



Special Meeting of the Franklin Economic Development Commission (EDC)

Agenda

**Franklin City Hall, Hearing Room
9229 W. Loomis Road, Franklin, Wisconsin
September 30, 2026 – 6:00 p.m.**

Chairman Steve Bobowski
Cathleen Richard
Mike Barber

Barbara Wesener
Timothy Wachter
Aldерwoman Michelle Eichmann

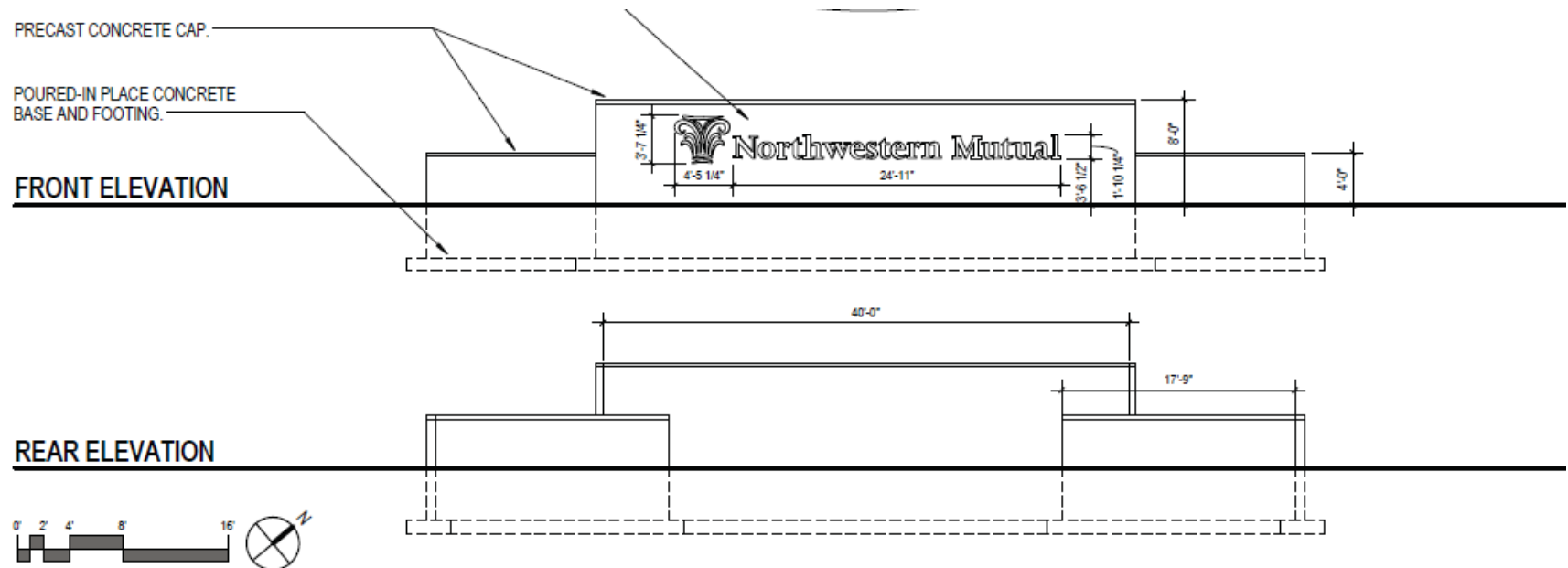
- I. Call to Order and Roll Call
 - A. Pledge of Allegiance
- II. Citizen Comment Period
- III. Approve Proposal For The Fabrication And Installation Of A City Sign on an existing sign monument at northwest corner of West Drexel Avenue and South 27th Street.
- IV. Paleria Brothers LLC, 9848 S 57th St. (FLEX 2020 LLC, PROPERTY OWNER)
Minor site plan amendment to allow for photovoltaic (solar) panels for Paleria Brothers LLC, in the City of Franklin Industrial Park. Photovoltaic (solar) panels as a utility feature require EDC approval in accordance with Sec. 12.10(18) of Planned Development Legacy (PDL) 7.
- V. Adjournment

Notice is given that a majority of the Common Council may attend this meeting to gather information about an Agenda item over which they have decision making responsibility. This may constitute a meeting of the Council per *State ex rel. Badke v. Greendale Village Board*, even though the Common Council will not take formal action at this meeting.

Notice is given that upon reasonable notice, efforts will be made to accommodate the needs of disabled individuals through appropriate aids and services. For additional information, please contact the Franklin City Clerk's office at (414) 425-7500.

FORMER NORTHWESTERN MUTUAL SIGN DIMENTIONS

Mounting Surface (Face) 8' X 40'





BRAND STANDARDS GUIDE

PREFERRED



PREFERRED REVERSE



SINGLE COLOR BLUE



SINGLE COLOR WHITE



SINGLE COLOR BLACK



MINIMUM SIZE

To ensure that the logo is always legible, it should never be reproduced smaller than 1" wide.



Preferred Logo

The color logo is the preferred version for reproduction.

Single Color Logo

When circumstances don't allow for color reproduction, or for applications such as embossing, engraving, vehicle decals, etc., the black, blue or white versions of the logo can be used.

TAGLINE LOGO LOCKUP

Our tagline "Celebrating Quality of Life" appears in a specific size, type, color and locked up relationship to the logo. Always use this logo / tagline lockup version when showing the logo with the tagline.



TAGLINE GRAPHIC

The tagline may be used alone as a design element. It appears in a specific type and in a single color – bright blue from the Franklin color palette, black or white. Leave ample clear space around the tagline to maintain readability and impact. Only use an approved tagline art file.

Positioning on a page is either bottom left, aligned with the Franklin type in the logomark or bottom right. The Franklin letterhead is an example of the tagline used separately and in the correct position.

Celebrating Quality of Life

Celebrating Quality of Life

Celebrating Quality of Life

CLEAR SPACE

The space directly surrounding the logo is the clearspace. To ensure the visibility and impact of the Franklin logo, this clearspace must be kept free of other competing visual elements such as type, images and other logos. The clearspace above, below and on each side is equal to the height of the lower case letters in the logo.



ALIGNING WITH THE LOGOMARK



Typography should be aligned flush left with the Franklin Wisconsin type in the logo, allowing the banner icon to be set-off and emphasized on the left. This alignment is illustrated on the corporate letterhead as shown on page 6.

DO NOT

Do not place logo over an image or pattern



Don't apply any filters or textures



Do not skew or stretch



Don't change logo orientation



Do not use alternate colors



Don't apply shadows, glow effects, or outlines



Do not fade or screen



LIMITED USE IDENTITY ELEMENTS

Franklin banner icon full color



Franklin banner icon single color



Typographic logo full color



Typographic logo single color



In limited uses the Franklin banner icon and logotype may be split up. This should only be used in decorative applications such as banners. Some examples of that usage are shown below.



COLOR

Primary Palette

The colors of the primary palette are those found in the Franklin logo. These colors should be used in all materials, publications and communications.



CMYK	100C 85M 30Y 23K
RGB	0R 46G 109B
HEX	002e6d
PANTONE	294



CMYK	62C 0M 96Y 0K
RGB	107R 190G 74B
HEX	6bbe4a
PANTONE	360



CMYK	82C 12M 0Y 0K
RGB	0R 167G 227B
HEX	00a7e1
PANTONE	2995



CMYK	0C 26M 100Y 0K
RGB	254R 192G 15B
HEX	fec00f
PANTONE	7408

GRAPHIC BANNER ELEMENTS

Distinctive banner graphics have been developed to enhance and strengthen the Franklin brand. They are appropriate for print, digital and dimensional applications.



TYPEFACES

Roboto Sans Condensed and Merriweather Light are the Franklin brand typestyles. Consistent use of these fonts in all communications is integral to maintaining the brand. Both fonts are free downloads for both PC and Mac from many different font websites and are easily found on a Google search.

Headline

ROBOTO SANS CONDENSED BOLD CAPS

Subhead

Roboto Sans Condensed Bold

Body Copy

Roboto Sans Condensed
Roboto Sans Condensed Italic

Roboto Sans Condensed Light
Roboto Sans Condensed Light Italic

Merriweather Light
Merriweather Light Italic

FILE TYPE USAGE

File type	Description	Usage	Software
	An .EPS file is a vector-based file meaning your logo can be enlarged or made smaller . When increasing or decreasing the size of your logo it will not become blurry. An.EPS file can only be opened/edited using specific design software.	An .EPS file is used for printing purposes such as signs, business cards, postcards, brochures, t-shirts, hats, etc..EPS files are set up either in Pantone (PMS) colors or CMYK colors.	Quark, Illustrator, InDesign, Corel, High resolution printing software
	A .JPG file is a pixel-based file that cannot be enlarged but can be made smaller. When increasing the size of your logo it WILL cause pixelation causing your logo to become blurry. A .JPG file will always have a white background . It's universal and can be opened on any device.	A .JPG file is used for web and electronic file purposes because it has a significantly lower file size and is in RGB color. <i>This file type should not be used for print.</i>	Word, PowerPoint, Excel, Web applications
	A .PNG file is a pixel-based file that cannot be edited or enlarged but can be made smaller. When increasing the size of your logo it WILL cause pixelation causing your logo to become blurry. A .PNG file as a transparent/clear background . It's universal and can be opened on any device.	A .PNG file is used for web and electronic file purposes because it has a significantly lower file size and is in RGB color. <i>This file type should not be used for print.</i>	Word, PowerPoint, Excel, Web applications

VEHICLE GRAPHICS



Pictured are vehicle decals for Franklin Public Works vehicles.
Please contact [redacted] for approved vehicle decal art.

BUSINESS SYSTEM



Stationery Templates

Formats have been established for Franklin stationery. Always use approved stationery documents. Templates are available from ?????.



City of Franklin, Wisconsin Master Logos



COLOR SPACE 4C PMS / CMYK / RGB
FILE FORMATS EPS / PNG / JPG



COLOR SPACE 3C PMS / CMYK / RGB
FILE FORMATS EPS / PNG



COLOR SPACE Black
FILE FORMATS EPS / PNG / JPG



COLOR SPACE White
FILE FORMATS EPS / PNG

Taglines

Celebrating Quality of Life

The Place to Be!

COLOR SPACE 1C PMS / CMYK / RGB
FILE FORMATS EPS / PNG / JPG

Celebrating Quality of Life

The Place to Be!

COLOR SPACE Black
FILE FORMATS EPS / PNG / JPG

Celebrating Quality of Life

The Place to Be!

COLOR SPACE White
FILE FORMATS EPS / PNG



CITY OF FRANKLIN
REPORT TO THE ECONOMIC DEVELOPMENT COMMISSION

Meeting of September 30, 2026
Minor Site Plan amendment, Solar Facility

RECOMMENDATION

Minor Site Plan Amendment, Solar: Planning Staff recommends approval of the Site Plan Amendment, subject to the conditions in the Draft Resolution.

Project Name:	Paleria Brothers LLC Solar
Property Owner:	FLEX 2020, LLC
Applicant:	Paleria Brothers LLC
Property Address/Tax Key Number:	9848 S 57th St, 899 0005 000
Aldermanic District:	District 4
Agent:	Tawni Latterell, Wolf River Electric
Zoning District:	Planned Development Legacy 7
Use of Surrounding Properties:	PDL 18 (east) PDL 7 (south and west) LI Limited Industrial (north)
Staff Planner:	Marion Ecks, AICP, Principal Planner

Minor Site Plan Amendment and Utility Location:

The applicant has submitted a Minor Site Plan amendment to allow for installation of roof-mounted photovoltaic (solar) panels. Since this facility is located in the Franklin Industrial Park, Planned Development Legacy No. 7 requires that the location of utilities such as solar panels be subject to approval by the Economic Development Commission (EDC).

City Development staff reviewed it and informed the applicant of this requirement.

Site Plan:

The property is located on the east side of South 57th Street and the development consists of a single industrial building, outdoor storage areas, and related parking. The eastern half of the parcel is a wetland area.

The proposed solar installation consists of two groups of solar panels totaling 108 panels, all on the building roof. Metering equipment will be mounted on the east wall of the building. There are no ground-based improvements or additional impervious surface proposed. As a result, there are no proposed impacts to any natural resources on the property. There will be no changes to the building's architecture.

PDL 7 allows a maximum height of 50'; the proposed panels will be a maximum of two (2) feet from the roof and do not exceed the height requirement. The applicant states that the panels will not be visible from the ground and will therefore not require screening. Staff recommends a condition that if roof mounted mechanical equipment is visible from any public street, the owner will be responsible for providing appropriate screening.

The location of utilities requires approval of the Economic Development Commission (EDC) (Sec. 12.10(18)).

Staff Recommendation:

Minor Site Plan amendment:, City Development staff recommends approval of the proposed Site Plan Amendment application, subject to the following conditions:

- If roof mounted mechanical equipment is visible from any public street, the owner will be responsible for providing appropriate screening.

The attached Site Plan Amendment resolution includes the conditions listed above.

ECONOMIC DEVELOPMENT COMMISSION
OF THE CITY OF FRANKLIN, WISCONSIN

[Draft 09-23-26]

RESOLUTION NO. 2026-_____

A RESOLUTION APPROVING A MINOR SITE PLAN AMENDMENT
TO ALLOW FOR INSTALLATION OF SOLAR PANELS
FOR PALERIA BROTHERS LLC
9848 S 57TH ST.
(FLEX 2020 LLC, PROPERTY OWNER)

WHEREAS, Paleria Brothers LLC, having petitioned the City of Franklin for approval of a minor site plan amendment to allow for photovoltaic (solar) panels for Paleria Brothers LLC, in the City of Franklin Industrial Park, property located at 9848 S 57th St., Franklin Industrial Park; and

WHEREAS, the Economic Development Commission having reviewed the proposed site plan amendment and found same to be in compliance with and in furtherance of the standards of Planned Development District No. 7.

NOW, THEREFORE, BE IT RESOLVED, by the Economic Development Commission of the City of Franklin, Wisconsin, that the site plan amendment City file-stamped September 14, 2026, attached hereto and incorporate herein as Exhibit A, be and the same is approved, subject to the following conditions:

1. That the Paleria Brothers LLC site plan amendment shall be constructed pursuant to such proposed plans within one year from the date of adoption of this Resolution, or this Resolution and all rights and approvals granted hereunder shall be null and void, without any further action by the Economic Development Commission.
2. The Economic Development Commission (EDC) hereby approves the location of the photovoltaic (solar) panels as a utility feature in accordance with Sec. 12.10(18) of Planned Development Legacy (PDL) 7.
3. The applicant must obtain a building permit from the Inspection Services Department prior to the construction of the proposed solar facility.
4. The applicant must obtain approval of utilities, grading and erosion control from the Engineering Department prior to any land disturbance activities.
5. If roof mounted mechanical equipment is visible from any public street, the owner will be responsible for providing appropriate screening.

Introduced at a regular meeting of the Economic Development Commission of the City of Franklin this _____ day of _____, 2026.

Passed and adopted at a regular meeting of the Economic Development Commission
of the City of Franklin this _____ day of _____, 2026.

APPROVED:

Chairman

ATTEST:

Vice Chairman

AYES _____ NOES _____ ABSENT _____



[9/8/2026]
Sent via Email & US Mail

Department of City Development City of Franklin
9229 W. Loomis Road
Franklin, WI, 53132
mecks@franklinwi.gov

Re: Project Narrative Paleria Brothers LLC

Project Overview

The proposed project consists of the installation of two roof-mounted photovoltaic (PV) solar energy systems at the existing commercial building located at **9848 S 57th St, Franklin, WI 53132**. Both systems will be installed on the existing roof structure utilizing a **low-profile, ballasted racking system** and will be interconnected with the building's existing electrical infrastructure at their respective system voltages.

The proposed racking system will be designed and installed to **meet the applicable structural load requirements** of the existing building. The low-profile design will minimize the overall height and visual impact of the solar installation. The top of the module rows will be approximately **two feet above the roof surface**, which is well below the existing building parapet. As a result, the solar arrays will be **virtually invisible from ground level**.

The project will be interconnected with the **We Energies** electrical distribution system. All equipment and installation will be performed in accordance with the approved electrical and structural plans, applicable Wisconsin codes and standards, We Energies interconnection requirements, and the manufacturer's installation instructions.



System 1 – 28.800 kW DC / 25.000 kW AC

System 1 will consist of **72 photovoltaic modules**, each rated at 400 watts, for a total installed DC capacity of **28.800 kW DC**.

The PV modules will be installed using a **low-profile, ballasted roof-mounted racking system**. The racking system will be designed to meet the applicable structural load requirements and will be installed in accordance with the approved project structural design and manufacturer's installation requirements.

DC power generated by the array will be connected to **one 25.000 kW AC inverter**. The inverter will convert the array's DC output to AC power for utilization by the building electrical system.

System 1 will be interconnected with the building's existing **208-volt electrical system**. The AC interconnection, overcurrent protection, disconnecting means, grounding and bonding, conductor sizing, and associated electrical equipment will be installed as shown on the approved electrical plans and in accordance with applicable code requirements and We Energies interconnection requirements.

System 2 – 43.200 kW DC / 36.000 kW AC

System 2 will consist of **108 photovoltaic modules**, each rated at 400 watts, for a total installed DC capacity of **43.200 kW DC**.

The PV modules will be installed using a **low-profile, ballasted roof-mounted racking system**. The racking system will be designed to meet the applicable structural load requirements and will be installed in accordance with the approved project structural design and manufacturer's installation requirements.

DC power generated by the array will be connected to **one 36.000 kW AC inverter**. The inverter will convert the DC output of the PV array to AC power for utilization by the building electrical system.

System 2 will be interconnected with the building's existing **480-volt electrical system**. The AC interconnection, overcurrent protection, disconnecting means, grounding and bonding, conductor sizing, and associated electrical equipment will be installed as indicated on the approved electrical plans and in accordance with applicable code requirements and We Energies interconnection requirements.



Roof-Mounted Installation

Both PV arrays will be located on the existing building roof. The module layout will maintain required roof access, equipment access, fire-access pathways, setbacks, and other clearances required by the applicable building and fire codes and the authority having jurisdiction.

The **ballasted, low-profile racking system** will be designed to meet the structural load requirements of the existing roof and will be installed as detailed in the approved project structural plans. The ballasted system is intended to minimize roof penetrations while providing the required stability and structural performance for the PV arrays.

The low-profile configuration will keep the solar modules below the existing building parapet. The top of the module rows will be approximately **two feet above the roof surface**, well below the parapet, making the solar installation **virtually invisible from the ground** and minimizing its visual impact on the surrounding area.

PV wiring will be routed from the roof-mounted modules to the associated inverter equipment. DC and AC conductors will be properly supported, protected, identified, and routed in accordance with applicable electrical code requirements. The systems will include required grounding and bonding, overcurrent protection, disconnecting means, rapid shutdown provisions where applicable, equipment labeling, and other required safety components.

Electrical Interconnection

The two PV systems will operate as separate generating systems and will connect to separate existing electrical systems within the facility:

- **System 1:** 28.800 kW DC / 25.000 kW AC, interconnected at **208 volts** through one 25.000 kW AC inverter.
- **System 2:** 43.200 kW DC / 36.000 kW AC, interconnected at **480 volts** through one 36.000 kW AC inverter.

The combined project capacity is **72.000 kW DC** and **61.000 kW AC**.

The PV systems are intended to provide on-site electrical generation and offset facility electrical consumption. The systems will be interconnected with the existing electrical service in accordance with the approved plans and the requirements of **We Energies**. Utility interconnection equipment, metering, protection, and associated requirements will be provided and installed as required by the utility and approved project design.



Completion and Commissioning

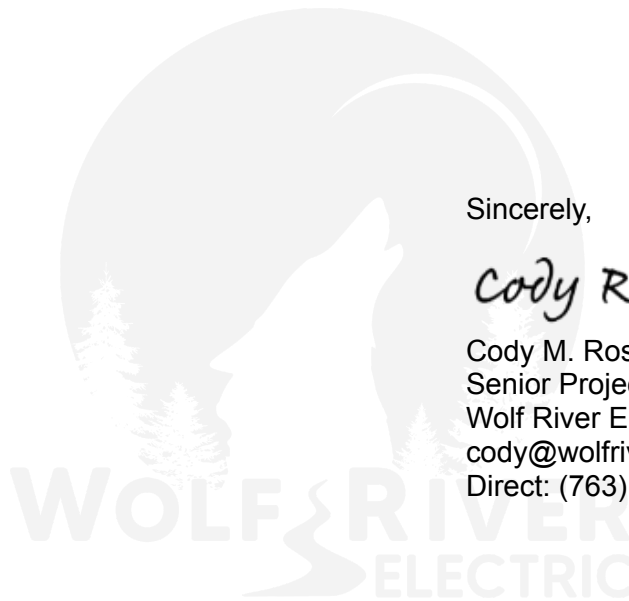
Upon completion of installation, all PV modules, racking, inverters, wiring, disconnects, and associated electrical equipment will be inspected and tested. The systems will be commissioned in accordance with the equipment manufacturers' requirements and the approved project plans.

The completed installation will be subject to the required inspections and utility approval prior to final operation. The installation will comply with applicable Wisconsin building and electrical requirements, approved structural and electrical plans, manufacturer installation requirements, and **We Energies** interconnection requirements.

Sincerely,

Cody Rossmann

Cody M. Rossmann
Senior Project Manager
Wolf River Electric
cody@wolfriverelectric.com
Direct: (763) 297-3597



PHOTOVOLTAIC ROOF MOUNT SYSTEM

108 MODULES - ROOF MOUNTED - 43.200 kW DC, 36.000 kW AC
9848 S 57TH ST, FRANKLIN, WI 53132, USA

PHOTOVOLTAIC SYSTEM SPECIFICATIONS:

SYSTEM SIZE:	43.200 kW DC 36.000 kW AC
MODULE TYPE & AMOUNT:	(108) WAAREE ARKA SERIES WSMDI-400 [400W]
MODULE DIMENSIONS:	(L/W/H) 75.75"/40.86"/1.37"
INVERTER:	(1) CPS SCA36KTL-DO/US-480
INTERCONNECTION METHOD:	LINE SIDE TAP

GENERAL STRUCTURAL NOTES:

- a. THE SOLAR PANELS ARE TO BE MOUNTED TO THE ROOF FRAMING USING THE UNIRAC RM10 EVO BALLAST.
- ROOF LIVE LOAD = 20 psf TYPICAL, 0 psf UNDER NEW PV SYSTEM.
 - GROUND SNOW LOAD = 30 psf
 - WIND SPEED = 115 mph
 - EXPOSURE CATEGORY = C

AUTHORITIES HAVING JURISDICTION:

BUILDING: CITY OF FRANKLIN
ZONING: CITY OF FRANKLIN
UTILITY: WE ENERGIES
UTILITY METER NUMBER: 159 016 581

SHEET INDEX:

PV 0.0:	COVER SHEET
PV 0.1:	PLOT PLAN
PV 1.0:	SITE PLAN
PV 1.1:	ATTACHMENT
PV 1.2:	STRING LAYOUT
PV 1.3:	EQUIPMENT ELEVATION
S 1.0:	MOUNT DETAILS
S 1.1:	MOUNT DETAILS
E 1.1:	3-LINE DIAGRAM
E 1.2:	WIRE CALCULATION
E 1.3:	WARNING LABELS
E 1.4:	PLACARD
D 1.1+:	EQUIPMENT SPEC SHEET

GOVERNING CODES

- ALL WORK SHALL CONFORM TO THE FOLLOWING CODES
- 2017 NATIONAL ELECTRICAL CODE
 - 2024 WISCONSIN UNIFORM DWELLING CODE
 - 2015 INTERNATIONAL BUILDING CODE
 - 2015 INTERNATIONAL MECHANICAL CODE
 - 2015 INTERNATIONAL FUEL GAS CODE
 - 2015 INTERNATIONAL EXISTING BUILDING CODE
 - 2015 INTERNATIONAL ENERGY CONSERVATION CODE
 - ANY OTHER LOCAL AMENDMENTS

GENERAL ELECTRIC NOTES:

- ALL COMPONENTS ARE UL LISTED AND NEC CERTIFIED, WHERE WARRANTED.
- THE SOLAR PV SYSTEM WILL BE INSTALLED IN ACCORDANCE WITH ARTICLE 690 OF THE NEC 2017.
- THE UTILITY INTERCONNECTION APPLICATION MUST BE APPROVED AND PV SYSTEM INSPECTED PRIOR TO PARALLEL OPERATION.
- ALL CONDUCTORS OF A CIRCUIT, INCLUDING THE EGC, MUST BE INSTALLED IN THE SAME RACEWAY, OR CABLE, OR OTHERWISE RUN WITH THE PV ARRAY CIRCUIT CONDUCTORS WHEN THEY LEAVE THE VICINITY OF THE PV ARRAY.
- WHERE METALLIC CONDUIT CONTAINING DC CONDUCTORS IS USED INSIDE THE BUILDING, IT SHALL BE IDENTIFIED AS "CAUTION: SOLAR CIRCUIT" EVERY 10FT.
- HEIGHT OF THE AC DISCONNECT SHALL NOT EXCEED 6'-7" PER NEC CODE 240.24.
- A GROUNDING ELECTRODE SYSTEM IN ACCORDANCE WITH NEC 690.47 AND 250.50 THROUGH 60 AND 250-166 SHALL BE PROVIDED. PER NEC GROUNDING ELECTRODE SYSTEM OF EXISTING BUILDING MAY BE USED AND BONDED TO THE SERVICE ENTRANCE. IF EXISTING SYSTEM IS INACCESSIBLE OR INADEQUATE A SUPPLEMENTAL GROUNDING ELECTRODE WILL BE USED AT THE INVERTER LOCATION CONSISTING OF A UL LISTED 8 FT. GROUND ROD WITH ACORN CLAMP. GROUNDING ELECTRODE CONDUCTORS SHALL BE NO LESS THAN #8 AWG AND NO LARGER THAN #6 AWG COPPER AND BONDED TO THE EXISTING GROUNDING ELECTRODE TO PROVIDE FOR A COMPLETE SYSTEM.
- PHOTOVOLTAIC MODULES ARE TO BE CONSIDERED NON-COMBUSTIBLE.
- ALL WIRING MUST BE PROPERLY SUPPORTED BY DEVICES OR MECHANICAL MEANS DESIGNED AND LISTED FOR SUCH USE. WIRING MUST BE PERMANENTLY AND COMPLETELY HELD OFF THE ROOF SURFACE.
- ALL SIGNAGE TO BE PLACED IN ACCORDANCE WITH THE LOCAL BUILDING CODE. IF EXPOSED TO SUNLIGHT, IT SHALL BE UV RESISTANT. ALL PLAQUES AND SIGNAGE WILL BE INSTALLED AS REQUIRED BY THE NEC AND AHJ.
- AS SPECIFIED BY THE AHJ, EQUIPMENT USED IN UNGROUNDED SYSTEMS LABELED ACCORDING TO NEC 690.35(F).
- INVERTER(S) USED IN UNGROUNDED SYSTEM SHALL BE LISTED FOR THIS USE [NEC 690.35(G)].
- THE INSTALLATION OF EQUIPMENT AND ALL ASSOCIATED WIRING AND INTERCONNECTION SHALL BE PERFORMED ONLY BY QUALIFIED PERSONS [NEC 690.4(C)]
- ALL OUTDOOR EQUIPMENT SHALL BE NEMA 3R RATED (OR BETTER), INCLUDING ALL ROOF MOUNTED TRANSITION BOXES AND SWITCHES.
- ALL EQUIPMENT SHALL BE PROPERLY GROUNDED AND BONDED IN ACCORDANCE WITH NEC ARTICLE 250.
- SYSTEM GROUNDING SHALL BE IN ACCORDANCE WITH NEC 690.41.
- PV SYSTEM CIRCUITS INSTALLED ON OR IN BUILDINGS SHALL INCLUDE A RAPID SHUTDOWN FUNCTION IN ACCORDANCE WITH NEC 690.12
- DISCONNECTING MEANS SHALL BE LOCATED IN A VISIBLE, READILY ACCESSIBLE LOCATION WITHIN THE PV SYSTEM EQUIPMENT OR A MAXIMUM OF 10 FEET AWAY FROM THE SYSTEM [NEC 690.13(A)]
- ALL WIRING METHODS SHALL BE IN ACCORDANCE WITH NEC 690.31
- WORK CLEARANCES AROUND ELECTRICAL EQUIPMENT WILL BE MAINTAINED PER NEC 110.26(A)(1), 110.26(A)(2) AND 110.26(A)(3).
- ELECTRICAL CONTRACTOR TO PROVIDE CONDUIT EXPANSION JOINTS AND ANCHOR CONDUIT RUNS AS REQUIRED PER NEC.

42.865667, -87.986940



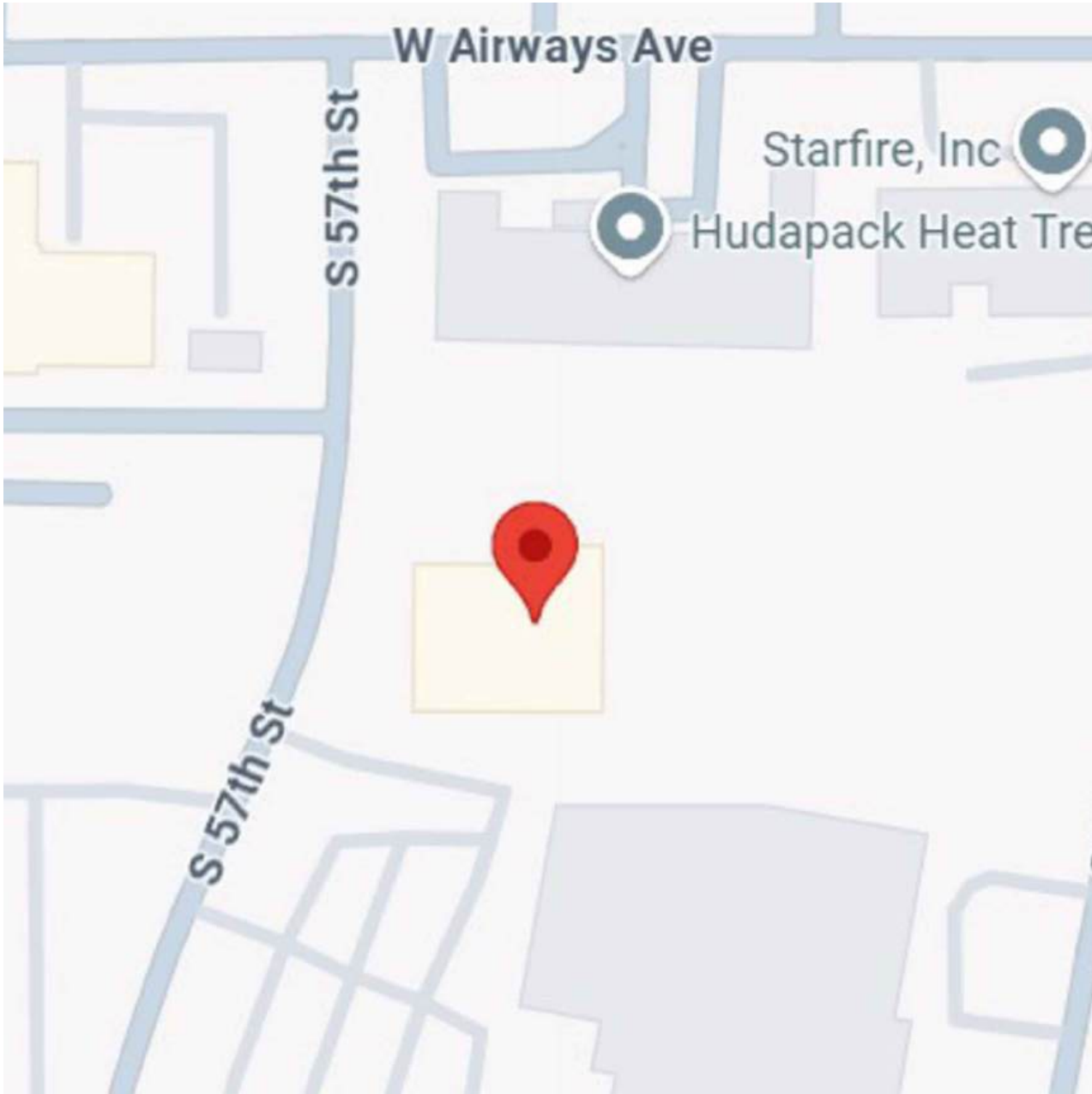
1

SATELLITE VIEW

PV 0.0

SCALE: NTS

42.865667, -87.986940



2

VICINITY MAP

PV 0.0

SCALE: NTS



WOLF RIVER ELECTRIC
WOLF RIVER ELECTRIC
101 ISANTI PARKWAY NE, SUITE G
ISANTI, MN 55040 ELECTRICAL
CONTRACTOR: 1522577
EXPIRATION DATE: 6/30/2028
CONTACT: (763) 229-6662
contact@wolfriverelectric.com

REVISIONS		
Description	Date	Rev
CAD 8	OCT.16.2025	07
CAD 9	OCT.29.2025	08
CAD 10	NOV.12.2025	09
CAD 11	DEC.03.2025	10

Signature with Seal

Project Name & Address

PALERIA BROTHERS COMMERCIAL

9848 S 57TH ST, FRANKLIN, WI 53132

AHU: CITY OF FRANKLIN

UTILITY: WE ENERGIES

DESIGNED BY:



TRIVENTCAD

TRIVENT CAD SOLUTION

Sheet Name

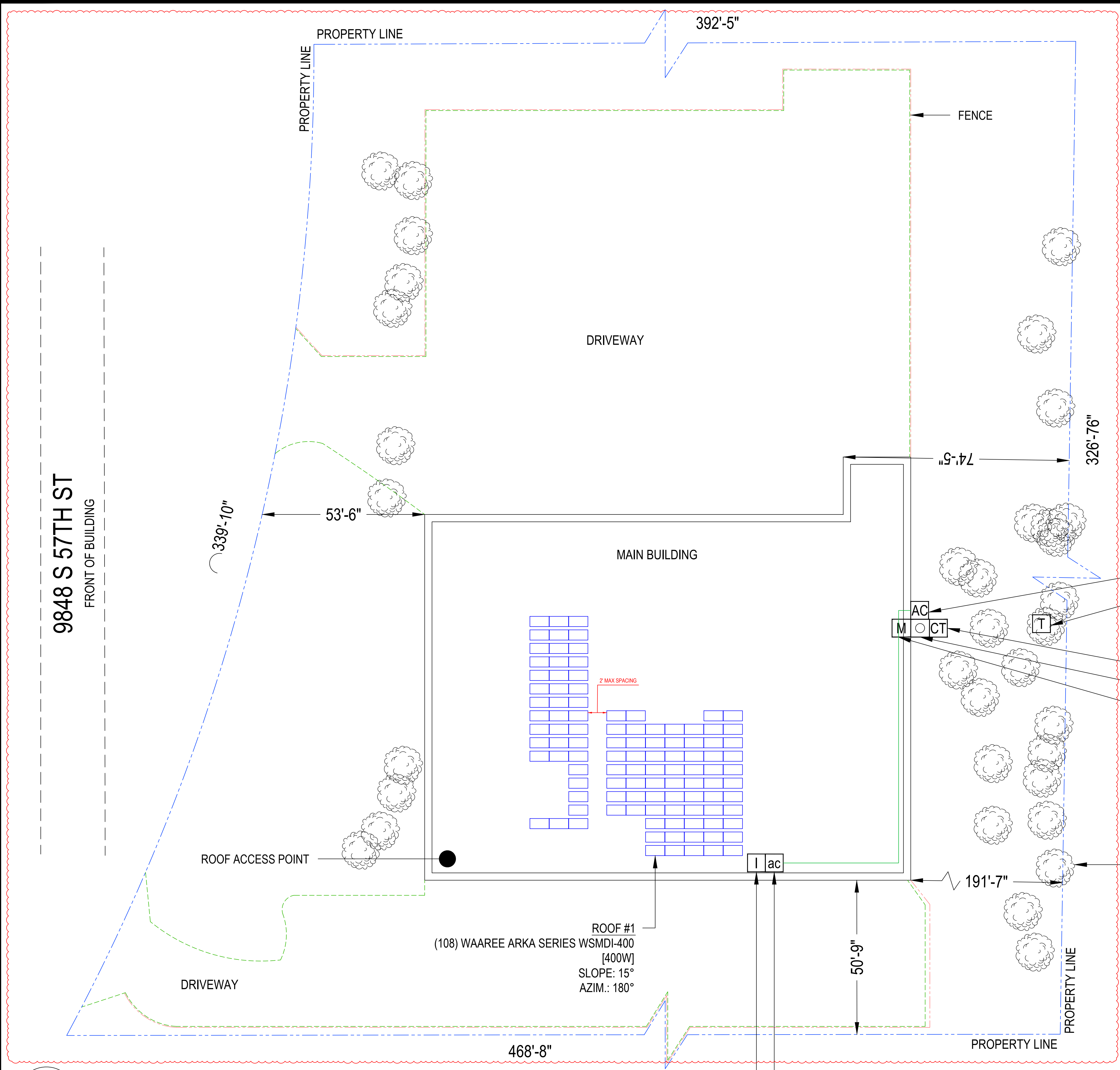
COVER SHEET

Sheet Size

ARCH D
24" X 36"

Sheet Number

PV 0.0



SYSTEM LEGEND

LOT: 3.21 ACRES
PARCEL: 8990005000

PROPERTY LINE

DRIVEWAY

FENCE

N

WOLF RIVER ELECTRIC
WOLF RIVER ELECTRIC
101 ISANTI PARKWAY NE, SUITE G
ISANTI, MN 55040 ELECTRICAL
CONTRACTOR: 1522577
EXPIRATION DATE: 6/30/2028
CONTACT: (763) 229-6662
contact@wolfriverelectric.com

NOTE :

- 24/ 7 UNESCORTED KEYLESS ACCESS IS TO BE PROVIDED FOR ALL UTILITY EQUIPMENT.
- UTILITY AC DISCONNECT SHOULD BE LOCATED TOGETHER IN A READILY ACCESSIBLE LOCATION WITHIN 10' OF THE MAIN SERVICE METER.

REVISIONS		
Description	Date	Rev
CAD 8	OCT.16,2025	07
CAD 9	OCT.29,2025	08
CAD 10	NOV.12,2025	09
CAD 11	DEC.03,2025	10

Signature with Seal

Project Name & Address

PALERIA BROTHERS COMMERCIAL
9848 S 57TH ST, FRANKLIN, WI 53132
AHJ: CITY OF FRANKLIN
UTILITY: WE ENERGIES

DESIGNED BY:

TRIVENTCAD

TRIVENT CAD SOLUTION

Sheet Name

PLOT PLAN

Sheet Size

ARCH D
24" X 36"

Sheet Number

PV 0.1

1 PLOT PLAN

PV 0.1

SCALE: 1/16" = 1'-0"

● **ROOF ACCESS POINT**
ROOF ACCESS POINTS SHALL BE LOCATED IN AREAS THAT DO NOT REQUIRE THE PLACEMENT OF GROUND LADDERS OVER OPENINGS SUCH AS WINDOWS OR DOORS, AND LOCATED AT STRONG POINTS OF BUILDING CONSTRUCTION IN LOCATIONS WHERE THE ACCESS POINT DOES NOT CONFLICT WITH OVERHEAD OBSTRUCTIONS SUCH AS TREE LIMBS, WIRES, OR SIGNS.

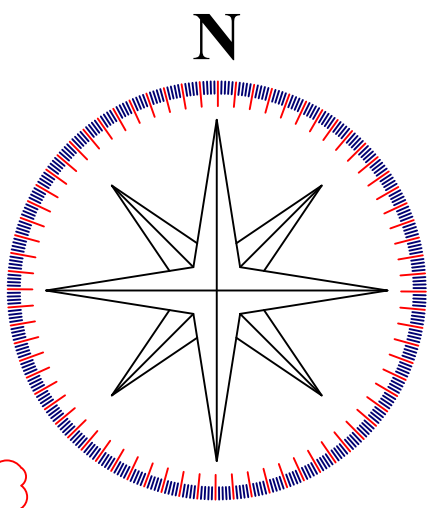
REVISION DATE: OCT, 16, 2025

NOTE:

- 24/ 7 UNESCORTED KEYLESS ACCESS IS TO BE PROVIDED FOR ALL UTILITY EQUIPMENT.
- UTILITY AC DISCONNECT SHOULD BE LOCATED TOGETHER IN A READILY ACCESSIBLE LOCATION WITHIN 10' OF THE MAIN SERVICE METER.

ROOF ACCESS POINT

ROOF ACCESS POINTS SHALL BE LOCATED IN AREAS THAT DO NOT REQUIRE THE PLACEMENT OF GROUND LADDERS OVER OPENINGS SUCH AS WINDOWS OR DOORS, AND LOCATED AT STRONG POINTS OF BUILDING CONSTRUCTION IN LOCATIONS WHERE THE ACCESS POINT DOES NOT CONFLICT WITH OVERHEAD OBSTRUCTIONS SUCH AS TREE LIMBS, WIRES, OR SIGNS.



SYSTEM LEGEND

- EXISTING EXTERIOR CL20 METER #159 016 581.
- CT EXISTING EXTERIOR CT CABINET
- M EXISTING INTERIOR MAIN SERVICE PANEL
- AC NEW UTILITY AC DISCONNECT
- ac NEW AC DISCONNECT
- I NEW (1) CPS SCA36KTL-DO/US-480 3 PHASE STRING INVERTER

108 NEW WAAREE ARKA SERIES WSM DI-400 [400W] MODULES

- = ROOF OBSTRUCTIONS
- = EXTERIOR RUN
- = CONDUIT ROOF TOP JUNCTION BOX

ROOF SECTIONS

ROOF #01 MODULE - 108
SLOPE - 15°
AZIMUTH - 180°
MATERIAL - TPO

NOTE:
ROOFTOP RUN CONDUIT SHALL BE MINIMUM 7/8 INCHES FROM ROOF SURFACE.

WOLF RIVER ELECTRIC
101 ISANTI PARKWAY NE, SUITE G
ISANTI, MN 55040 ELECTRICAL
CONTRACTOR: 1522577
EXPIRATION DATE: 6/30/2028
CONTACT: (763) 229-6662
contact@wolfriverelectric.com

REVISIONS		
Description	Date	Rev
CAD 8	OCT.16.2025	07
CAD 9	OCT.29.2025	08
CAD 10	NOV.12.2025	09
CAD 11	DEC.03.2025	10

Signature with Seal

Project Name & Address

PALERIA BROTHERS COMMERCIAL
9848 S 57TH ST, FRANKLIN, WI 53132
AHJ: CITY OF FRANKLIN
UTILITY: WE ENERGIES

DESIGNED BY:

TRIVENTCAD
TRIVENT CAD SOLUTION

Sheet Name

SITE PLAN

Sheet Size

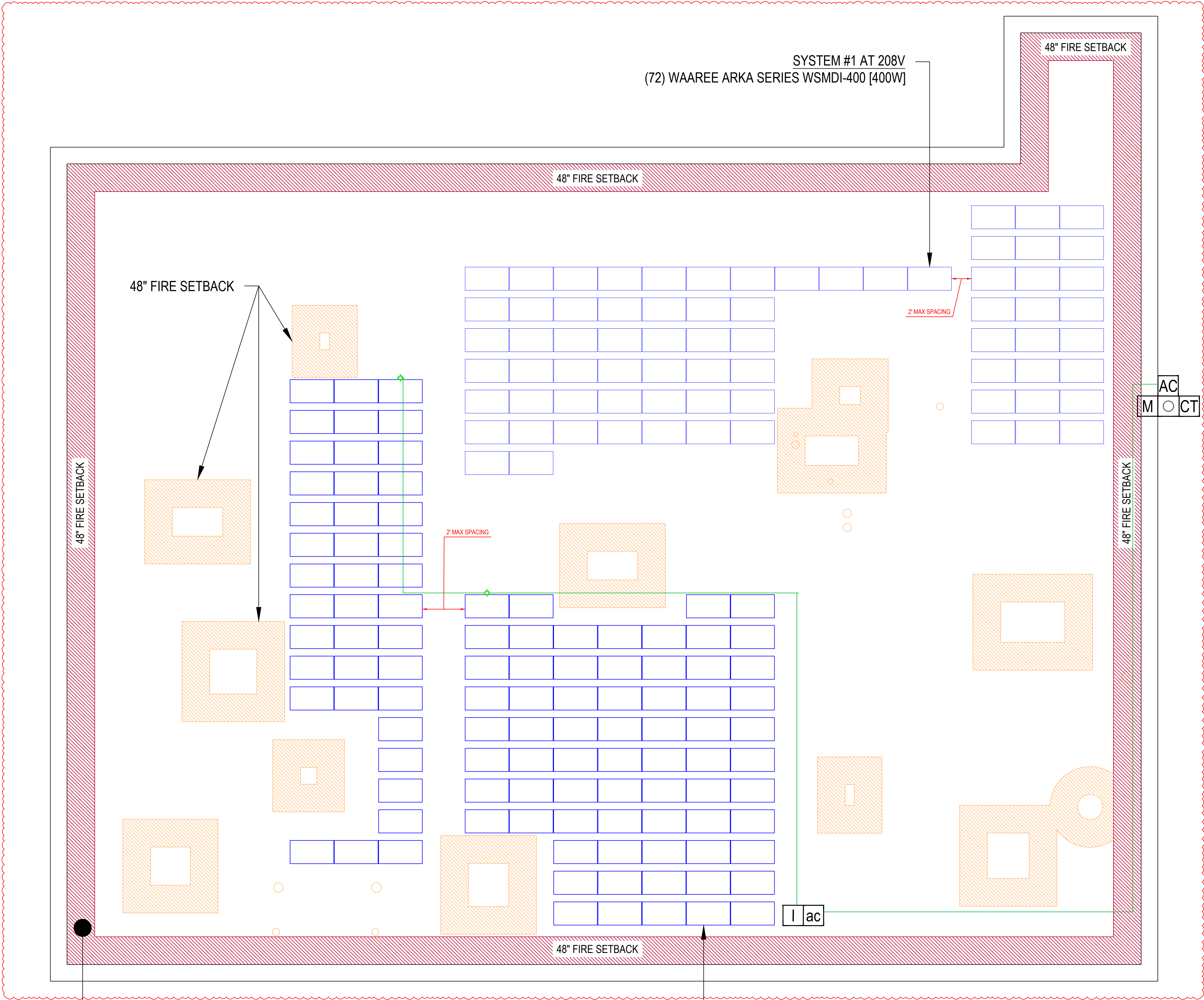
**ARCH D
24" X 36"**

Sheet Number

PV 1.0

9848 S 57TH ST

FRONT OF BUILDING



REVISION DATE: OCT, 16, 2025

ROOF FIRE SUPPRESSION SPRINKLER SYSTEM: NO

TOTAL ROOF AREA: 18271.99ft²
TOTAL MODULE AREA: 2321.36ft²
TOTAL AREA COVERED: 12.70%

1

SITE PLAN

PV 1.0

SCALE: 1/8" = 1'-0"



WOLF RIVER ELECTRIC
WOLF RIVER ELECTRIC
101 ISANTI PARKWAY NE, SUITE G
ISANTI, MN 55040 ELECTRICAL
CONTRACTOR: 1522577
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9848 S 57TH ST, FRANKLIN, WI 53132

AHJ: CITY OF FRANKLIN

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TRIVENTCAD

TRIVENT CAD SOLUTION

Sheet Name

ATTACHMENT

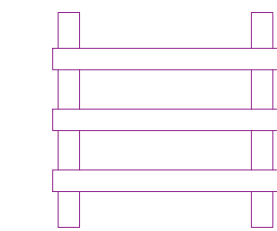
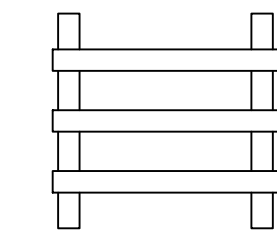
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ARCH D
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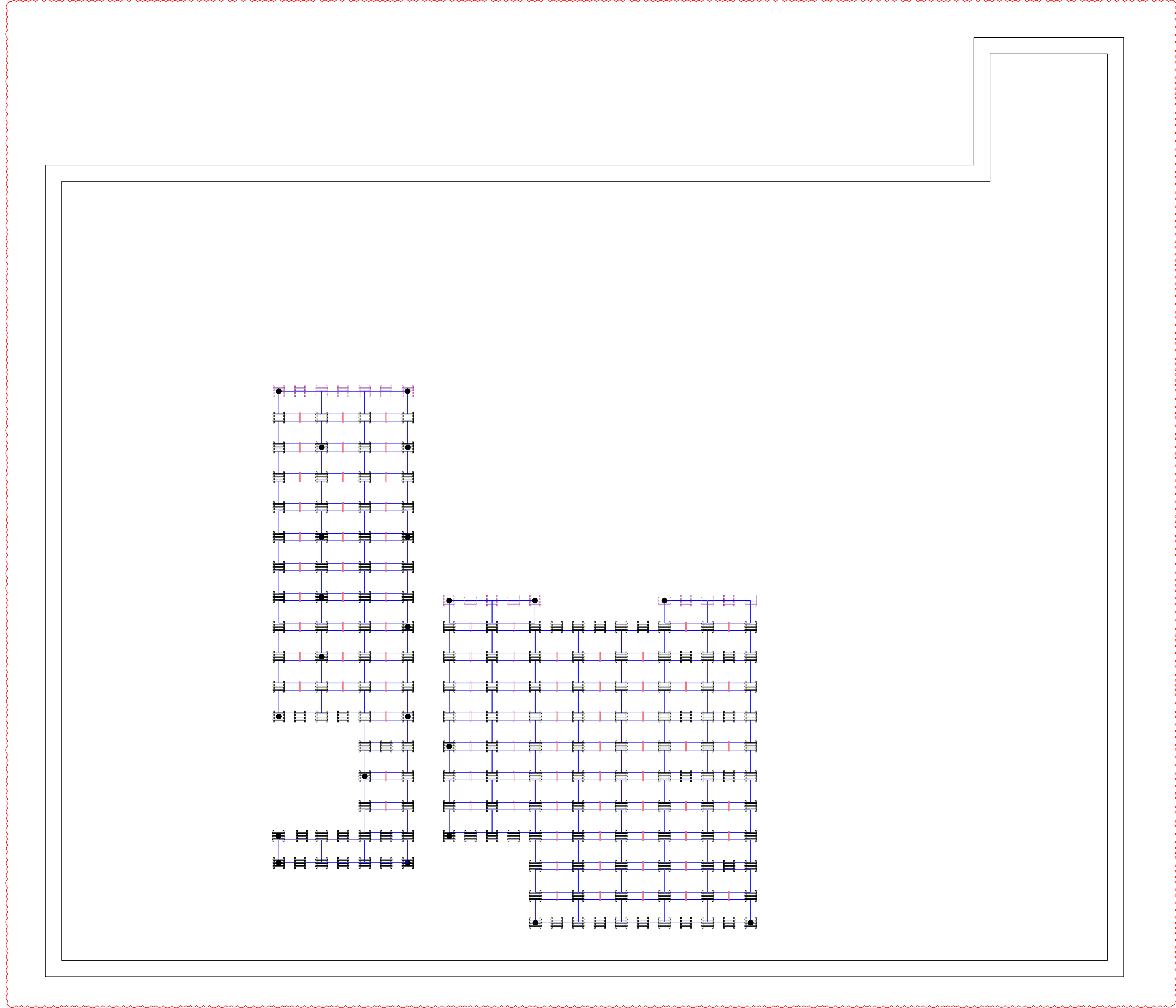
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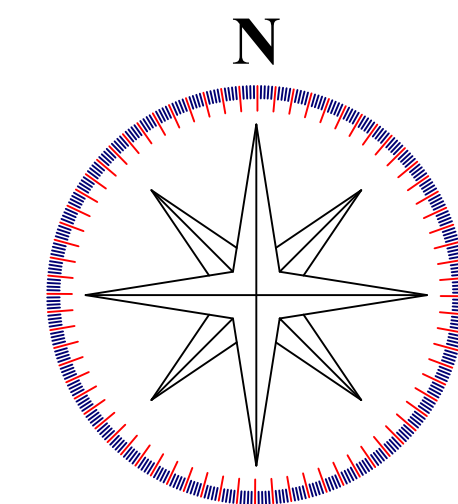
SYSTEM LEGEND

- UNIRAC RM10 EVO NORTH ROW BAY (26 Nos)
- UNIRAC RM10 EVO FIELD BAY (158 Nos)
- = RM10 ATTACHMENT KIT(22 Nos)
- = MID SUPPORT (87 NOS)

TOTAL NO. OF BALLAST BLOCK (387 NOS)



REVISION DATE: OCT, 16, 2025





WOLF RIVER ELECTRIC
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TRIVENTCAD SOLUTION

Sheet Name

STRING LAYOUT

Sheet Size

ARCH D
24" X 36"

Sheet Number

PV 1.2

SYSTEM LEGEND

INVERTER #1

1.1

12 MODULES

1.2

12 MODULES

1.3

12 MODULES

1.4

12 MODULES

1.5

12 MODULES

1.6

12 MODULES

1.7

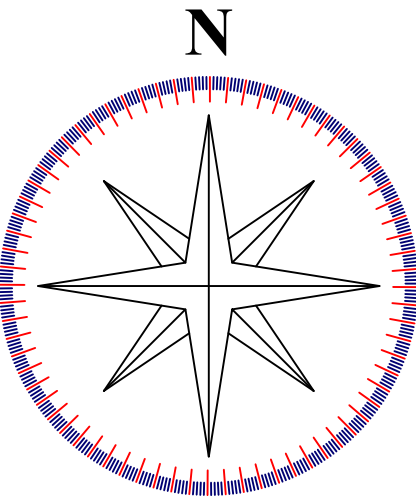
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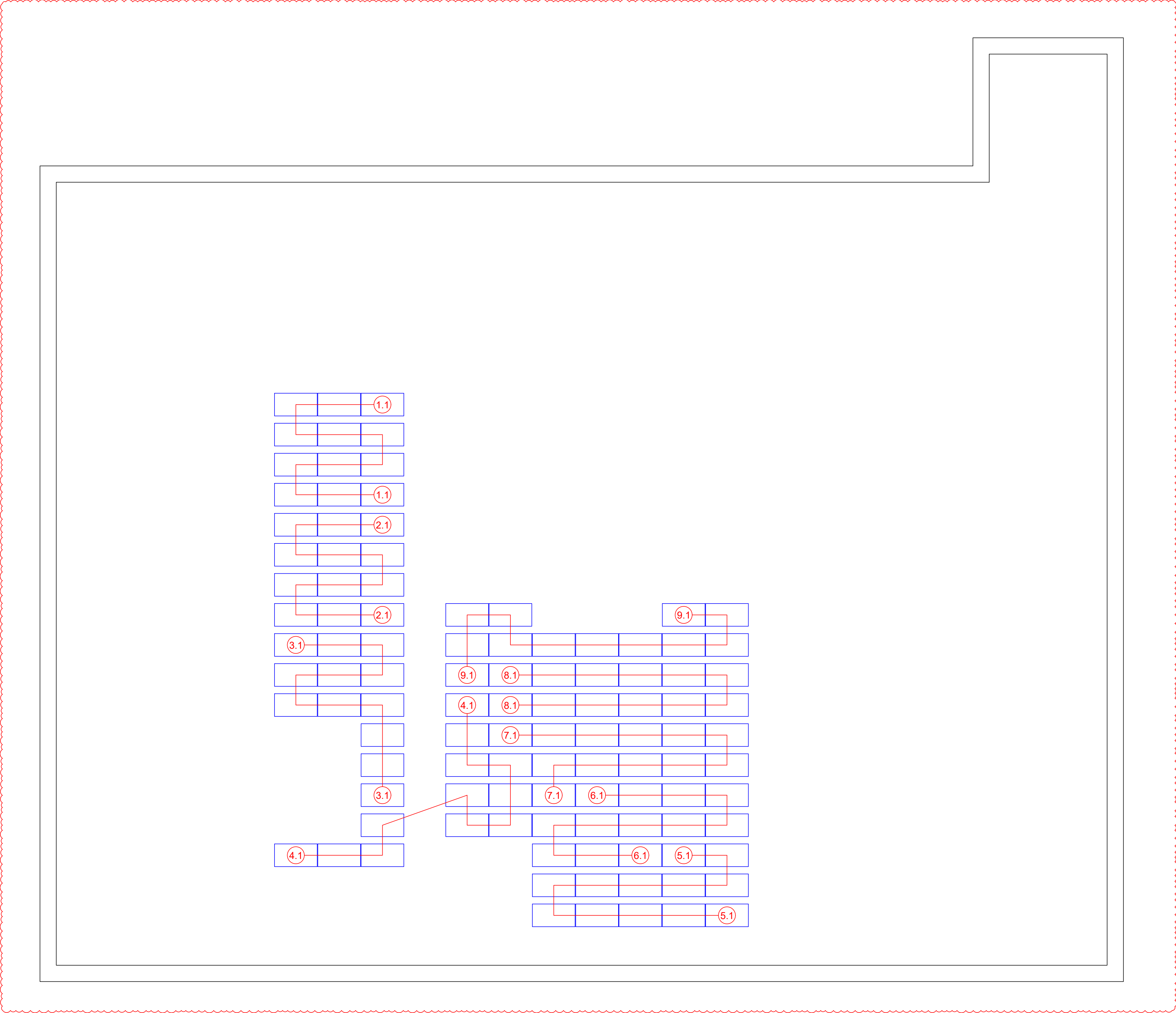
12 MODULES

1.9

12 MODULES

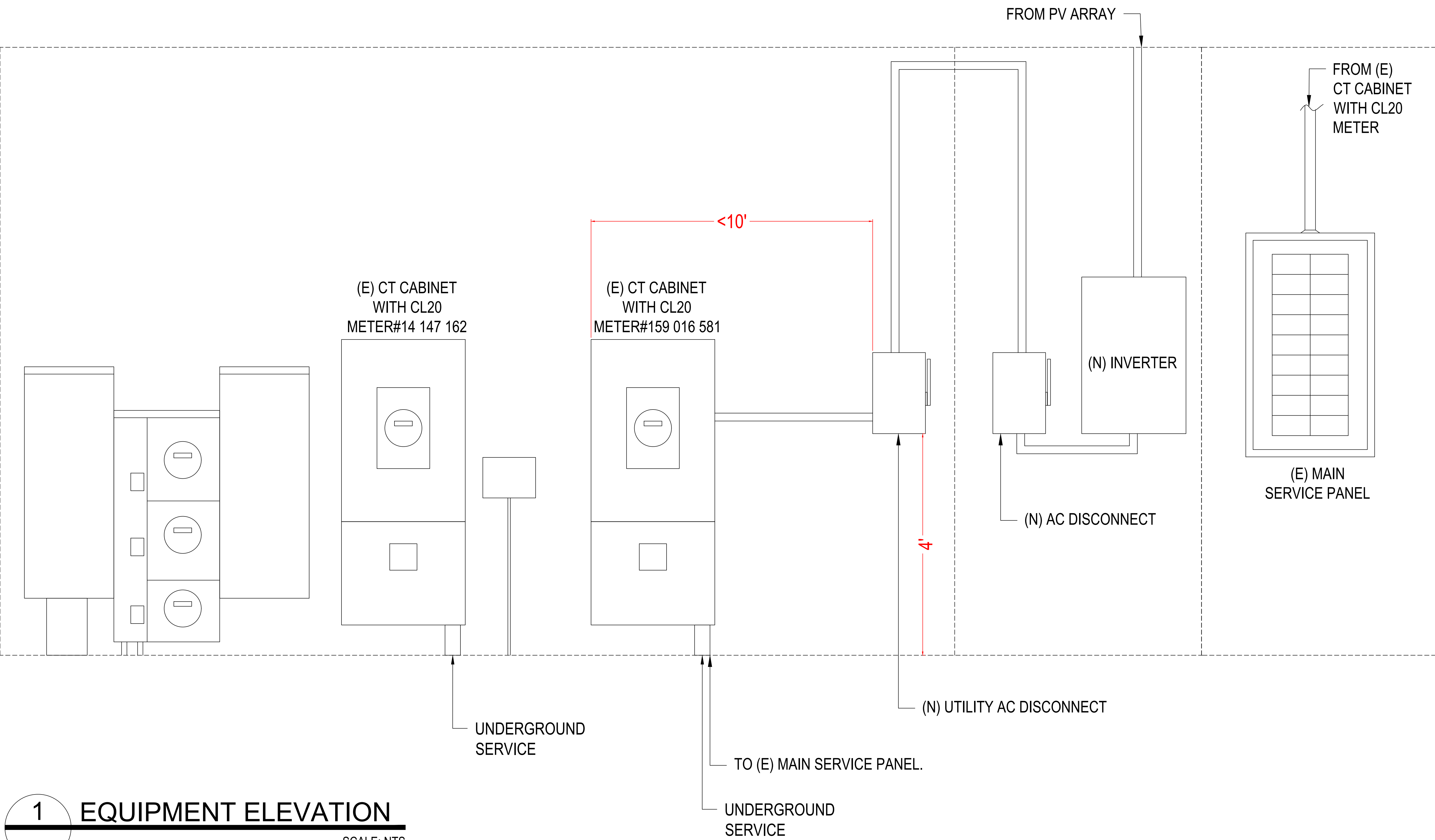


REVISION DATE: OCT, 16, 2025



EXTERIOR WALL

ON ROOF INTERIOR WALL





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TRIVENT CAD SOLUTION

Sheet Name

EQUIPMENT ELEVATION

Sheet Size

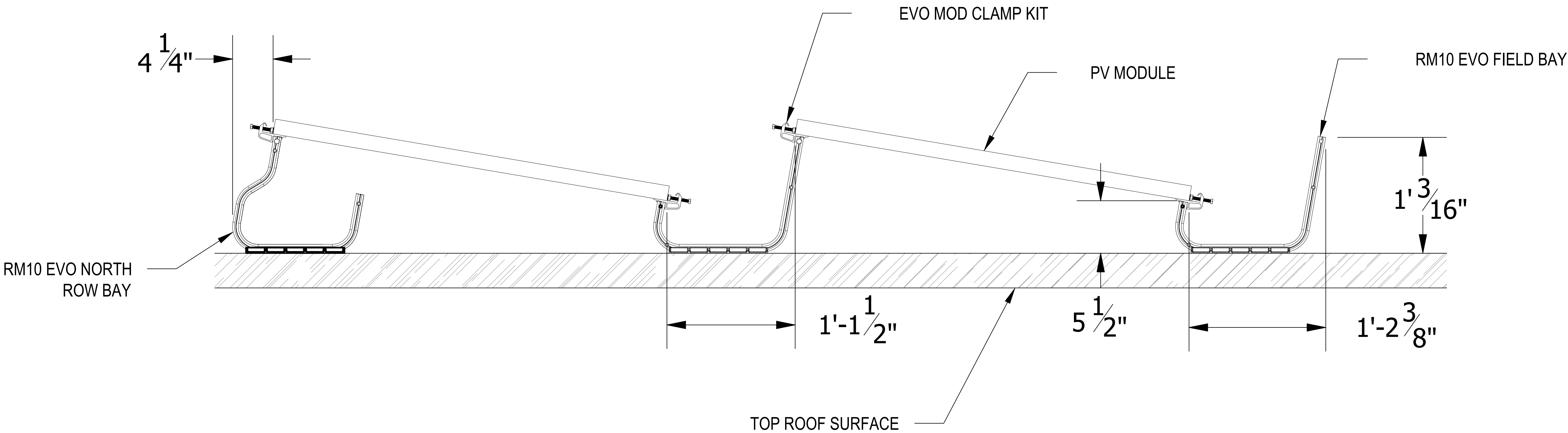
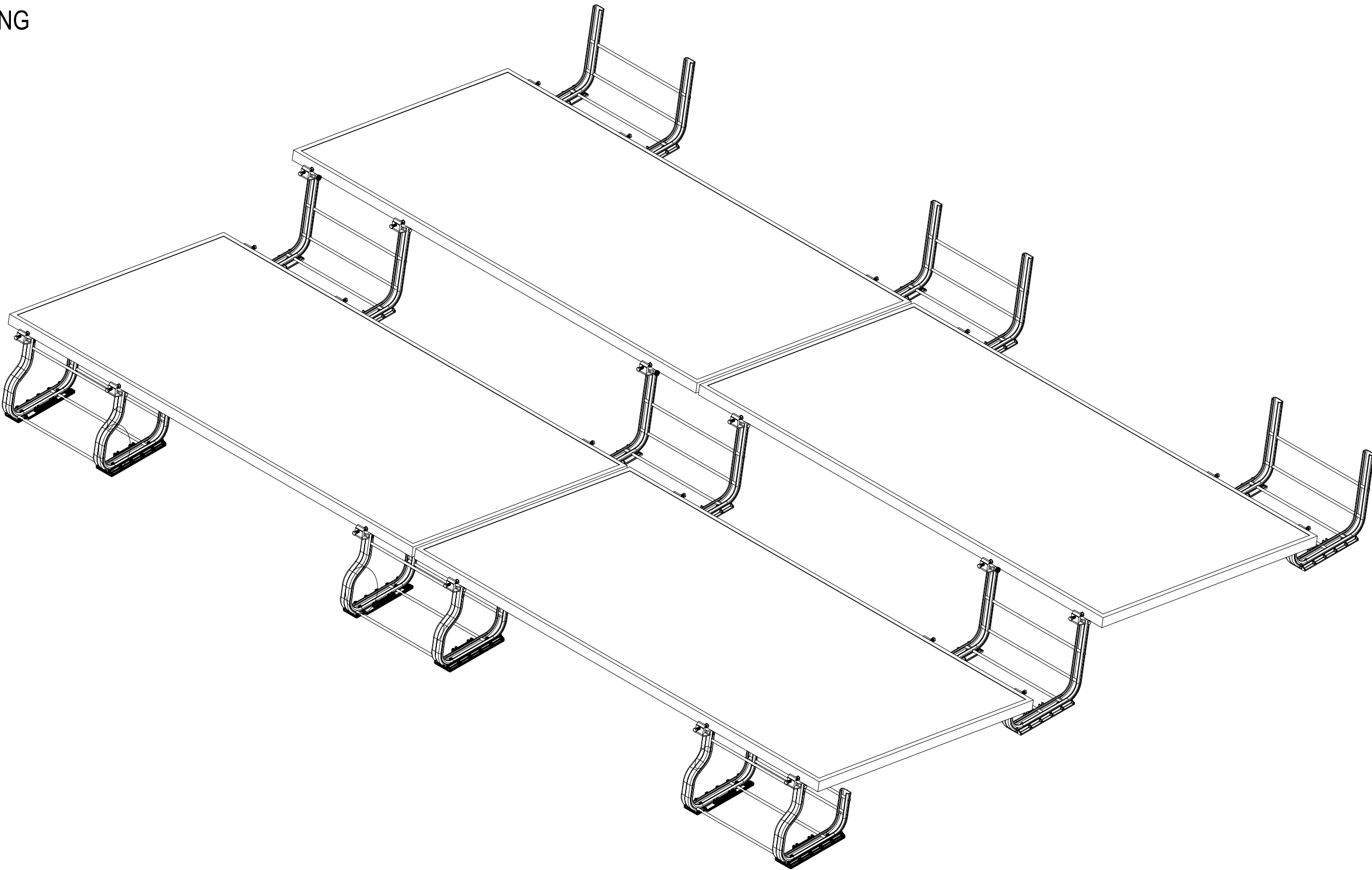
**ARCH D
24" X 36"**

Sheet Number

PV 1.3

GENERAL STRUCTURAL NOTES:

- a. THE SOLAR PANELS ARE TO BE MOUNTED TO THE ROOF FRAMING USING THE UNIRAC RM10 EVO BALLAST.
1. ROOF LIVE LOAD = 20 psf TYPICAL, 0 psf UNDER NEW PV SYSTEM.
2. GROUND SNOW LOAD = 30 psf
3. WIND SPEED = 115 mph
4. EXPOSURE CATEGORY = C



1 ATTACHMENT DETAIL
S 1.0 SCALE: NTS



WOLF RIVER ELECTRIC

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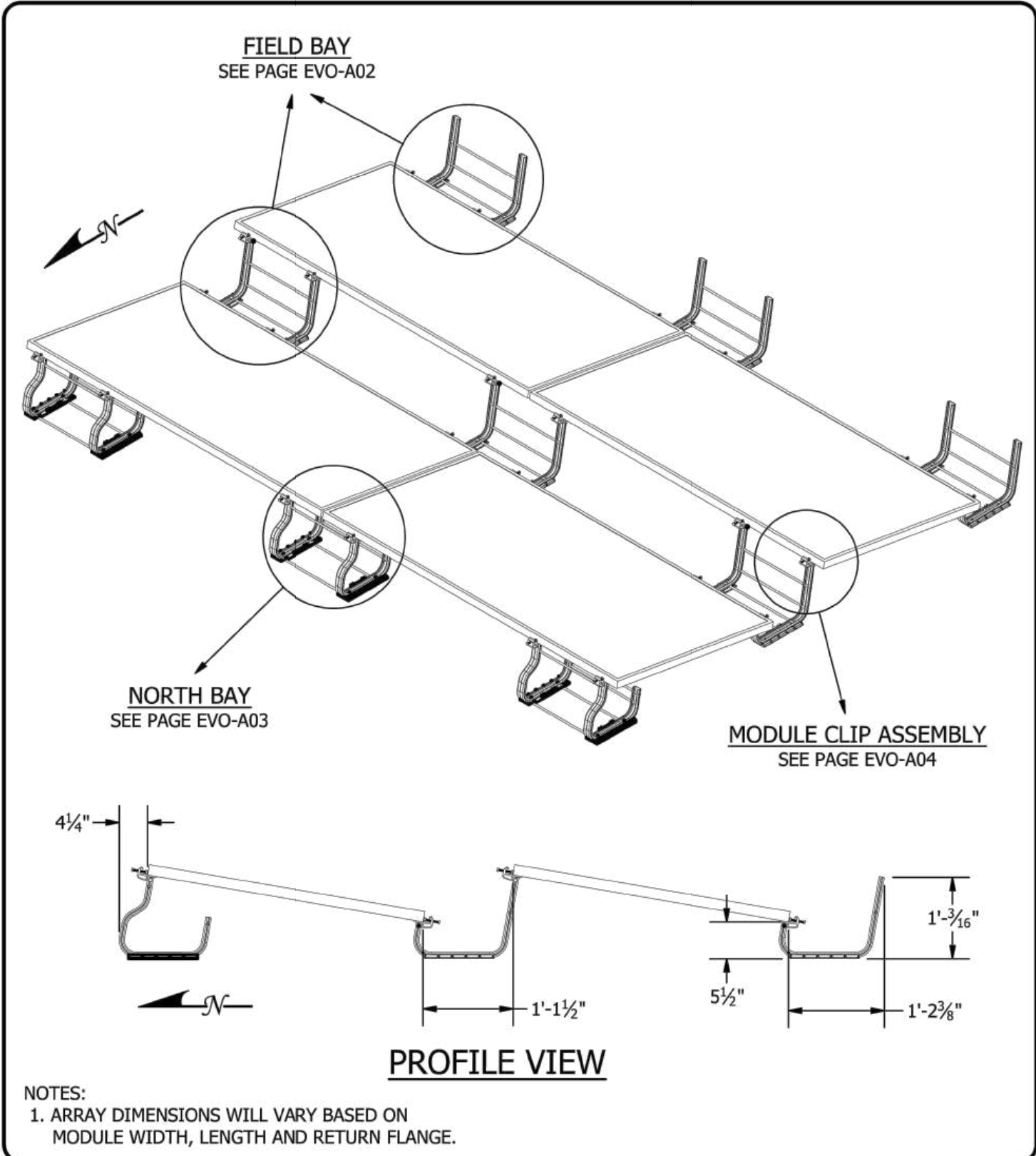
MOUNT DETAIL

Sheet Size

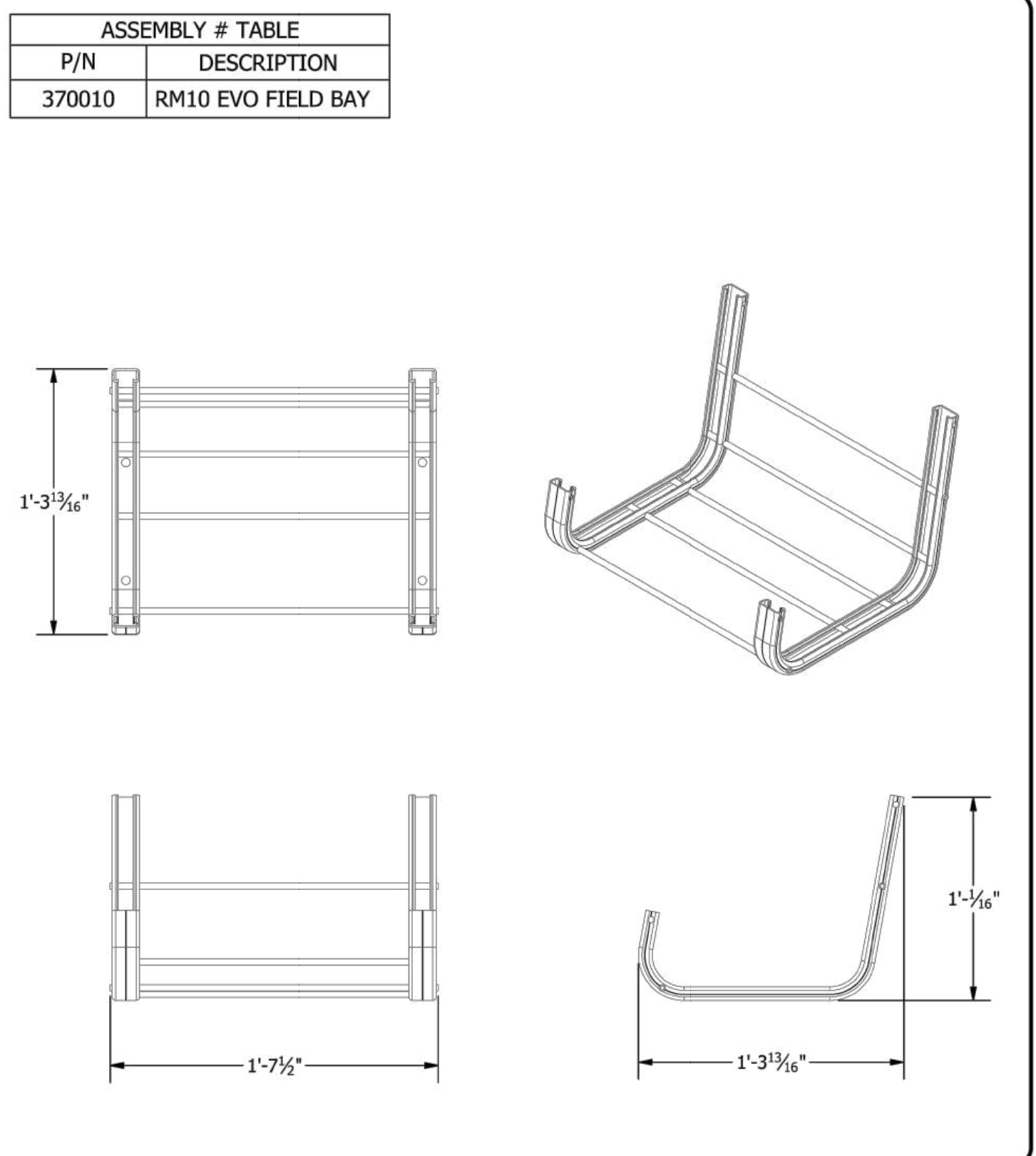
ARCH D
24" X 36"

Sheet Number

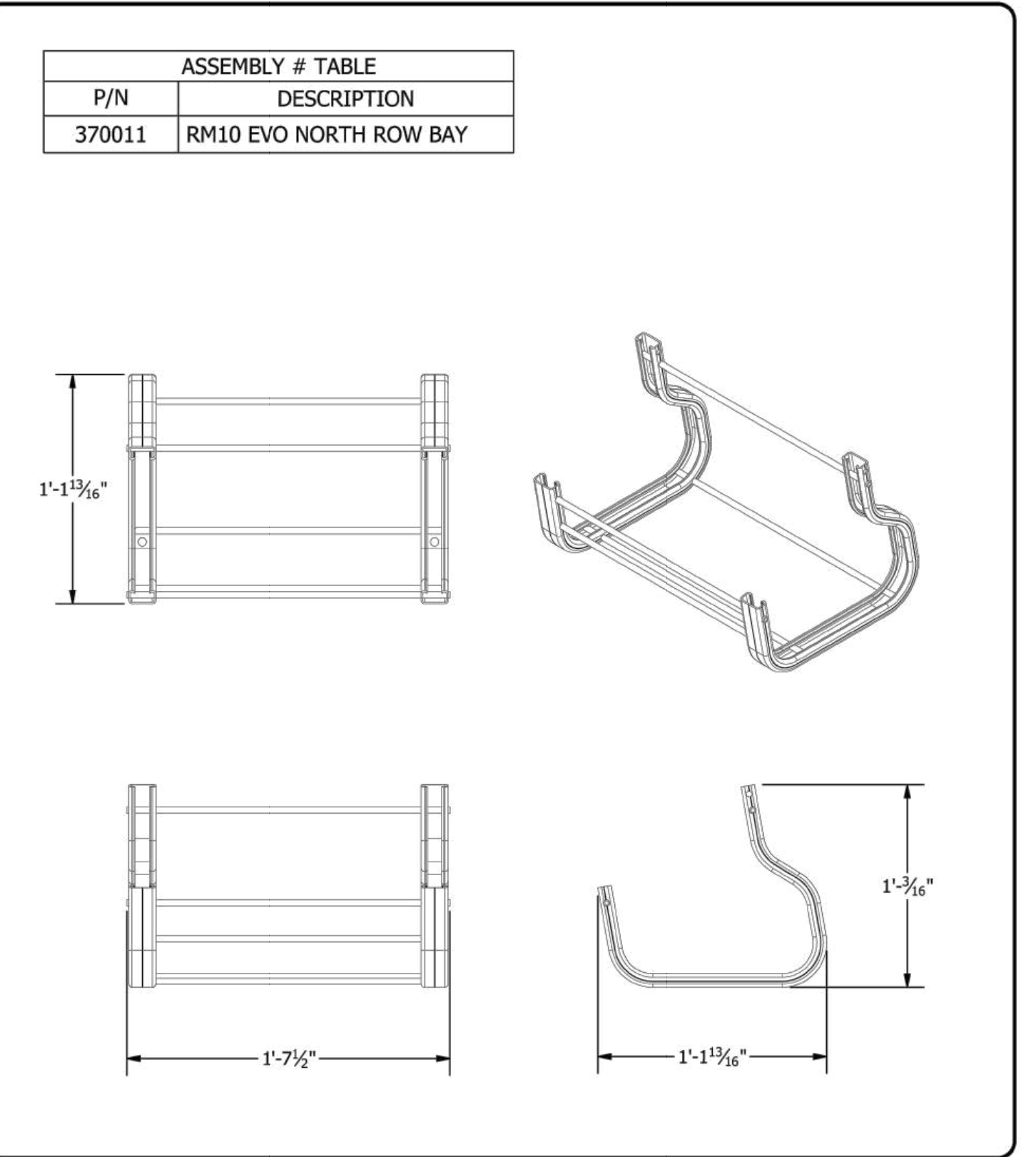
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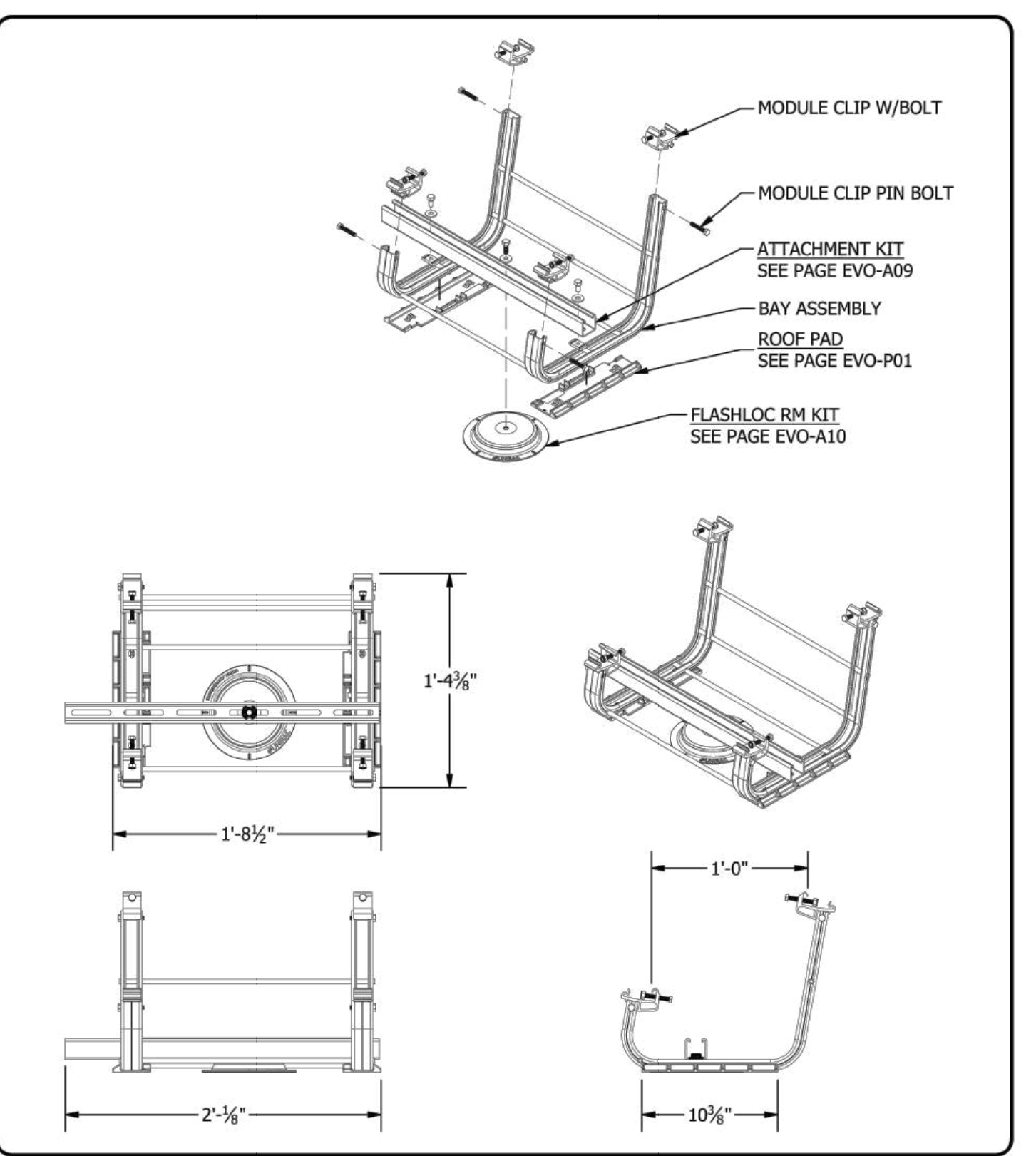
 1411 BROADWAY BLVD. NE ALBUQUERQUE, NM 87102 USA PHONE: 505.242.6411 WWW.UNIRAC.COM	PRODUCT LINE:	RM10 EVO	DRAWING NOT TO SCALE ALL DIMENSIONS ARE NOMINAL	EVO-A01
	DRAWING TYPE:	SYSTEM ASSEMBLY		
	DESCRIPTION:	RM10 EVO		
	REVISION DATE:	12/10/2021		
			PRODUCT PROTECTED BY ONE OR MORE US PATENTS	
		LEGAL NOTICE		



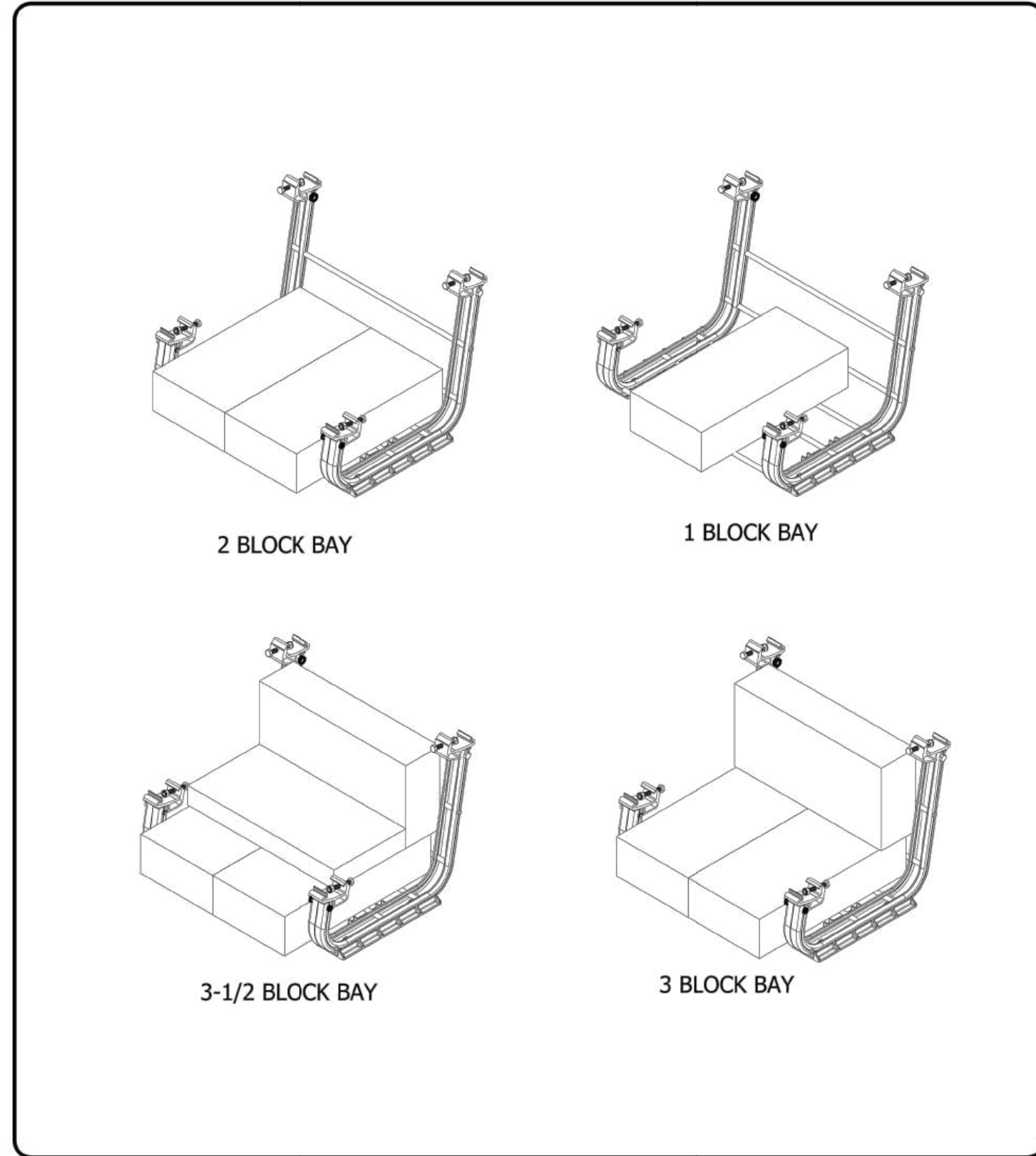
 1411 BROADWAY BLVD. NE ALBUQUERQUE, NM 87102 USA PHONE: 505.242.6411 WWW.UNIRAC.COM	PRODUCT LINE:	RM10 EVO	DRAWING NOT TO SCALE ALL DIMENSIONS ARE NOMINAL	EVO-A02
	DRAWING TYPE:	PARTS ASSEMBLY		
	DESCRIPTION:	FIELD BAY ASSEMBLY	PRODUCT PROTECTED BY ONE OR MORE US PATENTS	
	REVISION DATE:	12/10/2021		
			SHEET	



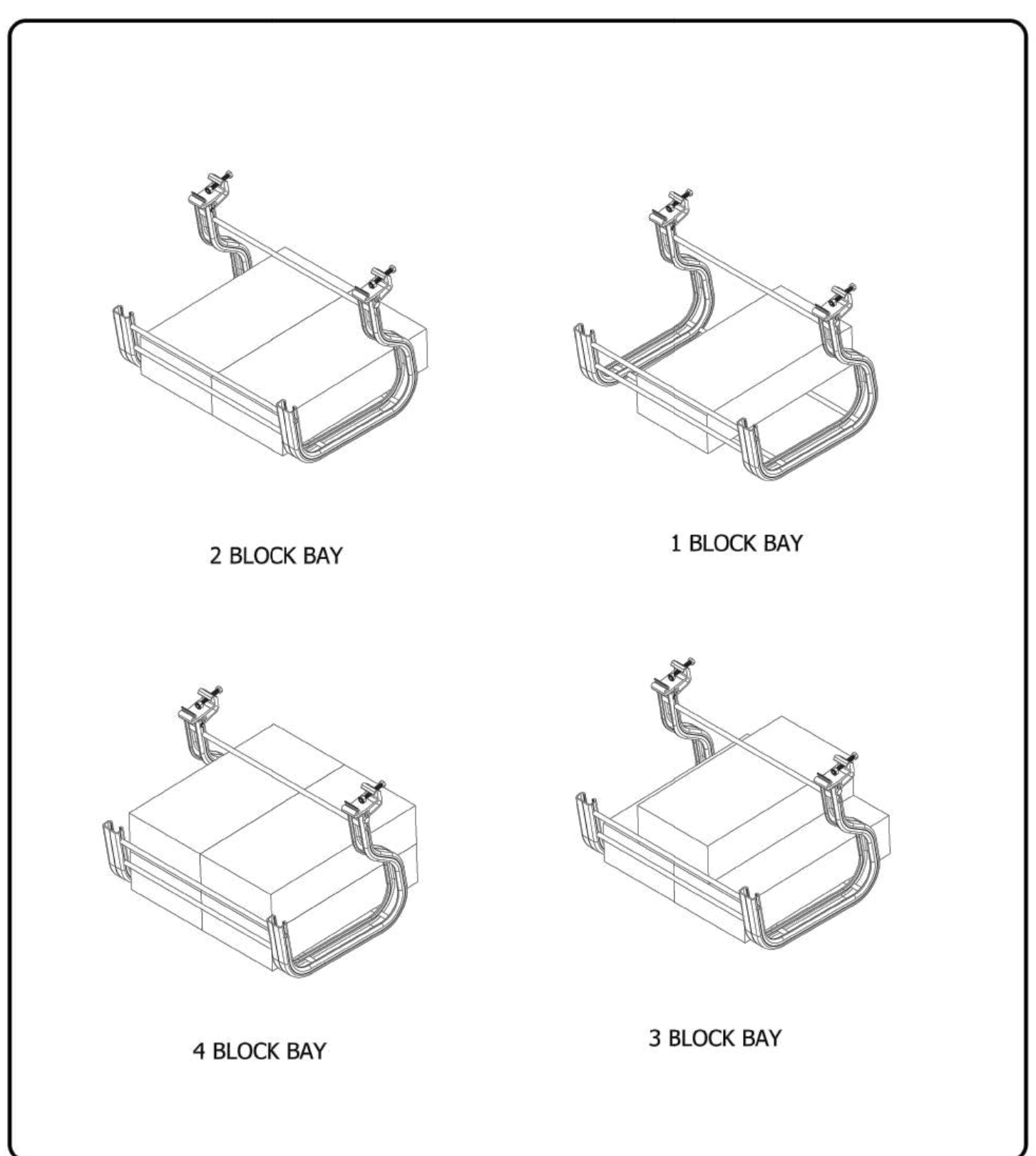
 1411 BROADWAY BLVD. NE ALBUQUERQUE, NM 87102 USA PHONE: 505.242.6411 WWW.UNIRAC.COM	PRODUCT LINE:	RM10 EVO	DRAWING NOT TO SCALE ALL DIMENSIONS ARE NOMINAL	EVO-A03
	DRAWING TYPE:	PARTS ASSEMBLY		
	DESCRIPTION:	NORTH BAY ASSEMBLY		
	REVISION DATE:	12/10/2021		
			PRODUCT PROTECTED BY ONE OR MORE US PATENTS	
		LEGAL NOTICE		



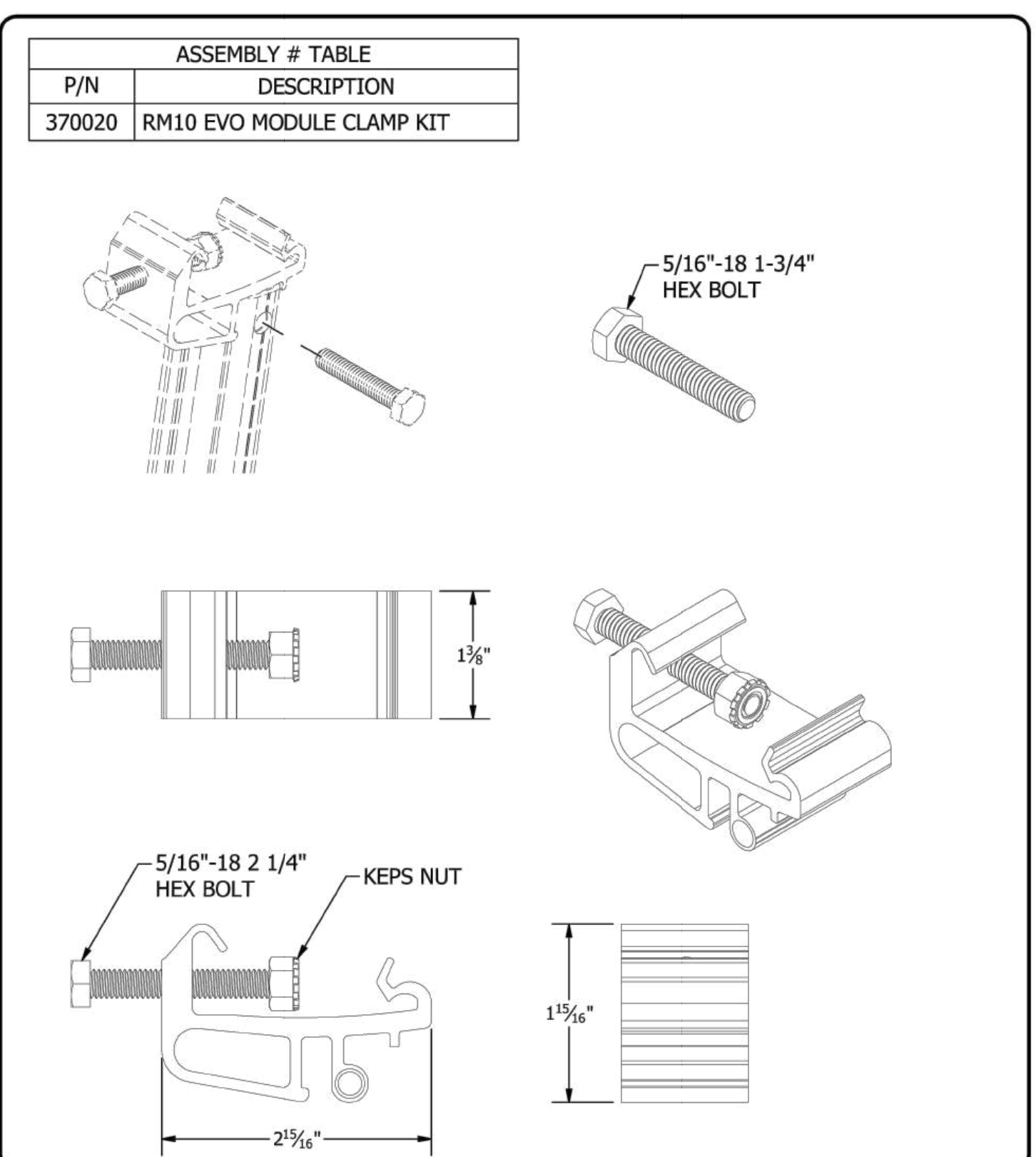
 1411 BROADWAY BLVD. NE ALBUQUERQUE, NM 87102 USA PHONE: 505.242.6411 WWW.UNIRAC.COM	PRODUCT LINE: RM10 EVO		DRAWING NOT TO SCALE ALL DIMENSIONS ARE NOMINAL	EVO-A06
	DRAWING TYPE: PARTS ASSEMBLY			
	DESCRIPTION: ROOF ATTACHMENT ASSEMBLY		PRODUCT PROTECTED BY ONE OR MORE US PATENTS LEGAL NOTICE	
	REVISION DATE: 12/10/2021			



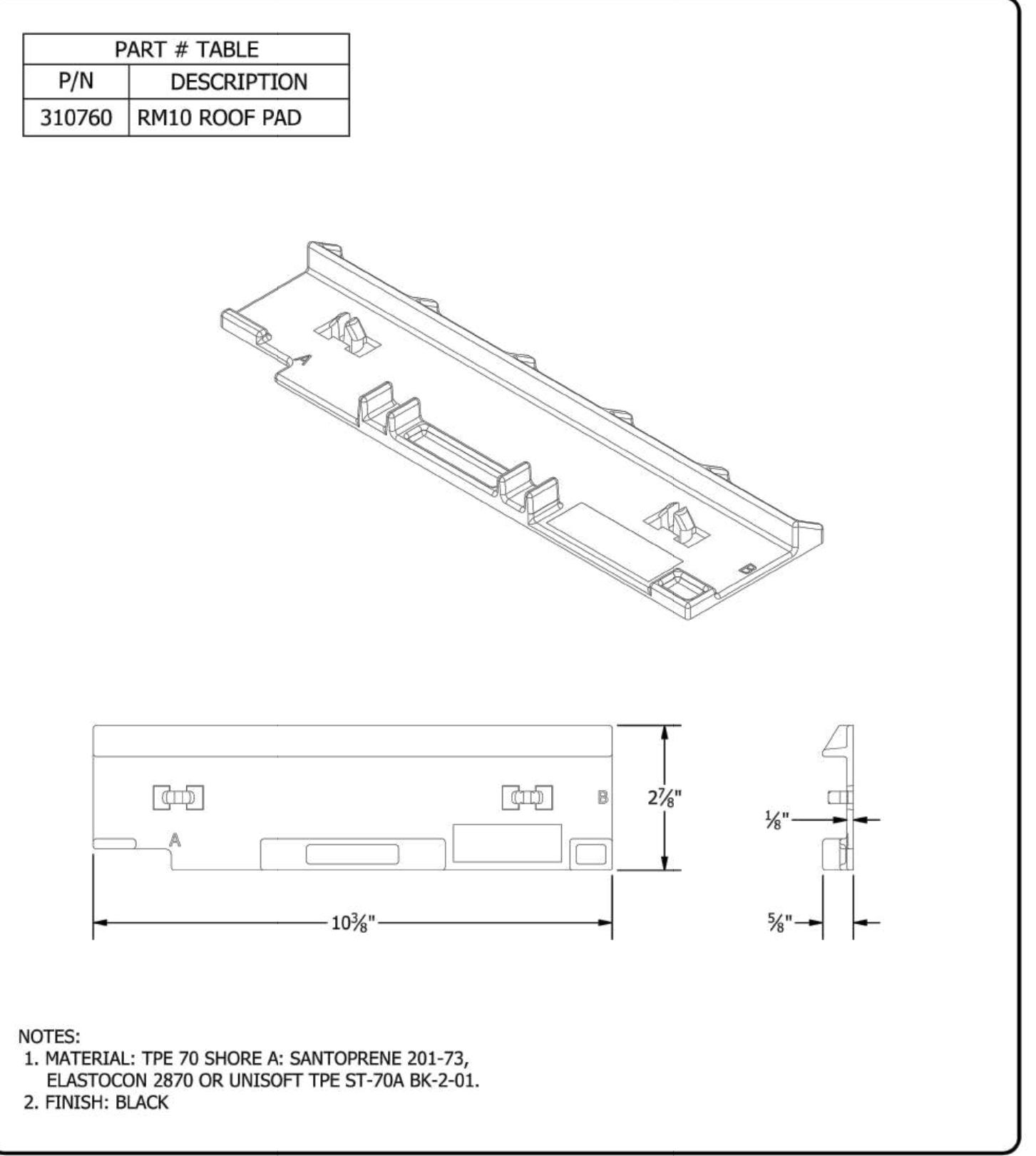
 1411 BROADWAY BLVD. NE ALBUQUERQUE, NM 87102 USA PHONE: 505.242.6411 WWW.UNIRAC.COM	PRODUCT LINE:	RM10 EVO	DRAWING NOT TO SCALE ALL DIMENSIONS ARE NOMINAL	EVO-A07
	DRAWING TYPE:	PARTS ASSEMBLY		
	DESCRIPTION:	FIELD BAY BALLAST LAYOUT		
	REVISION DATE:	12/10/2021		
		PRODUCT PROTECTED BY ONE OR MORE US PATENTS		SHEET
		LEGAL NOTICE		



 1411 BROADWAY BLVD. NE ALBUQUERQUE, NM 87102 USA PHONE: 505.242.6411 WWW.UNIRAC.COM	PRODUCT LINE:	RM10 EVO	DRAWING NOT TO SCALE ALL DIMENSIONS ARE NOMINAL	EVO-A08
	DRAWING TYPE:	PARTS ASSEMBLY		
	DESCRIPTION:	NORTH BAY BALLAST LAYOUT	PRODUCT PROTECTED BY ONE OR MORE US PATENTS	
	REVISION DATE:	12/10/2021		
				SHEET



 1411 BROADWAY BLVD. NE ALBUQUERQUE, NM 87102 USA PHONE: 505.242.6411 WWW.UNIRAC.COM	PRODUCT LINE:	RM10 EVO	DRAWING NOT TO SCALE ALL DIMENSIONS ARE NOMINAL	EVO-A11
	DRAWING TYPE:	PARTS		
	DESCRIPTION:	MODULE CLIP PIN BOLT	PRODUCT PROTECTED BY ONE OR MORE US PATENTS LEGAL NOTICE	
	REVISION DATE:	12/10/2021		
				SHEET



 1411 BROADWAY BLVD. NE ALBUQUERQUE, NM 87102 USA PHONE: 505.242.6411 WWW.UNIRAC.COM	PRODUCT LINE:	RM10 EVO	DRAWING NOT TO SCALE ALL DIMENSIONS ARE NOMINAL	EVO-P01
	DRAWING TYPE:	PART		
	DESCRIPTION:	RM10 ROOF PAD	PRODUCT PROTECTED BY ONE OR MORE US PATENTS	
	REVISION DATE:	12/10/2021		
				SHEET

WOLF RIVER ELECTRIC
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PALERIA BROTHERS COMMERCIAL
9848 S 57TH ST, FRANKLIN, WI 53132
AHJ: CITY OF FRANKLIN
UTILITY: WE ENERGIES

DESIGNED BY:



TRIVENT CAD SOLUTION

Sheet Name

MOUNT DEATILS

Sheet Size

ARCH D
24" X 36"

Sheet Number

S1.1

- NOTE :
- 24/ 7 UNESCORTED KEYLESS ACCESS IS TO BE PROVIDED FOR ALL UTILITY EQUIPMENT.
 - UTILITY AC DISCONNECT SHOULD BE LOCATED TOGETHER IN A READILY ACCESSIBLE LOCATION WITHIN 10' OF THE MAIN SERVICE METER.

Photovoltaic System	
DC System Size (Watts)	43200
AC System Size (Watts)	36000
Total Module Count	108

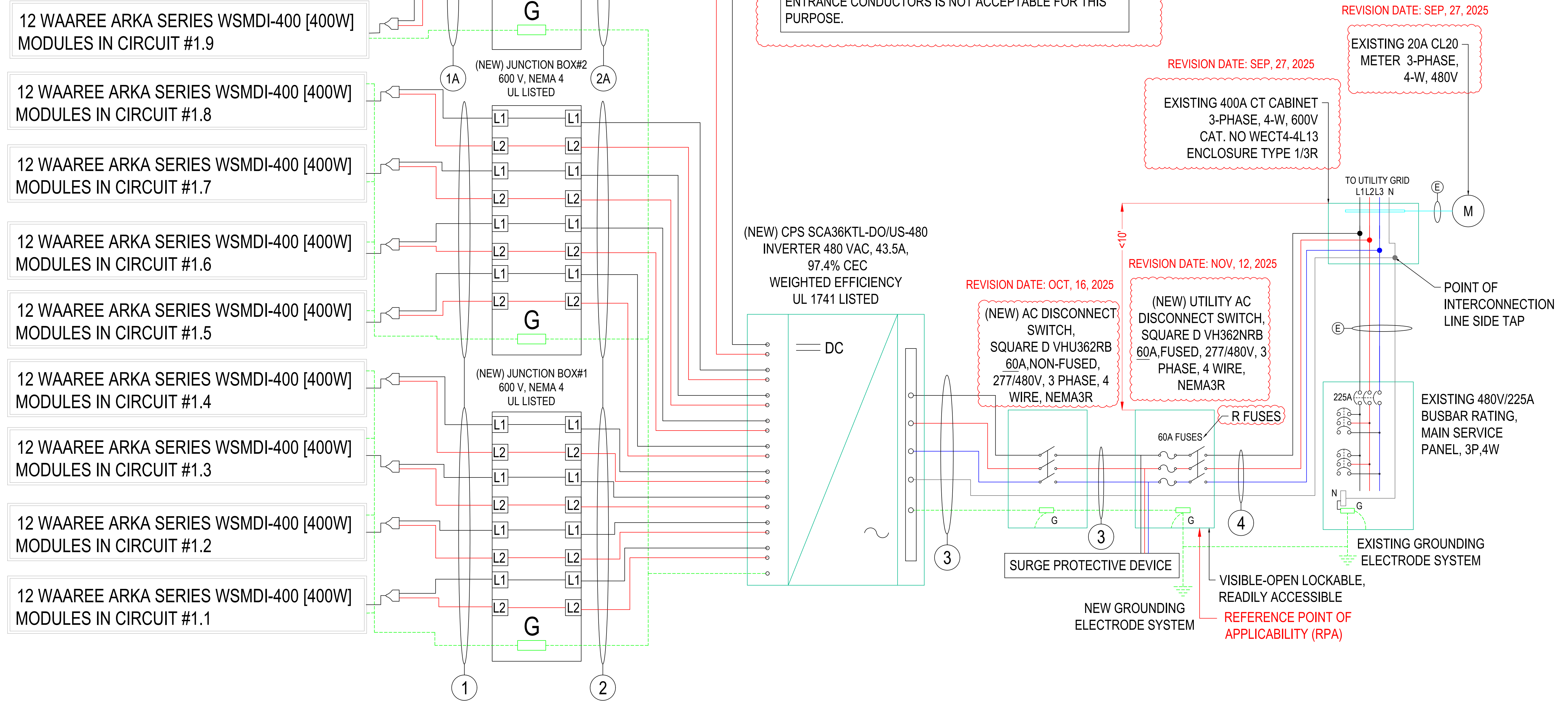
NOTE: UTILITY AC DISCONNECT TO BE INSTALLED WITHIN 10FT FROM UTILITY METER.

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UTILITY: WE ENERGIES

Conduit Conductor Schedule (Unless Otherwise Specified Conductors Shall be Copper)					
Tag #	Description	Wire Gauge	# of Conductors/Color	Conduit Type	Conduit Size
1, 1A	Inverter Output (PV Wire)	12 AWG	8(4L1,4L2,4L3), 2(L1,L2,L3)	Free Air	N/A
1, 1A	EGC (Bare Copper Ground)	6 AWG	1 BARE	Free Air	N/A
2, 2A	Inverter Output (THWN-2)	12 AWG	8(4L1,4L2,4L3), 2(L1,L2,L3)	PVC	1"
2, 2A	EGC (THWN-2)	12 AWG	1 (GRN)	PVC	1"
3	Inverter Output (THWN)	3 AWG (AL)	4(L1, L2, L3, N)	SCH 80 PVC	1-1/4"
3	EGC (THWN)	8 AWG (AL)	1 (GRN)	SCH 80 PVC	1-1/4"
4	Inverter Output (THWN)	3 AWG (AL)	4(L1, L2, L3, N)	SCH 80 PVC	1-1/4"

[480V, 3 PHASE] INVERTER SPECIFICATIONS		PV MODULE RATING @ STC	
MANUFACTURER	CPS SCA36KTL-DO/US-480	MANUFACTURER	WAAREE ARKA SERIES WSMDI-400 [400W]
MAX. DC VOLT RATING	1000 VOLTS	MAX. POWER-POINT CURRENT (IMP)	10.54 AMPS
MAX. PV POWER	61.2 KW	MAX. POWER-POINT VOLTAGE (VMP)	38.0 VOLTS
NOMINAL AC VOLTAGE	480 VOLTS	OPEN-CIRCUIT VOLTAGE (VOC)	45.22 VOLTS
MAX. AC CURRENT	43.5 AMPS	SHORT-CIRCUIT CURRENT (ISC)	11.32 AMPS
AC POWER	36000 W	NOM. MAX. POWER AT STC (PMAX)	400 WATTS
		MAX. SYSTEM VOLTAGE	1500V
		VOC TEMPERATURE COEFFICIENT	-0.285 %/°C

108 NEW WAAREE ARKA SERIES
WSMDI-400 [400W] MODULES



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TRIVENTCAD
TRIVENT CAD SOLUTION

Sheet Name
**ELECTRICAL
DIAGRAM**

Sheet Size
**ARCH D
24" X 36"**

Sheet Number
E 1.1

PV MODULE RATING @ STC	
MANUFACTURER	WAAREE ARKA SERIES WSMDI-400 [400W]
MAX. POWER-POINT CURRENT (IMP)	10.54 AMPS
MAX. POWER-POINT VOLTAGE (VMP)	38.0 VOLTS
OPEN-CIRCUIT VOLTAGE (VOC)	45.22 VOLTS
SHORT-CIRCUIT CURRENT (ISC)	11.32 AMPS
NOM. MAX. POWER AT STC (PMAX)	400 WATTS
MAX. SYSTEM VOLTAGE	1500V
VOC TEMPERATURE COEFFICIENT	-0.285 %/°C

[480V, 3 PHASE] INVERTER SPECIFICATIONS	
MANUFACTURER	CPS SCA36KTL-DO/US-480
MAX. DC VOLT RATING	1000 VOLTS
MAX. PV POWER	61.2 KW
NOMINAL AC VOLTAGE	480 VOLTS
MAX. AC CURRENT	43.5 AMPS
AC POWER	36000 W

Rooftop conductor ampacities designed in compliance with art. 690.8, Tables 310.15(B)(16), 310.15(B)(2)(a). Location specific temperature obtained from ASHRAE 2017 data tables	
RECORD LOW TEMP	-24°C
AMBIENT TEMP (HIGH TEMP 2%)	32°C
TEMP 0.5°	54°C
CONDUIT HEIGHT	7/8"
CONDUCTOR TEMPERATURE RATE (ON ROOF)	90°C
CONDUCTOR TEMPERATURE RATE (OFF ROOF)	75°C

THIS PANEL IS FED BY MULTIPLE SOURCES (UTILITY AND SOLAR)	
AC OUTPUT CURRENT ACCORDING TO ART. 690.8(B)(1)	43.5A
NOMINAL AC VOLTAGE	480V

PERCENT OF VALUES	NUMBER OF CURRENT CARRYING CONDUCTORS IN CONDUIT
.80	4-6
.70	7-9
.50	10-20

OCPD Calculations

Breakers sized according to continuous duty output current.
Inverter Output Current X (1.25[art. 690.8(A)]) X (139 Max AC current inverter)
Inverter #1 = Output Current w/ continuous duty = 43.5A <= 60A Breaker

system output current w/ continuous duty = 54.38 <= 60A (System OCPD)

Conductor Calculations

Wire gauge calculated from code art. 310.15(B)(16) with ambient temperature calculations from art. 310.15(B)(2)(a).
For "On Roof" conductors we use the 90°C column ampacity, the relevant ambient temperature adjustment, and raceway fill adjustments from 310.15(B)(16). Conduit shall be installed at least 7/8" above the roof surface.
For "Off Roof" conductors we use the 75°C column ampacity, or the 75°C column ampacity with the relevant ambient temperature and raceway fill adjustments, whichever is less.The rating of the conductor after adjustments MUST be greater than, or equal to, the continuous duty output current.
Calculation Example - Wire Rating x Ambient Temperature Adjustment x Conduit Fill Adjustment >= Continuous Duty Output Current
(Tag 2 On Roof):
12 gauge wire rated for 30 A, 30 A x 0.96 x 0.7 (8 Conductors) = 20.16A > 14.15A
(Tag 2A On Roof):
12 gauge wire rated for 30 A, 30 A x 0.96 x 1.0 (2 Conductors) = 28.8A > 14.15A
(Tag 3 & 4 Off Roof):
3 gauge AL wire rated for 75A , 75A x 0.94 x 0.8 = 56.4A > 54.38A (System Output Current)

ELECTRICAL NOTES

- Designed according to and all code citations are relevant to the 2017 National Electrical Code.
- Tag 2-Use 96% temperature derate for conditions of use (On roof)
- Tag 3 - Use 96% temperature derate for conditions of use (adjusted ambient)
- System grounding & bonding designed in compliance with 690.47(C)3 and 250.64(E)
- Equipment shall be listed, tested, and marked to withstand the available short circuit current



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TRIVENTCAD SOLUTION

Sheet Name

WIRE
CALCS

Sheet Size

ARCH D
24" X 36"

Sheet Number

E 1.2

**WARNING**

ELECTRICAL SHOCK HAZARD

TERMINALS ON THE LINE AND
LOAD SIDES MAY BE ENERGIZED
IN THE OPEN POSITION

LABEL LOCATION: COMBINER PANEL, UTILITY AC
DISCONNECT, POINT OF INTERCONNECTION
PER CODE: NEC 706.15(C)(4), NEC 690.13(B)

**WARNING**

TURN OFF PHOTOVOLTAIC AC
DISCONNECT PRIOR TO
WORKING INSIDE PANEL

LABEL LOCATION: COMBINER PANEL(S), MAIN SERVICE DISCONNECT
PER CODE: NEC 110.27(C), OSHA 1910.145(f)(7)

PHOTOVOLTAIC POWER SOURCE

LABEL LOCATION: DC CONDUIT/RACEWAYS
PER CODE: NEC 690.31(D)(2)

PHOTOVOLTAIC SYSTEM UTILITY AC DISCONNECT
RATED AC OUTPUT CURRENT: 43.50 A
NOMINAL OPERATING AC VOLTAGE: 480 V

LABEL LOCATION: UTILITY AC DISCONNECT/POINT OF INTERCONNECTION
PER CODE: NEC 690.54

PHOTOVOLTAIC UTILITY

AC DISCONNECT

LABEL LOCATION: UTILITY AC DISCONNECT
PER CODE: NEC 690.13(B)

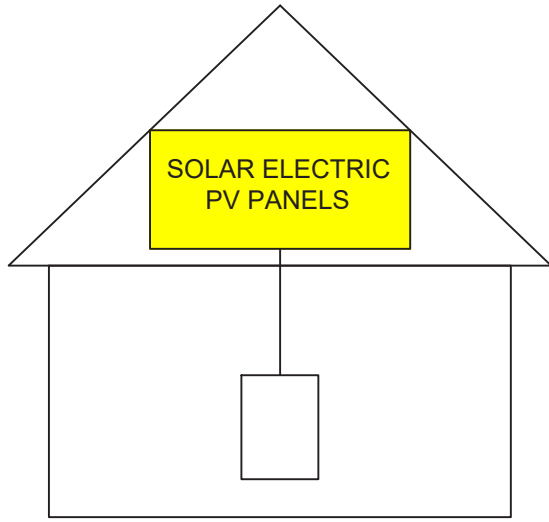
**WARNING**

DUAL POWER SOURCE
SECOND SOURCE IS PHOTOVOLTAIC SYSTEM

LABEL LOCATION: MAIN SERVICE DISCONNECT, PRODUCTION/NET METER
PER CODE: NEC 690.59, 705.12(C)

SOLAR PV SYSTEM EQUIPPED
WITH RAPID SHUTDOWN

TURN RAPID SHUTDOWN
SWITCH TO THE
"OFF" POSITION TO
SHUT DOWN PV SYSTEM
AND REDUCE
SHOCK HAZARD
IN THE ARRAY



LABEL LOCATION: MAIN SERVICE DISCONNECT
PER CODE: NEC 690.56(C)

MAIN PHOTOVOLTAIC
SYSTEM DISCONNECT

LABEL LOCATION: MAIN SERVICE DISCONNECT, UTILITY METER
PER CODE: NEC 690.13(B)

RAPID SHUTDOWN FOR
SOLAR PV SYSTEM

LABEL LOCATION: RSD INITIATION DEVICE, UTILITY AC DISCONNECT
PER CODE: NEC 690.56(C)(2)

DO NOT DISCONNECT
UNDER LOAD

LABEL LOCATION: MAIN SERVICE DISCONNECT
PER CODE: NEC 690.15(B) & NEC 690.33(D)(2)

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Signature with Seal

Project Name &
Address

PALERIA BROTHERS COMMERCIAL

9848 S 57TH ST, FRANKLIN, WI 53132
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UTILITY: WE ENERGIES

DESIGNED BY:

TRIVENT CAD SOLUTION

Sheet Name
WARNING LABELS
Sheet Size
ARCH D 24" X 36"
Sheet Number
E 1.3

ARKA SERIES

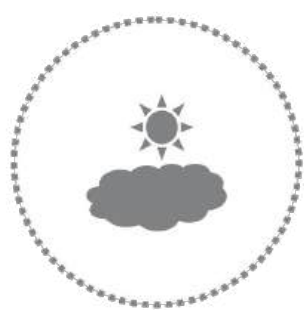
WSMDi-395 to WSMDi-415

WAAREE®

One with the Sun



Highest reliability & enhanced crack tolerant 9BB module



Better performance under all climatic conditions



Split junction box



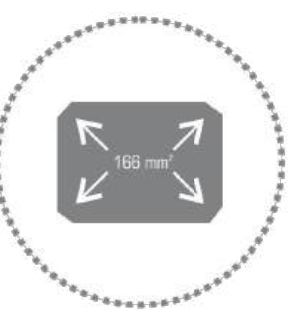
Reduced power losses up to 1/4 times



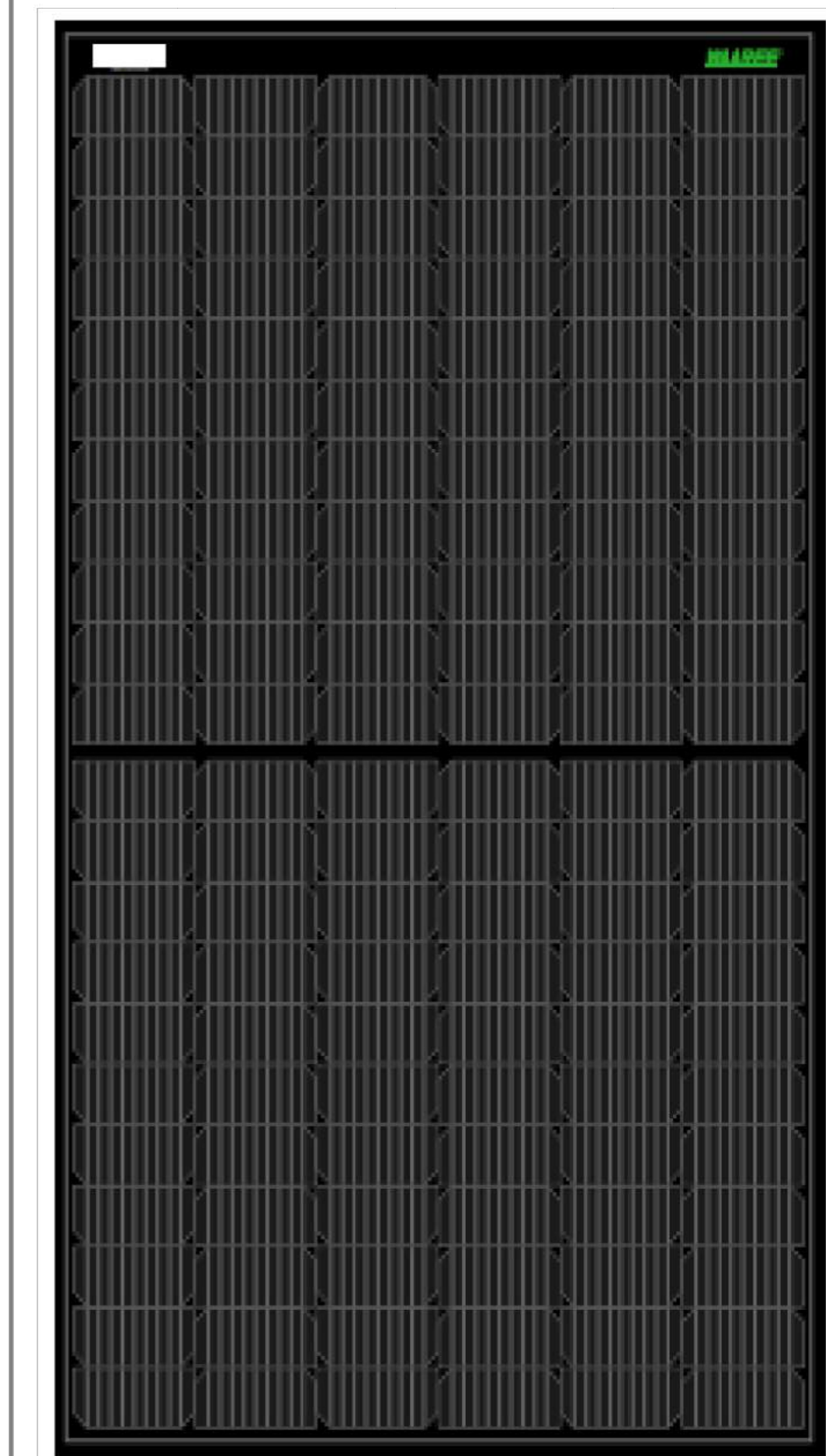
PID resistant with long term reliability



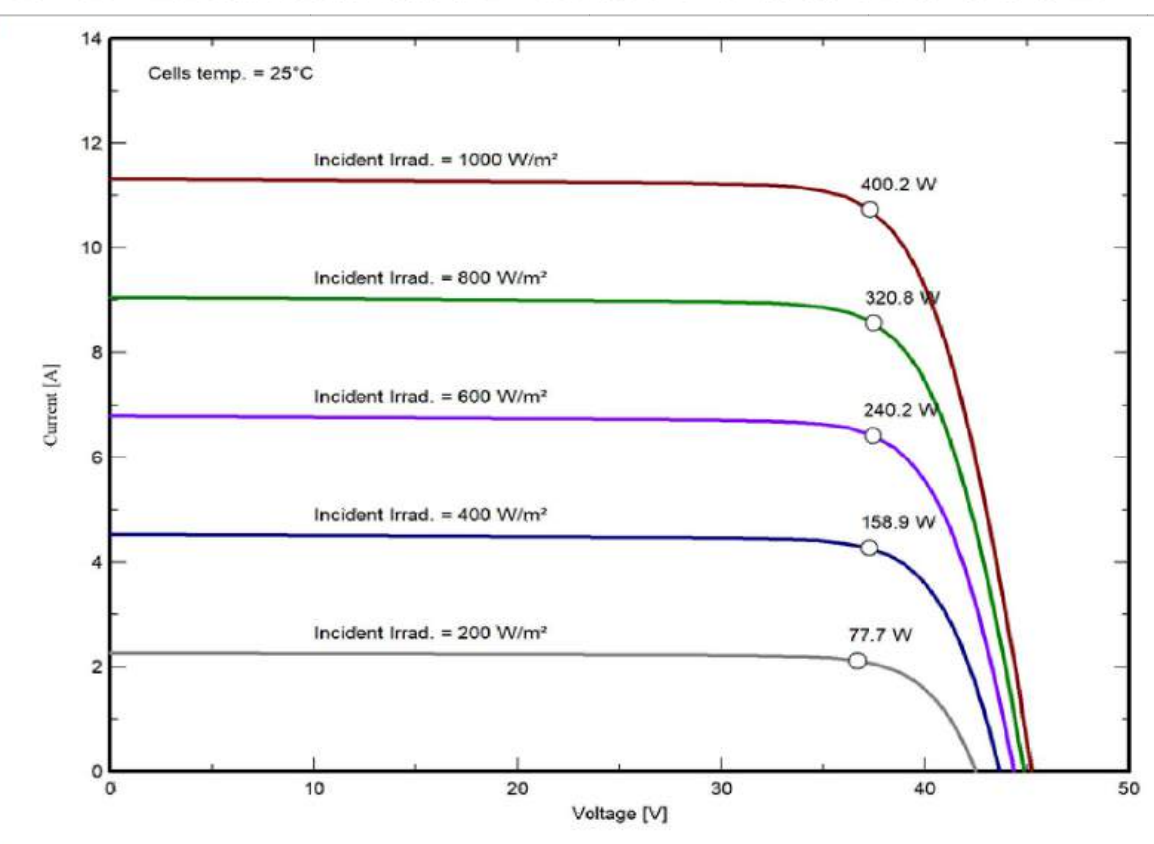
Sustain heavy wind & snow loads (2400 pa & 5400 pa)



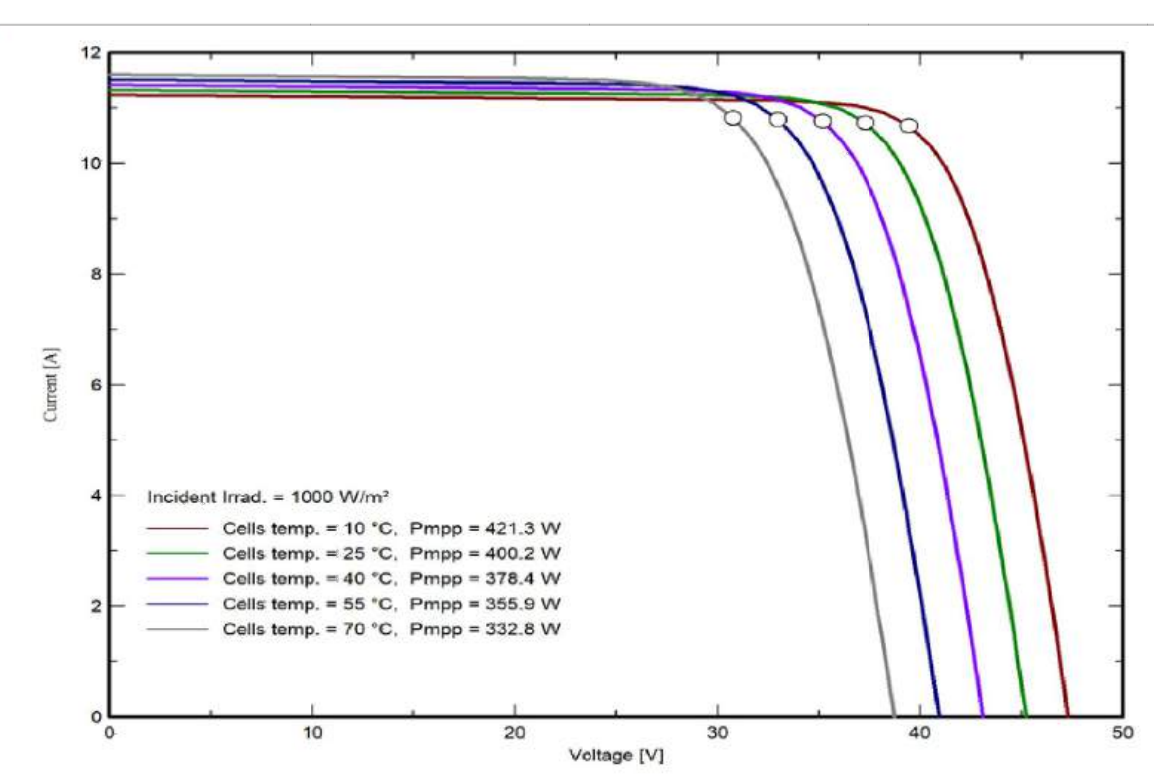
M6 Mono PERC cells



I-V VARIATION WITH IRRADIANCE



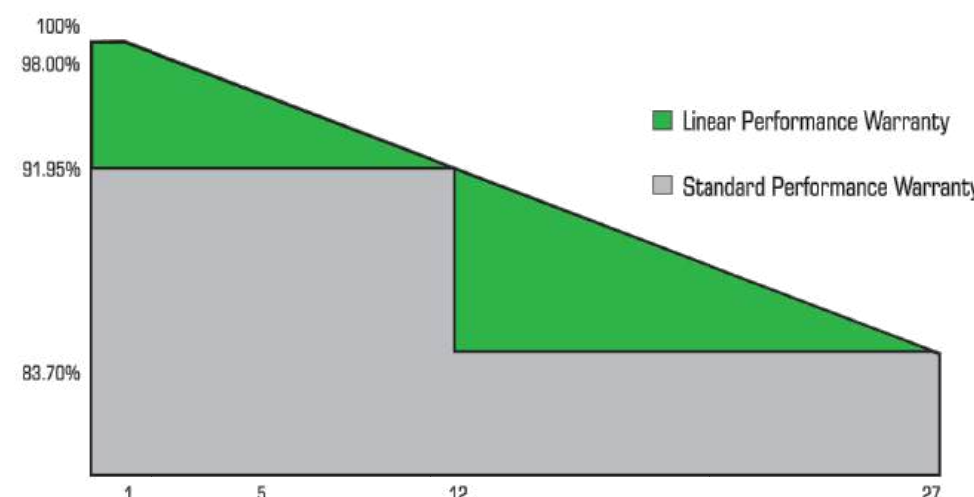
I-V VARIATION WITH TEMPERATURE



The Graphs are for reference purpose only. Please consult Waaree technical team for further clarifications.

INTERNATIONAL & NATIONAL CERTIFICATIONS ^

IEC 61215 | IEC 61730 | UL61730
IEC TS 62804-1



ISO 9001:2015 | ISO 14001:2015 | ISO 45001:2018
Independent assessment of factories by BLACK & VEATCH

www.waaree.com

ARKA SERIES

WSMDi-395 to WSMDi-415

ELECTRICAL CHARACTERISTICS

Models	Pmax (W)		Vmp (V)		Imp (A)		Isc (A)		Voc (V)		Module Eff. (%)
	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	
WSMD-395	395	296.8	37.77	34.70	10.47	8.55	11.24	9.08	45.00	42.10	19.78
WSMD-400	400	300.6	38.00	34.90	10.54	8.62	11.32	9.14	45.22	42.30	20.03
WSMD-405	405	304.4	38.22	35.10	10.61	8.68	11.40	9.21	45.44	42.50	20.28
WSMD-410	410	308.2	38.44	35.30	10.68	8.74	11.48	9.27	45.66	42.70	20.53
WSMD-415	415	312.1	38.66	35.40	10.75	8.81	11.57	9.34	45.88	42.90	20.78

*Standard Test Conditions (STC) - 1000 W/m² irradiance, Air Mass 1.5 and 25°C cell temperature. Nominal Operating Cell Temperature (NOCT) - 800 W/m² irradiance, Air Mass 1.5, Ambient temperature 20°C and Wind speed 1 m/s. Average power reduction of 4.5% at 200 W/m² as per IEC 60904-1. Measuring Uncertainty ± 3%.

System Voltage

1500 V

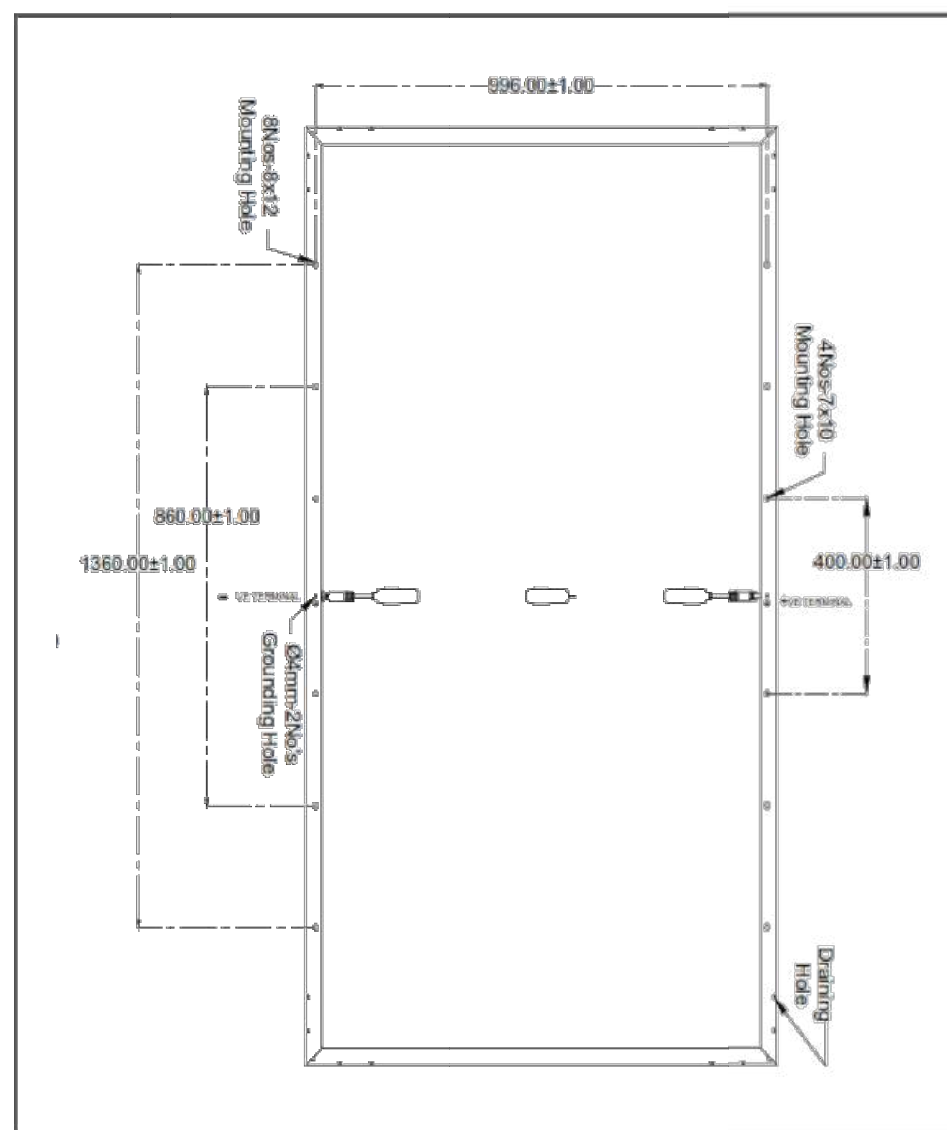
Series Fuse Rating

22 A

MECHANICAL CHARACTERISTICS

Length x Width x Thickness (L x W x T)	1924 mm (L) x 1038 mm (W) x 35 mm (T)
Weight	22 kgs
Solar Cells per Module (Units) / Arrangement	132 cells / (11x6 11x6)
Solar Cell Type & Size	Mono PERC, 83 x 166 mm
Front Glass	3.2 mm Low Iron and Tempered glass with ARC coating
Encapsulate	PID Free & UV Resistant
Junction Box (Protection degree/ Material)	IP68 / Weatherproof PPO
Cable & Connector (Protection degree / Type)	IP68 rated / Staubli MC4 Connector
Cable cross - section & Length	4 mm ² & 1200mm
Frame	Anodized Aluminium Alloy, Anodization thickness ≥ 15 micron
Fire rating	Type 2

DESIGN SPECIFICATIONS



12 Years Product Warranty • 27 Years Power Output Warranty

- The electrical data given here is for reference purpose only.
- Please confirm your exact requirements with the sales representative while placing your order.
- Refer installation Manual instructions & Waaree warranty statement for terms & conditions.
- Waaree Reserves the right to change the specifications without prior notice.

WEL/E&PD/395-415/132/MP/HQ/CMZ/01/27.07.2022

WAAREE®

One with the Sun

THERMAL CHARACTERISTICS

Temperature coefficient of Current (Isc), α (%/°C)	0.055
Temperature coefficient of Voltage (Voc), β (%/°C)	-0.285
Temperature coefficient of Power (Pm), γ (%/°C)	-0.365
NOCT (°C)	43 ± 2
Operating temperature range (°C)	-40 to 85

Waaree Energies Ltd. is amongst the top Solar Energy Companies and has the country's largest Solar PV Module manufacturing capacity of 5 GW. In addition, it is committed to provide top notch EPC services, project development, rooftop solutions, solar water pumps and also in an Independent Power Producer. Waaree has its presence in over 325+ locations nationally and 68 countries globally.

*If you need specific product certificates, and if module installations are to deviate from our guidance specified in our installation manual, please contact your local Waaree sales and technical representatives.

www.waaree.com



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contact@wolfriverelectric.com

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TRIVENT CAD SOLUTION

Sheet Name

MODULE SPEC SHEET

Sheet Size

ARCH D
24" X 36"

Sheet Number

D1.1



36 kW V2, 1000 Vdc String Inverters for North America

The new, V2 version of the 36 kW (36 kVA) CPS three-phase string inverter is designed for rooftop and carport applications. The units are high performance, advanced and reliable inverters designed specifically for the North American environment and grid. High efficiency at 98.8% peak and 97.4% CEC, wide operating voltages, broad temperature ranges and a NEMA Type 4X enclosure enable this inverter platform to operate at high performance across many applications.

CPS 36KTL V2 ships with either the Standard wire-box or the Rapid Shutdown wire-box, each fully integrated and separable with touch-safe fusing, monitoring, and AC and DC disconnect switches. The integrated PLC transmitter in the Rapid Shutdown Wire-box enables PVRSS certified module-level rapid shutdown when used with APS RSD-S-PLC/RSD-D products. The CPS FlexOM Gateway enables monitoring, controls and remote product upgrades.

Key Features

- NEC 2017/2020 PVRSS certified for rapid shutdown
- NEC-compliant & UL listed arc-fault circuit protection
- 15-90° mounting orientation for low-profile roof installs
- Optional FlexOM Gateway enables remote firmware upgrades
- Integrated AC and DC disconnect switches
- Copper- and Aluminum-compatible AC connections
- 3 MPPTs with 5 inputs each for maximum flexibility
- NEMA Type 4X outdoor rated enclosure
- UL 1741-SA certified to CA Rule 21, including SA8-SA18 VW
- UL 1741-SB and IEEE 1547-2018 certified
- Separable wire-box design for fast service
- Standard 10-year warranty with extensions up to 20 years



36/50/60KTL Standard Wire-box



36/50/60KTL Rapid Shutdown Wire-box



CPS SCA36KTL-DO/US-480

Datasheet



Technical Data

Model Name	CPS SCA36KTL-DO/US-480
DC Input	
Max. PV power	61.2 kW (22.4 kW per MPPT)
Max. DC input voltage	1000 Vdc
Operating DC input voltage range	200-950 Vdc
Start-up DC input voltage / power	330 V / 80 W
Number of MPP trackers	3
MPPT voltage range @ PF>0.99	400-850 Vdc
Max. PV short-circuit current (Isc x 1.25)	204 A (68 A per MPPT)
Number of DC inputs	15 inputs, 5 per MPPT
DC disconnection type	Load-rated DC switch
DC surge protection	Type II MOV
AC Output	
Rated AC output power @ PF>0.99	36 kW
Max. AC apparent power (selectable)	36 kVA
Rated output voltage	480 Vac
Output voltage range ¹	422 - 528 Vac
Grid connection type	3Φ / PE / N (neutral optional)
Max. AC output current @ 480 Vac	43.5 A
Rated output frequency	60 Hz
Output frequency range ¹	57 - 63 Hz
Power factor	>0.99 (±0.8 adjustable)
Current THD @ rated load	<3%
Max. fault current contribution (1 cycle RMS)	73.2 A (1.68 PU)
Max. OCPD rating	125 A
AC disconnection type	Load-break rated AC switch
AC surge protection	Type II MOV
System and Performance	
Topology	Transformerless
Max. efficiency	98.8%
CEC efficiency	97.4%
Stand-by / night consumption	<3 W
Environment	
Enclosure protection degree	NEMA Type 4X
Cooling method	Variable speed cooling fans
Operating temperature range ²	-22°F to +140°F / - 30°C to +60°C
Non-operating temperature range ³	No low temp minimum to +158°F / +70°C maximum
Operating humidity	0 to 100%
Operating altitude	13123 ft / 4000 m (derating from 9843 ft / 3000 m)
Audible noise	<60 dBA @ 1 m and 25°C
Display and Communication	
User interface and display	LCD + LED
Inverter monitoring	SunSpec, Modbus RS485
Site-level monitoring	CPS FlexOM Gateway (1 per 32 inverters)
Modbus data mapping	CPS
Remote diagnostics / firmware upgrade functions	Standard / (with FlexOM Gateway)
Mechanical	
Dimensions (H x W x D)	39.4 x 23.6 x 10.24 in (1000 x 600 x 260 mm)
Weight	Inverter: 123.5 lbs (56 kg); Wire-box: 33 lbs (15 kg)
Mounting / installation angle ⁴	15 to 90 degrees from horizontal (vertical or angled)
AC termination	M8 stud type terminal block (wire range: #6 - 3/0 AWG CU/AL; lugs not supplied)
DC termination ⁵	Screw clamp, neg. busbar (RSD version ⁵) wire range: #14 - #6 AWG CU
Fused string inputs (5 per MPPT) ⁶	20 A fuses provided (fuse values up to 30 A acceptable)
Safety	
Certifications and standards	UL 1741-SA/SB Ed. 3, UL 1699B, UL 1998, CSA-C22.2 NO.107.1-01, IEEE 1547-2018, FCC PART15
Selectable grid standard	IEEE 1547a-2014, IEEE 1547-2018 ⁷ , CA Rule 21, ISO-NE, HECO
Smart-grid features	Volt-RideThru, Freq-RideThru, Ramp-Rate, Specified-PF, Volt-VAR, Freq-Watt, Volt-Watt
Warranty	
Standard	10 years
Extended terms	15 and 20 years

- 1) The output voltage and frequency ranges may differ according to the specific grid standard.
2) Active power derating begins at 45°C when PF=1 and MPPT≥Vmin, and at 50°C when PF=1 and MPPT≥700 Vdc.
3) See user manual for further requirements regarding non-operating conditions.
4) Shade Cover accessory required for installation angles of 75 degrees or less.
5) RSD wire-box only includes fuses and fuse holders on the positive polarity, compliant with NEC 2017/2020 Section 690.9(C).
6) Fuse values above 20 A have additional spacing requirements or require the use of the Y-Comb Terminal Block. See the user manual for further details.
7) Firmware version 18.0 or later required.



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UTILITY: WE ENERGIES

DESIGNED BY:



TRIVENT CAD SOLUTION

Sheet Name

INVERTER SPEC SHEET

Sheet Size

ARCH D
24" X 36"

Sheet Number

D1.2



The products listed below are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US' for Canada and US or with adjacent indicator 'US' for US only or without either indicator for Canada only.



PRODUCTS

Note:

DQD 507 Rev. 2018-11-12



REVISIONS		
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Sheet Name

CERTIFICATE OF COMPLIANCE

Sheet Size

ARCH D
24" X 36"

Sheet Number

D1.3

MIDNITE SOLAR INC.

Surge Protection

Surge Protection You Can Count On!

MidNite Solar Surge Protection Devices are type 1 devices, designed for indoor and outdoor applications. Engineered for both AC and PV DC electrical systems, they provide protection to service panels, load centers or electronic devices that are directly connected to a MidNite Surge Protection Device (SPD).

MidNite's SPD's are offered in four models to protect a variety of different voltage ranges. They achieve this protection by clamping surge voltage to a level that your system can sustain without damaging the components of the system.

Compare our SPD's against other surge protection devices. You will see there is no comparison in both our price and features. All our SPD's have a 5 year warranty.

With lightning you only get one chance, so get the best!



www.midnitesolar.com/spd

19115 - 62nd Ave. NE., Arlington, WA. 360-403-7207 FAX: 360-691-6862



MNSPD300ACFM (Cut-in box)
(MNSPD-300-AC included)



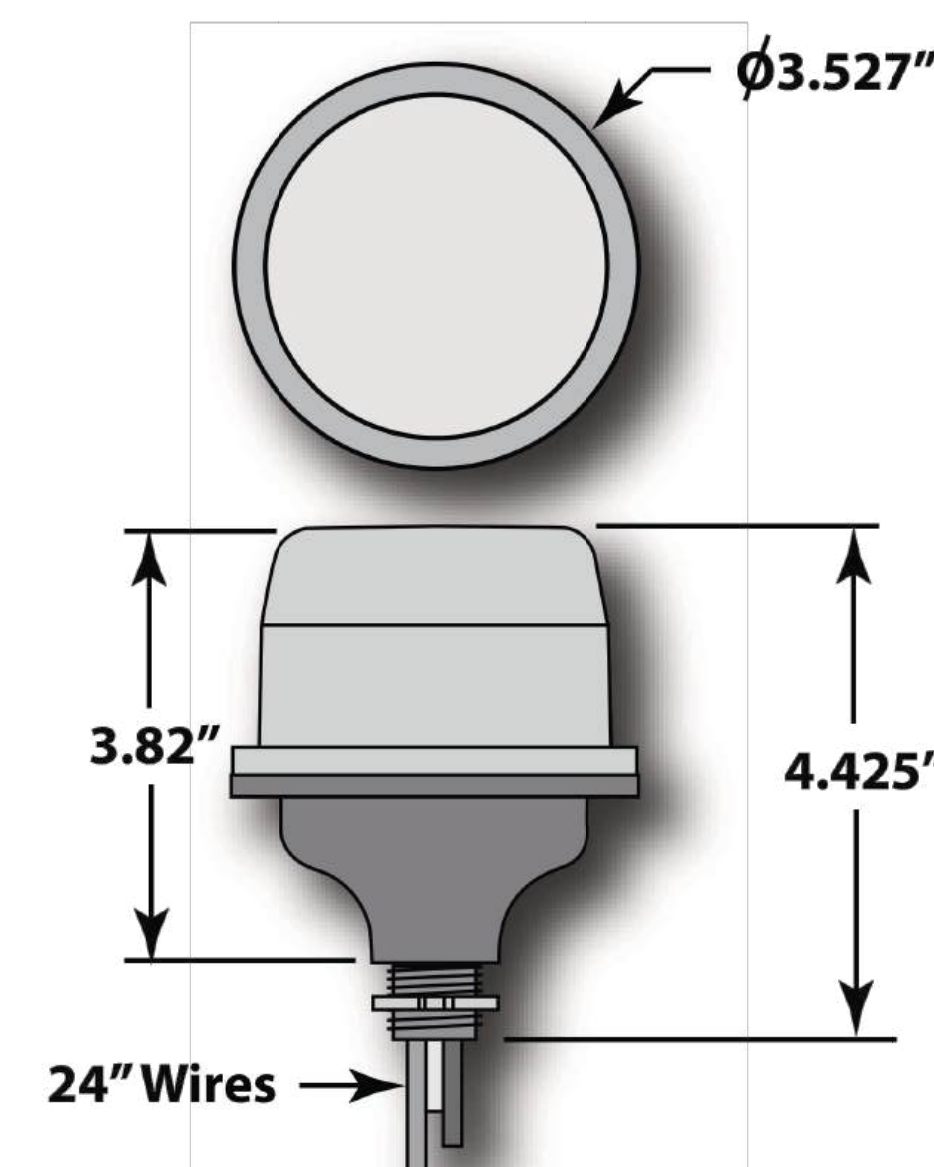
Four Models:

MNSPD-115
MNSPD-300-AC
MNSPD-300-DC
MNSPD-600



MidNite Surge Protection Devices

PART NUMBER	MNSPD-115	MNSPD-300-AC	MNSPD-300-DC	MNSPD-600
Nominal Voltage	0 to 90 VAC 0 to 115 VDC	0 to 250 VAC	0 to 300 VDC	0 to 480 VAC 0 to 600 VDC
MCOV	180V	470V	470V	780V
VPR Line to Ground	600V	1200V	1200V	1800V
Suggested Placement	Up to 90VAC circuits, 12V, 24V, 48VDC battery circuits	120/240 VAC circuits	Off-grid PV combiners Charge controller inputs up to 300VDC	316V/480 VAC circuits Grid-tie PV combiners Grid-tie inverter input Non-Isolated Inverters
Type	UL1449 4th Ed. Type 1	UL1449 4th Ed. Type 1	UL1449 4th Ed. Type 1	UL1449 4th Ed. Type 1
Diagnostic Blue LED	MNSPD-300-AC LED indicates when voltage is present between L1 + ground and L2 + ground MNSPD-115, MNSPD-300-DC and MNSPD-600: LED indicates when voltage is present between L1 + L2 (PV+ PV-)			
Thermal Disconnect	Internal Fuse			
Response Time	<1 micro sec.			



Performance	
Surge Current Rating per Phase	80kA
Short Circuit Current Rating	10kA
Fusing	Individually fused MOVs
Thermal Fusing	Yes
Over current Fusing	Yes
Operating Frequency	0 to 500 Hz
Mechanical Description	
Enclosure	Polycarbonate UL94V-0
Environmental Rating	Type 4X
Connection Method	#12 AWG
Weight	1 lb.
Mounting Method	1/2" Conduit Knockout
Operating Altitude	Sea Level - 12,000' (3,658 Meters)
Storage Temp	-40° F to +185° F (-40° C to +85° C)
Operating Temp	-40° F to +185° F (-40° C to +85° C)
Diagnostics	
Blue status LED, one per leg	
Listings and Performance	
UL Standard for Safety, UL 1449 Surge Protective Devices-Fourth Edition CSA C22.2 No. 8-M1986 Electromagnetic Interference (EMI) Filters, Fourth Edition	

Model No.	Max Operating Voltage	Surge Current per Phase	Configuration	MCOV	SCCR	VPR 600V/3kA L G
MNSPD-115	100 VAC/150VDC	80kA	1 Ø, 3-wire (2 Legs)	180V L-N	10kA	600V
MNSPD-300-AC	300VAC	80kA	1 Ø, 3-wire (2 Legs)	470V L-N	10kA	1200V
MNSPD-300-DC	385VDC	80kA	1 Ø, 3-wire (2 Legs)	470V L-N	10kA	1200V
MNSPD-600	480VAC/600VDC	80kA	1 Ø, 3-wire (2 Legs)	780V L-N	10kA	1800V

www.midnitesolar.com/spd

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ISANTI, MN 55040 ELECTRICAL
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CONTACT: (763) 229-6662
contact@wolfriverelectric.com

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TRIVENT CAD SOLUTION

Sheet Name

SPD
SPEC SHEET

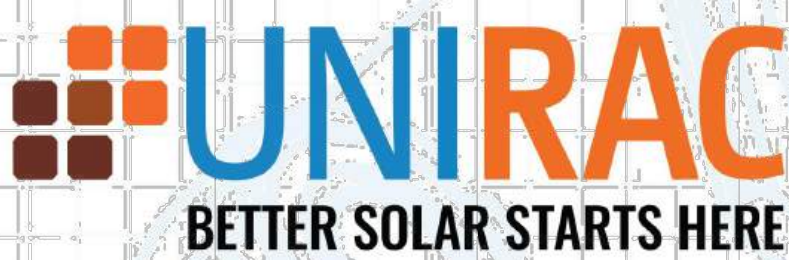
Sheet Size

ARCH D
24" X 36"

Sheet Number

D1.4

ROOFMOUNT | RM10 EVO



THREE MAJOR COMPONENTS. ONE TOOL.

- Supports most framed PV modules (conventional, bi-facial, and large format) at a 10-degree tilt.
- Three SKUs: a fully assembled ballast bay, a tucked north row bay, and a redesigned universal module clamp.
- Improved 13" row spacing yeilds up to 20% more power density on the roof.
- Built on a decade long legacy, RM10 EVO retains the elements that made RM10 reliable, simple and robust.
- Designed to conveniently work with off the shelf wire management products.

AVAILABILITY

- UNIRAC maintains the largest network of stocking distributors for our racking solutions. Count on our partners for fast and accurate delivery to meet your project needs.

AUTOMATED DESIGN TOOL

- Creating a bill of materials is just a few clicks away with U-Builder, a powerful online tool that streamlines the process of designing a code compliant solar mounting system. There's no need to print results and send to a distributor, just click, and share.

WHY ROOFMOUNT RM10 EVO?

LAY IT DOWN AND POWER UP! Unirac has taken the tried-and-true form and functionality of RM10 and evolved it to maximize the potential of flat roof solar projects. We have paired simplicity with power by improving the function, strength and reliability of the module clamps and modified the shape of the north row bay to optimize space and increase module density. Optional roof attachments, roof pads, and MLPE mounts provide a complete solution. Unirac's unmatched commercial project support makes construction easy, from permitting through installation.



FOR QUESTIONS OR CUSTOMER SERVICE CONTACT:
505-242-6411 | SALES@UNIRAC.COM | WWW.UNIRAC.COM
PUB2024/JAN01-V1

CONFORMS TO
UL2703

ISO 9001:2015
14001:2015
CERTIFIED



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Sheet Name

**MOUNTING DETAIL
SPEC SHEET**

Sheet Size

**ARCH D
24" X 36"**

Sheet Number

D1.5

Product data sheet

Specifications

SQUARE D



Safety switch, VisiPacT, heavy duty, unfused, viewing window, NEMA 3R, 600V, 60A, 3 pole

VHU362RB

Product availability: Stock - Normally stocked in distribution facility

Main

Product	Single Throw Safety Switch
Duty Rating	Heavy duty
Device Application	Heavy application
Disconnect Type	Non-fusible disconnect
Factory Installed Neutral	Field installed kit available
Number of Poles	3
Current Rating	60 A
Voltage Rating	600 V AC/DC
Enclosure Rating	NEMA 3R galvannealed steel
Standard Motor Power Rating	10 hp at 240 V AC 50/60 Hz for 1 phase motors 20 hp at 240 V AC 50/60 Hz for 3 phase motors 25 hp at 480 V AC 50/60 Hz for 1 phase motors 50 hp at 480 V AC 50/60 Hz for 3 phase motors 30 hp at 600 V AC 50/60 Hz for 1 phase motors 60 hp at 600 V AC 50/60 Hz for 3 phase motors 10 hp at 250 V DC 30 hp at 600 V DC

Complementary

Mounting Type	Surface
Electrical Connection	Lugs
Wiring configuration	3-wire
Wire Size	AWG 14...AWG 3 copper AWG 12...AWG 3 aluminium
Tightening torque	50 lbf.in (5.6 N.m) (AWG 3) 45 lbf.in (5.08 N.m) (AWG 6...AWG 4) 40 lbf.in (4.5 N.m) 0.013 in² (8.367 mm²) (AWG 8) 50 lbf.in (5.6 N.m) 0.003...0.008 in² (2.06...5.261 mm²) (AWG 14...AWG 10)
Depth	7.038 in (178.765 mm)
Width	9.08 in (230.63 mm)
Height	18.456 in (468.782 mm)
Net Weight	15.4 lb(US) (7 kg)
Grounding Kit	Field installed kit available
Service Entrance	Suitable service entrance for USA Suitable service entrance for Mexico

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Sheet Name
ACD SPEC SHEET

Sheet Size
ARCH D
24" X 36"

Sheet Number
D1.6

Product data sheet

Specifications

SQUARE D



Safety switch, VisiPacT, heavy duty, fused, viewing window, NEMA 3R, 600V, 60A, 3 pole, neutral installed

VH362NRB

Product availability: Stock - Normally stocked in distribution facility

Main

Product	Single Throw Safety Switch
Duty Rating	Heavy duty
Device Application	Heavy application
Disconnect Type	Fusible disconnect
Factory Installed Neutral	Neutral (factory installed)
Number of Poles	3
Current Rating	60 A
Voltage Rating	600 V AC/DC
Enclosure Rating	NEMA 3R galvannealed steel
Standard Motor Power Rating	15 hp at 480 V AC 50-60 Hz for 3 phase motors 30 hp at 480 V AC 50-60 Hz for 3 phase motors 15 hp at 600 V AC 50-60 Hz for 3 phase motors 50 hp at 600 V AC 50-60 Hz for 3 phase motors 30 hp at 600 V DC

Complementary

Short-circuit current	10 kA for H, K, J or R without fuse rejection clips 200 kA for R with fuse rejection clips 200 kA for J
Fuse type	H or K R or J
Mounting Type	Surface
Electrical Connection	Lugs
Wiring configuration	4-wire (3PH + N)
Wire Size	AWG 14...AWG 3 copper AWG 12...AWG 3 aluminium
Tightening torque	50 lbf.in (5.6 N.m) (AWG 3) 45 lbf.in (5.08 N.m) (AWG 6...AWG 4) 40 lbf.in (4.5 N.m) 0.013 in² (8.367 mm²) (AWG 8) 50 lbf.in (5.6 N.m) 0.003...0.008 in² (2.06...5.261 mm²) (AWG 14...AWG 10)
Depth	7.038 in (178.765 mm)
Width	9.08 in (230.63 mm)
Height	18.456 in (468.782 mm)
Net Weight	17.6 lb(US) (8 kg)
Grounding Kit	Field installed kit available



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Sheet Name
ACD SPEC SHEET

Sheet Size
ARCH D
24" X 36"

Sheet Number
D1.7

PHOTOVOLTAIC ROOF MOUNT SYSTEM

72 MODULES - ROOF MOUNTED - 28.800 kW DC, 25.000 kW AC

9848 S 57TH ST, FRANKLIN, WI 53132, USA

PHOTOVOLTAIC SYSTEM SPECIFICATIONS:

SYSTEM SIZE:	28.800 kW DC 25.000 kW AC
MODULE TYPE & AMOUNT:	(72) WAAREE ARKA SERIES WSMDI-400 [400W]
MODULE DIMENSIONS:	(L/W/H) 75.75"/40.86"/1.37"
INVERTER:	(1) CPS SCA25KTL-DO/US-208
INTERCONNECTION METHOD:	LOAD SIDE CONNECTION

GENERAL STRUCTURAL NOTES:

- a. THE SOLAR PANELS ARE TO BE MOUNTED TO THE ROOF FRAMING USING THE UNIRAC RM10 EVO BALLAST.
1. ROOF LIVE LOAD = 20 psf TYPICAL, 0 psf UNDER NEW PV SYSTEM.

2. GROUND SNOW LOAD = 30 psf

3. WIND SPEED = 115 mph

4. EXPOSURE CATEGORY = C

AUTHORITIES HAVING JURISDICTION:

BUILDING: CITY OF FRANKLIN
ZONING: CITY OF FRANKLIN
UTILITY: WE ENERGIES
UTILITY METER NUMBER: 14 147 162

SHEET INDEX:

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PV 0.1:	PLOT PLAN
PV 1.0:	SITE PLAN
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PV 1.2:	STRING LAYOUT
PV 1.3:	EQUIPMENT ELEVATION
S 1.0:	MOUNT DETAILS
S 1.1:	MOUNT DETAILS
E 1.1:	3-LINE DIAGRAM
E 1.2:	WIRE CALCULATION
E 1.3:	WARNING LABELS
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D 1.1+:	EQUIPMENT SPEC SHEET

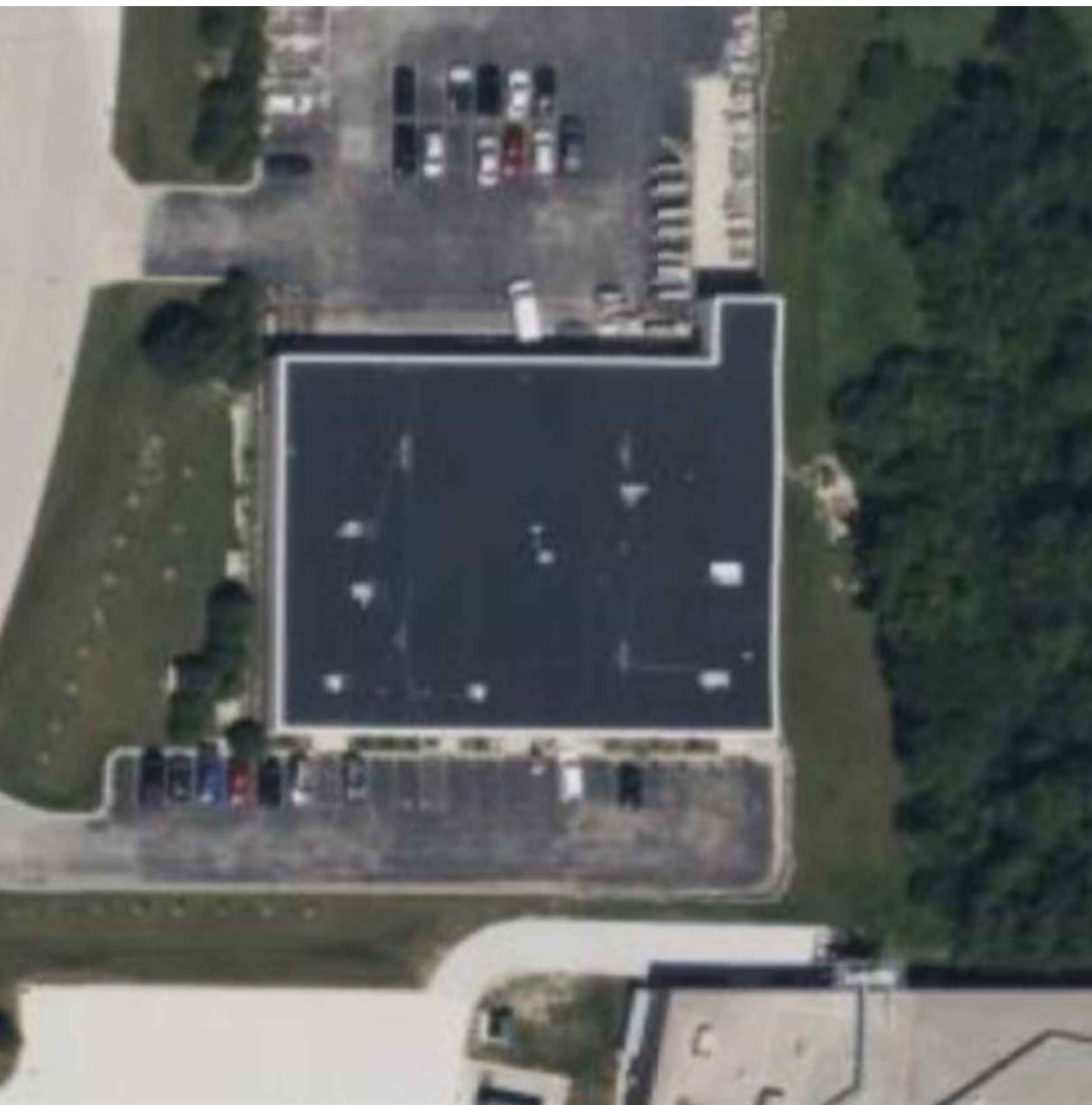
GOVERNING CODES

- ALL WORK SHALL CONFORM TO THE FOLLOWING CODES
- a. 2017 NATIONAL ELECTRICAL CODE
- b. 2024 WISCONSIN UNIFORM DWELLING CODE
- c. 2015 INTERNATIONAL BUILDING CODE
- d. 2015 INTERNATIONAL MECHANICAL CODE
- e. 2015 INTERNATIONAL FUEL GAS CODE
- f. 2015 INTERNATIONAL EXISTING BUILDING CODE
- g. 2015 INTERNATIONAL ENERGY CONSERVATION CODE
- h. ANY OTHER LOCAL AMENDMENTS

GENERAL ELECTRIC NOTES:

1. ALL COMPONENTS ARE UL LISTED AND NEC CERTIFIED, WHERE WARRANTED.
2. THE SOLAR PV SYSTEM WILL BE INSTALLED IN ACCORDANCE WITH ARTICLE 690 OF THE NEC 2017.
3. THE UTILITY INTERCONNECTION APPLICATION MUST BE APPROVED AND PV SYSTEM INSPECTED PRIOR TO PARALLEL OPERATION.
4. ALL CONDUCTORS OF A CIRCUIT, INCLUDING THE EGC, MUST BE INSTALLED IN THE SAME RACEWAY, OR CABLE, OR OTHERWISE RUN WITH THE PV ARRAY CIRCUIT CONDUCTORS WHEN THEY LEAVE THE VICINITY OF THE PV ARRAY.
5. WHERE METALLIC CONDUIT CONTAINING DC CONDUCTORS IS USED INSIDE THE BUILDING, IT SHALL BE IDENTIFIED AS "CAUTION: SOLAR CIRCUIT" EVERY 10FT.
6. HEIGHT OF THE AC DISCONNECT SHALL NOT EXCEED 6'-7" PER NEC CODE 240.24.
7. A GROUNDING ELECTRODE SYSTEM IN ACCORDANCE WITH NEC 690.47 AND 250.50 THROUGH 60 AND 250-166 SHALL BE PROVIDED. PER NEC GROUNDING ELECTRODE SYSTEM OF EXISTING BUILDING MAY BE USED AND BONDED TO THE SERVICE ENTRANCE. IF EXISTING SYSTEM IS INACCESSIBLE OR INADEQUATE A SUPPLEMENTAL GROUNDING ELECTRODE WILL BE USED AT THE INVERTER LOCATION CONSISTING OF A UL LISTED 8 FT. GROUND ROD WITH ACORN CLAMP. GROUNDING ELECTRODE CONDUCTORS SHALL BE NO LESS THAN #8 AWG AND NO LARGER THAN #6 AWG COPPER AND BONDED TO THE EXISTING GROUNDING ELECTRODE TO PROVIDE FOR A COMPLETE SYSTEM.
8. PHOTOVOLTAIC MODULES ARE TO BE CONSIDERED NON-COMBUSTIBLE.
9. ALL WIRING MUST BE PROPERLY SUPPORTED BY DEVICES OR MECHANICAL MEANS DESIGNED AND LISTED FOR SUCH USE. WIRING MUST BE PERMANENTLY AND COMPLETELY HELD OFF THE ROOF SURFACE.
10. ALL SIGNAGE TO BE PLACED IN ACCORDANCE WITH THE LOCAL BUILDING CODE. IF EXPOSED TO SUNLIGHT, IT SHALL BE UV RESISTANT. ALL PLAQUES AND SIGNAGE WILL BE INSTALLED AS REQUIRED BY THE NEC AND AHJ.
11. AS SPECIFIED BY THE AHJ, EQUIPMENT USED IN UNGROUNDED SYSTEMS LABELED ACCORDING TO NEC 690.35(F).
12. INVERTER(S) USED IN UNGROUNDED SYSTEM SHALL BE LISTED FOR THIS USE [NEC 690.35(G)].
13. THE INSTALLATION OF EQUIPMENT AND ALL ASSOCIATED WIRING AND INTERCONNECTION SHALL BE PERFORMED ONLY BY QUALIFIED PERSONS [NEC 690.4(C)]
14. ALL OUTDOOR EQUIPMENT SHALL BE NEMA 3R RATED (OR BETTER), INCLUDING ALL ROOF MOUNTED TRANSITION BOXES AND SWITCHES.
15. ALL EQUIPMENT SHALL BE PROPERLY GROUNDED AND BONDED IN ACCORDANCE WITH NEC ARTICLE 250.
16. SYSTEM GROUNDING SHALL BE IN ACCORDANCE WITH NEC 690.41.
17. PV SYSTEM CIRCUITS INSTALLED ON OR IN BUILDINGS SHALL INCLUDE A RAPID SHUTDOWN FUNCTION IN ACCORDANCE WITH NEC 690.12
18. DISCONNECTING MEANS SHALL BE LOCATED IN A VISIBLE, READILY ACCESSIBLE LOCATION WITHIN THE PV SYSTEM EQUIPMENT OR A MAXIMUM OF 10 FEET AWAY FROM THE SYSTEM [NEC 690.13(A)]
19. ALL WIRING METHODS SHALL BE IN ACCORDANCE WITH NEC 690.31
20. WORK CLEARANCES AROUND ELECTRICAL EQUIPMENT WILL BE MAINTAINED PER NEC 110.26(A)(1), 110.26(A)(2) AND 110.26(A)(3).
21. ELECTRICAL CONTRACTOR TO PROVIDE CONDUIT EXPANSION JOINTS AND ANCHOR CONDUIT RUNS AS REQUIRED PER NEC.

42.865667, -87.986940



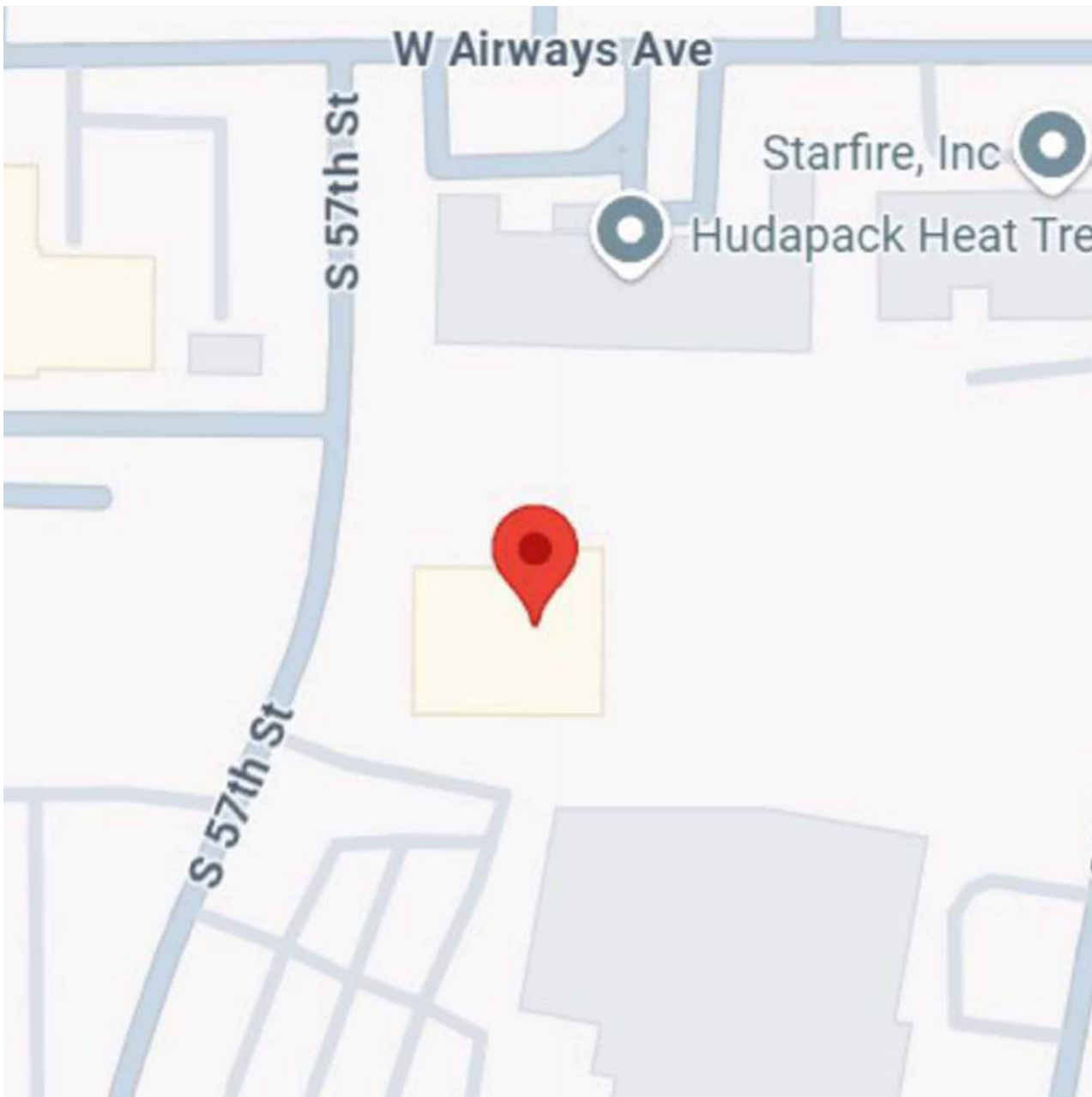
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SATELLITE VIEW

PV 0.0

SCALE: NTS

42.865667, -87.986940



2

VICINITY MAP

PV 0.0

SCALE: NTS



WOLF RIVER ELECTRIC
101 ISANTI PARKWAY NE, SUITE G
SANTI, MN 55040
ELECTRICAL CONTRACTOR: 1522577
EXPIRATION DATE: 6/30/2028
CONTACT: (763) 229-6662
contact@wolfriverelectric.com

REVISIONS

Description	Date	Rev
CAD 8	OCT.16,2025	07
CAD 9	OCT.29,2025	08
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CAD 11	DEC.03,2025	10

Signature with Seal

Project Name &
Address

PALERIA BROTHERS COMMERCIAL

9848 S 57TH ST, FRANKLIN, WI 53132

AHJ: CITY OF FRANKLIN

UTILITY: WE ENERGIES

DESIGNED BY:



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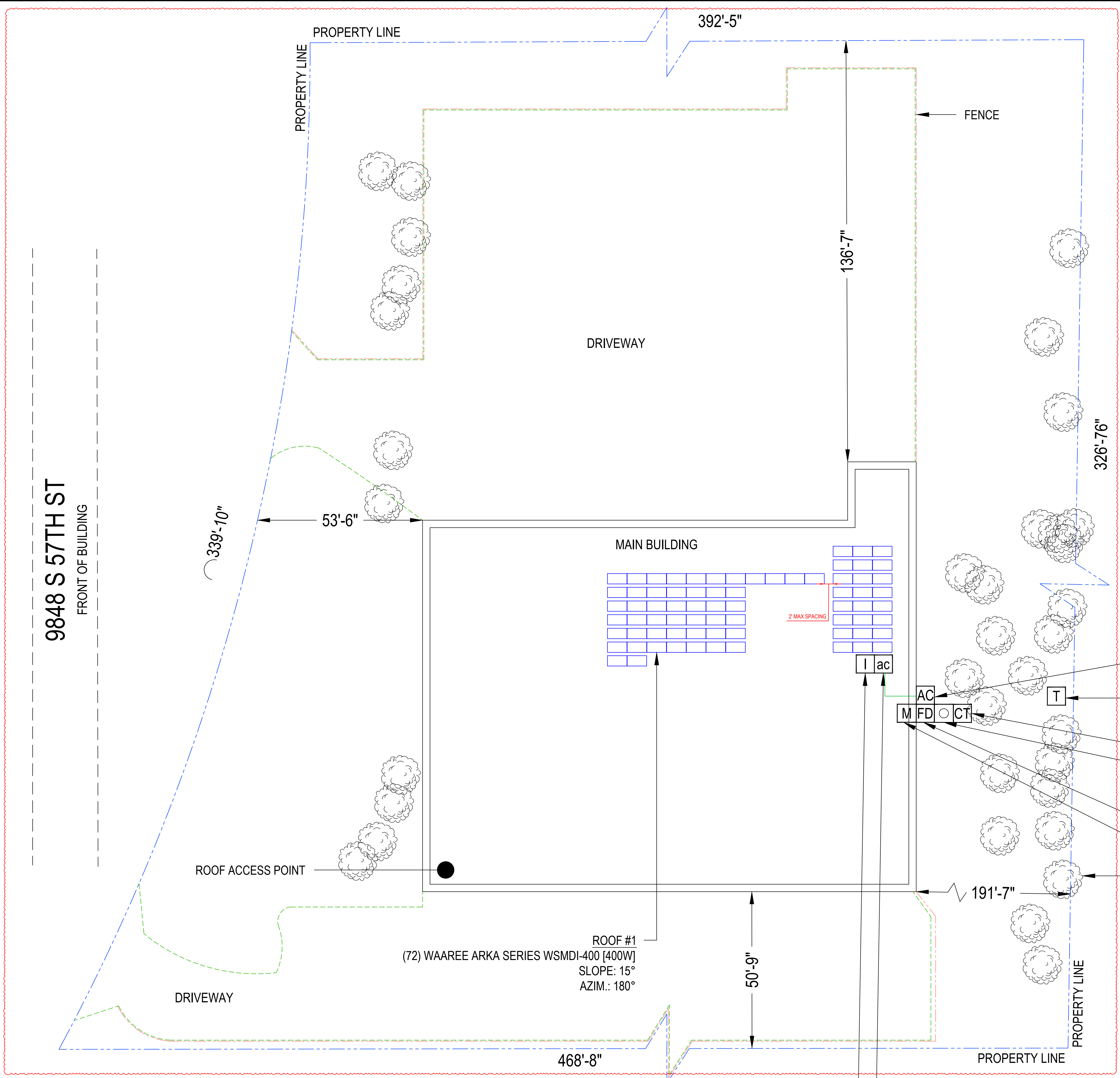
COVER SHEET

Sheet Size

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24" X 36"

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PV 0.0



SYSTEM LEGEND

LOT: 3.21 ACRES
PARCEL: 8990005000

PROPERTY LINE

DRIVEWAY

FENCE

N

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- NOTE :
- 24/ 7 UNESCORTED KEYLESS ACCESS IS TO BE PROVIDED FOR ALL UTILITY EQUIPMENT.
 - UTILITY AC DISCONNECT SHOULD BE LOCATED TOGETHER IN A READILY ACCESSIBLE LOCATION WITHIN 10' OF THE MAIN SERVICE METER.

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PLOT PLAN

Sheet Size

ARCH D

24" X 36"

Sheet Number

PV 0.1

1

PLOT PLAN

PV 0.1

SCALE: 1/16" = 1'-0"

● ROOF ACCESS POINT

ROOF ACCESS POINTS SHALL BE LOCATED IN AREAS THAT DO NOT REQUIRE THE PLACEMENT OF GROUND LADDERS OVER OPENINGS SUCH AS WINDOWS OR DOORS, AND LOCATED AT STRONG POINTS OF BUILDING CONSTRUCTION IN LOCATIONS WHERE THE ACCESS POINT DOES NOT CONFLICT WITH OVERHEAD OBSTRUCTIONS SUCH AS TREE LIMBS, WIRES, OR SIGNS.

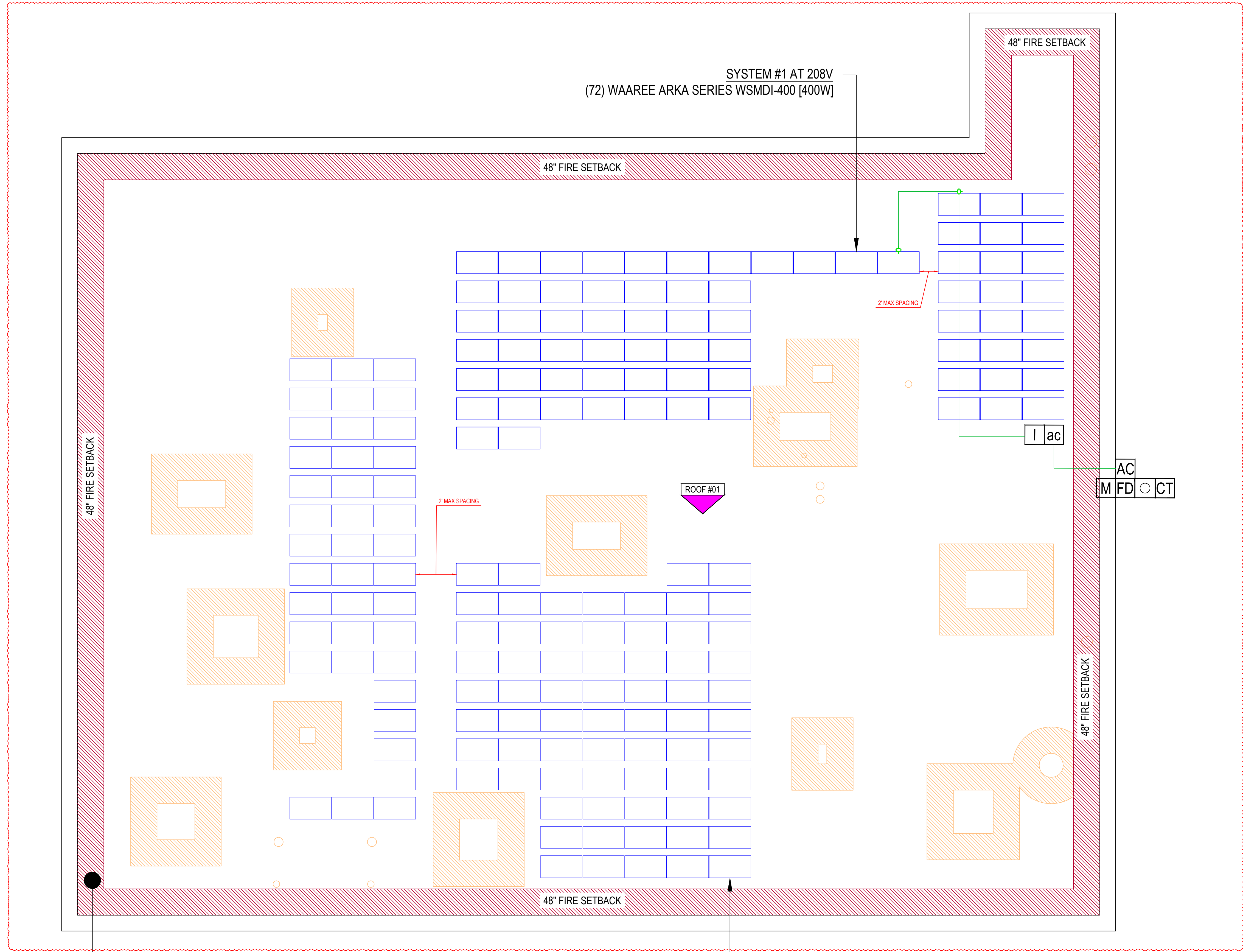
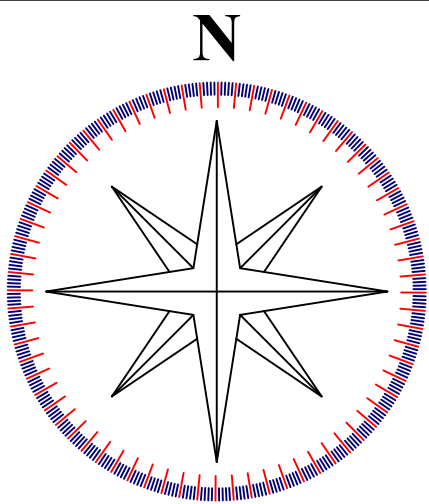
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ROOF ACCESS POINT

REVISION DATE: OCT, 16, 2025

SYSTEM #2 AT 480V
(108) WAAREE ARKA SERIES WSM DI-400 [400W]

SYSTEM LEGEND

- EXISTING EXTERIOR CL20 METER #14 147 162.
- EXISTING EXTERIOR CT CABINET
- EXISTING INTERIOR MAIN SERVICE PANEL
- EXISTING FUSED DISCONNECT
- NEW AC DISCONNECT
- NEW UTILITY AC DISCONNECT
- NEW (1) CPS SCA25KTL-DO/US-208 3 PHASE STRING INVERTER

72 NEW WAAREE ARKA SERIES WSM DI-400 [400W] MODULES

- = ROOF OBSTRUCTIONS
- = EXTERIOR RUN
- = CONDUIT ROOF TOP JUNCTION BOX

ROOF SECTIONS

ROOF #01 MODULE - 72
SLOPE - 15°
AZIMUTH - 180°
MATERIAL - TPO

NOTE:
ROOFTOP RUN CONDUIT SHALL BE MINIMUM 7/8 INCHES FROM ROOF SURFACE.



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Sheet Name

SITE PLAN

Sheet Size

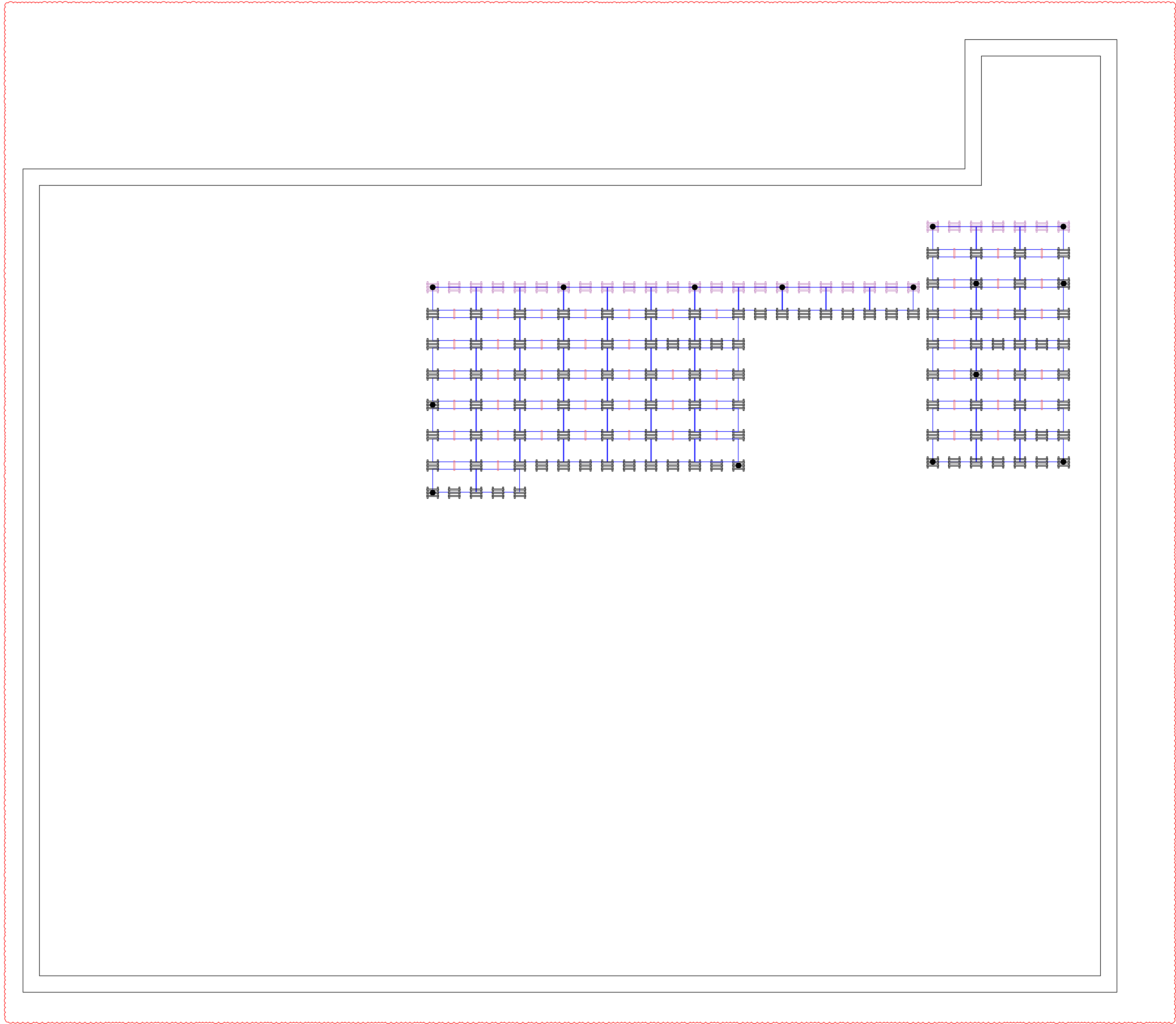
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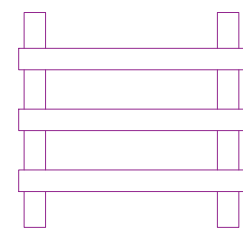
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ROOF FIRE SUPPRESSION SPRINKLER
SYSTEM: NO

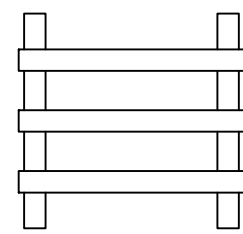
TOTAL ROOF AREA: 18271.99ft²
TOTAL MODULE AREA: 1547.57ft²
TOTAL AREA COVERED: 8.47%



SYSTEM LEGEND



UNIRAC RM10 EVO NORTH
ROW BAY (30 Nos)



UNIRAC RM10 EVO FIELD
BAY (106 Nos)



= RM10 ATTACHMENT
KIT (15 Nos)



= MID SUPPORT (53 NOS)

TOTAL NO. OF BALLAST BLOCK (264 NOS)



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Sheet Name

ATTACHMENT

Sheet Size

ARCH D
24" X 36"

Sheet Number

PV 1.1

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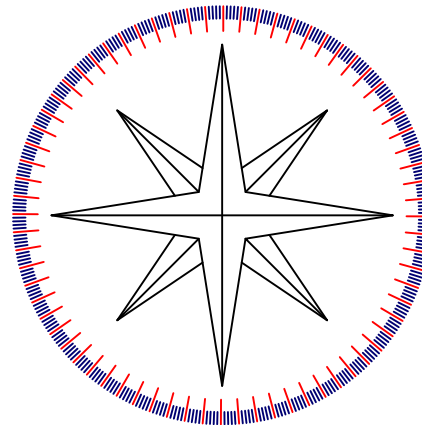
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PV 1.1

SCALE: 1/8" = 1'-0"

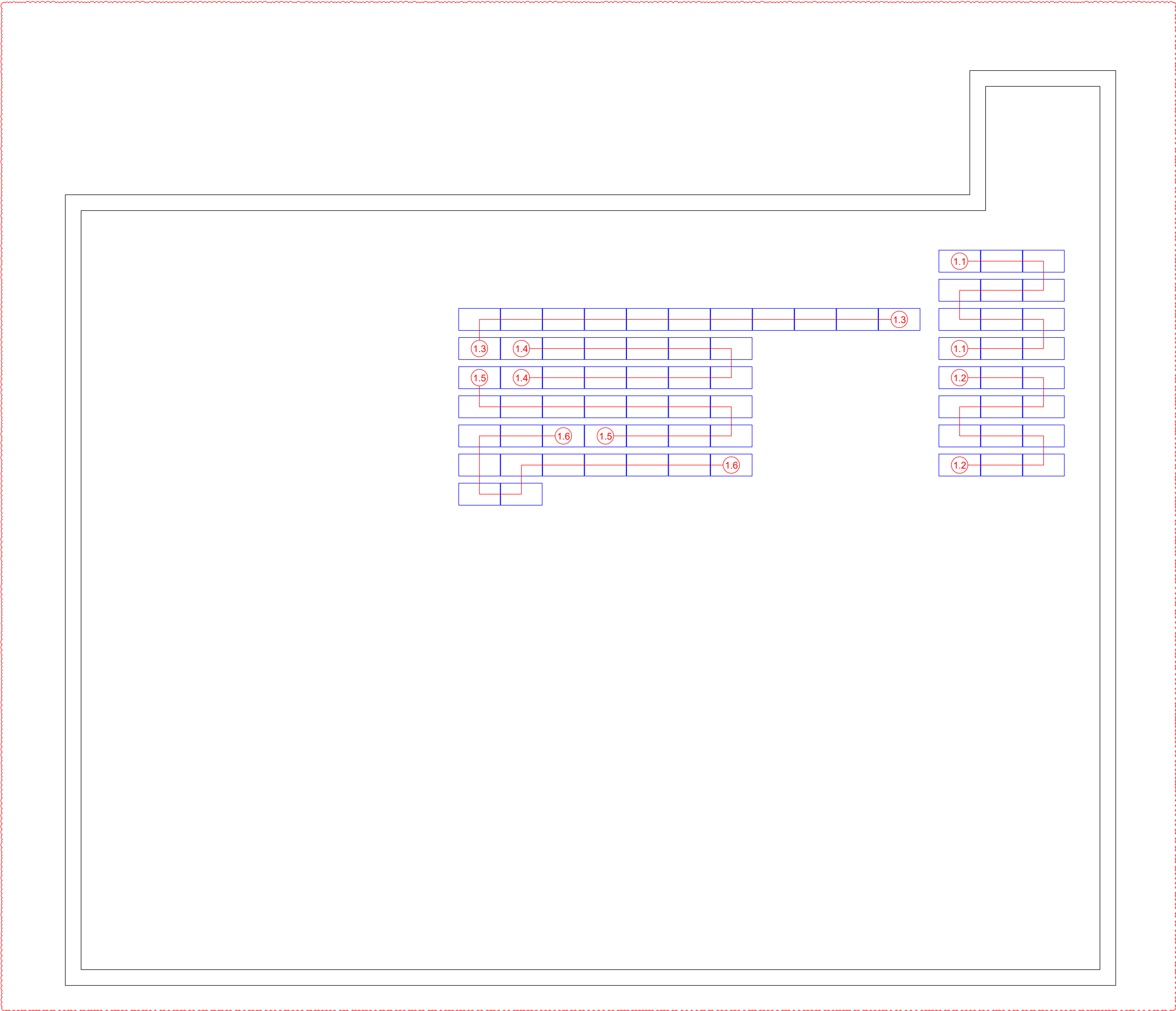
REVISION DATE: OCT, 16, 2025

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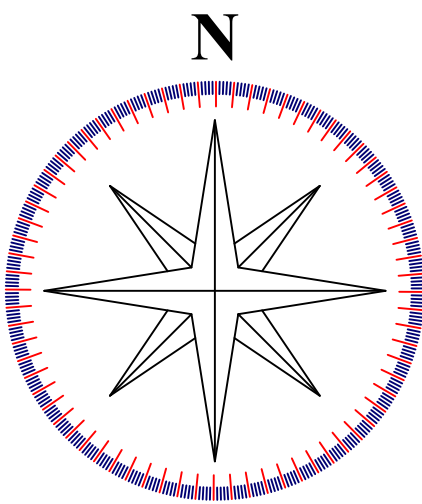


STRING LAYOUT

SCALE: 1/8" = 1'-0"



REVISION DATE: OCT, 16, 2025



SYSTEM LEGEND

INVERTER #1

1.1

12 MODULES

1.2

12 MODULES

1.3

12 MODULES

1.4

12 MODULES

1.5

12 MODULES

1.6

12 MODULES

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Sheet Name

STRING LAYOUT

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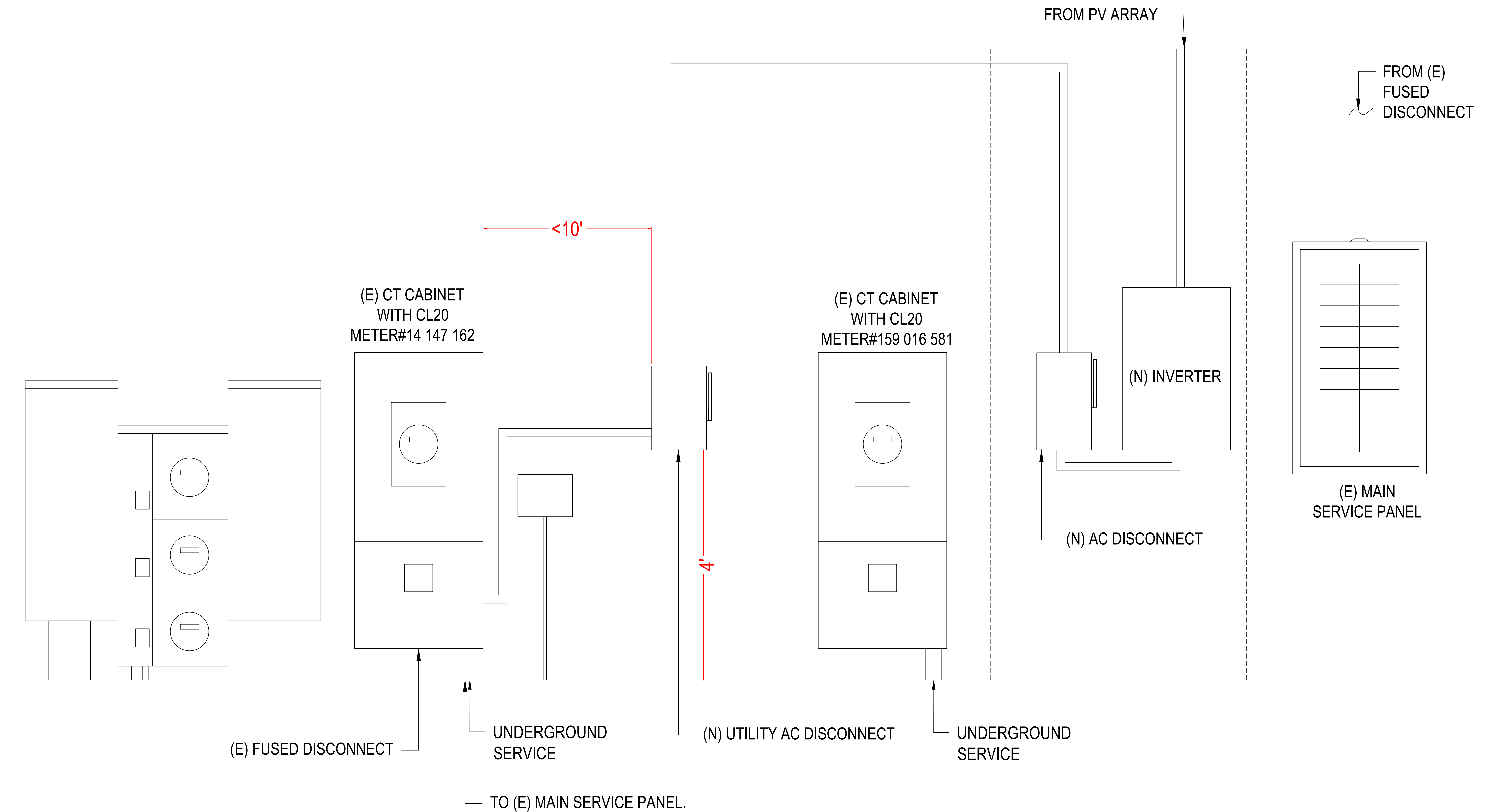
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24" X 36"

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PV 1.2

EXTERIOR WALL

ON ROOF INTERIOR WALL



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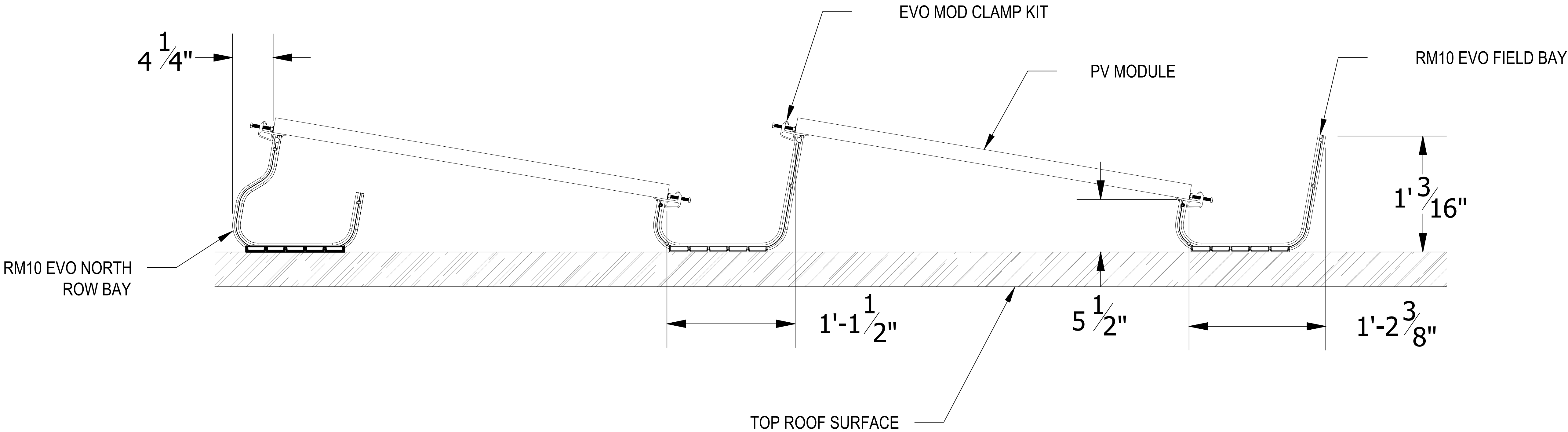
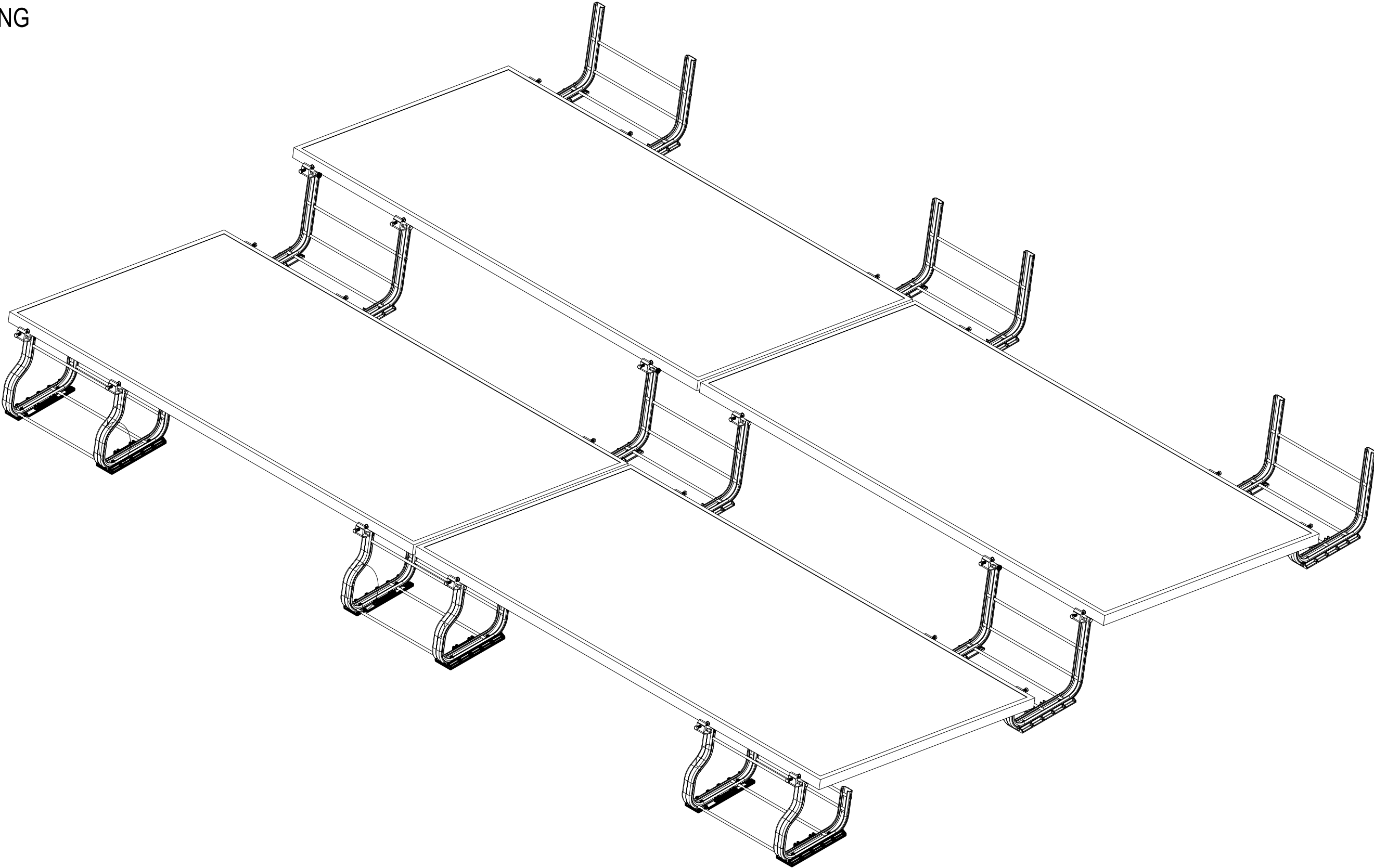
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EQUIPMENT
ELEVATION

Sheet Size
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24" X 36"

Sheet Number
PV 1.3

GENERAL STRUCTURAL NOTES:

- a. THE SOLAR PANELS ARE TO BE MOUNTED TO THE ROOF FRAMING USING THE UNIRAC RM10 EVO BALLAST.
1. ROOF LIVE LOAD = 20 psf TYPICAL, 0 psf UNDER NEW PV SYSTEM.
2. GROUND SNOW LOAD = 30 psf
3. WIND SPEED = 115 mph
4. EXPOSURE CATEGORY = C



1 ATTACHMENT DETAIL
S 1.0 SCALE: NTS



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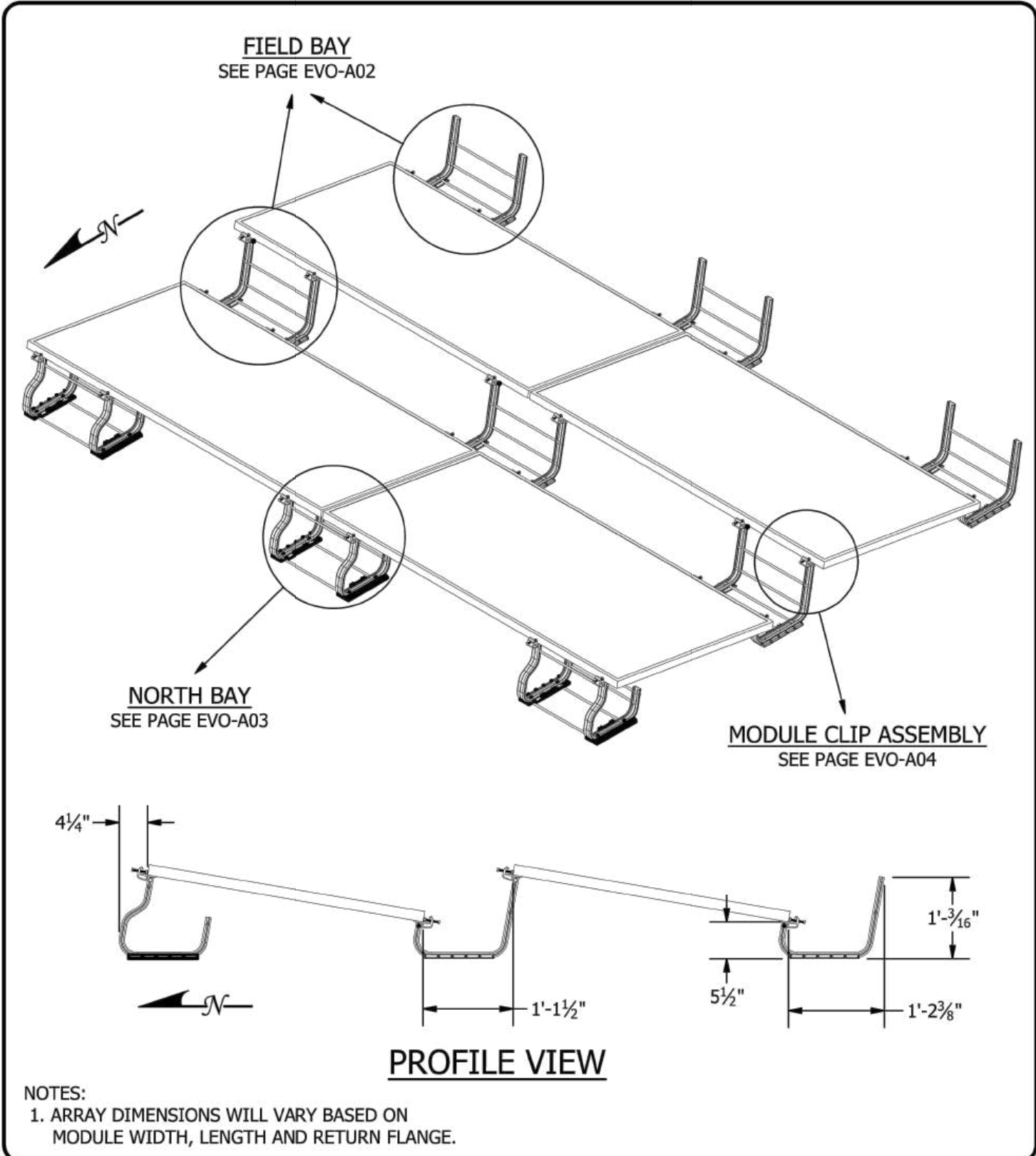


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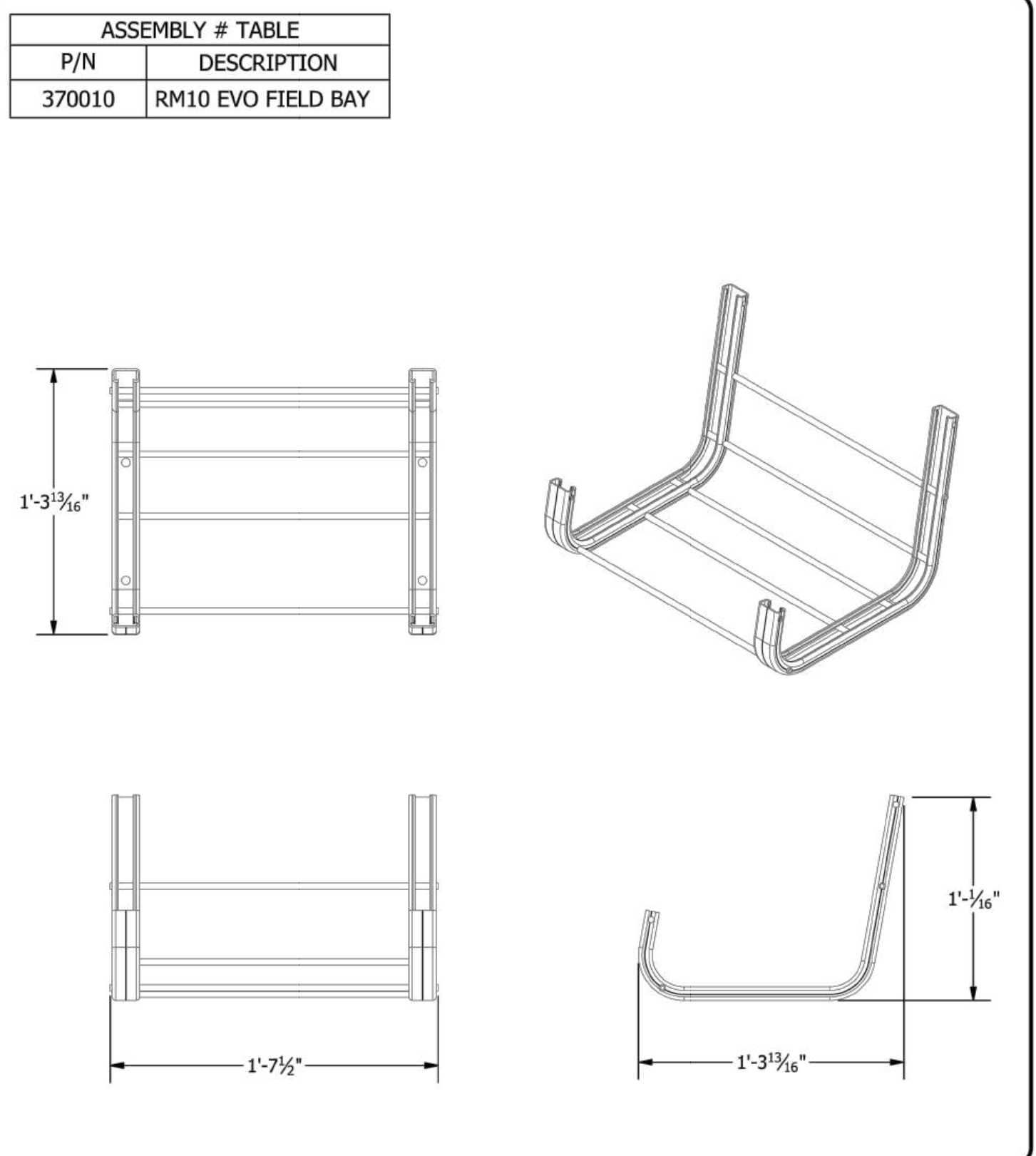
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MOUNT DETAIL

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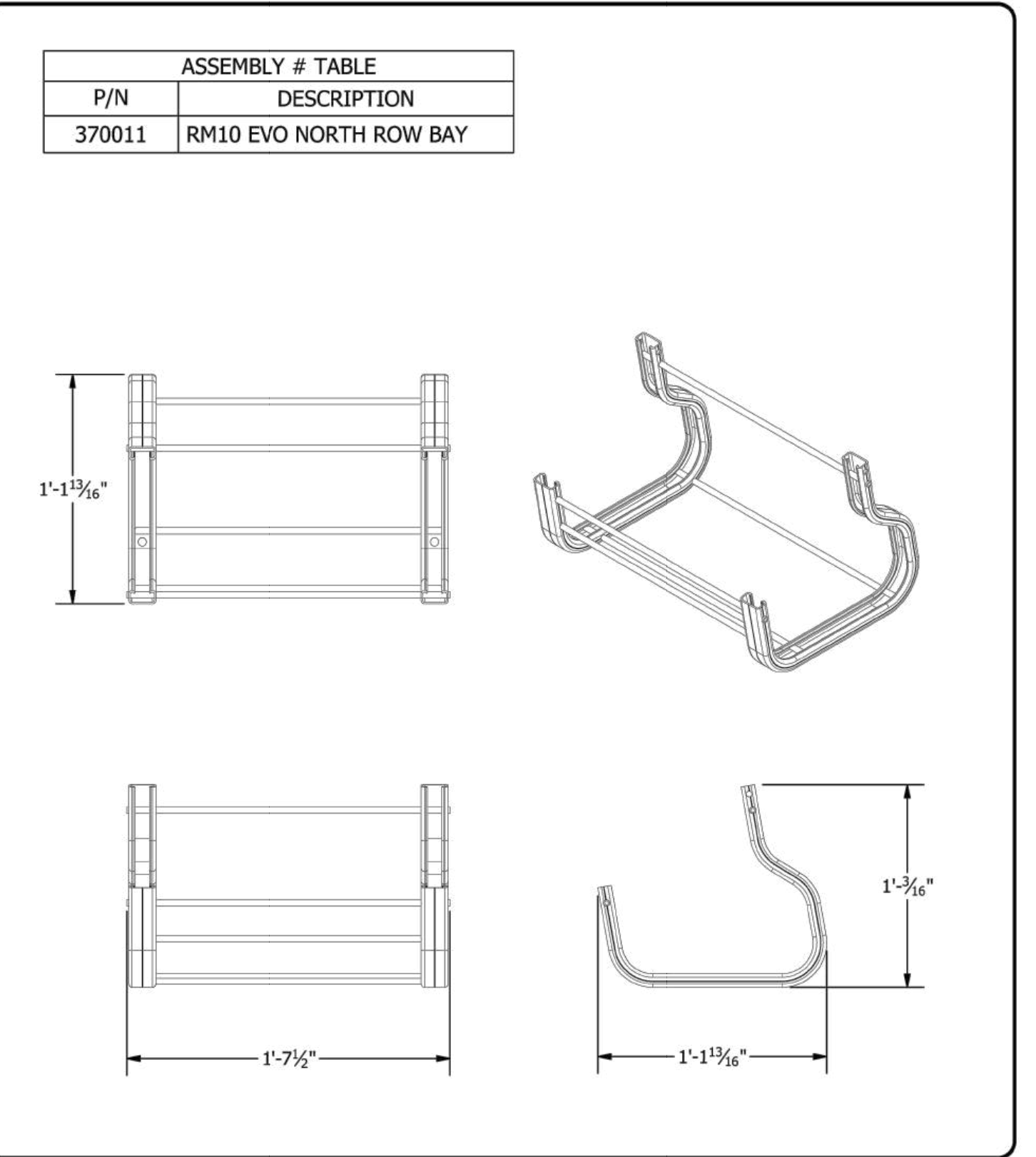
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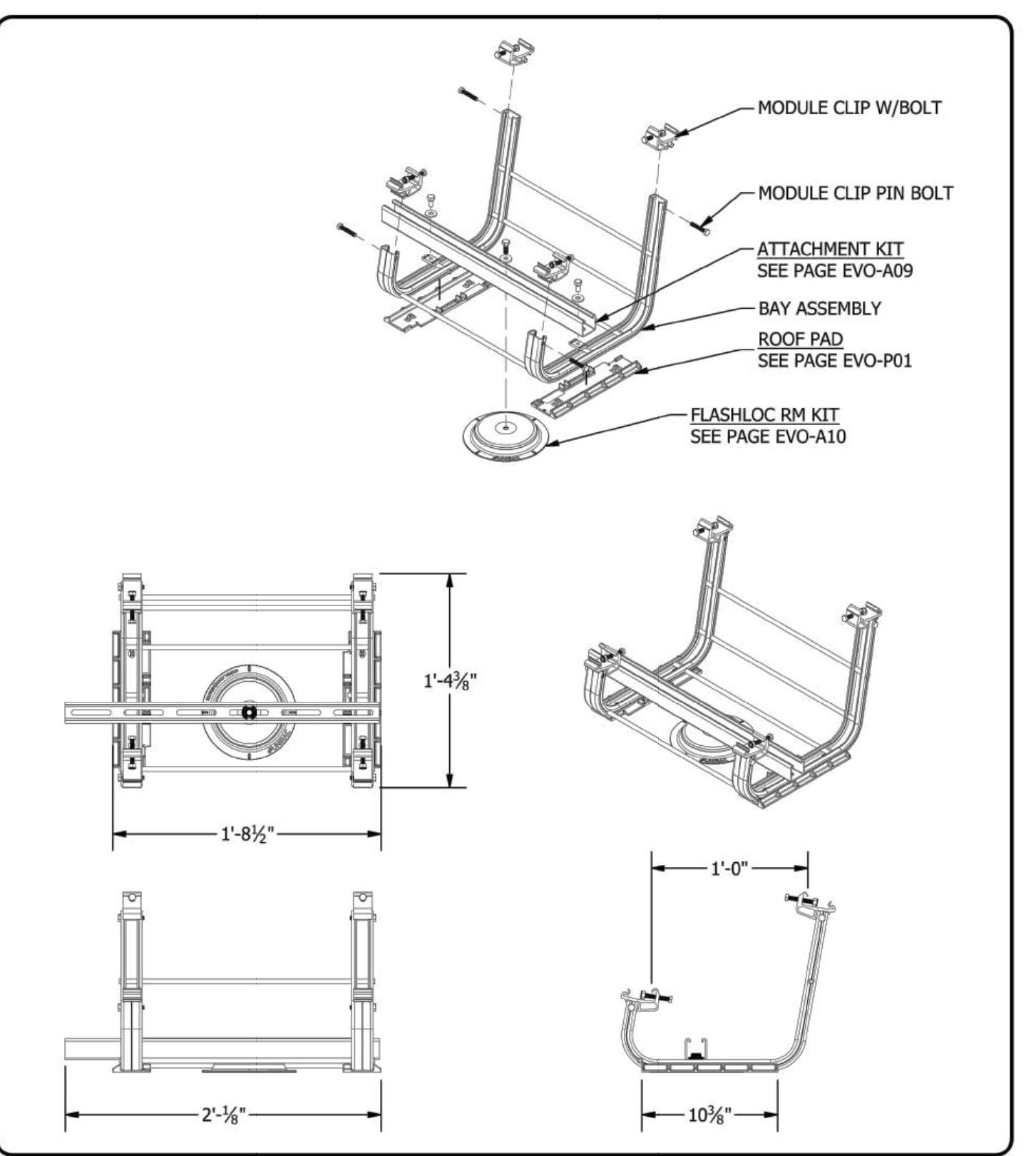
 1411 BROADWAY BLVD. NE ALBUQUERQUE, NM 87102 USA PHONE: 505.242.6411 WWW.UNIRAC.COM	PRODUCT LINE:	RM10 EVO	DRAWING NOT TO SCALE ALL DIMENSIONS ARE NOMINAL	EVO-A01
	DRAWING TYPE:	SYSTEM ASSEMBLY		
	DESCRIPTION:	RM10 EVO		
	REVISION DATE:	12/10/2021		
		PRODUCT PROTECTED BY ONE OR MORE US PATENTS	LEGAL NOTICE	SHEET



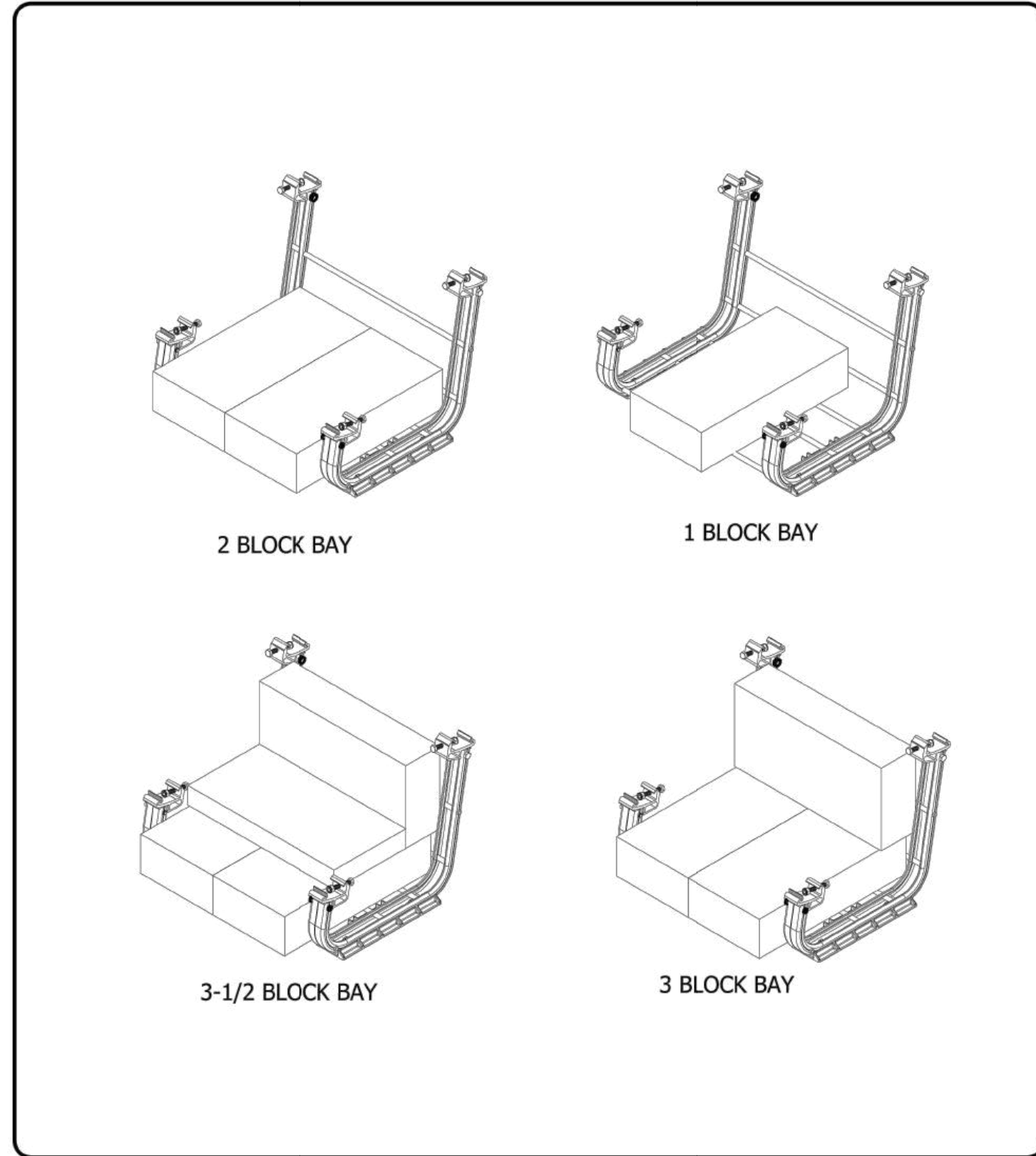
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	DRAWING TYPE:	PARTS ASSEMBLY		
	DESCRIPTION:	FIELD BAY ASSEMBLY		
	REVISION DATE:	12/10/2021		
		PRODUCT PROTECTED BY ONE OR MORE US PATENTS	LEGAL NOTICE	SHEET



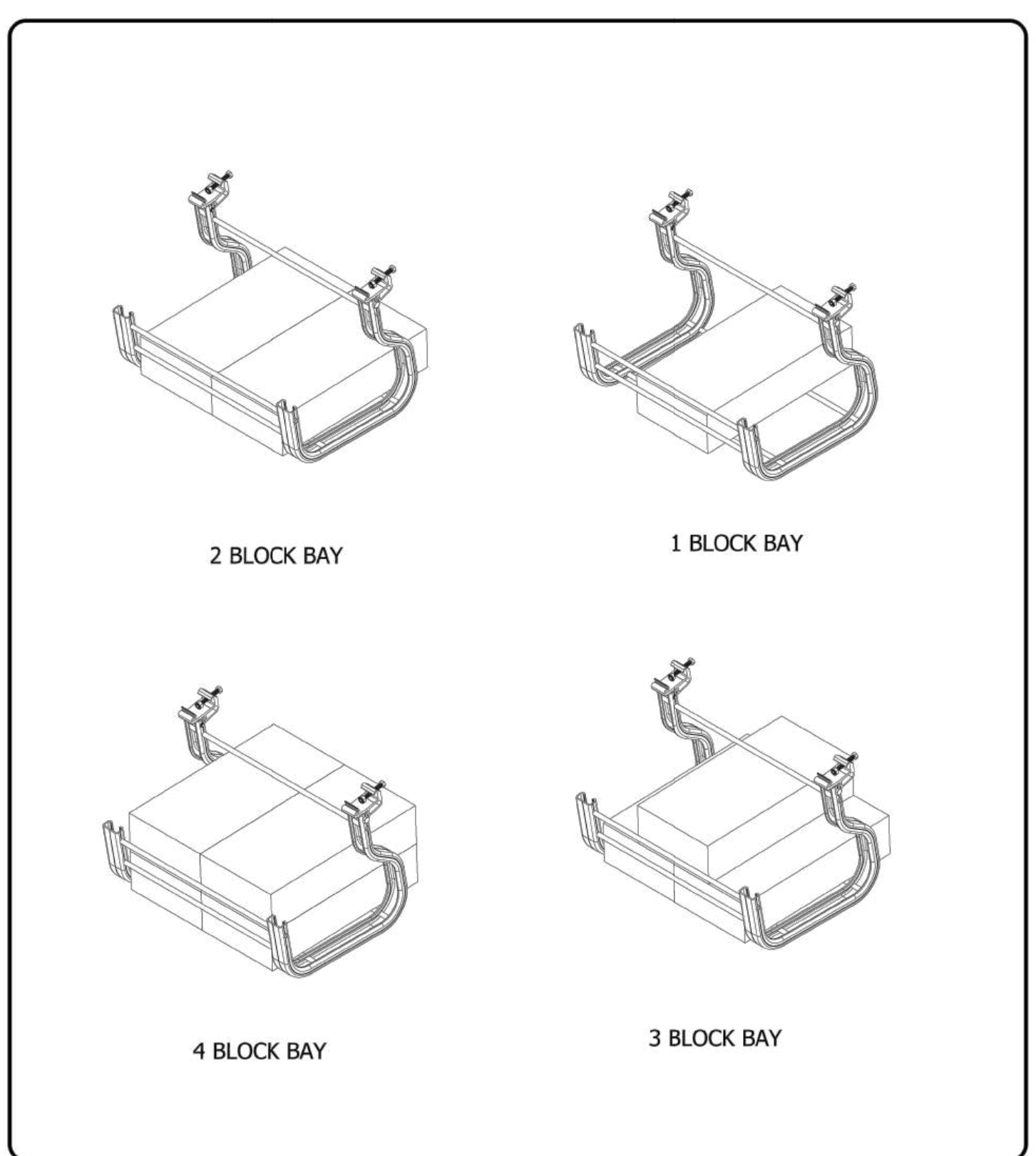
 1411 BROADWAY BLVD. NE ALBUQUERQUE, NM 87102 USA PHONE: 505.242.6411 WWW.UNIRAC.COM	PRODUCT LINE:	RM10 EVO	DRAWING NOT TO SCALE ALL DIMENSIONS ARE NOMINAL	EVO-A03
	DRAWING TYPE:	PARTS ASSEMBLY		
	DESCRIPTION:	NORTH BAY ASSEMBLY		
	REVISION DATE:	12/10/2021		
		PRODUCT PROTECTED BY ONE OR MORE US PATENTS	LEGAL NOTICE	SHEET



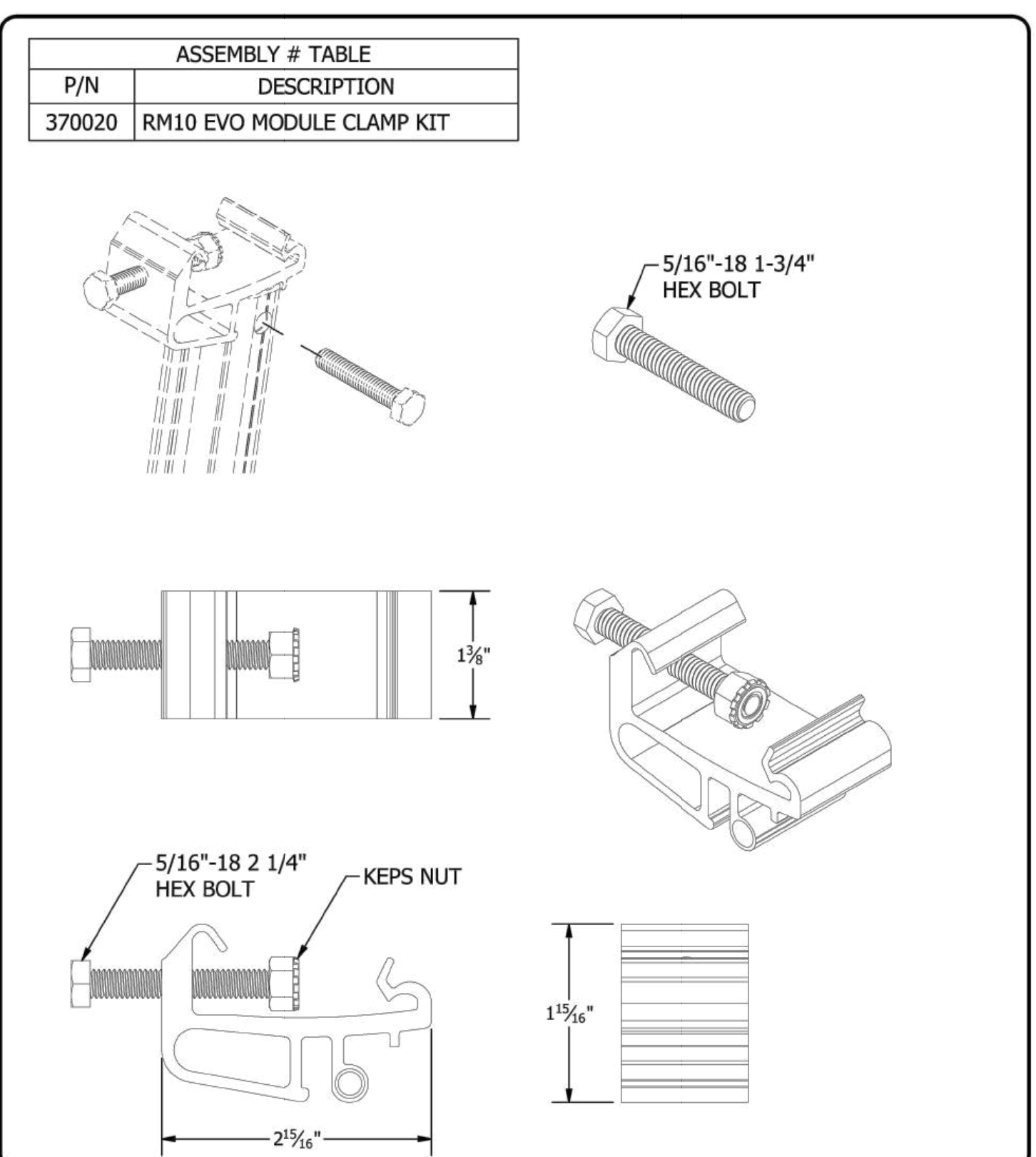
 1411 BROADWAY BLVD. NE ALBUQUERQUE, NM 87102 USA PHONE: 505.242.6411 WWW.UNIRAC.COM	PRODUCT LINE:	RM10 EVO	DRAWING NOT TO SCALE ALL DIMENSIONS ARE NOMINAL	EVO-A06
	DRAWING TYPE:	PARTS ASSEMBLY		
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	REVISION DATE:	12/10/2021		
		PRODUCT PROTECTED BY ONE OR MORE US PATENTS	LEGAL NOTICE	SHEET



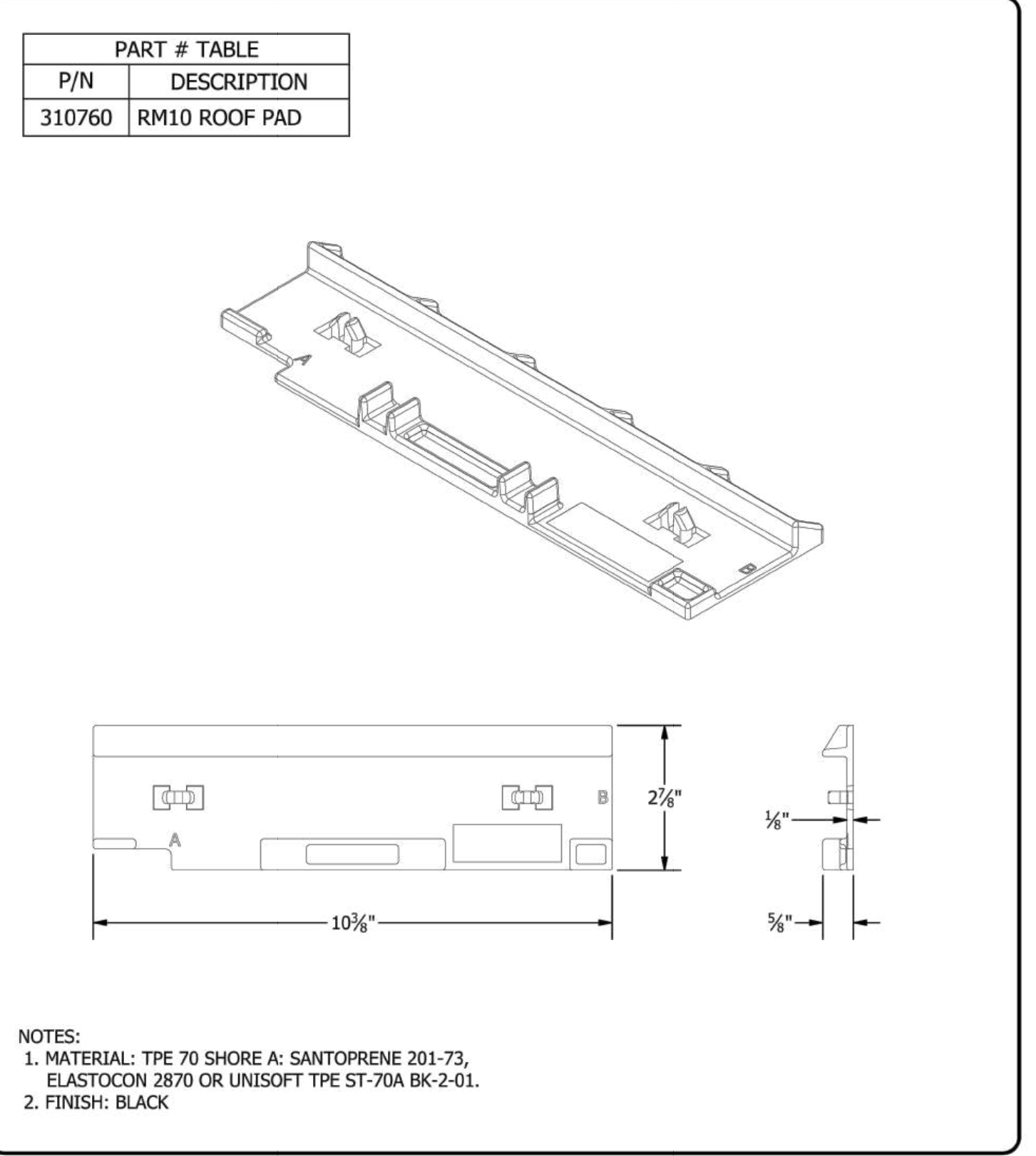
 1411 BROADWAY BLVD. NE ALBUQUERQUE, NM 87102 USA PHONE: 505.242.6411 WWW.UNIRAC.COM	PRODUCT LINE:	RM10 EVO	DRAWING NOT TO SCALE ALL DIMENSIONS ARE NOMINAL	EVO-A07
	DRAWING TYPE:	PARTS ASSEMBLY		
	DESCRIPTION:	FIELD BAY BALLAST LAYOUT		
	REVISION DATE:	12/10/2021		
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	DRAWING TYPE:	PARTS ASSEMBLY		
	DESCRIPTION:	NORTH BAY BALLAST LAYOUT		
	REVISION DATE:	12/10/2021		
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 1411 BROADWAY BLVD. NE ALBUQUERQUE, NM 87102 USA PHONE: 505.242.6411 WWW.UNIRAC.COM	PRODUCT LINE:	RM10 EVO	DRAWING NOT TO SCALE ALL DIMENSIONS ARE NOMINAL	EVO-A11
	DRAWING TYPE:	PARTS		
	DESCRIPTION:	MODULE CLIP PIN BOLT		
	REVISION DATE:	12/10/2021		
		PRODUCT PROTECTED BY ONE OR MORE US PATENTS	LEGAL NOTICE	SHEET



 1411 BROADWAY BLVD. NE ALBUQUERQUE, NM 87102 USA PHONE: 505.242.6411 WWW.UNIRAC.COM	PRODUCT LINE:	RM10 EVO	DRAWING NOT TO SCALE ALL DIMENSIONS ARE NOMINAL	EVO-P01
	DRAWING TYPE:	PART		
	DESCRIPTION:	RM10 ROOF PAD		
	REVISION DATE:	12/10/2021		
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UTILITY: WE ENERGIES

DESIGNED BY:

TRIVENT CAD SOLUTION

Sheet Name
MOUNT DEATILS

Sheet Size
**ARCH D
24" X 36"**

Sheet Number
S 1.1

- NOTE :
- 24/ 7 UNESCORTED KEYLESS ACCESS IS TO BE PROVIDED FOR ALL UTILITY EQUIPMENT.
 - UTILITY AC DISCONNECT SHOULD BE LOCATED TOGETHER IN A READILY ACCESSIBLE LOCATION WITHIN 10' OF THE MAIN SERVICE METER.

Photovoltaic System	
DC System Size (Watts)	28800
AC System Size (Watts)	25000
Total Module Count	72

NOTE: UTILITY AC DISCONNECT TO BE INSTALLED WITHIN 10FT FROM UTILITY METER.

AHJ: CITY OF FRANKLIN
UTILITY: WE ENERGIES

Conduit Conductor Schedule (Unless Otherwise Specified Conductors Shall be Copper)					
Tag #	Description	Wire Gauge	# of Conductors/Color	Conduit Type	Conduit Size
1, 1A	Inverter Output (PV Wire)	12 AWG	8(4L1,4L2,4L3), 4(2L1,2L2,2L3)	Free Air	N/A
1, 1A	EGC (Bare Copper Ground)	6 AWG	1 BARE	Free Air	N/A
2, 2A	Inverter Output (THWN-2)	12 AWG	8(4L1,4L2,4L3), 4(2L1,2L2,2L3)	PVC	1"
2, 2A	EGC (THWN-2)	12 AWG	1 (GRN)	PVC	1"
3	Inverter Output (THWN)	1/0 AWG (AL)	4(L1, L2, L3, N)	SCH 80 PVC	2"
3	EGC (THWN)	6 AWG (AL)	1 (GRN)	SCH 80 PVC	2"

[208V, 3 PHASE] INVERTER SPECIFICATIONS	
MANUFACTURER	CPS SCA25KTL-DO/US-208
MAX. DC VOLT RATING	1000 VOLTS
MAX. PV POWER	45 KW
NOMINAL AC VOLTAGE	208 VOLTS
MAX. AC CURRENT	69.5 AMPS
AC POWER	25000 W

PV MODULE RATING @ STC	
MANUFACTURER	WAAREE ARKA SERIES WSMDI-400 [400W]
MAX. POWER-POINT CURRENT (IMP)	10.54 AMPS
MAX. POWER-POINT VOLTAGE (VMP)	38.0 VOLTS
OPEN-CIRCUIT VOLTAGE (VOC)	45.22 VOLTS
SHORT-CIRCUIT CURRENT (ISC)	11.32 AMPS
NOM. MAX. POWER AT STC (PMAX)	400 WATTS
MAX. SYSTEM VOLTAGE	1500V
VOC TEMPERATURE COEFFICIENT	-0.285 %/°C

NOTE: LOAD-SIDE TAPS ARE ONLY ALLOWABLE INSIDE TRANSOCKET IF THEY ARE LANDED ON THE TRANSOCKET'S LOAD SIDE BUS; SPlicing ONTO THE EXISTING SERVICE ENTRANCE CONDUCTORS IS NOT ACCEPTABLE FOR THIS PURPOSE.

72 NEW WAAREE ARKA SERIES
WSMDI-400 [400W] MODULES

12 WAAREE ARKA SERIES WSMDI-400 [400W]
MODULES IN CIRCUIT #1.6

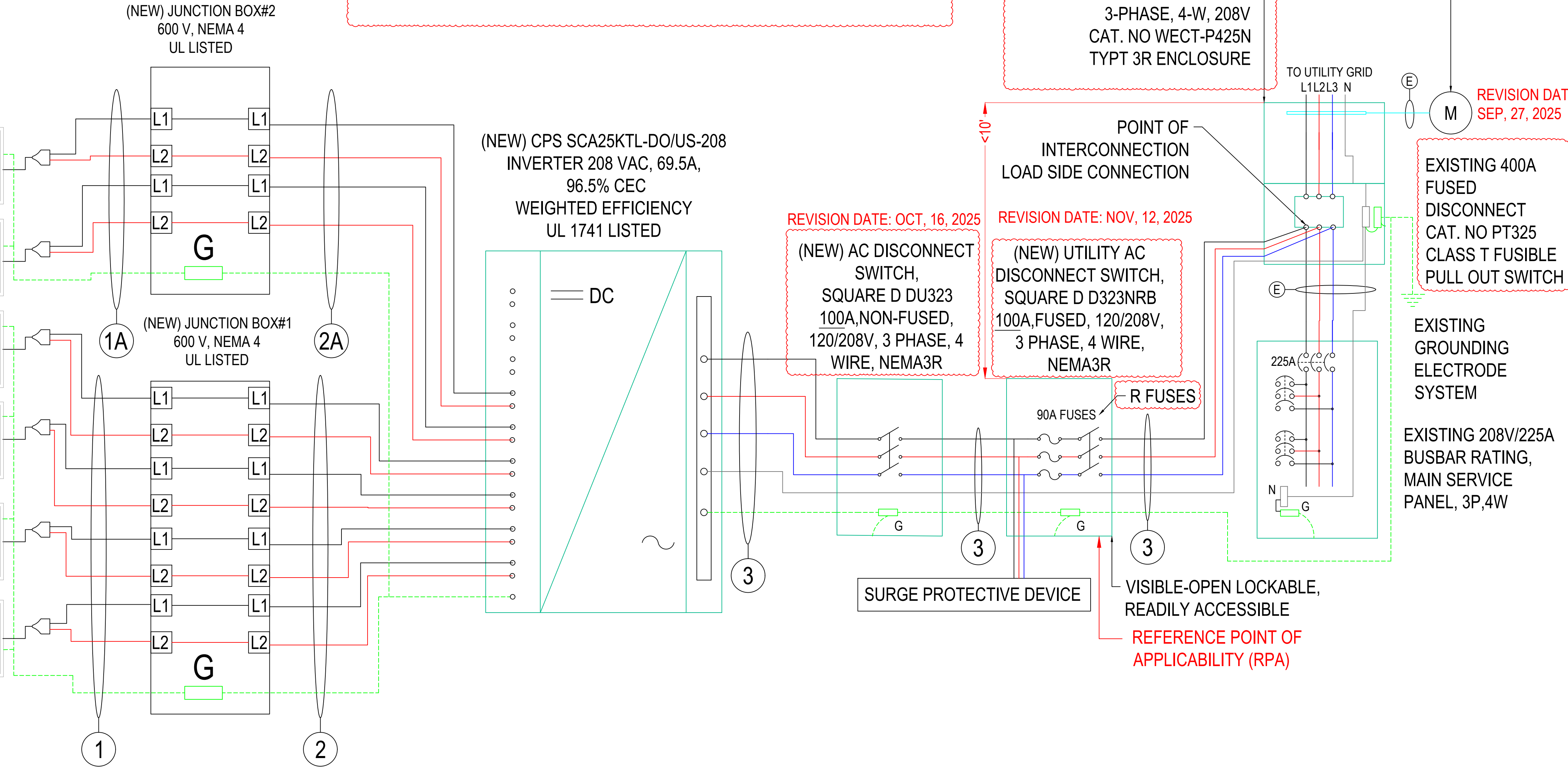
12 WAAREE ARKA SERIES WSMDI-400 [400W]
MODULES IN CIRCUIT #1.5

12 WAAREE ARKA SERIES WSMDI-400 [400W]
MODULES IN CIRCUIT #1.4

12 WAAREE ARKA SERIES WSMDI-400 [400W]
MODULES IN CIRCUIT #1.3

12 WAAREE ARKA SERIES WSMDI-400 [400W]
MODULES IN CIRCUIT #1.2

12 WAAREE ARKA SERIES WSMDI-400 [400W]
MODULES IN CIRCUIT #1.1





WOLF RIVER ELECTRIC
101 ISANTI PARKWAY NE, SUITE G
ISANTI, MN 55040
ELECTRICAL CONTRACTOR: 1522577
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CONTACT: (763) 229-6662
contact@wolfriverelectric.com

REVISIONS		
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Project Name & Address

PALERIA BROTHERS COMMERCIAL

9848 S 57TH ST, FRANKLIN, WI 53132

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UTILITY: WE ENERGIES

DESIGNED BY:



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Sheet Name

ELECTRICAL
DIAGRAM

Sheet Size

ARCH D
24" X 36"

Sheet Number

E 1.1

PV MODULE RATING @ STC	
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MAX. DC VOLT RATING	1000 VOLTS
MAX. PV POWER	45 KW
NOMINAL AC VOLTAGE	208 VOLTS
MAX. AC CURRENT	69.5 AMPS
AC POWER	25000 W

Rooftop conductor ampacities designed in compliance with art. 690.8, Tables 310.15(B)(16), 310.15(B)(2)(a). Location specific temperature obtained from ASHRAE 2017 data tables	
RECORD LOW TEMP	-24°C
AMBIENT TEMP (HIGH TEMP 2%)	32°C
TEMP 0.5°	54°C
CONDUIT HEIGHT	7/8"
CONDUCTOR TEMPERATURE RATE (ON ROOF)	90°C
CONDUCTOR TEMPERATURE RATE (OFF ROOF)	75°C

THIS PANEL IS FED BY MULTIPLE SOURCES (UTILITY AND SOLAR)	
AC OUTPUT CURRENT ACCORDING TO ART. 690.8(B)(1)	69.5A
NOMINAL AC VOLTAGE	208V

PERCENT OF VALUES	NUMBER OF CURRENT CARRYING CONDUCTORS IN CONDUIT
.80	4-6
.70	7-9
.50	10-20

OCPD Calculations

Breakers sized according to continuous duty output current.
Inverter Output Current X (1.25[art. 690.8(A)]) X (139 Max AC current inverter)
Inverter #1 = Output Current w/ continuous duty = 69.5A <= 90A Breaker

system output current w/ continuous duty = 86.88 <= 90A (System OCPD)

Conductor Calculations

Wire gauge calculated from code art. 310.15(B)(16) with ambient temperature calculations from art. 310.15(B)(2)(a).
For "On Roof" conductors we use the 90°C column ampacity, the relevant ambient temperature adjustment, and raceway fill adjustments from 310.15(B)(16). Conduit shall be installed at least 7/8" above the roof surface.
For "Off Roof" conductors we use the 75°C column ampacity, or the 75°C column ampacity with the relevant ambient temperature and raceway fill adjustments, whichever is less.The rating of the conductor after adjustments MUST be greater than, or equal to, the continuous duty output current.
Calculation Example - Wire Rating x Ambient Temperature Adjustment x Conduit Fill Adjustment >= Continuous Duty Output Current
(Tag 2 On Roof):
12 gauge wire rated for 30 A, 30 A x 0.96 x 0.7 (8 Conductors) = 20.16A > 14.15A
(Tag 2A On Roof):
12 gauge wire rated for 30 A, 30 A x 0.96 x 0.8 (4 Conductors) = 23.04A > 14.15A
(Tag 3 Off Roof):
1/0 gauge AL wire rated for 120A , 120A x 0.94 x 0.8 = 90.24A > 86.88A (System Output Current)

ELECTRICAL NOTES

- Designed according to and all code citations are relevant to the 2017 National Electrical Code.
- Tag 2-Use 96% temperature derate for conditions of use (On roof)
- Tag 3 - Use 96% temperature derate for conditions of use (adjusted ambient)
- System grounding & bonding designed in compliance with 690.47(C)3 and 250.64(E)
- Equipment shall be listed, tested, and marked to withstand the available short circuit current



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PALERIA BROTHERS COMMERCIAL

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UTILITY: WE ENERGIES

DESIGNED BY:



TRIVENTCAD SOLUTION

Sheet Name

WIRE
CALCS

Sheet Size

ARCH D
24" X 36"

Sheet Number

E 1.2

⚠️

WARNING

ELECTRICAL SHOCK HAZARD

TERMINALS ON THE LINE AND
LOAD SIDES MAY BE ENERGIZED
IN THE OPEN POSITION

LABEL LOCATION: COMBINER PANEL, UTILITY AC
DISCONNECT, POINT OF INTERCONNECTION
PER CODE: NEC 706.15(C)(4), NEC 690.13(B)

⚠️

WARNING

TURN OFF PHOTOVOLTAIC AC
DISCONNECT PRIOR TO
WORKING INSIDE PANEL

LABEL LOCATION: COMBINER PANEL(S), MAIN SERVICE DISCONNECT
PER CODE: NEC 110.27(C), OSHA 1910.145(f)(7)

PHOTOVOLTAIC POWER SOURCE

LABEL LOCATION: DC CONDUIT/RACEWAYS
PER CODE: NEC 690.31(D)(2)

PHOTOVOLTAIC SYSTEM UTILITY AC DISCONNECT
RATED AC OUTPUT CURRENT: 69.50 A
NOMINAL OPERATING AC VOLTAGE: 208 V

LABEL LOCATION: UTILITY AC DISCONNECT/POINT OF INTERCONNECTION
PER CODE: NEC 690.54

PHOTOVOLTAIC UTILITY

AC DISCONNECT

LABEL LOCATION: UTILITY AC DISCONNECT
PER CODE: NEC 690.13(B)

⚠️

WARNING

DUAL POWER SOURCE
SECOND SOURCE IS PHOTOVOLTAIC SYSTEM

LABEL LOCATION: MAIN SERVICE DISCONNECT, PRODUCTION/NET METER
PER CODE: NEC 690.59, 705.12(C)

SOLAR PV SYSTEM EQUIPPED
WITH RAPID SHUTDOWN

TURN RAPID SHUTDOWN
SWITCH TO THE
"OFF" POSITION TO
SHUT DOWN PV SYSTEM
AND REDUCE
SHOCK HAZARD
IN THE ARRAY

LABEL LOCATION: MAIN SERVICE DISCONNECT
PER CODE: NEC 690.56(C)

MAIN PHOTOVOLTAIC
SYSTEM DISCONNECT

LABEL LOCATION: MAIN SERVICE DISCONNECT, UTILITY METER
PER CODE: NEC 690.13(B)

RAPID SHUTDOWN FOR
SOLAR PV SYSTEM

LABEL LOCATION: RSD INITIATION DEVICE, UTILITY AC DISCONNECT
PER CODE: NEC 690.56(C)(2)

DO NOT DISCONNECT
UNDER LOAD

LABEL LOCATION: MAIN SERVICE DISCONNECT
PER CODE: NEC 690.15(B) & NEC 690.33(D)(2)

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WARNING LABELS

Sheet Size

ARCH D
24" X 36"

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E 1.3



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Sheet Name

PLACARD

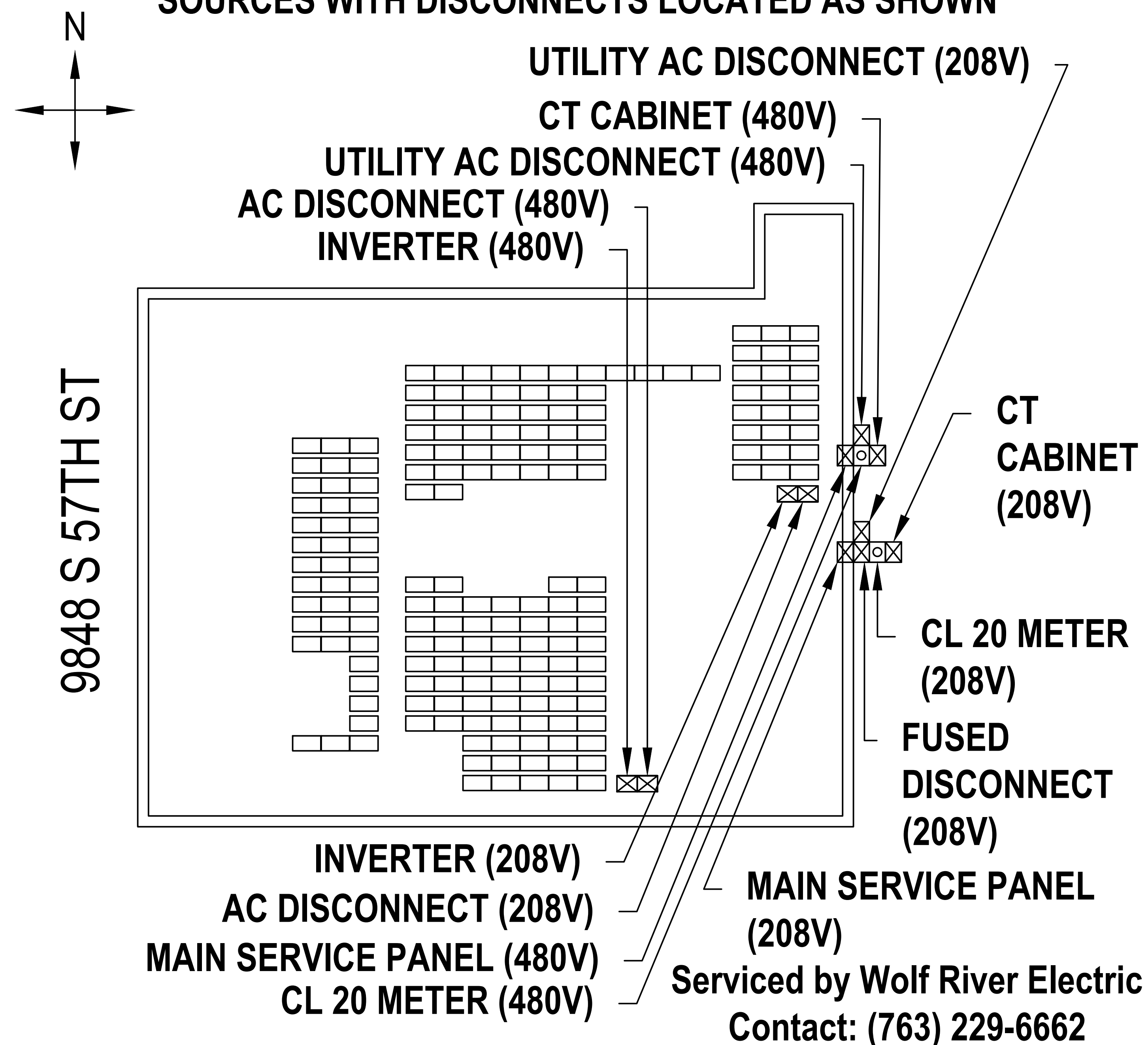
Sheet Size

ARCH D
24" X 36"

Sheet Number

E 1.4

**POWER TO THIS BUILDING IS ALSO SUPPLIED FROM THE FOLLOWING
SOURCES WITH DISCONNECTS LOCATED AS SHOWN**



ARKA SERIES

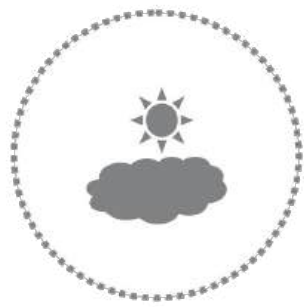
WSMDi-395 to WSMDi-415

WAAREE®

One with the Sun



Highest reliability & enhanced crack tolerant 9BB module



Better performance under all climatic conditions



Split junction box



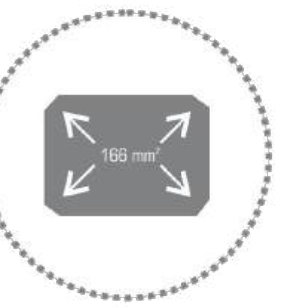
Reduced power losses up to 1/4 times



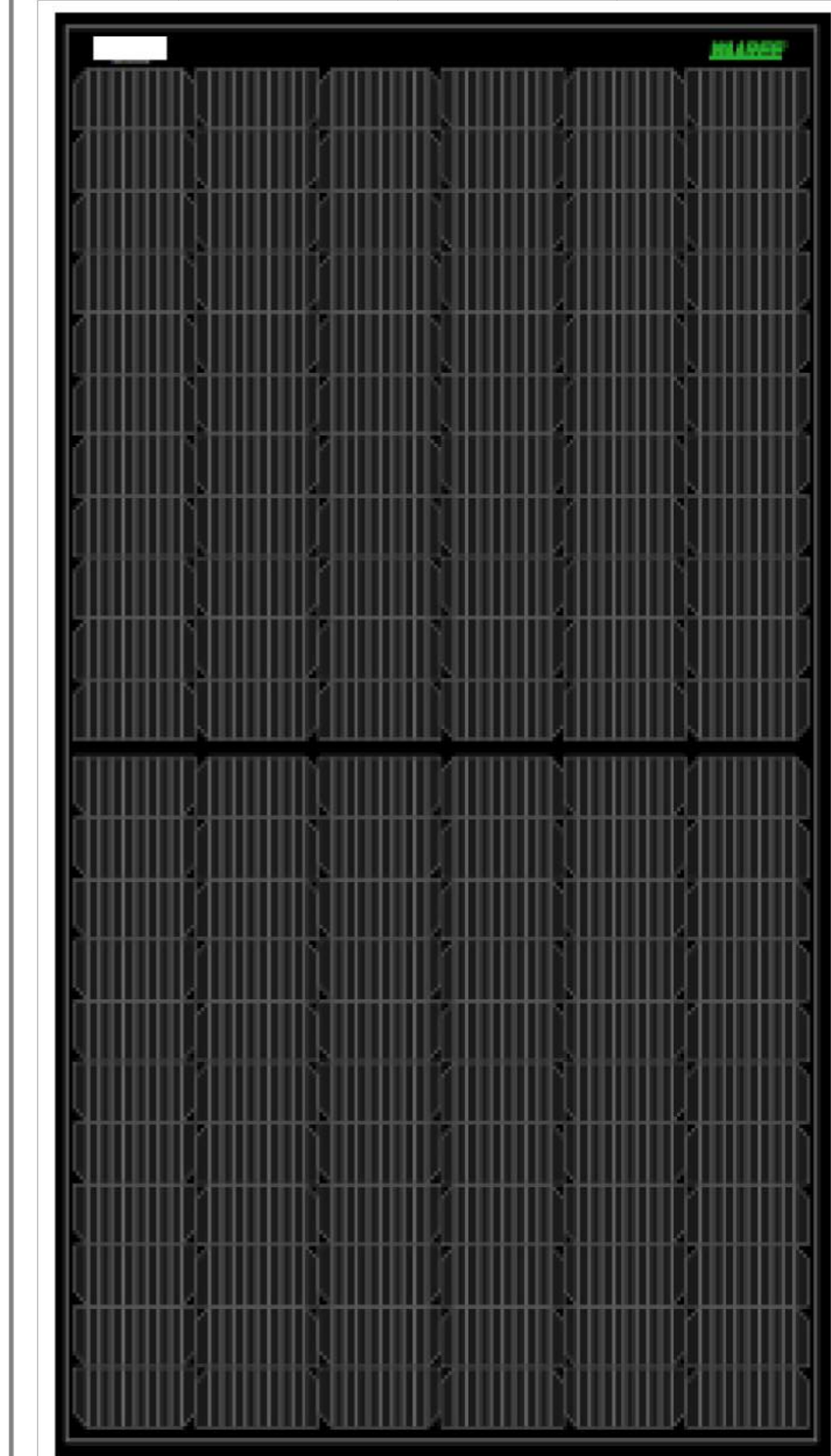
PID resistant with long term reliability



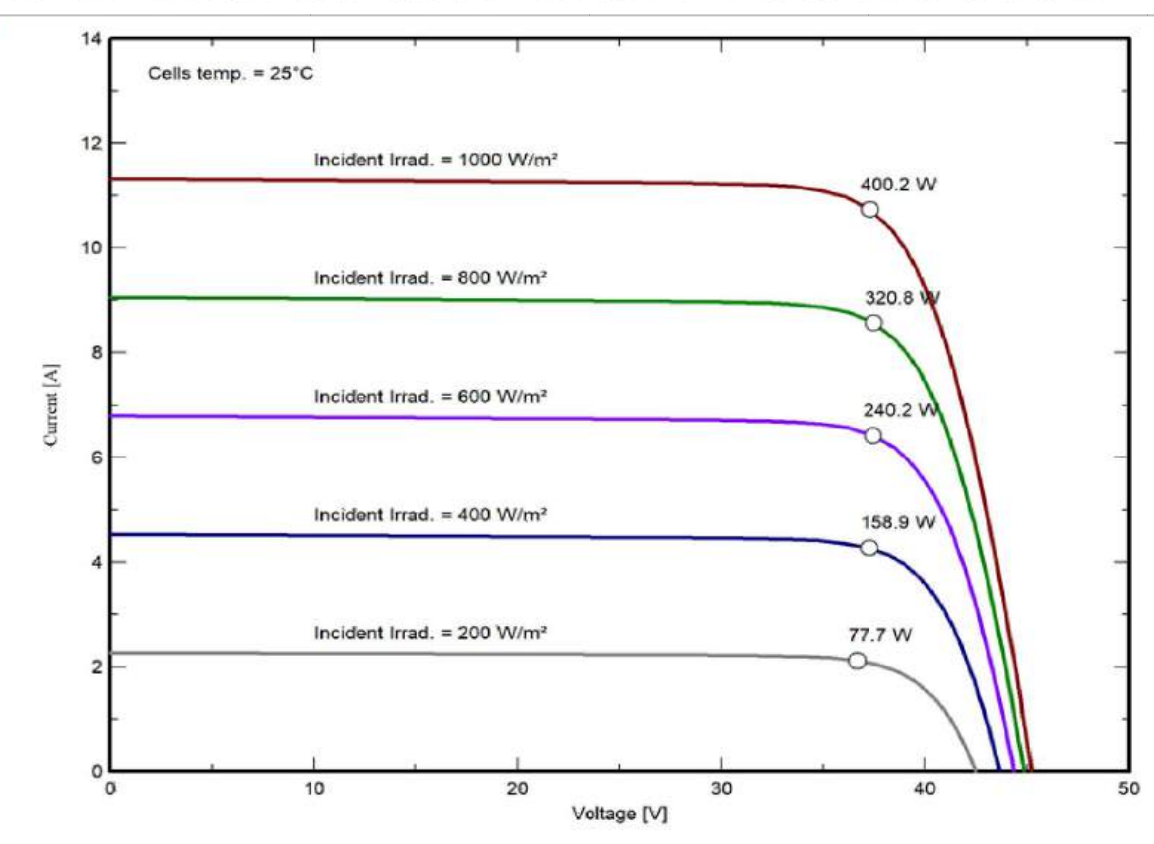
Sustain heavy wind & snow loads (2400 pa & 5400 pa)



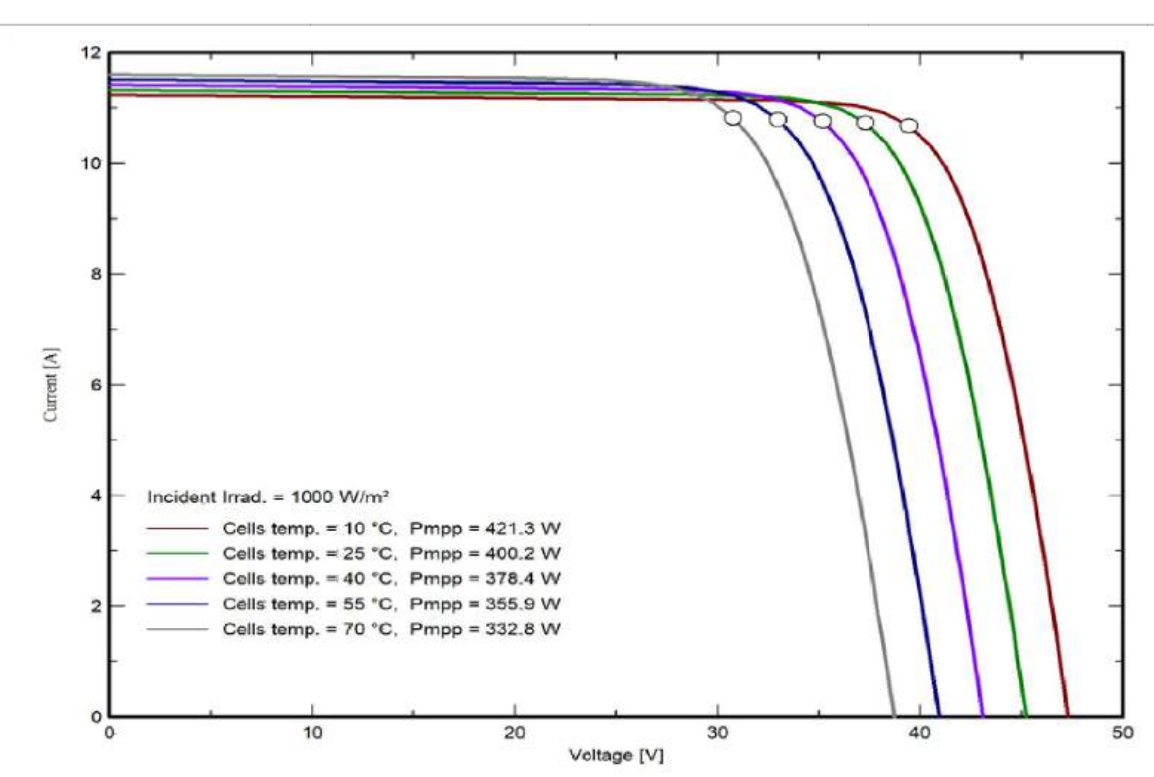
M6 Mono PERC cells



I-V VARIATION WITH IRRADIANCE



I-V VARIATION WITH TEMPERATURE

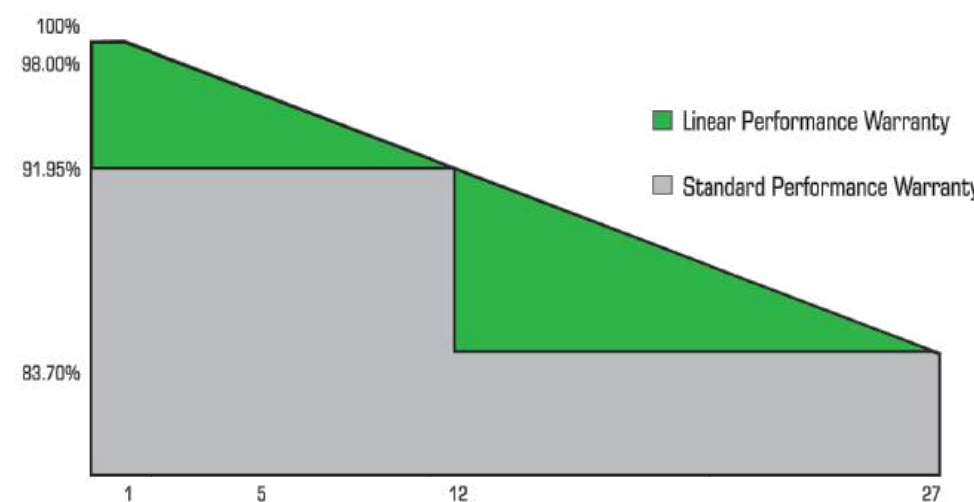


The Graphs are for reference purpose only. Please consult Waaree technical team for further clarifications.

INTERNATIONAL &

NATIONAL CERTIFICATIONS ^

IEC 61215 | IEC 61730 | UL61730
IEC TS 62804-1



ISO 9001:2015 | ISO 14001:2015 | ISO 45001:2018
Independent assessment of factories by BLACK & VEATCH

www.waaree.com

ARKA SERIES

WSMDi-395 to WSMDi-415

ELECTRICAL CHARACTERISTICS

Models	Pmax (W)		Vmp (V)		Imp (A)		Isc (A)		Voc (V)		Module Eff. (%)
	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	
WSMD-395	395	296.8	37.77	34.70	10.47	8.55	11.24	9.08	45.00	42.10	19.78
WSMD-400	400	300.6	38.00	34.90	10.54	8.62	11.32	9.14	45.22	42.30	20.03
WSMD-405	405	304.4	38.22	35.10	10.61	8.68	11.40	9.21	45.44	42.50	20.28
WSMD-410	410	308.2	38.44	35.30	10.68	8.74	11.48	9.27	45.66	42.70	20.53
WSMD-415	415	312.1	38.66	35.40	10.75	8.81	11.57	9.34	45.88	42.90	20.78

*Standard Test Conditions (STC) - 1000 W/m² irradiance, Air Mass 1.5 and 25°C cell temperature. Nominal Operating Cell Temperature (NOCT) - 800 W/m² irradiance, Air Mass 1.5, Ambient temperature 20°C and Wind speed 1 m/s. Average power reduction of 4.5% at 200 W/m² as per IEC 60904-1. Measuring Uncertainty ± 3%.

System Voltage

1500 V

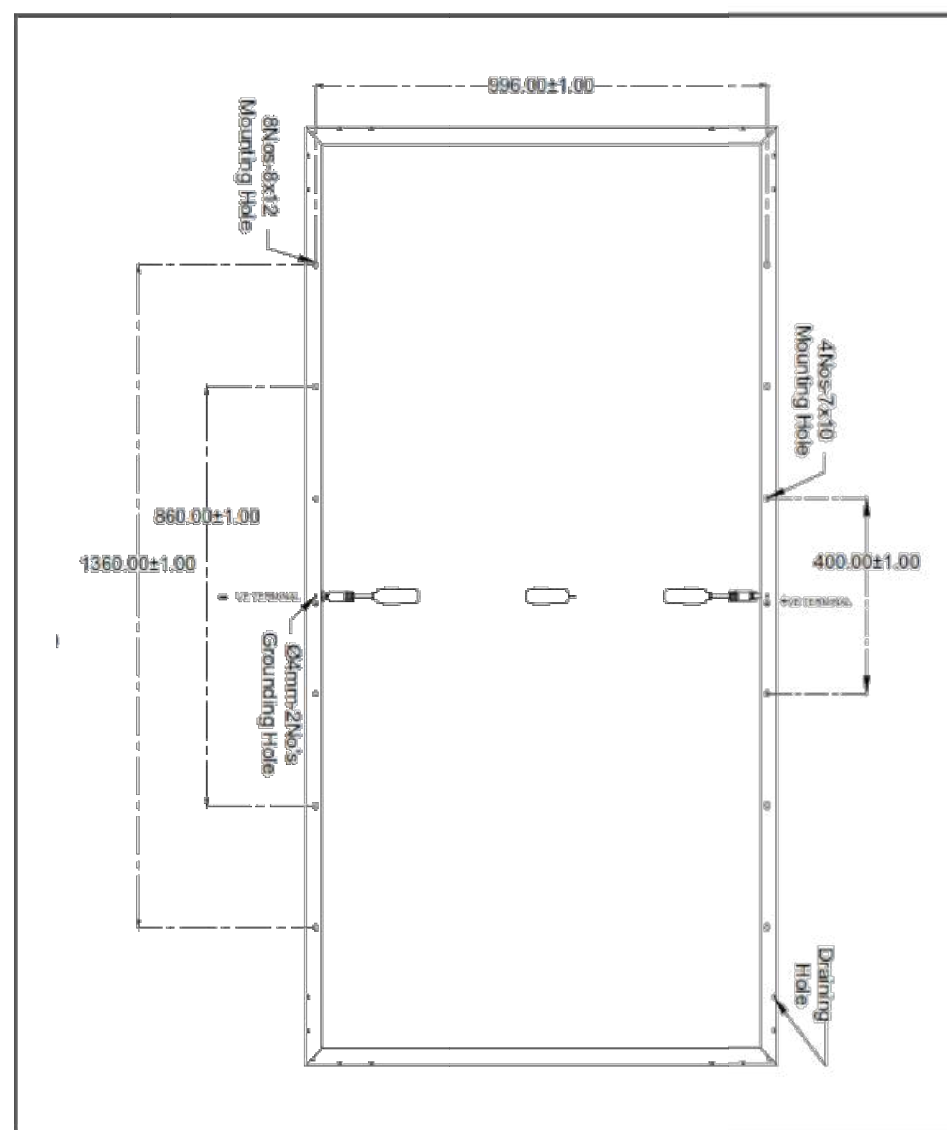
Series Fuse Rating

22 A

MECHANICAL CHARACTERISTICS

Length x Width x Thickness (L x W x T)	1924 mm (L) x 1038 mm (W) x 35 mm (T)
Weight	22 kgs
Solar Cells per Module (Units) / Arrangement	132 cells / (11x6 11x6)
Solar Cell Type & Size	Mono PERC, 83 x 166 mm
Front Glass	3.2 mm Low Iron and Tempered glass with ARC coating
Encapsulate	PID Free & UV Resistant
Junction Box (Protection degree/ Material)	IP68 / Weatherproof PPO
Cable & Connector (Protection degree / Type)	IP68 rated / Staubli MC4 Connector
Cable cross - section & Length	4 mm ² & 1200mm
Frame	Anodized Aluminium Alloy, Anodization thickness ≥ 15 micron
Fire rating	Type 2

DESIGN SPECIFICATIONS



12 Years Product Warranty • 27 Years Power Output Warranty

- The electrical data given here is for reference purpose only.
- Please confirm your exact requirements with the sales representative while placing your order.
- Refer installation Manual instructions & Waaree warranty statement for terms & conditions.
- Waaree Reserves the right to change the specifications without prior notice.

THERMAL CHARACTERISTICS

Temperature coefficient of Current (Isc), α (%/°C)	0.055
Temperature coefficient of Voltage (Voc), β (%/°C)	-0.285
Temperature coefficient of Power (Pm), γ (%/°C)	-0.365
NOCT (°C)	43 ± 2
Operating temperature range (°C)	-40 to 85

Waaree Energies Ltd. is amongst the top Solar Energy Companies and has the country's largest Solar PV Module manufacturing capacity of 5 GW. In addition, it is committed to provide top notch EPC services, project development, rooftop solutions, solar water pumps and also in an Independent Power Producer. Waaree has its presence in over 325+ locations nationally and 68 countries globally.

*If you need specific product certificates, and if module installations are to deviate from our guidance specified in our installation manual, please contact your local Waaree sales and technical representatives.

www.waaree.com



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MODULE SPEC SHEET

Sheet Size

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24" X 36"

Sheet Number

D1.1



25 kW-208 V, 1000 Vdc String Inverters for North America

The CPS 25 kW-208 V three-phase string inverters are designed for rooftop and carport applications. The units are high performance, advanced, and reliable inverters designed specifically for the North American environment and grid. High efficiency at 97.0% peak and 96.5% CEC, wide operating voltages, broad temperature ranges, and a NEMA Type 4X enclosure enable this inverter platform to operate at high performance across many applications. The CPS 25KTL-208V product ships with the Rapid Shutdown wire box, fully integrated and separable with touch-safe fusing, monitoring, and AC and DC disconnect switches. The integrated PLC transmitter in the Rapid Shutdown wire box enables PVRSS-certified module-level rapid shutdown when used with APS RSD-S-PLC/RSD-D products. The CPS FlexOM Gateway enables monitoring, controls, and remote product upgrades.

Key Features

- NEC 2017/2020 PVRSS-certified rapid shutdown
- NEC 2017-compliant and UL-listed arc-fault circuit protection
- UL 1741-SB and IEEE 1547-2018 certified
- 15-90° mounting orientation for low-profile roof installs
- Optional FlexOM Gateway enables remote firmware upgrades
- Integrated AC and DC disconnect switches
- 3 MPPTs with 2 inputs each for maximum flexibility
- Copper- and Aluminum-compatible AC connections
- NEMA Type 4X outdoor rated, tough tested enclosure
- UL 1741-SA certified to CA Rule 21, including SA8-SA18
- Separable wire-box design for fast service
- Standard 10-year warranty with extensions to 20 years
- Generous 1.8 DC/AC inverter load ratio



CPS SCA25KTL-DO/US-208



SCA25KTL (208V) Rapid Shutdown Wire-box



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Chint Power Systems America
1380 Presidential Drive, Suite 100, Richardson, TX 75081
Tel: 855-584-7168 Mail: AmericaSales@chintpower.com Web: www.chintpowersystems.com



Technical Data

Model name	CPS SCA25KTL-DO/US-208
DC Input	
Max. PV power	45 kW (17 kW per MPPT)
Max. DC input voltage	1000 Vdc
Operating DC input voltage range	200-950 Vdc
Startup DC input voltage / power	330 V / 80 W
Number of MPPTs	3
MPPT voltage range for Pnom @ PF>0.99	480-850 Vdc
Max. PV short circuit current ¹	108 A (36 A per MPPT)
Number of DC inputs	6 inputs, 2 per MPPT
DC disconnection type	Load-rated DC switch
DC surge protection	Type II MOV
AC Output	
Rated AC output power @ PF>0.99	25 kW
Max. AC apparent power	25 kVA
Rated output voltage	208 Vac
Output voltage range ²	183-228 Vac
Grid connection type	3Φ / PE / N (neutral optional)
Max. AC output current @ 208 Vac	69.5 A
Rated output frequency	60 Hz
Output frequency range ²	57-63 Hz
Power factor	>0.99 (±0.8 adjustable)
Current TRD @ rated load	< 3%
Max. fault current contribution (1 cycle RMS)	64.1 A (0.92 PU)
Max. OCPD rating	125 A
AC disconnection type	Load-break rated AC switch
AC surge protection	Type II MOV
System and Performance	
Topology	Transformerless
Max. efficiency	97.0%
CEC efficiency	96.5%
Standby / night consumption	< 3 W
Environment	
Enclosure protection degree	NEMA 4X
Cooling method	Variable speed cooling fans
Operating temperature range ³	-22°F to 140°F (-30°C to 60°C)
Non-operating temperature range ⁴	-40°F to 158°F (-40°C to 70°C)
Operating humidity	0-100%
Operating altitude	13123 ft / 4000 m (derating from 9843 ft / 3000 m)
Audible noise	<60 dBA @ 1 m and 77°F (25°C)
Display and Communication	
User interface and display	LCD+LED
Inverter monitoring	SunSpec, Modbus RS485
Site-level monitoring	CPS FlexOM Gateway (1 per 32 inverters)
Modbus data mapping	CPS
Remote diagnostics / firmware upgrade functions	Standard / (with FlexOM Gateway)
Mechanical	
Dimensions (H × W × D)	39.4 × 23.6 × 10.2 in (1000 × 600 × 260 mm)
Weight	Inverter: 123.5 lb (56 kg) Wire box: 33 lb (15 kg)
Mounting / installation angle ⁵	15 to 90 degrees from horizontal (vertical or angled)
AC termination	M8 stud type terminal block (wire range: #6-3/0 AWG CU/AL; lugs not supplied)
DC termination ⁶	Screw clamp, negative busbar ⁶ wire range: #14-#6 AWG CU
Fused string inputs (5 per MPPT)	20 A fuses provided (fuse values up to 30 A acceptable)
Safety	
Certifications and standards	UL 1741-SA/SB Ed. 3, UL 1699B, UL 1998, CSA-C22.2 NO.107.1-01, IEEE 1547-2018, FCC Part 15
Selectable grid standards	IEEE 1547a-2014, IEEE 1547-20187, CA Rule 21, ISO-NE, HECO
Smart-grid features	Volt-RideThru, Freq-RideThru, Ramp-Rate, Specified-PF, Volt-VAR, Freq-Watt, Volt-Watt
Warranty	
Standard	10 years
Extended terms	15 and 20 years

1) The sum of parallel-connected PV module short-circuit currents.
2) The "output voltage range" and "output frequency range" may differ according to the specific grid standard.
3) Active power derating begins at 45°C when PF=1 and MPPT≥Vmin, and at 50°C when PF=1 and MPPT≥700 Vdc.
4) See user manual for further requirements regarding non-operating conditions.
5) Shade Cover accessory required for installation angles of 75 degrees or less.
6) RSD wire-box only includes fuses and fuse holders on the positive polarity, compliant with NEC 2017/2020 Section 690.9(C).
7) Firmware version 4.0 or later required.



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TRIVENT CAD SOLUTION

Sheet Name
INVERTER SPEC SHEET

Sheet Size
ARCH D
24" X 36"

Sheet Number
D1.2



Certificate of Compliance

Certificate:

70128088

Master Contract:

255045

Project:

80156130

Date Issued:

2023-04-12

Issued to:

SHANGHAI CHINT POWER SYSTEMS CO., LTD
3255 Si Xian Rd
Songjiang District,
Shanghai 201614
CHINA
Attention: Huan Cai

The products listed below are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US' for Canada and US or with adjacent indicator 'US' for US only or without either indicator for Canada only



Issued by:

Jason Lei

PRODUCTS

CLASS - C531109 - POWER SUPPLIES-Distributed Generation Power Systems Equipment
CLASS - C531189 - POWER SUPPLIES - Distributed Generation-Power Systems Equipment - Certified to U.S. Standards

Transformerless Grid Support Utility Interactive Inverter, Models CPS SCA50KTL-DO/US-480, CPS SCA60KTL-DO/US-480, CPS SCA25KTL-DO/US-208 and CPS SCA36KTL-DO/US-480, permanently connected.

For details related to rating, size, configuration, etc. reference should be made to the CSA Certification Record or the descriptive report.



WOLF RIVER ELECTRIC
101 ISANTI PARKWAY NE, SUITE G
ISANTI, MN 55040
ELECTRICAL CONTRACTOR: 1522577
EXPIRATION DATE: 6/30/2028
CONTACT: (763) 229-6662
contact@wolfriverelectric.com

REVISIONS		
Description	Date	Rev
CAD 8	OCT.16,2025	07
CAD 9	OCT.29,2025	08
CAD 10	NOV.12,2025	09
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Signature with Seal

Project Name & Address

PALERIA BROTHERS COMMERCIAL
9848 S 57TH ST, FRANKLIN, WI 53132
AHJ: CITY OF FRANKLIN
UTILITY: WE ENERGIES

DESIGNED BY:

TRIVENT CAD SOLUTION

Sheet Name

CERTIFICATE OF COMPLIANCE

Sheet Size

ARCH D
24" X 36"

Sheet Number

D1.3

MIDNITE SOLAR INC.

Surge Protection

Surge Protection You Can Count On!

MidNite Solar Surge Protection Devices are type 1 devices, designed for indoor and outdoor applications. Engineered for both AC and PV DC electrical systems, they provide protection to service panels, load centers or electronic devices that are directly connected to a MidNite Surge Protection Device (SPD).

MidNite's SPD's are offered in four models to protect a variety of different voltage ranges. They achieve this protection by clamping surge voltage to a level that your system can sustain without damaging the components of the system.

Compare our SPD's against other surge protection devices. You will see there is no comparison in both our price and features. All our SPD's have a 5 year warranty.

With lightning you only get one chance, so get the best!



www.midnitesolar.com/spd

19115 - 62nd Ave. NE., Arlington, WA. 360-403-7207 FAX: 360-691-6862



MNSPD300ACFM (Cut-in box)
(MNSPD-300-AC included)



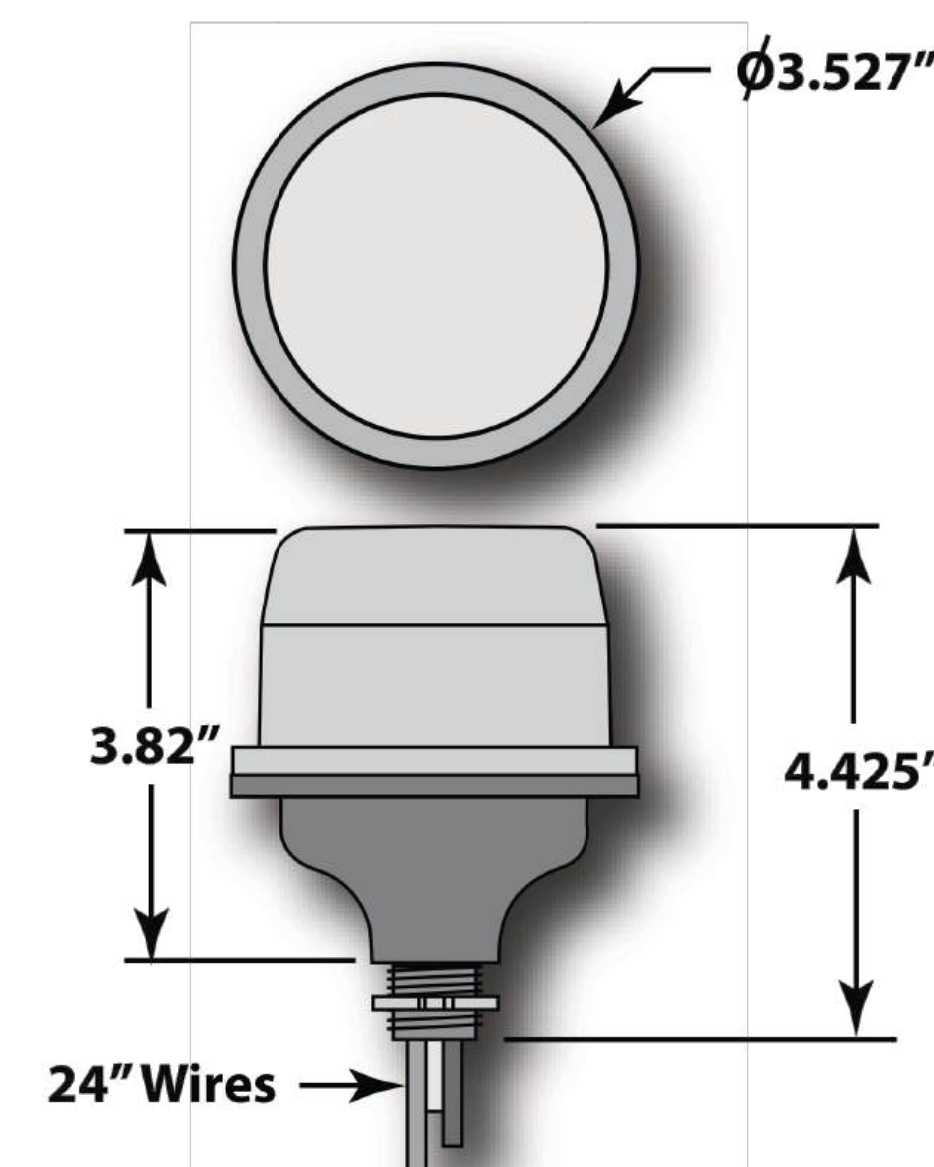
Four Models:

MNSPD-115
MNSPD-300-AC
MNSPD-300-DC
MNSPD-600



MidNite Surge Protection Devices

PART NUMBER	MNSPD-115	MNSPD-300-AC	MNSPD-300-DC	MNSPD-600
Nominal Voltage	0 to 90 VAC 0 to 115 VDC	0 to 250 VAC	0 to 300 VDC	0 to 480 VAC 0 to 600 VDC
MCOV	180V	470V	470V	780V
VPR Line to Ground	600V	1200V	1200V	1800V
Suggested Placement	Up to 90VAC circuits, 12V, 24V, 48VDC battery circuits	120/240 VAC circuits	Off-grid PV combiners Charge controller inputs up to 300VDC	316V/480 VAC circuits Grid-tie PV combiners Grid-tie inverter input Non-Isolated Inverters
Type	UL1449 4th Ed. Type 1	UL1449 4th Ed. Type 1	UL1449 4th Ed. Type 1	UL1449 4th Ed. Type 1
Diagnostic Blue LED	MNSPD-300-AC LED indicates when voltage is present between L1 + ground and L2 + ground MNSPD-115, MNSPD-300-DC and MNSPD-600: LED indicates when voltage is present between L1 + L2 (PV+ PV-)			
Thermal Disconnect	Internal Fuse			
Response Time	<1 micro sec.			



Performance

Surge Current Rating per Phase 80kA
Short Circuit Current Rating 10kA

Fusing Individually fused MOVs
Thermal Fusing Yes
Over current Fusing Yes
Operating Frequency 0 to 500 Hz

Mechanical Description

Enclosure Polycarbonate UL94V-0
Environmental Rating Type 4X
Connection Method #12 AWG
Weight 1 lb.
Mounting Method 1/2" Conduit Knockout
Operating Altitude Sea Level - 12,000' (3,658 Meters)
Storage Temp -40° F to +185° F (-40° C to +85° C)
Operating Temp -40° F to +185° F (-40° C to +85° C)

Diagnostics

Blue status LED, one per leg

Listings and Performance

UL Standard for Safety, UL 1449 Surge Protective Devices-Fourth Edition
CSA C22.2 No. 8-M1986 Electromagnetic Interference (EMI) Filters, Fourth Edition

Model No.	Max Operating Voltage	Surge Current per Phase	Configuration	MCOV	SCCR	VPR 600V/3kA L G
MNSPD-115	100 VAC/150VDC	80kA	1 Ø, 3-wire (2 Legs)	180V L-N	10kA	600V
MNSPD-300-AC	300VAC	80kA	1 Ø, 3-wire (2 Legs)	470V L-N	10kA	1200V
MNSPD-300-DC	385VDC	80kA	1 Ø, 3-wire (2 Legs)	470V L-N	10kA	1200V
MNSPD-600	480VAC/600VDC	80kA	1 Ø, 3-wire (2 Legs)	780V L-N	10kA	1800V

www.midnitesolar.com/spd

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TRIVENT CAD SOLUTION

Sheet Name

SPD
SPEC SHEET

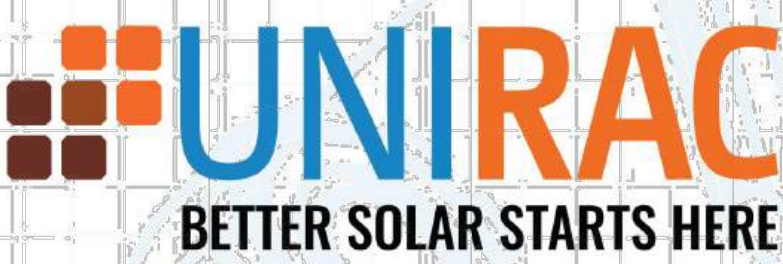
Sheet Size

ARCH D
24" X 36"

Sheet Number

D1.4

ROOFMOUNT | RM10 EVO



THREE MAJOR COMPONENTS. ONE TOOL.

- Supports most framed PV modules (conventional, bi-facial, and large format) at a 10-degree tilt.
- Three SKUs: a fully assembled ballast bay, a tucked north row bay, and a redesigned universal module clamp.
- Improved 13" row spacing yeilds up to 20% more power density on the roof.
- Built on a decade long legacy, RM10 EVO retains the elements that made RM10 reliable, simple and robust.
- Designed to conveniently work with off the shelf wire management products.

AVAILABILITY

- UNIRAC maintains the largest network of stocking distributors for our racking solutions. Count on our partners for fast and accurate delivery to meet your project needs.

AUTOMATED DESIGN TOOL

- Creating a bill of materials is just a few clicks away with U-Builder, a powerful online tool that streamlines the process of designing a code compliant solar mounting system. There's no need to print results and send to a distributor, just click, and share.

WHY ROOFMOUNT RM10 EVO?

LAY IT DOWN AND POWER UP! Unirac has taken the tried-and-true form and functionality of RM10 and evolved it to maximize the potential of flat roof solar projects. We have paired simplicity with power by improving the function, strength and reliability of the module clamps and modified the shape of the north row bay to optimize space and increase module density. Optional roof attachments, roof pads, and MLPE mounts provide a complete solution. Unirac's unmatched commercial project support makes construction easy, from permitting through installation.



FOR QUESTIONS OR CUSTOMER SERVICE CONTACT:
505-242-6411 | SALES@UNIRAC.COM | WWW.UNIRAC.COM
PUB2024/JAN01-V1

CONFORMS TO
UL2703

ISO 9001:2015
14001:2015
CERTIFIED



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TRIVENT CAD SOLUTION

Sheet Name

MOUNTING DETAIL
SPEC SHEET

Sheet Size

ARCH D
24" X 36"

Sheet Number

D1.5

Product data sheet

Specifications

SQUARE D



Safety switch, general duty, non fusible, 3 pole, 3 wire, 240VAC, 100A, Type 1

DU323

Product availability: Stock - Normally stocked in distribution facility

Main

Product	Single Throw Safety Switch
Duty Rating	General duty
Device Application	Residential
Disconnect Type	Non-fusible disconnect switch
Factory Installed Neutral	None
Number of Poles	3
Current Rating	100 A
Voltage Rating	240 V AC
Enclosure Rating NEMA	NEMA 1
Motor power hp	15 hp at 240 V AC 60 Hz for 1 phase motors 30 hp at 240 V AC 60 Hz for 3 phase motors

Complementary

Mounting Type	Surface
Electrical Connection	Lugs
Wiring configuration	3-wire
Wire Size	AWG 14...AWG 1 copper AWG 12...AWG 1 aluminium
Tightening torque	35 lbf.in (4.0 N.m) 0.003...0.008 in² (2.08...5.26 mm²) (AWG 14...AWG 10) 35 lbf.in (4.0 N.m) (AWG 14...AWG 10) 40 lbf.in (4.5 N.m) 0.01 in² (8.37 mm²) (AWG 8) 45 lbf.in (5.08 N.m) 0.02...0.03 in² (12.3...21.12 mm²) (AWG 6...AWG 4) 50 lbf.in (5.6 N.m) (AWG 3...AWG 1)
Depth	6.5 in (165.1 mm)
Width	10.5 in (266.7 mm)
Height	17.5 in (444.5 mm)
Net Weight	15.4 lb(US) (7 kg)

Environment

Certifications	UL listed file E2875
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Ordering and shipping details

Category	US1DE1A00006
Discount Schedule	DE1A
GTIN	785901491804



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TRIVENT CAD SOLUTION

Sheet Name

ACD

SPEC SHEET

Sheet Size

ARCH D

24" X 36"

Sheet Number

D1.6

Product data sheet

Specifications

SQUARE D



Safety switch, general duty, fusible, 3 pole, 4 wire, 240VAC, 100A, Type 3R, bolt on hub prov, with neutral

D323NRB

Product availability: Stock - Normally stocked in distribution facility

Main

Product	Single Throw Safety Switch
Duty Rating	General duty
Device Application	Residential
Disconnect Type	Fusible disconnect switch
Factory Installed Neutral	Neutral (factory installed)
Number of Poles	3
Current Rating	100 A
Voltage Rating	240 V AC
Enclosure Rating NEMA	NEMA 3R
Motor power hp	7.5 hp at 240 V AC 60 Hz for 1 phase motors 15 hp at 240 V AC 60 Hz for 3 phase motors 15 hp at 240 V AC 60 Hz for 1 phase motors 30 hp at 240 V AC 60 Hz for 3 phase motors

Complementary

Short Circuit Current Rating	100 kA maximum depending on fuse H, K or R
Fuse type	H, K or R
Mounting Type	Surface
Electrical Connection	Lugs
Wiring configuration	4-wire (3PH + G)
Wire Size	AWG 14...AWG 1 copper AWG 12...AWG 1 aluminium
Tightening torque	35 lbf.in (4.0 N.m) 0.003...0.008 in² (2.08...5.26 mm²) (AWG 14...AWG 10) 35 lbf.in (4.0 N.m) (AWG 14...AWG 10) 40 lbf.in (4.5 N.m) 0.01 in² (8.37 mm²) (AWG 8) 45 lbf.in (5.08 N.m) 0.02...0.03 in² (12.3...21.12 mm²) (AWG 6...AWG 4) 50 lbf.in (5.6 N.m) (AWG 3...AWG 1)
Depth	6.5 in (165.1 mm)
Width	10.5 in (266.7 mm)
Height	17.5 in (444.5 mm)
Net Weight	17.00 lb(US) (7.71 kg)

Environment

Certifications	UL listed file E2875
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SPEC SHEET

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ARCH D
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Sheet Number
D1.7