material	Size	Pieces	Length[in]	Weight[LB]
1	General				
2	RIGID		66	1107.4	0
3	Total General		66	1107.4	0
4					
5	Hot Rolled Steel				
6	A36 Gr.36	C8X11.5	6	624	596.303
7	A36 Gr.36	L2x2x4	26	1461.3	391.177
8	A36 Gr.36	L4X4X4	1	111.5	61.014
9	A36 Gr.36	L4x4x4	1	111.5	61.014
10	A36 Gr.36	PL3/8"x3"	5	394.7	125.903
11	A53 Gr. B	PIPE_3.0	2	120	70.438
12	A992	W10X15	2	192	240.1
13	A992	W12X22	2	480	882
14	Total HR Steel		45	3495	2427.948
15					
16	Cold Formed Steel				
17	A570 Gr.33	P1000	5	290	36.759
18	Total CF Steel		5	290	36.759

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribut...	Area(Me...	Surface(...
1	DL	None		-1		5			1	
2	WL(0)	None				5		69		
3	WL(90)	None				5		64		
4	EH(0)	None				5		98	1	
5	EH(90)	None				5		98	1	
6	EV	None				5		94	1	
7	LL	None							8	
8	SL	None							1	
9	BLC 1 Transient Area Loads	None						35		
10	BLC 8 Transient Area Loads	None						35		
11	BLC 4 Transient Area Loads	None						35		
12	BLC 6 Transient Area Loads	None						35		
13	BLC 5 Transient Area Loads	None						35		
14	BLC 7 Transient Area Loads	None						64		

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...	BLC	Fac...
1	1.4*DL	Yes	Y		1	1.4																				
2	1.2*DL + 1.0* WL(0...	Yes	Y		1	1.2	2	1	8	.5																
3	1.2*DL + 1.0*WL(9...	Yes	Y		1	1.2	3	1	8	.5																
4	1.2*DL + 1.0 * WL(...	Yes	Y		1	1.2	2	-1	8	.5																
5	1.2*DL + 1.0*WL(2...	Yes	Y		1	1.2	3	-1	8	.5																
6	1.2*DL+1.0*EH(0)+...	Yes	Y		1	1.2	4	1	6	1																
7	1.2*DL+1.0*EH(0)+...	Yes	Y		1	1.2	4	1	6	-1																
8	1.2*DL+1.0*EH(90)...	Yes	Y		1	1.2	5	1	6	1																
9	1.2*DL+1.0*EH(90)...	Yes	Y		1	1.2	5	1	6	-1																
10	1.2*DL+1.0*EH(18...	Yes	Y		1	1.2	4	-1	6	1																
11	1.2*DL+1.0*EH(18...	Yes	Y		1	1.2	4	-1	6	-1																
12	1.2*DL+1.0*EH(27...	Yes	Y		1	1.2	5	-1	6	1																
13	1.2*DL+1.0*EH(27...	Yes	Y		1	1.2	5	-1	6	-1																
14	0.9*DL+1.0*WL(0)	Yes	Y		1	.9	2	1																		
15	0.9*DL+1.0*WL(90)	Yes	Y		1	.9	3	1																		
16	0.9*DL+1.0*WL(180)	Yes	Y		1	.9	2	-1																		
17	0.9*DL+1.0*WL(270)	Yes	Y		1	.9	3	-1																		
18	0.9*DL+1.0*EH(0)-...	Yes	Y		1	.9	4	1	6	-1																
19	0.9*DL+1.0*EH(0)-...	Yes	Y		1	.9	4	1	6	1																
20	0.9*DL+1.0*EH(90)...	Yes	Y		1	.9	5	1	6	-1																
21	0.9*DL+1.0*EH(90)...	Yes	Y		1	.9	5	1	6	1																
22	0.9*DL+1.0*EH(18...	Yes	Y		1	.9	4	-1	6	-1																
23	0.9*DL+1.0*EH(18...	Yes	Y		1	.9	4	-1	6	1																
24	0.9*DL+1.0*EH(27...	Yes	Y		1	.9	5	-1	6	-1																
25	0.9*DL+1.0*EH(27...	Yes	Y		1	.9	5	-1	6	1																
26	1.2*DL+1.6*LL+0.5...	Yes	Y		1	1.2	7	1.6	8	.5																
27	1.2*DL+1.6*LL+0.5...	Yes	Y		1	1.2	7	1.6	2	.5																
28	1.2*DL+1.6*LL+0.5...	Yes	Y		1	1.2	7	1.6	3	.5																
29	1.2*DL+1.6*LL+0.5...	Yes	Y		1	1.2	7	1.6	2	-.5																
30	1.2*DL+1.6*LL+0.5...	Yes	Y		1	1.2	7	1.6	3	-.5																
31	DL	Yes	Y		1	1																				

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-in]	LC	MY [lb-in]	LC	MZ [lb-in]	LC
1	N13	max	2770.443	16	2125.02	26	1709.421	2	.545	14	0	31	0	31
2		min	-6767.404	2	504.318	16	-1713.294	4	-5.418	29	0	1	0	1
3	N14	max	4666.039	28	4431.327	26	811.996	14	.014	14	0	31	0	31
4		min	503.969	17	764.569	16	-839.217	4	-.139	29	0	1	0	1
5	N235A	max	3129.864	14	2129.09	26	1698.538	2	5.403	27	0	31	0	31
6		min	-6189.022	4	390.421	14	-1698.425	4	.297	16	0	1	0	1
7	N236A	max	4398.243	28	4521.289	26	464.724	2	.139	27	0	31	0	31
8		min	248.395	17	505.132	14	-434.599	16	.008	16	0	1	0	1
9	N153	max	LOCKED		LOCKED		LOCKED		NC		NC		NC	
10		min	LOCKED		LOCKED		LOCKED		NC		NC		NC	
11	N151	max	LOCKED		LOCKED		LOCKED		NC		NC		NC	
12		min	LOCKED		LOCKED		LOCKED		NC		NC		NC	
13	N152	max	LOCKED		LOCKED		LOCKED		NC		NC		NC	
14		min	LOCKED		LOCKED		LOCKED		NC		NC		NC	
15	N150	max	NC		LOCKED		LOCKED		NC		NC		NC	
16		min	NC		LOCKED		LOCKED		NC		NC		NC	
17	Totals:	max	3618.706	3	13206.726	26	4676.997	2						
18		min	-3618.702	17	3118.264	22	-4676.985	16						

Max. Stress Ratio<1
Members are adequate

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

	Member	Shape	Code Check	Loc[in]	LC	Shear Ch	Loc[in]	Dir	LC	phi*Pnc ...	phi*Pnt [...	phi*Mn ...	phi*Mn ...	Cb	Eqn
1	M1	C8X11.5	.365	85	4	.212	10	y	26	109188	109188	40231.28	312012	1.589	H1-1b
2	M11	L2x2x4	.341	0	5	.012	0	z	5	23536.6...	30585.6	8291.204	18922.19	2.578	H2-1
3	M21	L2x2x4	.297	0	2	.011	0	y	2	23536.6...	30585.6	8291.204	18922.19	1.789	H2-1
4	M6	C8X11.5	.290	4	30	.104	0	z	26	109188	109188	40231.28	312012	1.437	H1-1b
5	M5	C8X11.5	.285	92	26	.096	92	z	26	109188	109188	40231.28	312012	1.433	H1-1b
6	M105	W12X22	.280	132.5	27	.065	122.5	y	26	142305....	291600	164700	981699....	1	H1-1b
7	M117	W12X22	.279	132.5	29	.066	122.5	y	26	142305....	291600	164700	981699....	1	H1-1b
8	M2	C8X11.5	.264	120	2	.347	40	y	2	109188	109188	40231.28	312012	1.528	H1-1b
9	M40	PIPE_3.0	.251	0	4	.165	0		4	36138.4	65205	68985	68985	1	H1-1b
10	M41	PIPE_3.0	.242	0	4	.167	0		4	36138.4	65205	68985	68985	1	H1-1b
11	M116A	L4x4x4	.242	54.5...	16	.004	0	y	2	21507.2...	62532	37651.1...	60842.4	1.136	H2-1
12	M34	L4X4X4	.242	56.9...	14	.004	111....	y	4	21507.2...	62532	37651.1...	60842.4	1.136	H2-1
13	M7	L2x2x4	.216	0	30	.065	0	y	2	23536.6...	30585.6	8291.204	18922.19	2.389	H2-1
14	M14	L2x2x4	.192	0	28	.059	0	z	2	23536.6...	30585.6	8291.204	18922.19	2.38	H2-1
15	M24	L2x2x4	.188	60	2	.012	5	z	2	2218.05	30585.6	8291.204	13882.5...	1.151	H2-1
16	M10	L2x2x4	.156	0	5	.069	0	y	2	23536.6...	30585.6	8291.204	18922.19	2.272	H2-1
17	M30	L2x2x4	.151	41.25	2	.027	120	y	30	2218.05	30585.6	8291.204	14540.7...	1.312	H2-1
18	M20	L2x2x4	.147	0	4	.014	0	y	16	23536.6...	30585.6	8291.204	18922.19	2.359	H2-1
19	M19	L2x2x4	.142	0	3	.016	0	y	4	23536.6...	30585.6	8291.204	18922.19	2.708	H2-1
20	M31	L2x2x4	.137	4	30	.032	4	y	5	3465.703	30585.6	8291.204	17715.1...	2.325	H2-1
21	M22	L2x2x4	.136	0	2	.038	0	y	4	23536.6...	30585.6	8291.204	18922.19	1.646	H2-1
22	M12	L2x2x4	.135	0	5	.033	0	y	3	23536.6...	30585.6	8291.204	18399.3...	1.27	H2-1
23	M25	L2x2x4	.125	48	3	.018	4	y	5	3465.703	30585.6	8291.204	14928.9...	1.139	H2-1
24	M18	L2x2x4	.114	0	5	.012	0	y	5	23536.6...	30585.6	8291.204	18922.19	2.32	H2-1
25	M8	L2x2x4	.111	0	4	.037	0	y	5	23536.6...	30585.6	8291.204	18922.19	2.274	H2-1
26	M3	C8X11.5	.108	84	3	.153	96	z	3	109188	109188	40231.28	312012	1.486	H1-1b
27	M15	L2x2x4	.107	0	4	.012	0	y	3	23536.6...	30585.6	8291.204	18922.19	2.579	H2-1
28	M9	L2x2x4	.104	0	4	.037	0	y	5	23536.6...	30585.6	8291.204	18922.19	2.196	H2-1
29	M4	C8X11.5	.103	84	5	.104	62	z	5	109188	109188	40231.28	312012	1.446	H1-1b
30	M23	L2x2x4	.101	53	5	.014	4	z	5	3465.703	30585.6	8291.204	15190.3...	1.206	H2-1
31	M29	L2x2x4	.101	50	5	.020	92	y	27	3465.703	30585.6	8291.204	14888.0...	1.129	H2-1
32	M17	L2x2x4	.096	0	2	.012	0	y	5	23536.6...	30585.6	8291.204	18922.19	2.371	H2-1
33	M13	L2x2x4	.090	0	2	.041	0	y	5	23536.6...	30585.6	8291.204	18922.19	2.252	H2-1
34	M16	L2x2x4	.090	0	4	.013	0	y	5	23536.6...	30585.6	8291.204	18922.19	2.481	H2-1

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

	Member	Shape	Code Check	Loc[in]	LC	Shear Ch..	Loc[in]	Dir	LC	phi*Pnc ...	phi*Pnt [...	phi*Mn ...	phi*Mn ...	Cb	Eqn
35	M104	W10X15	.089	51	4	.064	51	z	2	189395....	198450	103500	720000	1.198	H1-1b
36	M32	L2x2x4	.079	40.9...	2	.016	0	y	5	5161.219	30585.6	8291.204	16738.2...	1.44	H2-1
37	M103	W10X15	.071	48	5	.006	96	y	26	189395....	198450	103500	720000	1.109	H1-1b
38	M26	L2x2x4	.060	31.9...	4	.015	78.6...	z	2	5161.219	30585.6	8291.204	16050.85	1.208	H2-1
39	M28	L2x2x4	.003	1.292	5	.000	4	z	16	30414.0...	30585.6	8291.204	18922.19	1.136	H2-1
40	M27	L2x2x4	.000	2	4	.000	4	z	16	30414.0...	30585.6	8291.204	18922.19	1.136	H2-1
41	M42	PL3/8"x3"	.000	0	15	.000	0	z	16	33922.0...	36450	3417.196	27337.5	1.136	H1-1b*
42	M43	PL3/8"x3"	.000	0	31	.000	0	y	31	323.18	36450	3417.196	13620.3	1	H1-1a
43	M44	PL3/8"x3"	.000	0	31	.000	0	y	31	206.835	36450	3417.196	10896.24	1	H1-1a
44	M45	PL3/8"x3"	.000	0	31	.000	0	y	31	323.18	36450	3417.196	13620.3	1	H1-1a
45	M46	PL3/8"x3"	.000	0	31	.000	0	y	31	481.289	36450	3417.196	16621.3...	1	H1-1a

Equipment Platform Connection Calculations

New equipment platform will be attached to existing parapet wall and elevated roof wall via (4) Thru-Bolts 5/8" Ø

Maximum Reactions from Risa Mount Analysis per one thru-bolt:

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-in]	LC	MY [lb-in]	LC	MZ [lb-in]	LC
1	N13	max	2770.443	16	2125.02	26	1709.421	2	.545	14	0	31	0	31
2		min	-6767.404	2	504.318	16	-1713.294	4	-5.418	29	0	1	0	1
3	N14	max	4666.039	28	4431.327	26	811.996	14	.014	14	0	31	0	31
4		min	503.969	17	764.569	16	-839.217	4	-.139	29	0	1	0	1
5	N235A	max	3129.864	14	2129.09	26	1698.538	2	5.403	27	0	31	0	31
6		min	-6189.022	4	390.421	14	-1698.425	4	.297	16	0	1	0	1
7	N236A	max	4398.243	28	4521.289	26	464.724	2	.139	27	0	31	0	31
8		min	248.395	17	505.132	14	-434.599	16	.008	16	0	1	0	1

$X := \frac{6767.404}{4}\,lbf = 1691.85\,lbf$ *Maximum Factored Reaction - X direction*

$Y := \frac{2125.02}{4}\,lbf = 531.25\,lbf$ *Maximum Factored Reaction - Y direction*

$Z := \frac{1713.294}{4}\,lbf = 428.32\,lbf$ *Maximum Factored Reaction - Z direction*

$P_t := X$ $P_t = 1691.85\,lbf$ *Factored Tensile Force*

$P_v := \sqrt{Y^2 + Z^2}$ $P_v = 682.42\,lbf$ *Factored Shear Force*

$d_b := 0.625in$ *Diameter of thru-bolt*

$A_b := 0.25\pi \cdot d_b^{\,2}$ $A_b = 0.31 \cdot in^2$ *Area of thru-bolt*

$P_{t\_bolt} := P_t$ $P_{t\_bolt} = 1691.85\,lbf$ *Tension at each thru-bolt*

$P_{v\_bolt} := P_v$ $P_{v\_bolt} = 682.42\,lbf$ *Shear at each thru-bolt*

Tensile and Shear Strength of Thru-Bolts

$F_{nt} := 45ksi$ — *Nominal tensile strength per AISC 360, Table J3.2*

$F_{nv} := 27ksi$ — *Nominal shear strength per AISC 360, Table J3.2*

$\Phi_{bolt} := 0.75$ — *Resistance Factor (LRFD - AISC 360, Section J3-6)*

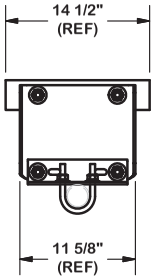
$R_{nt} := \Phi_{bolt} \cdot F_{nt} \cdot A_b$ $\quad R_{nt} = 10.35 \cdot kip$ — *Design Nominal Tensile Strength (AISC 360, Section J3-1)*

$R_{nv} := \Phi_{bolt} \cdot F_{nv} \cdot A_b$ $\quad R_{nv} = 6.21 \cdot kip$ — *Design Nominal Shear Strength (AISC 360, Section J3-1)*

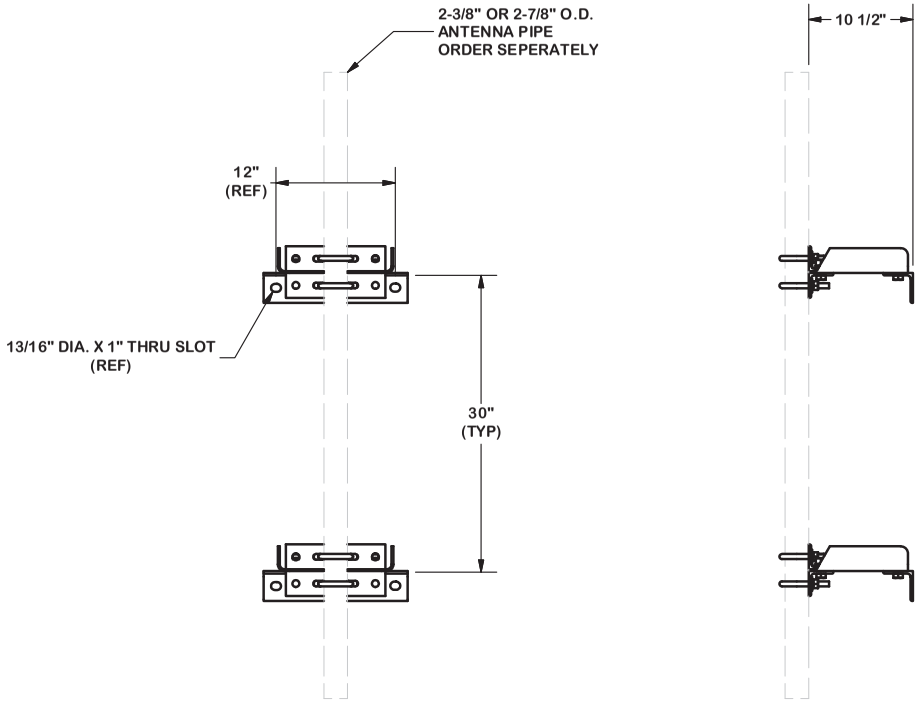
$\frac{P_{t\_bolt}}{R_{nt}} = 16.34 \cdot \%$ ***< 30%***

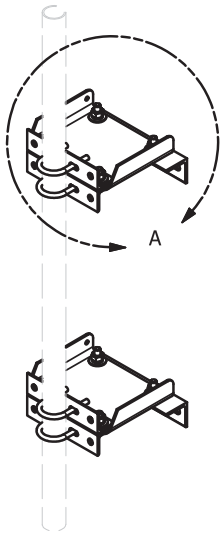
$\frac{P_{v\_bolt}}{R_{nv}} = 10.98 \cdot \%$ ***< 30%***

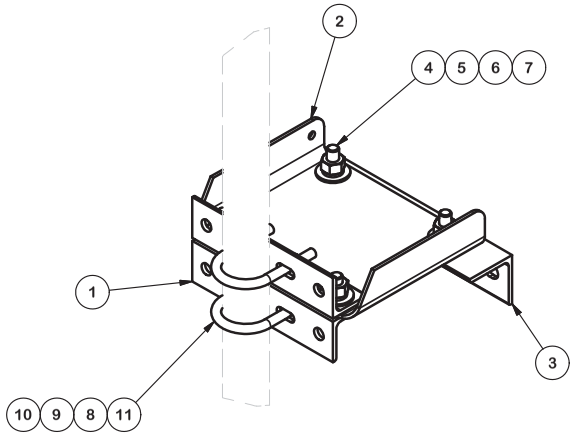
Check = "Thru-Bolts are adequate. Effects of combined stress don't need to be investigated because ratio of either tension or shear is under 30%"



PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	4	X-SLD-A	SLIDER BRACKET ANGLE	10 in	3.28	13.12
2	2	X-SLD-BP	SLIDER BRACKET BENT PLATE	15 3/4 in	8.13	16.26
3	2	X-SLD3	SLIDER BRACKET WALL ANGLE	14 1/2 in	6.10	12.20
4	8	G5802	5/8" x 2" HDG HEX BOLT GR5		0.27	2.16
5	8	G58FW	5/8" HDG USS FLATWASHER	1/8 in	0.07	0.56
6	8	G58LW	5/8" HDG LOCKWASHER		0.03	0.21
7	8	G58NUT	5/8" HDG HEAVY 2H HEX NUT		0.13	1.04
8	8	G12FW	1/2" HDG USS FLATWASHER	3/32 in	0.03	0.27
9	8	G12LW	1/2" HDG LOCKWASHER	1/8 in	0.01	0.11
10	8	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	0.57
11	4	X-UB1212	1/2" X 2-1/2" X 4-1/2" X 2" GALV. U-BOLT		0.66	2.65
11	4	X-UB1300	1/2" X 3" X 5" X 2" GALV U-BOLT		0.74	2.95
					TOTAL WT. #	51.93







DETAIL A

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
SLIDER BRACKET
WALL MOUNT
2-3/8" & 2-7/8" O.D. PIPE

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

CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.	PAGE
	BMC 3/8/2011		SBWM	1 OF 1
CLASS / SUB	DRAWING USAGE	CHECKED BY	DWG. NO.	
81 / 01	CUSTOMER	RCH 3/14/2011	SBWM	