SOLAR INDIVIDUAL PERMIT PACKAGE

CHRISTOPHER WILLIAMS

8.700 kW GRID TIED PHOTOVOLTAIC SYSTEM

8622169343
547 SCOTLAND ROAD
CITY OF ORANGE, NEW JERSEY 07050

AHJ: CITY OF ORANGE TOWNSHIP
UTILITY: PUBLIC SERVICE ELEC & GAS CO

CODE INFORMATION

APPLICABLE CODES, LAWS AND REGULATIONS

2018 INTERNATIONAL BUILDING CODE - NJ EDITION (IBC)
2018 INTERNATIONAL ENERGY CONSERVATION CODE (IECC)
2018 INTERNATIONAL FIRE CODE - ORDINANCE 2165 (IFC)
2018 INTERNATIONAL FUEL GAS CODE (IFGC)
2018 INTERNATIONAL MECHANICAL CODE (IMC)
2018 INTERNATIONAL PLUMBING CODE (IPC)
2018 INTERNATIONAL PROPERTY MAINTENANCE CODE (IPMC)
2018 INTERNATIONAL RESIDENTIAL CODE (IRC)
2017 NATIONAL ELECTRIC CODE (NEC)

SATELLITE IMAGE

JOB NOTES

SCOPE OF WORK

- (N) 8.700 kW PHOTOVOLTAIC SYSTEM
- (20) 435W (Model SPR-M-435-H-AC) PV MODULES
- POINT OF INTERCONNECTION AT MAIN SERVICE PANEL WITH CIRCUIT BREAKER
- TWIN BREAKER REQUIRED

SHEET INDEX

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8.700 kW GRID-TIED PHOTOVOLTAIC SYSTEM

547 SCOTLAND ROAD
CITY OF ORANGE, NEW JERSEY 07050

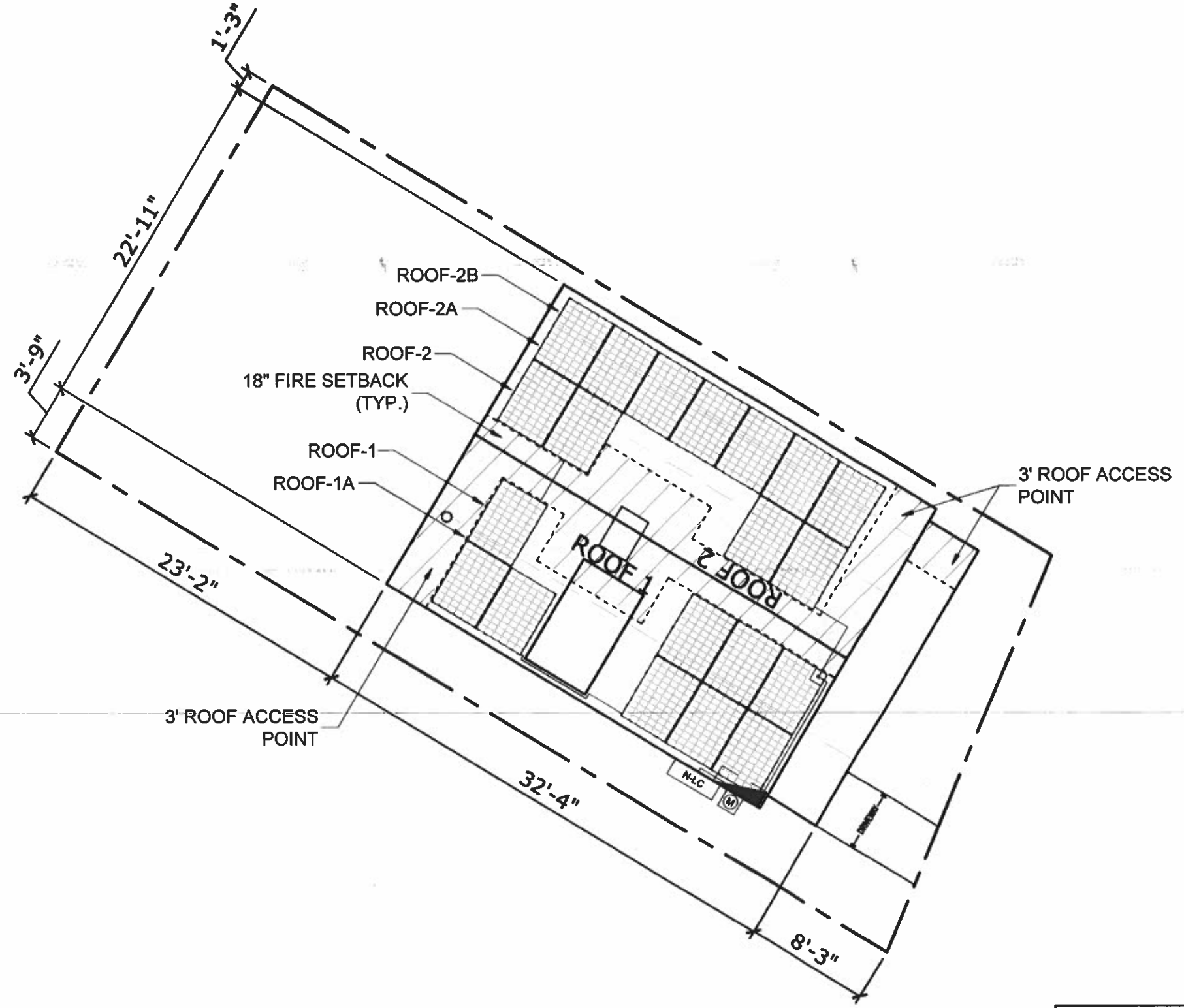
SOLAR INDIVIDUAL PERMIT PACKAGE
COVER SHEET

REVISIONS

REV	DESCRIPTION	DATE	DB

DRAWN BY: VIKAS

INSTALLER	SPRI - NEW JERSEY
PROJECT	RP-224506
DATE DRAWN	03-29-2022
SCALE	NTS
SHEET	PVA-0



LEGEND	
⊡	JUNCTION BOX
———	CONDUIT
▬	UTILITY SERVICE POINT
Ⓜ	UTILITY METER
— - —	PROPERTY LINE
▨	FIRE ACCESS PATHWAY
N-LC	NEW LOAD CENTER

TOTAL ROOF AREA: 928.75Q. FT.
TOTAL ARRAY AREA: 424 SQ. FT.
TOTAL PERCENTAGE OF ROOF COVERED BY SOLAR: 46%

NOTE:
1. FIELD ADJUSTMENTS OF FEWER THAN 6" MAY BE ALLOWED BASED ON SITE CONDITIONS AND MEASUREMENTS.

ROOF	1	2				
MODULE QTY.	9	11				
AZIMUTH	211°	31°				
PITCH	10.5:12	10.5:12				

CONTRACT MODULE & QUANTITY	20 SPR-M435-H-AC (240)
MICROINVERTER TYPE & QUANTITY	20 IQ7HS-66-ACM-US (240)
ROOF TYPE	COMP SHINGLE
ROOF ATTACHMENT QUANTITY	52
STORY HOME TYPE	3 - STORY
TOTAL ARRAY AREA	424 SQ.FT.

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ARRAY LAYOUT

REVISIONS

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SCALE	1/8" = 1'-0"

SHEET
PVA-1

TABLE 1 – ARRAYS INFORMATION

	ROOF PITCH	ROOFING TYPE	ATTACHMENT TYPE	NO. OF STORIES	FRAMING TYPE (in.)	MAX. RAFTER SPAN (ft.)	PENETRATION PATTERN (in.)	MAX. ATTACHMENT SPACING (in.)	MAX. RAIL OVERHANG (in.)
ROOF 1	40°	Comp Shingle	Pegasus L-foot	3	2x6 Rafter @ 24" OC	2.6'	Staggered	48"	16"
ROOF 1A	40°	Comp Shingle	Pegasus L-foot	3	2x6 Rafter @ 24" OC	5'	Staggered	48"	16"
ROOF 2	40°	Comp Shingle	Pegasus L-foot	3	2x6 Rafter @ 24" OC	5'	Staggered	48"	16"
ROOF 2A	40°	Comp Shingle	Pegasus L-foot	3	2x6 Rafter @ 24" OC	4'	Staggered	48"	16"
ROOF 2B	40°	Comp Shingle	Pegasus L-foot	3	2x6 Rafter @ 24" OC	2.6'	Staggered	48"	16"
--	--	--	--	--	--	--	--	--	--
CHECK TABLE 2 FOR PENETRATION PATTERN GUIDE									

FIG 1.1: ROOF 1 STRUCTURAL FRAMING DETAIL

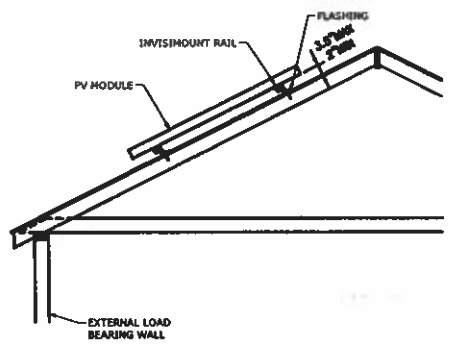


FIG 1.2: ROOF 1A STRUCTURAL FRAMING DETAIL

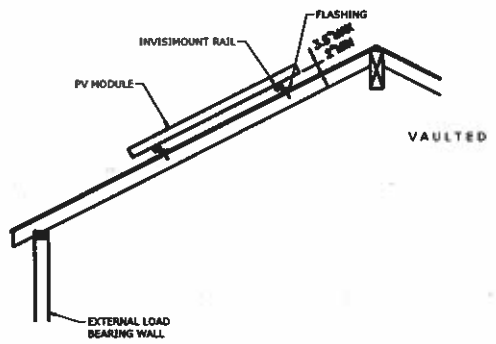


FIG 1.3: ROOF 2 STRUCTURAL FRAMING DETAIL

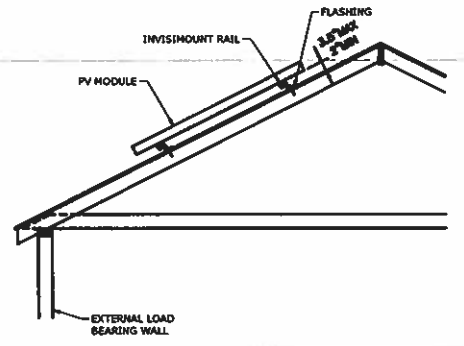


FIG 1.4: ROOF 2A STRUCTURAL FRAMING DETAIL

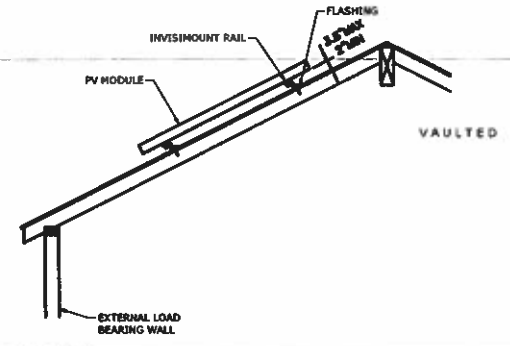


FIG 1.5: ROOF 2B STRUCTURAL FRAMING DETAIL

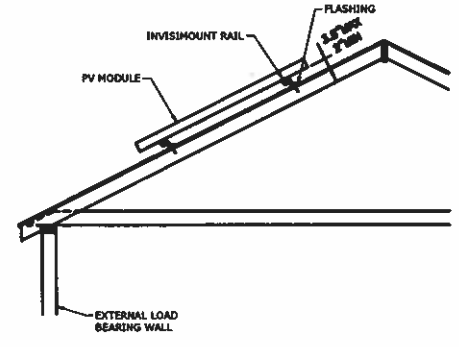


FIGURE 2: INVISIMOUNT ROOF ATTACHMENT DETAILS @ TRUSS / RAFTERS

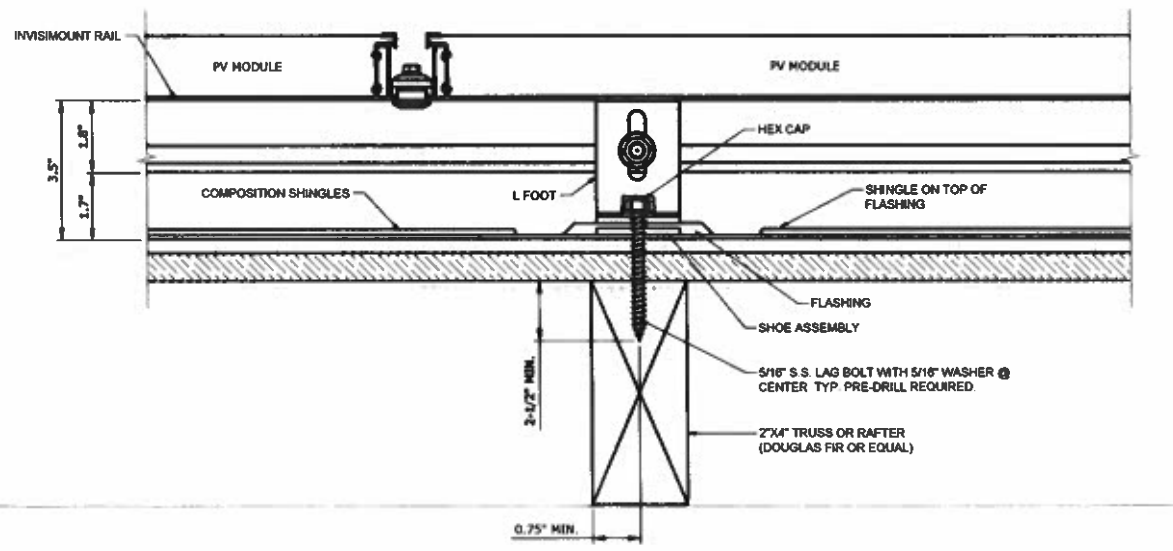
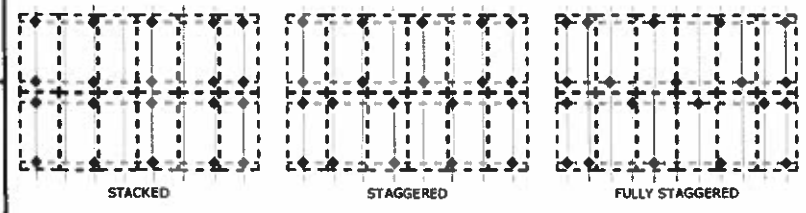
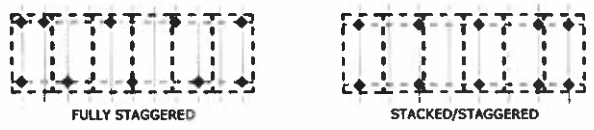


TABLE 2: PENETRATION GUIDE FOR INSTALL

TWO OR MORE ROWS OF MODULES

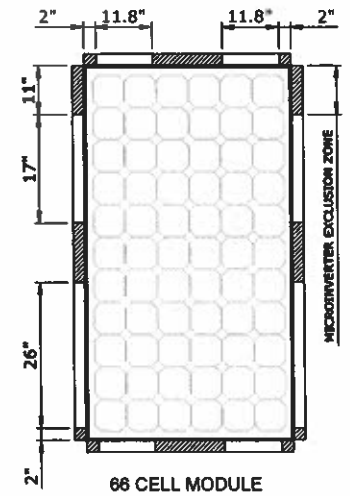


ONE ROW OF MODULES



*CHECK TABLE 1 FOR MAX. PENETRATION SPACING AND PENETRATION PATTERN FOR EACH ARRAY.

FIGURE 3: MOUNTING CLAMP POSITIONING DETAILS



* RAILS SHALL BE POSITIONED IN THE NON-CROSS HATCHED REGIONS

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SOLAR INDIVIDUAL PERMIT PACKAGE
STRUCTURAL INFORMATION
AND MOUNTING DETAILS

REVISIONS

REV	DESCRIPTION	DATE	DB

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INSTALLER	SPRI - NEW JERSEY
PROJECT	RP-224506
DATE DRAWN	03-29-2022
SCALE	NTS
SHEET	PVS-1

TAG	DESCRIPTION
1	SOLAR AC MODULE / BRANCH
2	DC / DC CONVERTERS
3	SOURCE CIRCUIT JUNCTION BOX
4	SEPARATE DC DISCONNECT
5	INTERNAL INVERTER DC DISCONNECT
6	STRING INVERTER
7	SOLAR LOAD CENTER
8	PV PRODUCTION METER
9	SEPARATE AC DISCONNECT

PV CERTIFICATIONS AND COMPLIANCE
- UL 1741 / IEEE-1547
- UL 1741 AC MODULE (TYPE 2 FIRE RATED)
- UL 62109-1 / IEC 62109-2
- UL LISTED PV RAPID SHUTDOWN EQUIPMENT

ENABLES INSTALLATION IN ACCORDANCE WITH:
- NEC 690.6 (AC MODULE)
- NEC 690.12 RAPID SHUTDOWN (INSIDE AND OUTSIDE THE ARRAY)
- NEC 690.15 AC CONNECTORS, 690.33(A)-(E)(1)

TAG	QTY	DESCRIPTION & CONDUCTOR TYPE	CONDUCTOR SIZE (AWG)	NUMBER OF CONDUCTORS	CONDUIT/CABLE TYPE	CONDUIT SIZE
A		SUNPOWER PROVIDED AC MODULES EXTENSION CABLE, LISTED AS AN ASSEMBLY	#12	2	BRANCH CIRCUIT FROM PV ARRAY TO JUNCTION BOX	--
		EGC: BARE Cu	#6	1		
B		THWN-2	#10	4	EMT	3/4"
		EGC: THWN-2	#10	1		
C		THWN-2	#8	3	EMT	3/4"
		EGC: THWN-2	#10	1		

CONDUCTOR / CONDUIT SCHEDULE

ELECTRICAL NOTES

1. PROPER LISTING EXPECTED FOR CONDITIONS OF USE ON ALL LUGS, FITTINGS, CRIMPS, ETC.
2. ALL CONDUIT BEND RADII TO CONFORM TO THE NEC MINIMUM BEND RADII REQUIREMENTS.
3. MINIMUM CLEARANCE SHALL BE MAINTAINED PER NEC FOR ALL NEW EQUIPMENT TO BE INSTALLED.
4. EXISTING GROUNDING ELECTRODE SYSTEM MUST MEET NEC AND LOCAL UTILITY REQUIREMENTS.
5. COPPER CONDUCTORS SHALL BE USED UNLESS SPECIFIED.
6. TYPE NM (ROMEX) CONDUCTORS ARE ALLOWED FOR INTERNAL AND ATTIC RUNS AND SHALL BE INSTALLED MEETING NEC REQUIREMENTS.
7. IF MAIN SERVICE PANEL IS TO BE UPGRADED, IT WILL BE PERMITTED AND INSTALLED BY 3RD PARTY.
8. AC WIRING SHALL UPSIZE IF VOLTAGE DROP EXCEEDS 2%.
9. RUN CONDUCTORS IN EXISTING CONDUIT WHEN AVAILABLE PROVIDED IT HAS NO OTHER CONDUCTORS RUNNING THROUGH IT.
10. EQUIVALENT SPECIFICATION ON CABLES AND ELECTRICAL EQUIPMENT SPECIFIED ARE ACCEPTABLE.
11. AS DC POWER IS INTERNAL TO THE MODULE, GROUNDING ELECTRODE CONDUCTOR (GEC) FOR THE MODULE OR ARRAY IS NOT REQUIRED.

AC MODULES NOTES

1. DC CIRCUIT IS ISOLATED AND INSULATED FROM GROUND AND MEETS THE REQUIREMENT OF NEC 690.35.
2. SUNPOWER PROVIDED CABLES COMES WITH TWO (2) #12 AWG WIRE AND THIS IS BY DESIGN. NEUTRAL AND ADDITIONAL GROUND WIRE IS NOT REQUIRED FOR PROVIDED TRUNK AND EXTENSION CABLES.
3. SUNPOWER AC MODULES HAVE BEEN TESTED AND CERTIFIED TO UL 2703 FOR INTEGRATED GROUNDING AND HENCE A SEPARATE GROUND WIRE IS NOT REQUIRED WITHIN THE ARRAY.
4. USE ROW-TO-ROW GROUNDING CLIP PROVIDED TO GROUND ROWS OF MODULE. BOND SUB-ARRAYS BY RUNNING #6 AWG BARE CU WIRE AND GROUND LUGS AT A SINGLE POINT ON EACH SUB-ARRAY AND THEN TO THE JUNCTION BOX. REFER TO PVE-4 FOR ADDITIONAL DETAILS.

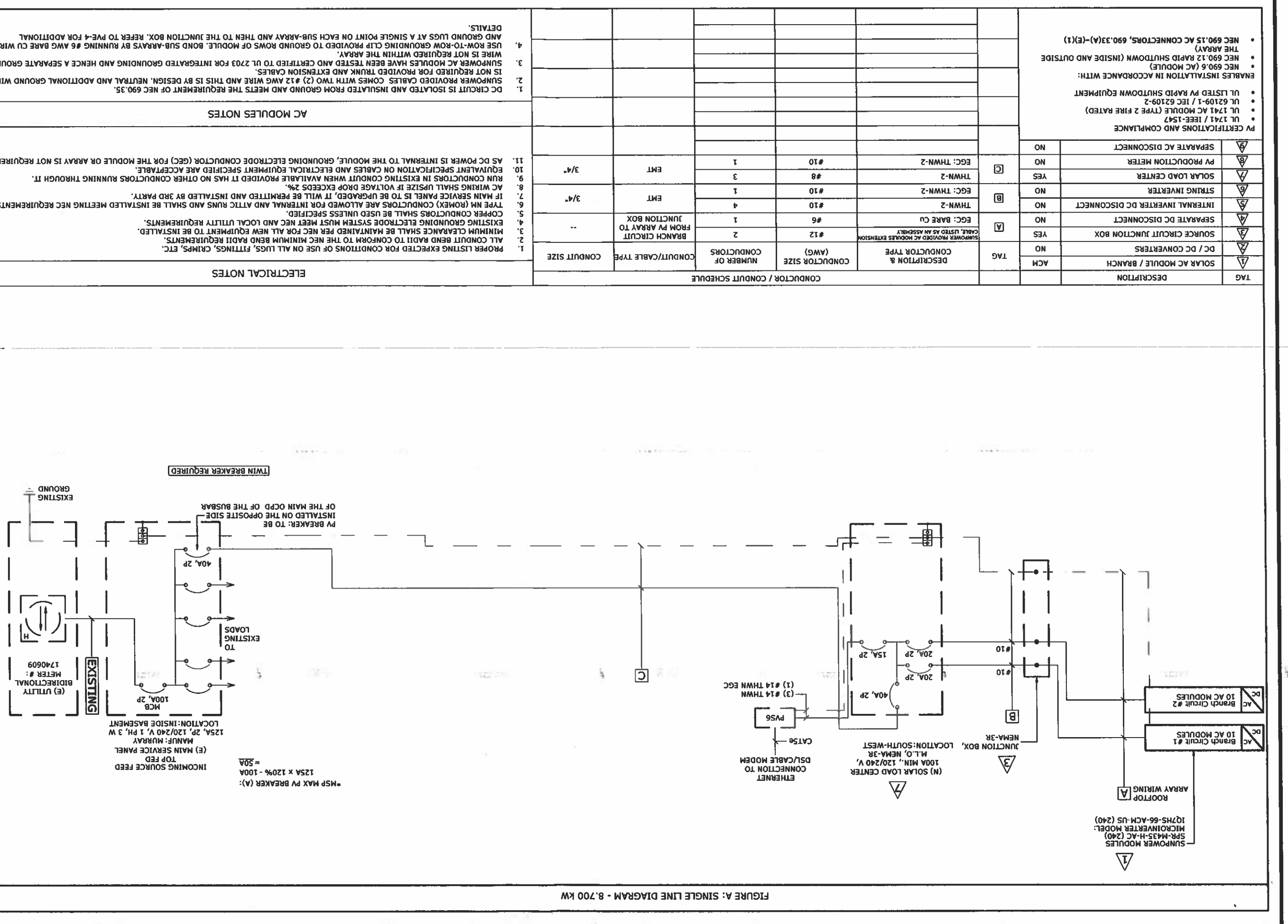

FIGURE A: SINGLE LINE DIAGRAM - 8.700 kW

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SOLAR INDIVIDUAL PERMIT PACKAGE
ELECTRICAL SINGLE-LINE DIAGRAM
& SPECIFICATIONS

REVISIONS

REV	DESCRIPTION	DATE	DR.

DRAWN BY: VIKAS

INSTALLER	SPRI - NEW JERSEY
PROJECT	RP-224506
DATE DRAWN	03-29-2022
SCALE	NTS
SHEET	PVE-1

ELECTRICAL CALCULATIONS

SUBPANEL TO GRID-TIE WIRING	#8
VOLTAGE	240 V
SUM OF BRANCHES: I_{OUT_TOTAL} =	32 A
MINIMUM WIRE AMPACITY: I_{MAX} = IOUT x 1.25	40.00 A
CONDUCTOR DE-RATING	
MAXIMUM AMBIENT TEMPERATURE	37 °C
TEMPERATURE USED FOR AMPACITY DE-RATING	37 °C
TEMPERATURE DE-RATING COEFFICIENT	0.88
FILL DE-RATING COEFFICIENT	1.00
$I_{WIREMIN}$ = I_{OUT} / TEMP_COEFF / FILL_COEFF	36.36A
WIRE SIZE AMPACITY	50A
CONDUCTOR SIZE	#8
CONDUCTOR SIZE ADJUSTED FOR VOLTAGE DROP	#8
ONE WAY CIRCUIT LENGTH	5 FT.
VOLTAGE DROP	0.10%
OVERCURRENT PROTECTION	40A, 2P
MINIMUM OCPD = I_{OUT} x 1.25	40.00 A

ROOF JCT BOX TO SUBPANEL WIRING	BRANCH 1 #10	BRANCH 2 #10
NUMBER OF MODULES	10	10
VOLTAGE	240 V	240 V
RATED AC OUTPUT CURRENT: I_{OUT} =	16 A	16 A
MINIMUM WIRE AMPACITY: I_{MAX} = I_{OUT} x 1.25	20.00 A	20.00 A
CONDUCTOR DE-RATING		
MAXIMUM AMBIENT TEMPERATURE	37 °C	37 °C
TEMPERATURE ADDER	22 °C	22 °C
TEMPERATURE USED FOR AMPACITY DE-RATING	59 °C	59 °C
TEMPERATURE DE-RATING COEFFICIENT	0.71	0.71
FILL DE-RATING COEFFICIENT	0.8	0.8
$I_{WIREMIN}$ = I_{OUT} / TEMP_COEFF / FILL_COEFF	28.17 A	28.17 A
WIRE SIZE AMPACITY	40 A	40 A
CONDUCTOR SIZE	#10	#10
CONDUCTOR SIZE ADJUSTED FOR VOLTAGE DROP	#10	#10
ONE WAY CIRCUIT LENGTH	55 FT.	55 FT.
CALCULATED VOLTAGE DROP	0.91%	0.91%
OVERCURRENT PROTECTION	20A, 2P	20A, 2P
MINIMUM OCPD = I_{OUT} x 1.25	20.00 A	20.00 A

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SOLAR INDIVIDUAL PERMIT PACKAGE
ELECTRICAL CALCULATION

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PROJECT	RP-224506
DATE DRAWN	03-29-2022
SCALE	NTS
SHEET	PVE-2

ELECTRICAL DATA & SPECIFICATIONS

PHOTOVOLTAIC POINT OF INTERCONNECTION
WARNING: DUAL POWER SOURCE. SECOND SOURCE IS PHOTOVOLTAIC SYSTEM

MAXIMUM RATED AC OUTPUT CURRENT:	32 A	AMPS
MAXIMUM OPERATING AC VOLTAGE:	240 V	VOLTS

SIGNAGE LOCATIONS:

- MAIN SERVICE PANEL
- INDOOR / OUTDOOR SUBPANEL

PHOTOVOLTAIC SYSTEM EQUIPPED WITH RAPID SHUTDOWN

SIGNAGE LOCATIONS:

- MAIN SERVICE PANEL

PV SOLAR BREAKER
DO NOT RELOCATE THIS OVERCURRENT DEVICE

SIGNAGE LOCATIONS:

- MAIN SERVICE PANEL
- NEW INDOOR / OUTDOOR LOAD CENTER
- INDOOR / OUTDOOR SUBPANEL

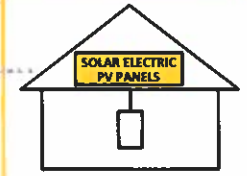
RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM

SIGNAGE LOCATIONS:

- LABEL SHALL BE LOCATED ON OR NO MORE THAN 1M (3FT) FROM THE SWITCH

SOLAR PV SYSTEM EQUIPPED WITH RAPID SHUTDOWN

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



SIGNAGE LOCATIONS:

- SHALL BE LOCATED ON OR NO MORE THAN 1 M (3 FT) FROM THE SERVICE DISCONNECTING MEANS TO WHICH THE PV SYSTEMS ARE CONNECTED.

SIGNAGE NOTES

1. MATERIAL USED FOR THE SIGNAGE SHALL BE REFLECTIVE, WEATHER RESISTANT AND SUITABLE FOR THE ENVIRONMENT.
2. ALL SIGNAGE SHALL HAVE ALL CAPITAL LETTERS WITH MINIMUM ⅜" LETTER HEIGHT, WHITE ON RED BACKGROUND.
3. MAIN SERVICE DISCONNECT MARKING SHALL BE PLACED ADJACENT TO MAIN SERVICE DISCONNECT IN A LOCATION CLEARLY VISIBLE FROM THE LOCATION WHERE THE LEVER IS OPERATED.
4. MARKING IS REQUIRED ON ALL INTERIOR AND EXTERIOR DC CONDUIT, RACEWAYS, ENCLOSURES, CABLE ASSEMBLIES, AND JUNCTION BOXES TO ALERT THE FIRE SERVICE TO AVOID CUTTING THEM. MARKINGS SHALL BE PLACED EVERY 10', AT TURNS AND ABOVE AND/OR BELOW PENETRATIONS, AND AT ALL DC COMBINER AND JUNCTION BOXES.
5. DO NOT USE SCREWS FOR SIGNAGE ATTACHMENT. USE ONLY APPROVED ADHESIVE.

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SOLAR INDIVIDUAL PERMIT PACKAGE
ELECTRICAL DATA & SPECIFICATIONS

REVISIONS

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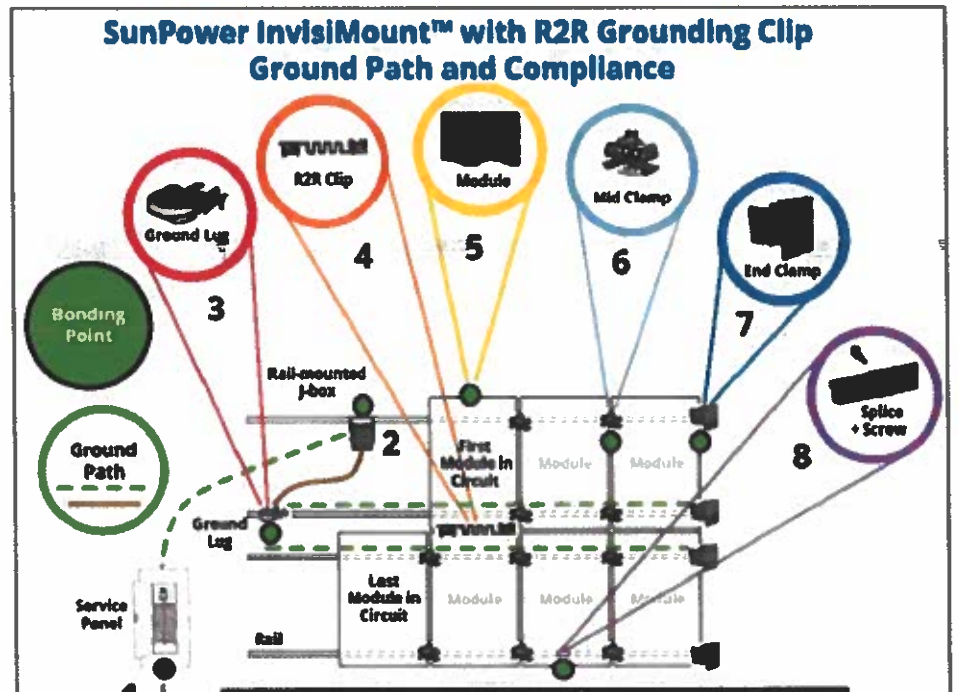
PROJECT	RP-224506
DATE DRAWN	03-29-2022
SCALE	NTS
SHEET	PVE-3

SunPower InvisiMount™ with R2R Grounding Clip Ground Path and Compliance



	Bonding Components	Compliance NEC	Compliance UL
1	Grounding Electrode to Service Panel	690.47(A) 690.47(D)	n/a
2	Service Panel to Ground Wire	690.43(C)	1741
3	Ground Wire to Ground Lug to Rail	690.43(C)	2703
4	Module Frame to Module Frame	690.43(C)	2703
5	Module Frame	n/a	1703
6	Rail to Mid Clamp to Module Frame	690.43(A) 690.43(C) 690.43(D)	2703
7	Module Frame to End Clamp to Rail	690.43(A) 690.43(C) 690.43(D)	2703
8	Rail to Splice	690.43(A) 690.43(C) 690.43(D)	2703

FIGURE 1: SUNPOWER EQUINOX GROUNDING DETAILS

CAUTION:

POWER TO THIS BUILDING IS ALSO SUPPLIED FROM THE FOLLOWING SOURCES WITH DISCONNECT(S) LOCATED AS SHOWN:

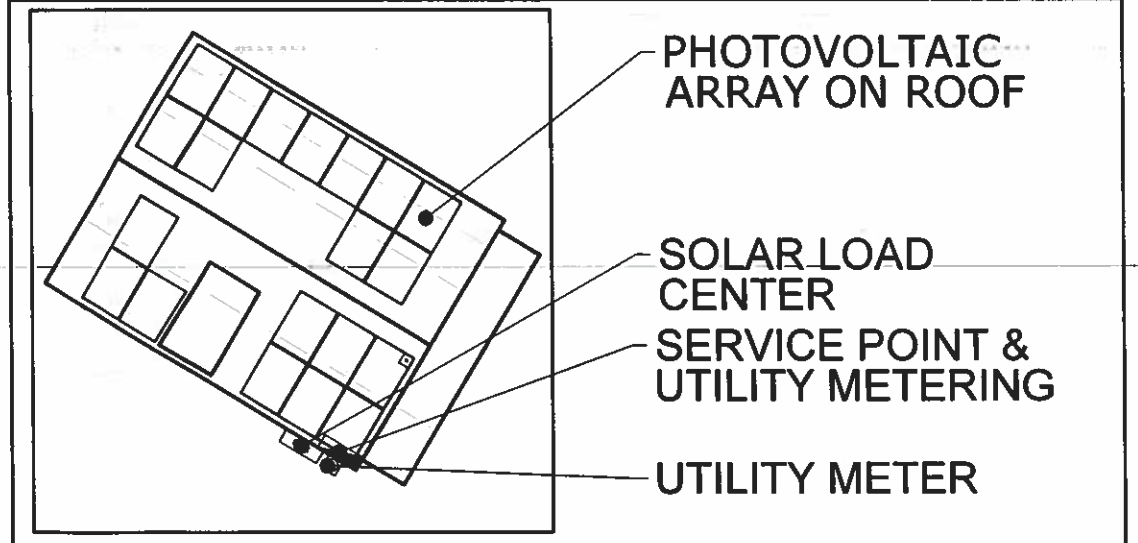


FIGURE 2: PLACARD IDENTIFYING LOCATION OF DISCONNECTS AND POWER SOURCES

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PROJECT	RP-224506
DATE DRAWN	03-29-2022
SCALE	NTS
SHEET	PVE-4

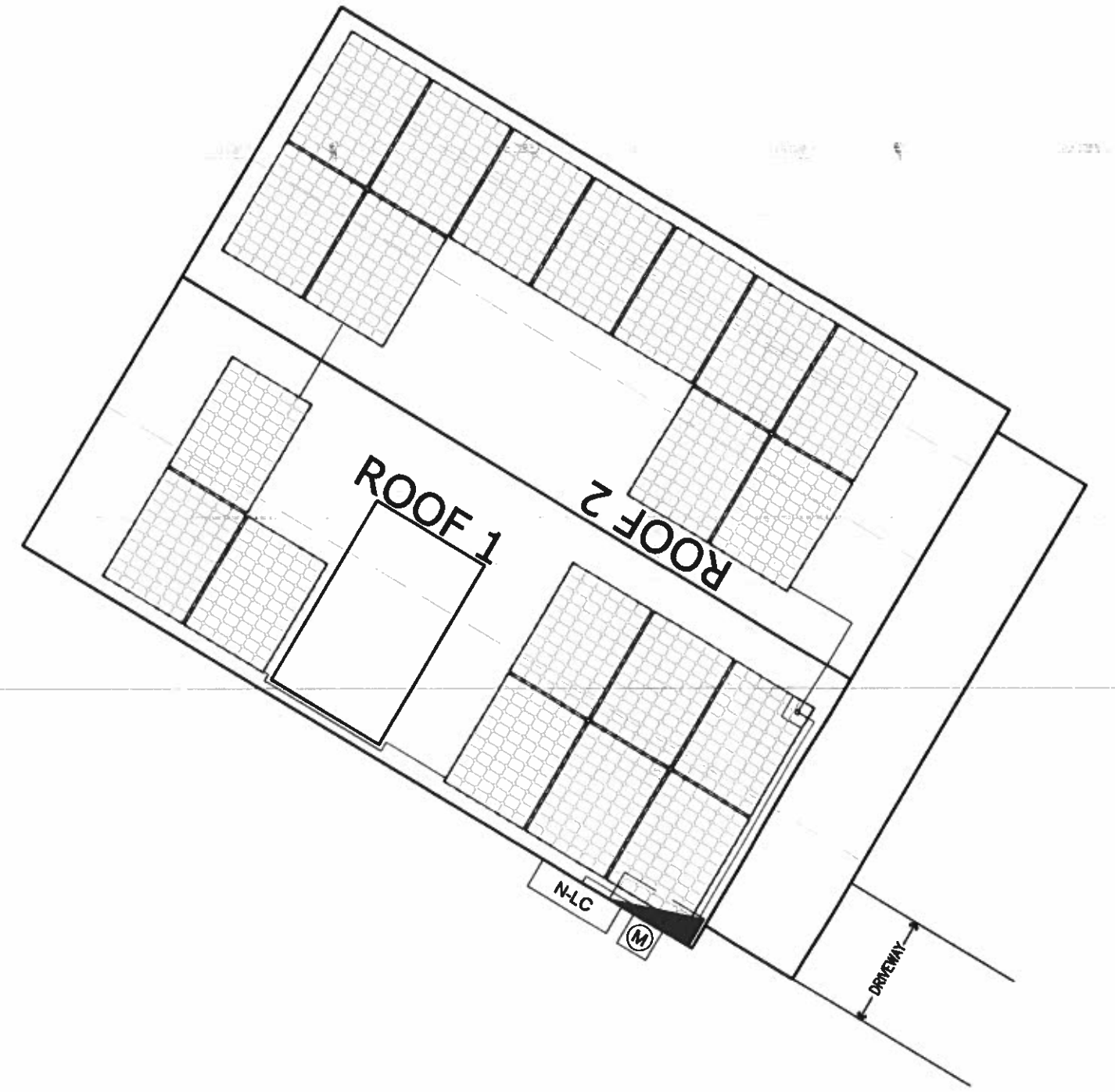
INSTALLER NAME:

_____

BRANCH VOLTAGES:

1.
2.
3.
4.
5.
6.

ROOF	1	2				
MODULE QTY.	9	11				
AZIMUTH	211°	31°				
PITCH	10.5:12	10.5:12				



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SOLAR INDIVIDUAL PERMIT PACKAGE
BRANCH DIAGRAM

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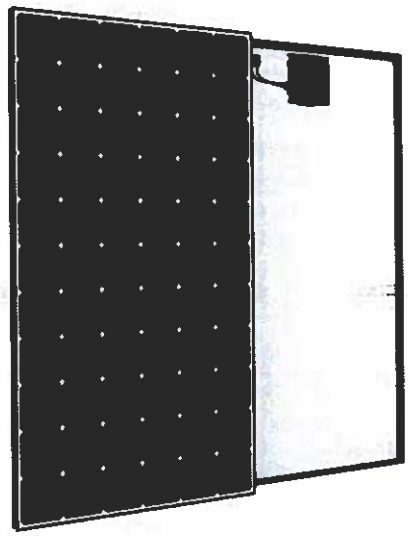
PROJECT	RP-224506
DATE DRAWN	03-29-2022
SCALE	3/16" = 1'-0"
SHEET	PVE-5

SUNPOWER®



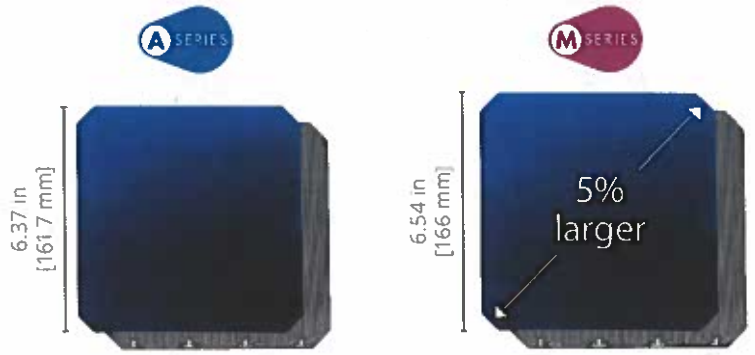
420-440W Residential AC Module

SunPower® Maxeon® Technology

Built specifically for use with the SunPower Equinox® system, the only fully integrated solar solution designed, engineered, and warranted by one company.

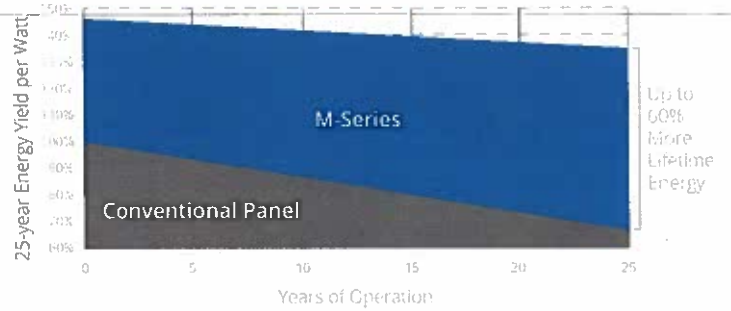
Highest Power AC Density Available.

The patented, solid-copper foundation Maxeon Gen 6 cell is over 5% larger than prior generations, delivering the highest efficiency AC solar panel available.[1]



Highest Lifetime Energy and Savings

Designed to deliver 60% more energy over 25 years in real-world conditions like partial shade and high temperatures.[2]



Best Reliability, Best Warranty

With more than 42.6 million and 15 GW modules deployed around the world, SunPower technology is proven to last. That's why we stand behind our module and microinverter with the industry's best 25-year Combined Power and Product Warranty.

Part of the SunPower Equinox® Solar System

- Compatible with mySunPower™ monitoring
- Seamless aesthetics

Factory-integrated Microinverter

- Highest-power integrated AC module in solar
- Engineered and calibrated by SunPower for SunPower AC modules

M-Series: M440 | M435 | M430 | M425 | M420 SunPower® Residential AC Module

AC Electrical Data		
Inverter Model: Type H (Enphase IQ7HS)	@240 VAC	@208 VAC
Max. Continuous Output Power (VA)	384	369
Nom. (L–L) Voltage/Range[3] (V)	240 / 211–264	208 / 183–229
Max. Continuous Output Current (Arms)	1.60	1.77
Max. Units per 20 A (L–L) Branch Circuit[4]	10	9
CEC Weighted Efficiency	97.0%	96.5%
Nom. Frequency	60 Hz	
Extended Frequency Range	47–68 Hz	
AC Short Circuit Fault Current Over 3 Cycles	4.82 A rms	
Overvoltage Class AC Port	III	
AC Port Backfeed Current	18 mA	
Power Factor Setting	1.0	
Power Factor (adjustable)	0.85 (inductive) / 0.85 (capacitive)	

DC Power Data	SPR-M440-H-AC	SPR-M435-H-AC	SPR-M430-H-AC	SPR-M425-H-AC	SPR-M420-H-AC
Nom. Power[6] (Pnom) W	440	435	430	425	420
Power Tolerance	+5/–0%				
Module Efficiency	22.8%	22.5%	22.3%	22.0%	21.7%
Temp. Coef. (Power)	–0.29% / °C				
Shade Tolerance	Integrated module-level max. power point tracking				

Tested Operating Conditions	
Operating Temp.	-40° F to +185°F (-40°C to +85°C)
Max. Ambient Temp.	122°F (50°C)
Max. Test Load[8]	Wind: 125 psf, 6000 Pa, 611 kg/m² back Snow: 187 psf, 9000 Pa, 917 kg/m² front
Max. Design Load	Wind: 75 psf, 3600 Pa, 367 kg/m² back Snow: 125 psf, 6000 Pa, 611 kg/m² front
Impact Resistance	1 inch (25 mm) diameter hail at 52 mph (23 m/s)

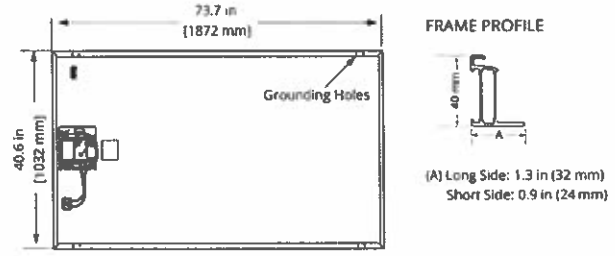
Mechanical Data	
Solar Cells	66 Maxeon Gen 6
Front Glass	High-transmission tempered glass with anti-reflective coating
Environmental Rating	Outdoor rated
Frame	Class 1 black anodized (highest AAMA rating)
Weight	48 lb (21.8 kg)
Recommended Max. Module Spacing	1.3 in. (33 mm)

Warranties, Certifications, and Compliance	
Warranties	• 25-year limited power warranty • 25-year limited product warranty
Certifications and Compliance	• UL 1741 / IEEE-1547 • UL 1741 AC Module (Type 2 fire rated) • UL 61730 • UL 62109-1 / IEC 62109-2 • FCC Part 15 Class B • ICES-0003 Class B • CAN/CSA-C22.2 NO. 107.1-01 • CA Rule 21 (UL 1741 SA)[5] (includes Volt/Var and Reactive Power Priority) • UL Listed PV Rapid Shutdown Equipment[7] Enables installation in accordance with: • NEC 690.6 (AC module) • NEC 690.12 Rapid Shutdown (inside and outside the array) • NEC 690.15 AC Connectors, 690.33(A)–(E)(1) When used with AC module Q Cables and accessories (UL 6703 and UL 2238)[7]: • Rated for load break disconnect
PID Test	1000 V: IEC 62804

Packaging Configuration	
Modules per pallet	25
Packaging box dimensions	75.4 × 42. (1915 × 1072 × 1220 mm)
Pallet gross weight	1300.7 lb (590 kg)
Pallets per container	32
Net weight per container	41,623 lb (18,880 kg)

1 Based on datasheet review of websites of top 20 manufacturers per Wood Mackenzie US PV Leaderboard Q3 2021.
2 Maxeon 435 W, 22.5% efficient, compared to a Conventional Panel on same-sized arrays (260 W, 16% efficient, approx. 1.6 m²), 7.9% more energy per watt (based on PVSyst pan files for avg. US climate), 0.5%/yr slower degradation rate (Jordan, et. al. "Robust PV Degradation Methodology and Application."PVSC 2018).
3 Voltage range can be extended beyond nominal if required by the utility.
4 Limits may vary. Refer to local requirements to define the number of microinverters per branch in your area.
5 Factory set to IEEE 1547a-2014 default settings. CA Rule 21 default settings profile set during commissioning.
6 Standard Test Conditions (1000 W/m² irradiance, AM 1.5, 25°C). All DC voltage is fully contained within the module.
7 UL Listed as PVRSE and conforms with NEC 2014 and NEC 2017 690.12; and C22.1-2015 Rule 64-218 Rapid Shutdown of PV Systems, for AC and DC conductors, when installed according to manufacturer's instructions.
8 Please read the safety and installation instructions for more information regarding load ratings and mounting configurations.

See www.sunpower.com/company for more reference information.
Specifications included in this datasheet are subject to change without notice.



Please read the safety and installation instructions for details.

UL LISTED
AC MODULE
GRID SUPPORT UTILITY INTERACTIVE
PV RAPID SHUTDOWN EQUIPMENT
E478300
Module Fire Performance: Type 2

539973 RevB
January 2022

Equinox Junction Boxes

InvisiMount™ Rail-Mounted Junction Box (RMJ) v2

- 70% larger than original InvisiMount J-box.
- Integrated grounding to InvisiMount rail, replacing grounding lug assembly.
- Snap-on attachment for fast and secure installation.

Composition Shingle Roof Transition Junction Box

- Enables transitioning conductors directly through the roof.
- Integrated flashing for peace of mind.
- Compatible with composition shingle roofs.

SPECIFICATIONS

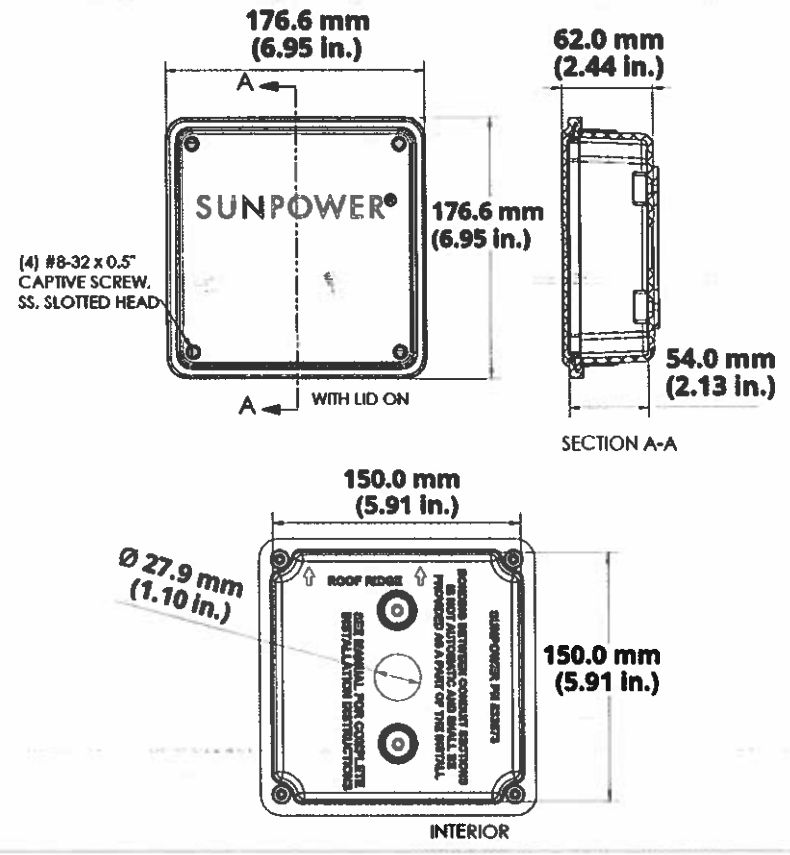
Model	RMJ v2	Comp Shingle Transition J-Box
Kit Part Number	530167	530168
Max. Voltage Rating	600 V (AC or DC)	
Ambient Temp. Range	−35°C to 75°C (−31°F to 167°F)	
Enclosure Material	Flame-retardant, UV-resistant, high-impact resistant resin	
Attachment/Flashing Material	304 stainless steel	Steel w/zinc-aluminum coating
Cavity Dimensions	150 × 150 × 62 mm (5.91" × 5.91" × 2.13")	
Enclosure Volume	1150 cc (70 in^3)	
Attachment/Flashing Finish	Black oxide	Black powder coat
Compatibility	InvisiMount rail	Comp shingle roofs
Assembled Weight	0.78 kg (1.7 lb)	1.27 kg (2.8 lb)
Certifications & Ratings	• Watertight, UL Type 4 • UL 94 5VA • UL 1741 • UL 2703 (with InvisiMount)	• Watertight, UL Type 4 • UL 94 5VA • UL 1741
Additional Hardware Included	• 3/4" cord grip • Lay-in lug	• 3/4" cord grip • #12 screws with EPDM washer

SunPower® Equinox™ Accessories

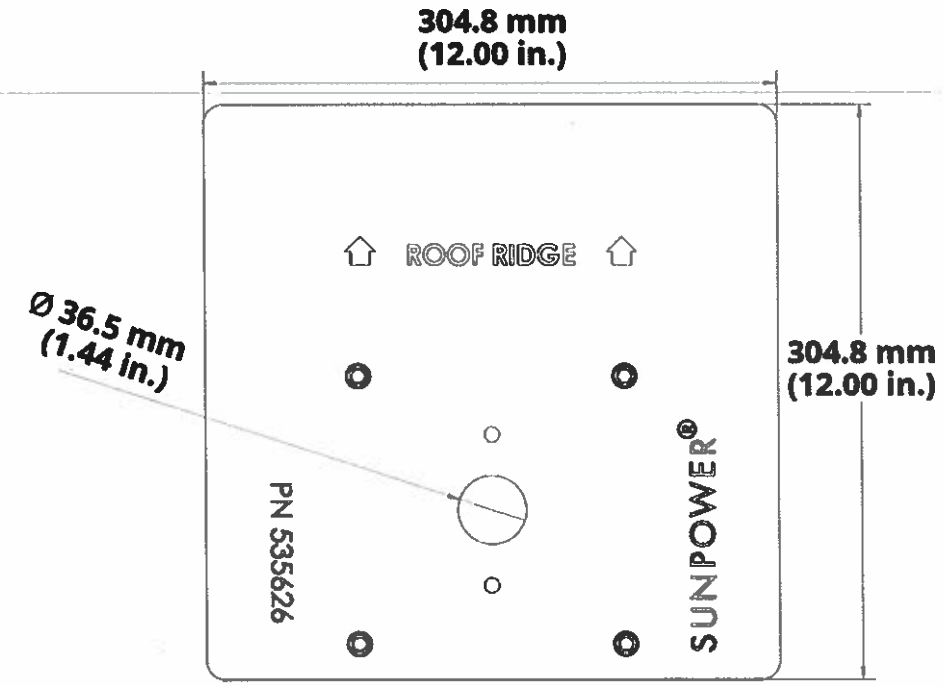
Equinox Junction Boxes

COMPONENT DIMENSIONS

J-Box Enclosure
(used in both RMJ and Transition J-box)



Flashing
(used only with Transition J-Box)



539382 RevA

SunPower® InvisiMount™ | Residential Mounting System

Simple and Fast Installation

- Integrated module-to-rail grounding
- Pre-assembled mid and end clamps
- Levitating mid clamp for easy placement
- Mid clamp width facilitates consistent, even module spacing
- UL 2703 Listed integrated grounding

Flexible Design

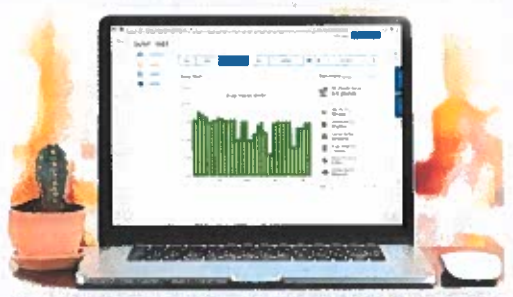
- Addresses nearly all sloped residential roofs
- Design in landscape and portrait with up to 8' rail span
- Pre-drilled rails and rail splice
- Rails enable easy obstacle management

Customer-Preferred Aesthetics

- #1 module and #1 mounting aesthetics
- Best-in-class system aesthetics
- Premium, low-profile design
- Black anodized components
- Hidden mid clamps and capped, flush end clamps

Part of Superior System

- Built for use with SunPower DC and AC modules
- Best-in-class system reliability and aesthetics
- Optional rooftop transition flashing, rail-mounted J-box, and wire management rail clips
- Combine with SunPower modules and SunPower EnergyLink® monitoring app



Elegant Simplicity

SunPower® InvisiMount™ is a SunPower-designed rail-based mounting system. The InvisiMount system addresses residential sloped roofs and combines faster installation time, design flexibility, and superior aesthetics. The InvisiMount product was specifically envisioned and engineered to pair with SunPower modules. The resulting system-level approach amplifies the aesthetic and installation benefits—for homeowners and for installers.

sunpower.com

SunPower® InvisiMount™ | Residential Mounting System

InvisiMount Components

Module[1] / Mid Clamp and Rail

Module[1] / End Clamp and Rail

Ground Lug Assembly

Row-to-Row Spacer

End Clamp

Mid Clamp

Row-to-Row Grounding Clip

Rail and Rail Splice

InvisiMount Component Details		
Mid clamp	Black oxide stainless steel 300 series	63 g (2.2 oz)
End clamp	Black anodized aluminum 6000 series	110 g (3.88 oz)
Rail	Black anodized aluminum 6000 series	830 g/m (9 oz/ft)
Rail splice	Aluminum alloy, 6060 series	830 g/m (9 oz/ft)
Rail bolt	M10-1.5 × 25 mm, custom T-head SS304	18 g (0.63 oz)
Rail nut	M10-1.5, DIN 6923 SS304	nominal
Ground lug assembly	SS304; A2-70 bolt, tin-plated copper lug	106.5 g (3.75 oz)
Row-to-row grounding clip	SS 301 with SS 304 M6 bolts	75 g (2.6 oz)
Row-to-row spacer	Black POM-grade plastic	5 g (0.18 oz)

InvisiMount Operating Conditions	
Temperature	–40° C to 90° C (–40° F to 194° F)
Max Load (LRFD)	• 3000 Pa uplift • 6000 Pa downforce

Roof Attachment Hardware Supported by Design Tool	
Application	• Composition Shingle Rafter Attachment • Composition Shingle Roof Decking Attachment • Curved and Flat Tile Roof Attachment • Universal interface for other roof attachments

InvisiMount Component LRFD Capacities[2]		
Mid clamp	Uplift	664 lbf
	Shear	540 lbf
End clamp	Uplift	899 lbf
	Shear	220 lbf
Rail	Moment: upward	548 lbf-ft
	Moment: downward	580 lbf-ft
Rail splice	Moment: upward	548 lbf-ft
	Moment: downward	580 lbf-ft
L-foot	Uplift	1000 lbf
	Shear	390 lbf

InvisiMount Warranties And Certifications	
Warranties	• 25-year product warranty • 5-year finish warranty
Certifications	• UL 2703 Listed • Class A Fire Rated

Roof Attachment Hardware Warranties
Refer to roof attachment hardware manufacturer's documentation

[1] Module frame that is compatible with the InvisiMount system required for hardware interoperability.
[2] SunPower recommends that all Equinox™, InvisiMount™, and AC module systems always be designed using the InvisiMount Span Tables #524784. If a designer decides to instead use the component capacities listed in this document to design a system, note that the capacities shown are Load and Resistance Factor Design (LRFD) design loads, and are NOT to be used for Allowable Stress Design (ASD) calculations, and that a licensed Professional Engineer (PE) must then stamp all calculations. If you have any questions please contact SunPower Technical Support at 1 855 977 7867.

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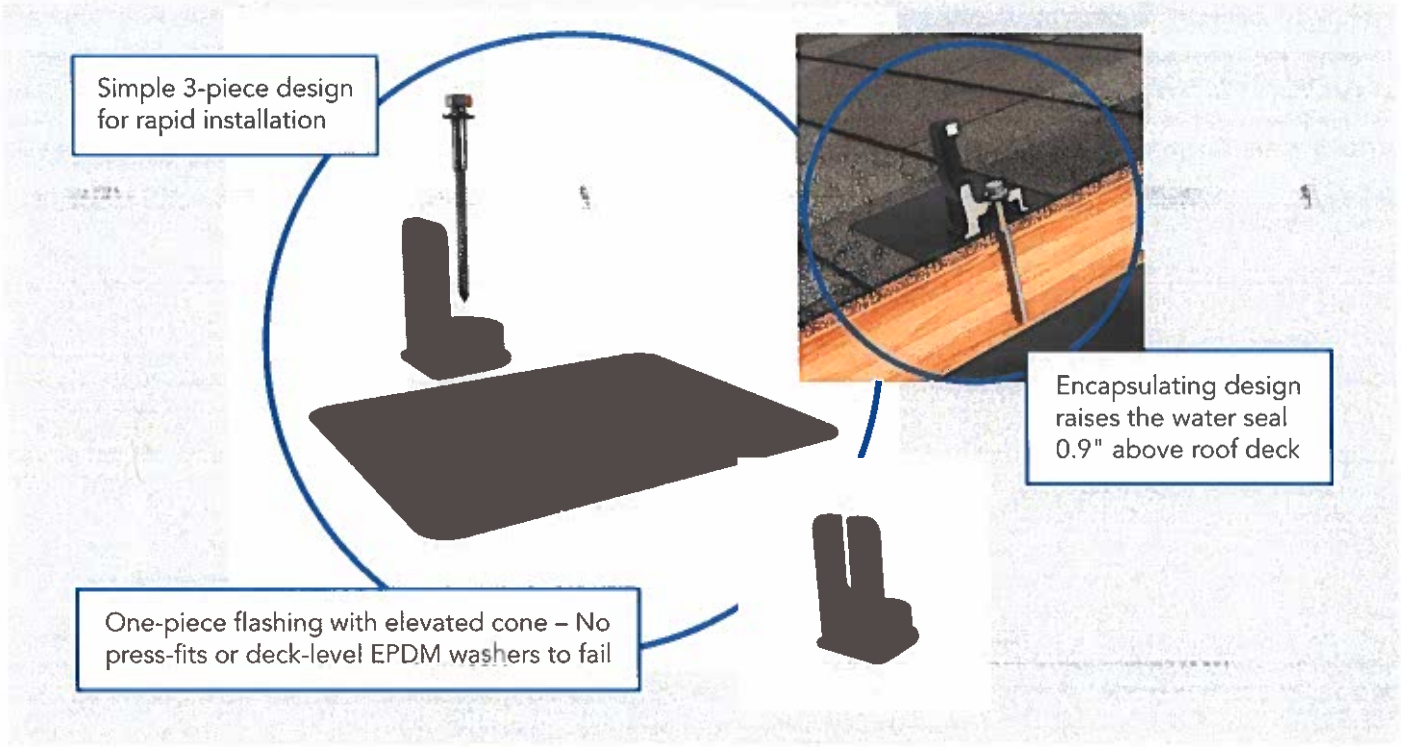
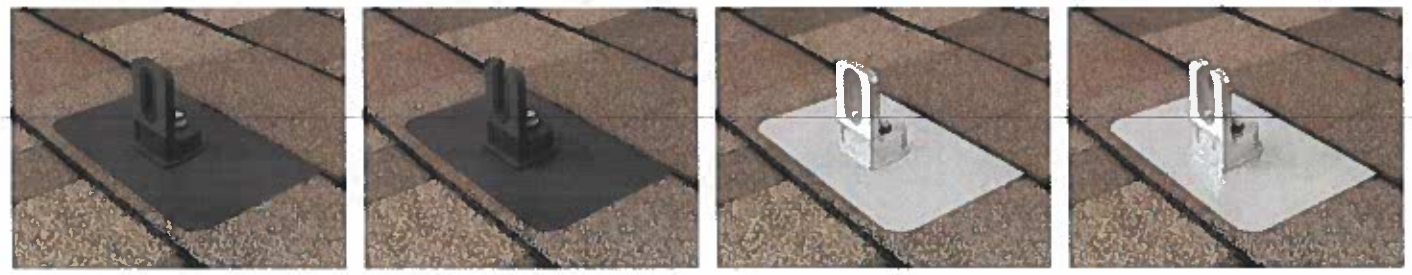
509506 RevF

PEGASUS SOLAR™

A BETTER DAY ON THE JOB

COMP MOUNTS





WATERTIGHT FOR LIFE

Pegasus Solar's Comp Mounts are a cost effective, high-quality option for rail installations on composition shingle roofs. Designed to last decades, the one-piece flashing with elevated cone means there is simply nothing to fail.

25-year Warranty
Manufactured with advanced materials and coatings to outlast the roof itself

Superior Waterproofing
Tested to AC286 without sealant
0.9" elevated water seal

Code Compliant
Fully IBC/CBC Code Compliant
Exceeds ASCE 7-16 Standards

All-In-One Kit Packaging
Flashings, L-Feet and SS lags with bonded EPDM washers are included in each 24-pack

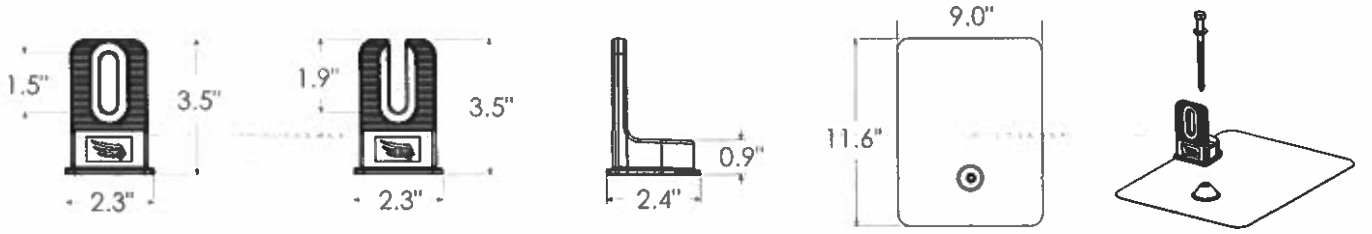
COMP MOUNTS

1. Drill pilot hole in center of rafter.

2. Optional: Apply a "U-shape" of sealant to underside of flashing and postition under 2nd shingle course, cone over pilot hole.

3. Place L-Foot over cone and install lag with washer through L-Foot.

4. Drive lag to required depth. Attach rail per rail manufacturer's instructions.



Specifications	Comp Mount Install Kits				
SKU	PSCR-CBB0	PSCR-UBB0	SPCR-CBBH	PSCR-CMM0	PSCR-UMM0
Finish	Black L-Foot and Black Flashing			Mill L-Foot and Mill Flashing	
L-Foot Type	Closed Slot	Open Slot	Closed Slot	Closed Slot	Open Slot
Kit Contents	L-Foot, Flashing, 5/16"x 4-1/2" SS Lag with metalized EPDM washer	L-Foot, Flashing, 5/16"x 4-1/2" SS Lag with metalized EPDM washer	L-Foot, Flashing, 5/16"x 4-1/2" SS Lag with metalized EPDM washer and M10 Hex Bolt	L-Foot, Flashing, 5/16"x 4-1/2" SS Lag with metalized EPDM washer	L-Foot, Flashing, 5/16"x 4-1/2" SS Lag with metalized EPDM washer
Roof Type	Composition Shingle				
Certifications	IBC, ASCE/SEI 7-16, AC286				
Install Application	Railed Systems				
Compatible Rail	Most				
Flashing Material	Painted Galvalume Plus			Galvalume Plus	
L-Foot Material	Aluminum				
Kit Quantity	24				
	72				

Pegasus Solar Inc • 100 West Ohio Avenue, Richmond, CA 94804 • T: 510.210.3797 • www.pegasussolar.com

SunPower® Monitoring | Residential SunPower PV Supervisor

Improve Support, Reduce Costs

An intuitive monitoring website enables you to:

- See a visual map of customer sites
- Remotely manage hundreds of sites
- Remotely diagnose and troubleshoot system issues
- Drill down for the status of individual devices

Add Value for Customers

With mySunPower™ monitoring customers can:

- Track their energy production by day, month, year and in different weather conditions
- See their energy use and estimated bill savings
- Maximize their savings with automatic system alerts and tips
- Customize storage settings and easily monitor and track available battery power
- Receive elective system reports

SunPower® Monitoring—Plug-and-Play Installation

This complete solution for residential monitoring and control includes the SunPower® PV Supervisor (PVS) which improves the installation process, overall system reliability, and customer experience:

- Compact footprint for improved aesthetics
- Robust cloud connectivity and comprehensive local connectivity
- Flexible configuration of devices during installation
- Consumption metering
- Revenue-quality production metering
- Web-based commissioning
- Remote diagnostics of PVS and inverters
- Durable UL Type 3R enclosure helps reduce maintenance costs
- Easy integration with SunPower eBOS

Robust Cloud Connectivity

Multiple options to maintain optimal connectivity:

- Hardwired Ethernet
- WiFi
- Cellular backup

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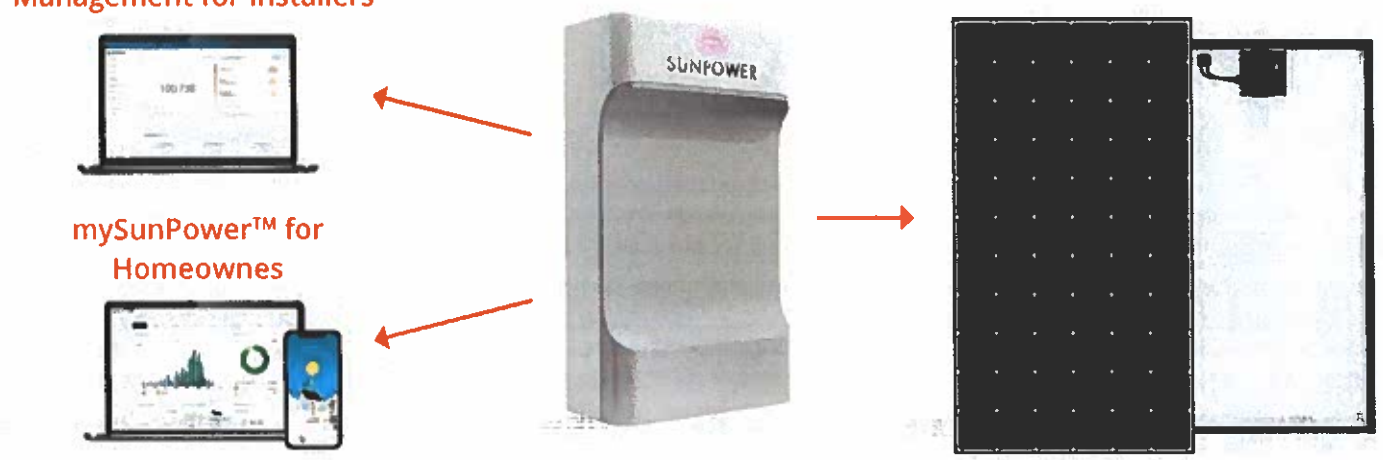
SUNPOWER®



Site Requirements	
Number of modules supported per PVS	• 85 (SunPower AC modules)
Internet access	• High-speed internet access via accessible router or switch
Power	• 100–240 VAC (L–N), 50 or 60 Hz • 208 VAC (L–L in phase 3), 60 Hz

Mechanical	
Weight	• 5.5 lb (2.5 kg)
Dimensions	• 11.8 × 8.0 × 4.2 in. (30.5 × 20.5 × 10.8 cm)
Enclosure rating	• UL 50E Type 3R

Operating Conditions	
Temperature	• –22°F to +140°F (–30°C to +60°C)
Humidity (max.)	• 95%, non-condensing

Warranty and Certifications	
Warranty	• 10-year Limited Warranty
Certifications	• UL, cUL, CE, UL 61010-1 and -2, FCC Part 15 (Class B)

Communication	
RS-485	• Supports string inverters, external meters, and other auxiliary devices
Integrated metering	• One channel of revenue-quality production metering • Two channels of consumption metering
Ethernet	• 1 LAN (or optional WAN) port
PLC	• Supports SunPower AC modules
WiFi	• 802.11b/g/n 2.4 GHz and 5 GHz
Cellular	• LTE Cat-M1/3G UMTS
ZigBee	• IEEE 802.15.4 MAC, 2.4 GHz ISM band
Data storage	• 60 days
Upgrades	• Automatic firmware upgrades

Web and Mobile Device Support	
Customer site	• mysunpower.com
Partner site	• monitor.sunpower.com
Browsers	• Firefox, Safari, and Chrome
Mobile devices	• iPhone®, iPad®, and Android™
Customer app	1 Create account online at mysunpower.com 2 On a mobile device, download the SunPower Monitoring app from Apple App Store or Google Play™ Store 3 Sign in using account email and password

CLASSIFIED UL

SUNPOWER®

530536 Rev D