



## HISTORIC PRESERVATION COMMISSION

**Marc Elrich**  
*County Executive*

**Karen Burditt**  
*Chair*

Date: January 24, 2025

### **MEMORANDUM**

TO: Rabbiah Sabbakhan  
Department of Permitting Services

FROM: Laura DiPasquale  
Historic Preservation Section  
Maryland-National Capital Park & Planning Commission

SUBJECT: Historic Area Work Permit #1096389 – Solar panel installation

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The Montgomery County Historic Preservation Commission (HPC) has reviewed the attached application for a Historic Area Work Permit (HAWP). This application was **approved with one (1) condition** at the January 22, 2025 HPC meeting:

1. The front-facing panels must be centered on the dormer roof and shifted to the upper offset line limit, away from the front roof edge.

The HPC staff has reviewed and stamped the attached submission materials.

THE BUILDING PERMIT FOR THIS PROJECT SHALL BE ISSUED CONDITIONAL UPON ADHERENCE TO THE ABOVE APPROVED HAWP CONDITIONS AND MAY REQUIRE APPROVAL BY DPS OR ANOTHER LOCAL OFFICE BEFORE WORK CAN BEGIN.

Applicant: Michael Blunski; Lumina Solar Services, Agent  
Address: 7300 Maple Avenue, Takoma Park

This HAWP approval is subject to the general condition that the applicant will obtain all other applicable Montgomery County or local government agency permits. After the issuance of these permits, the applicant must contact this Historic Preservation Office if any changes to the approved plan are made. Once work is complete, the applicant will contact Laura DiPasquale at 301-495-2167 or [laura.dipasquale@montgomeryplanning.org](mailto:laura.dipasquale@montgomeryplanning.org) to schedule a follow-up site visit.





**APPLICATION FOR  
HISTORIC AREA WORK PERMIT**  
HISTORIC PRESERVATION COMMISSION  
301.563.3400

**FOR STAFF ONLY:**  
HAWP# 1096389  
DATE ASSIGNED \_\_\_\_\_

**APPLICANT:**

Name: Michael Blunschi  
Address: 7300 Maple Avenue  
Daytime Phone: 909-965-0654

E-mail: blunschi.michael@gmail.com  
City: Takoma Park Zip: 20912  
Tax Account No.: 01059818

**AGENT/CONTACT (if applicable):**

Name: Lumina Solar Services  
Address: 3600 Commerce Drive  
Daytime Phone: 4434253023

E-mail: permits@fusionss.net  
City: Baltimore Zip: 21227  
Contractor Registration No.: 30991

**LOCATION OF BUILDING/PREMISE:** MIHP # of Historic Property Takoma Park

Is the Property Located within an Historic District?  Yes/District Name Takoma Park  
 No/Individual Site Name \_\_\_\_\_

Is there an Historic Preservation/Land Trust/Environmental Easement on the Property? If YES, include a map of the easement, and documentation from the Easement Holder supporting this application.

Are other Planning and/or Hearing Examiner Approvals /Reviews Required as part of this Application? (Conditional Use, Variance, Record Plat, etc.?) If YES, include information on these reviews as supplemental information.

Building Number: 7300 Street: Maple Ave  
Town/City: TAKOMA PARK Nearest Cross Street: Tulip Ave  
Lot: P24 Block: 5 Subdivision: GILBERTS SUB Parcel: 0000

**TYPE OF WORK PROPOSED: See the checklist on Page 4 to verify that all supporting items for proposed work are submitted with this application. Incomplete Applications will not be accepted for review. Check all that apply:**

- |   |  |  |
|---|--|--|
| <input type="checkbox"/> New Construction   | <input type="checkbox"/> Deck/Porch          | <input type="checkbox"/> Shed/Garage/Accessory Structure |
| <input type="checkbox"/> Addition           | <input type="checkbox"/> Fence               | <input checked="" type="checkbox"/> Solar                |
| <input type="checkbox"/> Demolition         | <input type="checkbox"/> Hardscape/Landscape | <input type="checkbox"/> Tree removal/planting           |
| <input type="checkbox"/> Grading/Excavation | <input type="checkbox"/> Roof                | <input type="checkbox"/> Window/Door                     |
|   |  | <input type="checkbox"/> Other: _____                    |

I hereby certify that I have the authority to make the foregoing application, that the application is correct and accurate and that the construction will comply with plans reviewed and approved by all necessary agencies and hereby acknowledge and accept this to be a condition for the issuance of this permit.

Ola Carew *Ola Carew* 12/19/2024  
Signature of owner or authorized agent Date

**Description of Property:** Please describe the building and surrounding environment. Include information on significant structures, landscape features, or other significant features of the property:

Home and roof are both in great shape.

**Description of Work Proposed:** Please give an overview of the work to be undertaken:

Install (25) Roof Mounted Solar Panels . 6 Panels will be installed on the front facing roof. 19 Solar Panels will be installed on the rear facing roof.

**REVIEWED**

*By Laura DiPasquale at 3:53 pm, Jan 24, 2025*

APPROVED

Montgomery County

Historic Preservation Commission

*Karen Benoit*

# SOLAR PV SYSTEM: 10.5 kWp

## BLUNSCHI RESIDENCE

7300 MAPLE AVENUE, TAKOMA PARK, MD, 20912

### PROJECT INFORMATION

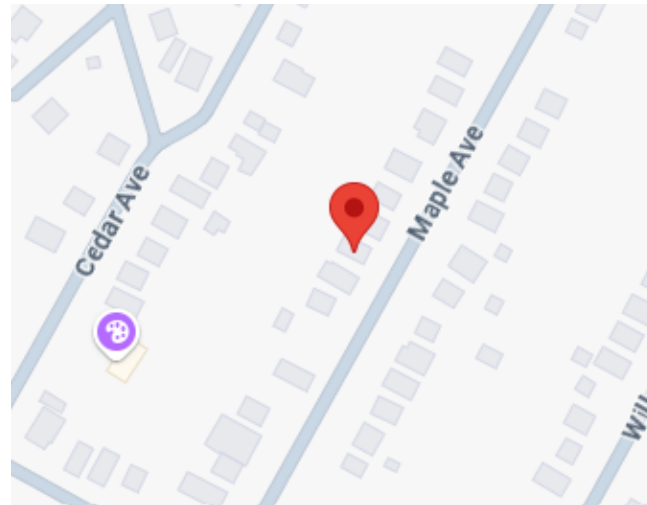
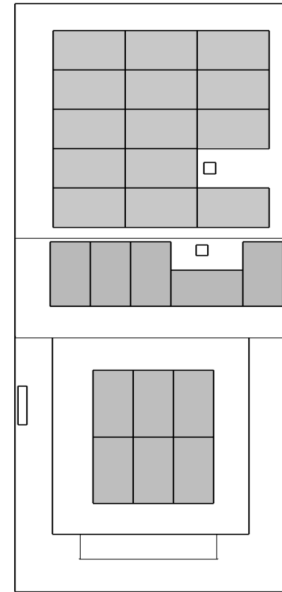
**OWNER:** MICHAEL BLUNSCHI  
**ADDRESS:** 7300 MAPLE AVENUE, TAKOMA PARK, MD, 20912

**AHJ:** MONTGOMERY COUNTY (MD)  
**ADDRESS:** 2425 REEDIE DRIVE SILVER SPRING, MARYLAND 20902

**ZONING:** RESIDENTIAL  
**BUILDING CODE:** IBC 2018  
**ELECTRICAL CODE:** NEC 2017  
**ASCE VERSION:** ASCE 7-16

**SNOW LOAD:** 35 PSF  
**WIND SPEED:** 115 MPH  
**WIND EXPOSURE:** B

**DC RATING:** 10.5 kW  
**AC RATING:** 8.125 kW  
**RACKING:** UNIRAC SM LIGHT RAIL  
**MODULE:** (25) REC420AA PURE 2  
**INVERTER:** (25) IQ8M-72-2-US



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APPROVED

Montgomery County

Historic Preservation Commission

*Karen Buelit*

FOR PERMITTING USE ONLY

WORKSITE ADDRESS:

MICHAEL BLUNSCHI  
 7300 MAPLE AVENUE,  
 TAKOMA PARK, MD, 20912

### PROJECT SCOPE

THIS PROJECT INVOLVES THE INSTALLATION OF (25) REC420AA PURE 2 SOLAR MODULES. THE SOLAR MODULES WILL BE RACKED USING A PRE-ENGINEERED RACKING SYSTEM. THE RACKED MODULES WILL BE ELECTRICALLY CONNECTED TO (25) IQ8M-72-2-US DC TO AC POWER INVERTERS, AND INTERCONNECTED TO THE LOCAL UTILITY USING MEANS AND METHODS CONSISTENT WITH THE RULES ENFORCED BY THE LOCAL UTILITY AND PERMITTING JURISDICTION.

### INDEX OF PAGES

Z001	COVER PAGE
A001	ATTACHMENT & SITE PLAN
S001	ASSEMBLY & LOAD CALCS
S002	ASSEMBLY & LOAD CALCS
E001	3-LINE DIAGRAM
E002	3-LINE TABLES
E003	WIRE CALCS
E004	CIRCUIT & CONDUIT MAP
E005	EQUIPMENT RATINGS & SIGNAGE

### CONTRACTOR INFO:



LUMINA  
 3600 COMMERCE DR  
 SUITE 601  
 BALTIMORE, MD 21227  
 (443) 955-0779

### LICENSE NUMBER:

MHIC-30991

REV	DATE
IFC	01-23

COVER

Z001

### GENERAL NOTES

1) THIS PHOTOVOLTAIC (PV) SYSTEM SHALL COMPLY WITH THE NATIONAL ELECTRIC CODE (NEC) ARTICLE 690, ALL MANUFACTURERS'S LISTING AND INSTALLATION INSTRUCTIONS, AND THE RELEVANT CODES AS SPECIFIED BY THE AUTHORITY HAVING JURISDICTION (AHJ).

2) ALL SIGNAGE TO BE PLACED IN ACCORDANCE WITH LOCAL BUILDING CODE AND AS REQUIRED BY THE NEC AND AHJ.

3) PV SYSTEM CIRCUITS INSTALLED ON OR IN BUILDINGS SHALL INCLUDE A RAPID SHUTDOWN FUNCTION TO REDUCE SHOCK HAZARD FOR EMERGENCY RESPONDERS

4) THIS SYSTEM IS A UTILITY INTERACTIVE SYSTEM, AND THE PV MODULES ARE CONSIDERED NON-COMBUSTIBLE.



David C. Hernandez, PE  
 Digital Sign Date: 01/24/2024

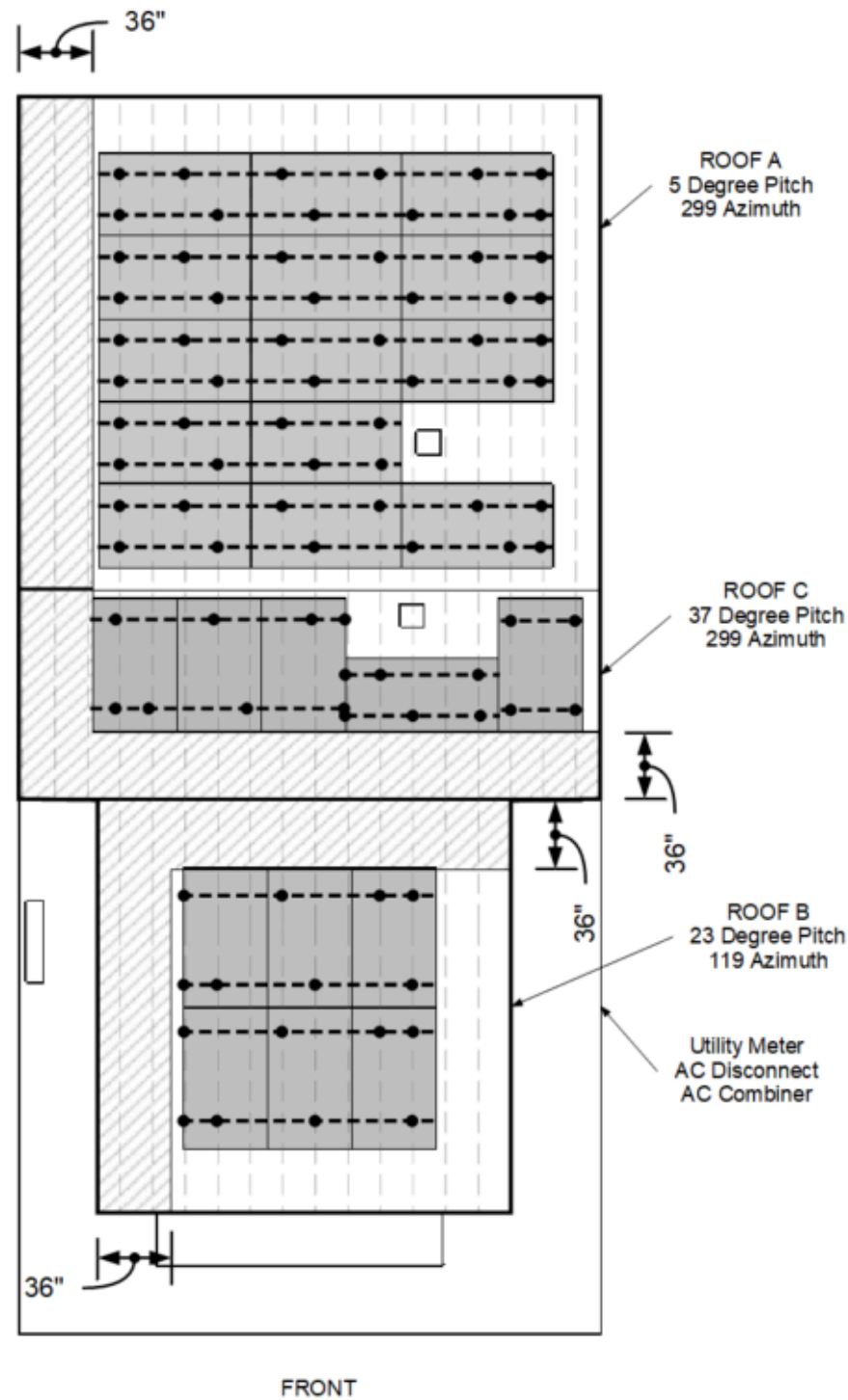
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ATTACHMENT  
PLAN

**A001**

NOTE: DRAWING IS NOT TO SCALE. ATTACHMENT SPAN REQUIREMENTS SHOULD BE DERIVED FROM DETAILS LISTED ON PAGES S001-S003



**INSTALLATION NOTES**

- 1) ALL SOLAR MODULES SUPPORTED BY ROOF ATTACHMENTS STAGGERED AT 48 IN O.C. (OR AS LISTED ON THE ASSEMBLY DETAILS PAGE(S))
- 2) SOLAR PHOTOVOLTAIC SYSTEM INSTALLED PARALLEL TO ROOF SURFACE
- 3) SOLAR PHOTOVOLTAIC SYSTEM INSTALLED AT A MAXIMUM HEIGHT OF 6 IN ABOVE ROOF SURFACE (OR AS INDICATED)
- 4) ANY ROOFING PENETRATIONS SHALL HAVE PROPER FLASHING SEALANT USED TO PROVIDE WATERTIGHT ASSEMBLY

5) RT-MINI II ATTACHMENTS TO DECKING MAY BE USED AT RAIL ENDS (OR AS NEEDED) TO COMPLY WITH CANTILEVER REQUIREMENTS AND TO KEEP ATTACHMENTS UNDER THE ARRAY. SEE 'SUPPLEMENTARY MOUNTING SYSTEM PROPERTIES' ON [S001]/[S002]

TOTAL ROOF PLAN AREA =	1298.00	SQ.FT
TOTAL SOLAR ARRAY AREA =	521.19	SQ.FT.
ARRAY ROOF COVERAGE =	41.00	%

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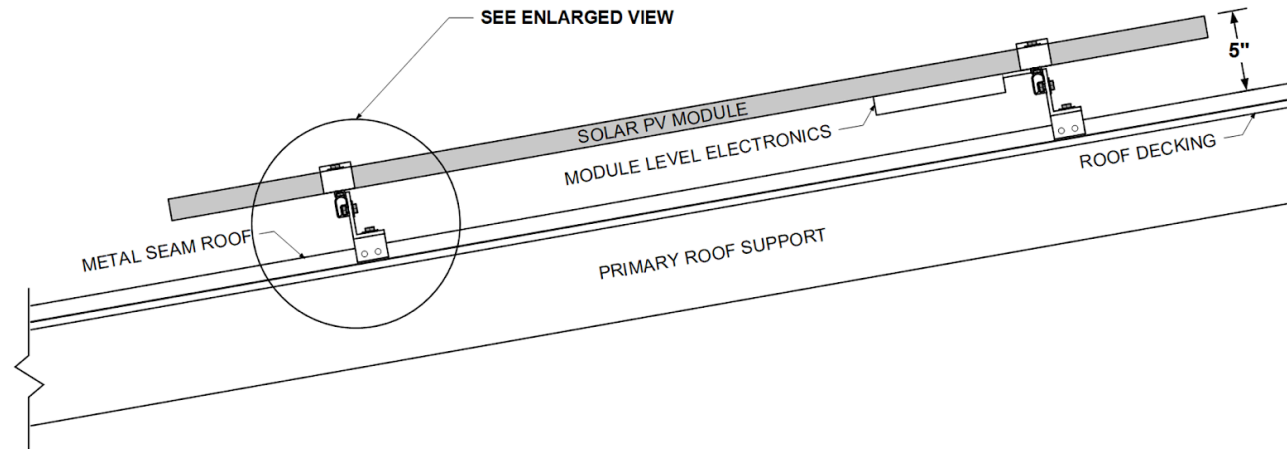
**ROOF PROPERTIES**

<b>ROOF LABEL</b>	<b>A</b>	<b>B</b>	<b>C</b>
<b># OF MODULES</b>	14	6	5
<b>MATERIAL</b>	Stand Seam Metal	Architect. Shingle	Architect. Shingle
<b>PITCH (DEG.)</b>	5	23	37
<b>AZIMUTH (DEG.)</b>	299	119	299
<b>SPAN (FT)</b>	17	15	8
<b>MEAN HEIGHT (FT)</b>	15	25	25
<b>PRIMARY SUPPORT</b>	2x6 Rafter	2x6 Rafter	2x6 Rafter
<b>SUPPORT SPACING (IN)</b>	16	16	16
<b>STANDOFF</b>	S5! Clamp	Quickbolt	Quickbolt
<b>RACKING</b>	UniracSM	UniracSM	UniracSM
<b>MODULE WEIGHT (LBS)</b>	666.4	285.6	238
<b>M.L.E. WEIGHT (LBS)</b>	33.32	14.28	11.90
<b>RACKING WEIGHT (LBS)</b>	138.73	59.45	49.55
<b>STANDOFF WEIGHT (LBS)</b>	21.00	9.00	7.50
<b>ARRAY AREA (SQ.FT.)</b>	291.87	125.09	104.24
<b>DISTRIB. LOAD (PSF)</b>	2.94	2.94	2.94
<b>APPROX. # OF STANDOFFS</b>	35	15	13
<b>POINT LOAD (LBS)</b>	24.56	24.56	23.61

**DEAD & POINT LOAD CALCULATIONS**

**REVIEWED**

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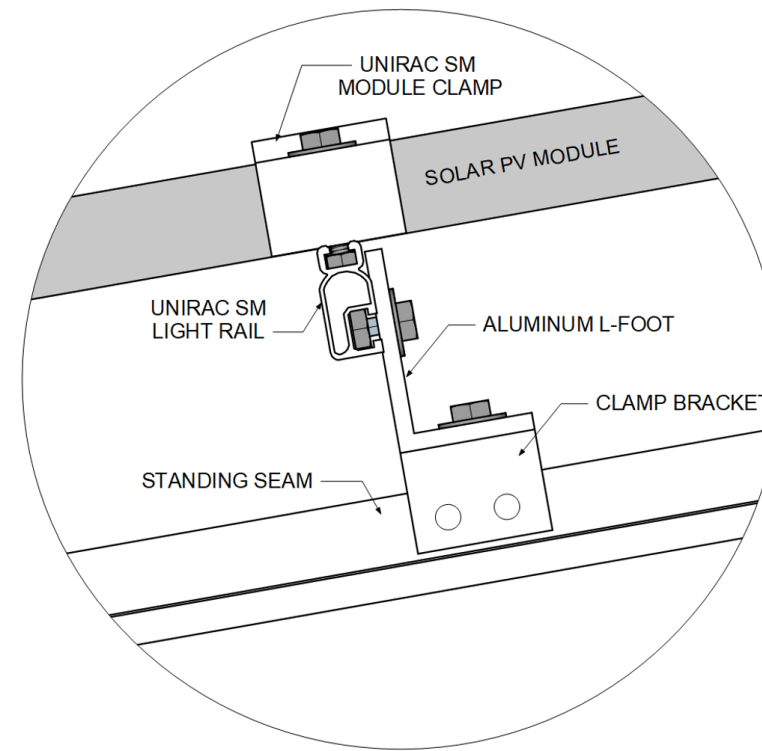
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**LOAD CALCS & ASSEMBLY DETAILS**

**S001**



**INSTALLATION NOTES**

- 1) ALL RACKING SHALL BE INSTALLED PER MANUFACTURER SPECIFICATIONS
- 2) M.L.E.'S = MODULE LEVEL ELECTRONICS (IE, POWER OPTIMIZERS, MICRO-INVERTERS, CABLES, ETC)
- 3) TIGHTEN THE SETSCREW TO THE SPECIFIED TORQUE USING A SCREW GUN AND THE INCLUDED SCREW GUN BIT TIP. THE SETSCREW WILL DIMPLE THE SEAM MATERIAL BUT WILL NOT PENETRATE IT.

**PRIMARY MOUNTING SYSTEM PROPERTIES**

RACKING	Unirac SM Light Rail
STANDOFF	S5! Clamp to Seam
MAX RAIL SPAN (IN)	45
MIN FASTENER DEPTH (IN)	N/A
MAX RAIL CANTILEVER (in)	15
MAX ARRAY HEIGHT (IN)	6



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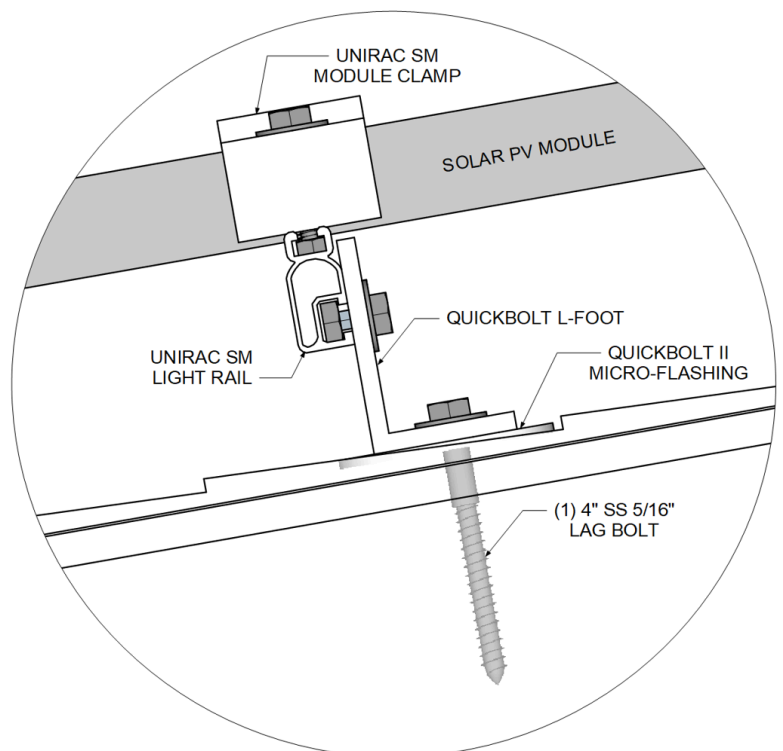
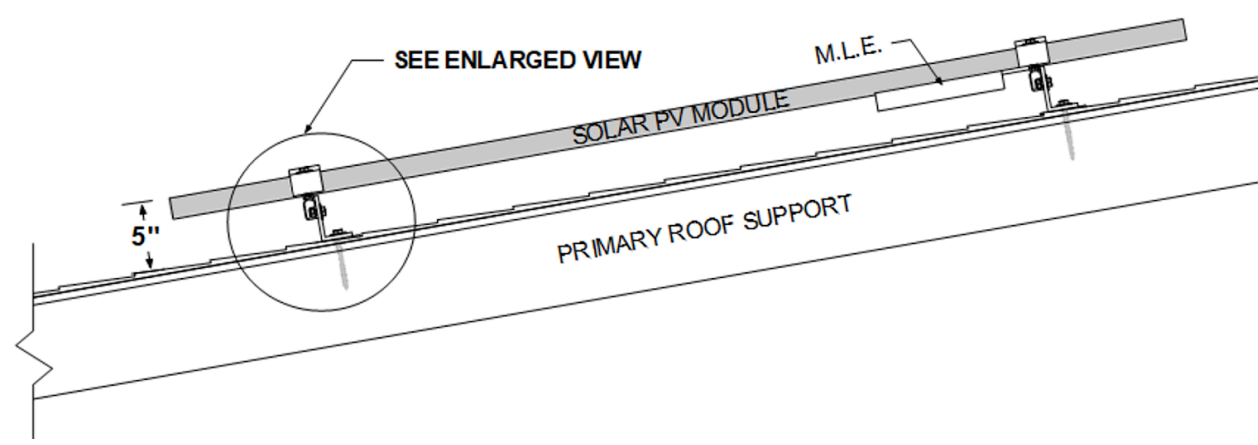
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MATERIAL	Stand Seam Metal	Architect. Shingle	Architect. Shingle
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AZIMUTH (DEG.)	299	119	299
SPAN (FT)	17	15	8
MEAN HEIGHT (FT)	15	25	25
PRIMARY SUPPORT	2x6 Rafter	2x6 Rafter	2x6 Rafter
SUPPORT SPACING (IN)	16	16	16
STANDOFF	S5! Clamp	Quickbolt	Quickbolt
RACKING	UniracSM	UniracSM	UniracSM
MODULE WEIGHT (LBS)	666.4	285.6	238
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**DEAD & POINT LOAD CALCULATIONS**

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**LOAD CALCS & ASSEMBLY DETAILS**

**S002**

**INSTALLATION NOTES**

- ALL RACKING SHALL BE INSTALLED PER MANUFACTURER SPECIFICATIONS
- M.L.E.'S = MODULE LEVEL ELECTRONICS (IE, POWER OPTIMIZERS, MICRO-INVERTERS, CABLES, ETC)
- USE 5/16" X 4" HEX HEAD STAINLESS STEEL LAG SCREWS



**PRIMARY MOUNTING SYSTEM PROPERTIES**

PROPERTY	VALUE
RACKING	Unirac SM Light Rail
STANDOFF	Quickbolt to Primary Support
MAX RAIL SPAN (IN)	48
MIN FASTENER DEPTH (IN)	2.5
MAX RAIL CANTILEVER (in)	16.00
MAX ARRAY HEIGHT (IN)	6

**SUPPLEMENTARY MOUNTING SYSTEM PROPERTIES**

PROPERTY	VALUE
RACKING	Unirac SM Light Rail
STANDOFF	RT-Mini (5 Screws) to Decking/Purlin
MAX RAIL SPAN (in)	24
MIN. FASTENER DEPTH (in)	0.5
MAX RAIL CANTILEVER (in)	8
MAX ARRAY HEIGHT (in)	6

Note: The distance (span) from a deck-mounted Rt-Mini to adjacent attachments can not exceed 24" - even if those adjacent attachments are rafter/truss-mounted.

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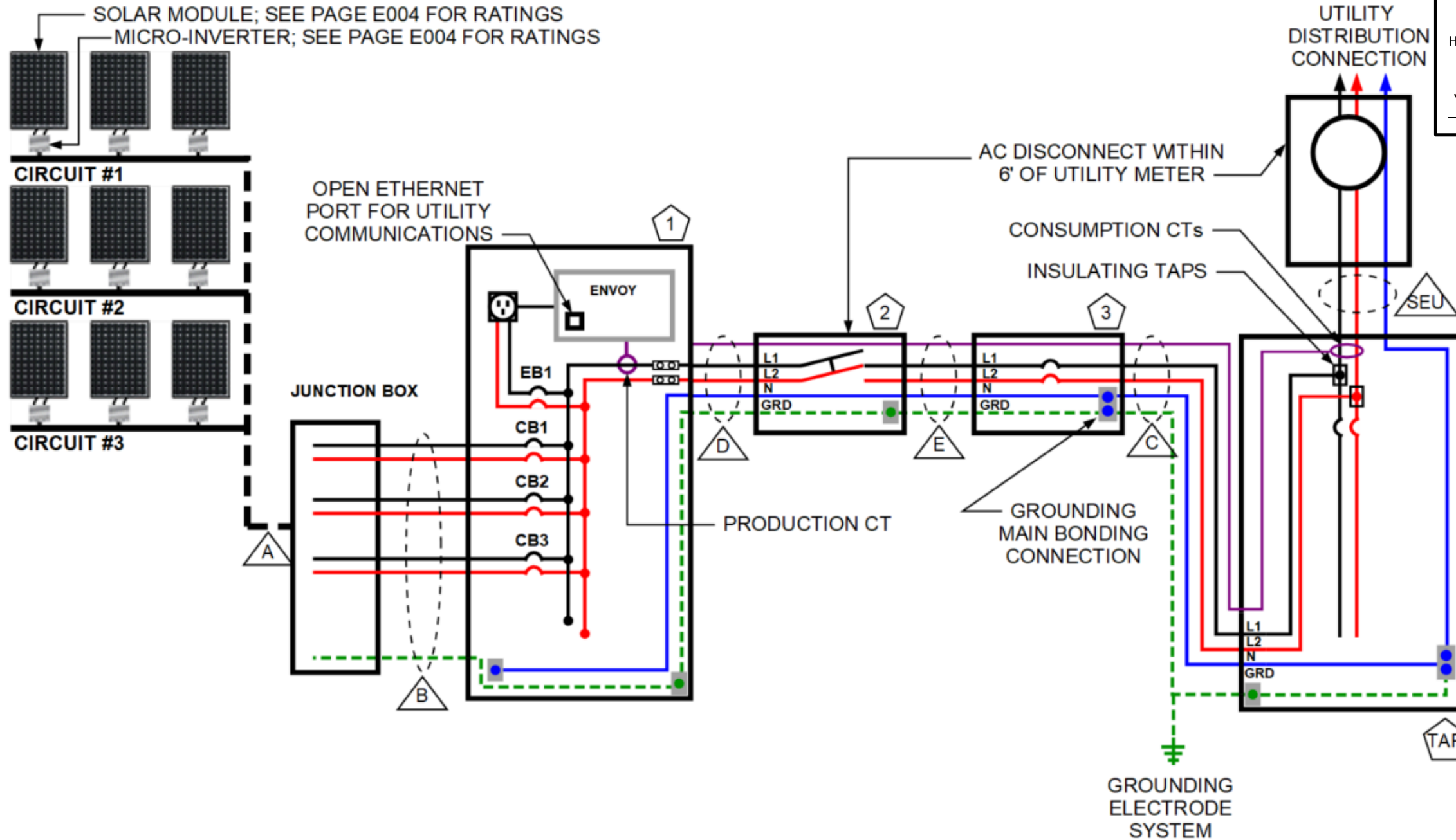
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3-LINE  
DIAGRAM

E001



**Enphase IQ8M Ratings**

Max # Per String:	11
I <sub>max</sub> (ac):	1.35 A
V <sub>max</sub> (dc):	60 V
P <sub>max</sub> :	325 W
Nom. AC Voltage:	240 V
OCPD:	20 A
Weight (Optimizer):	2.38 lbs
I <sub>max</sub> (Input):	20 A
P <sub>max</sub> (dc) Input:	460 W
P <sub>peak</sub> (AC):	330 W

**NOTES**

- 1) WHEN THE AC UTILITY SOURCE IS REMOVED FROM THE INVERTER OUTPUT CIRCUITS VIA ANY MEANS, SUCH AS AN AC BREAKER, AC DISCONNECT, OR REMOVAL OF THE SOLAR OR MAIN UTILITY SERVICE METER, THIS EQUIPMENT PERFORMS THE RAPID SHUTDOWN FUNCTION PER 690.12
- 2) ARRAY BONDED WITH #6 BARE Cu
- 3) TWO UNGROUNDED CONDUCTORS PER CIRCUIT OF INVERTERS (TYP)
- 4) ALL CONDUIT SIZING WILL BE IN ACCORDANCE TO THE NEC, CHAPTER 9
- 5) PVC OR LFMC MAY BE USED INSTEAD OF EMT CONDUIT
- 6) THE AC DISCONNECT IS LOCKABLE, TAGGABLE, 24/7 UTILITY ACCESSIBLE, LOAD BREAK CAPABLE, AND HAS VISIBLE BREAK.



**CONDUCTOR AND CONDUIT SCHEDULE**

TAG	WIRE SIZE (AWG)	GROUND SIZE (AWG)	WIRE TYPE	DESCRIPTION	CONDUIT SIZE (in)	CONDUIT TYPE	LENGTH (ft)
SEU	#4/0	N/A	SEU	AI (2) PHASE CONDUCTORS & (1) NEUTAL	N/A	N/A	5'
A	#12	#6	Q-Cable	Cu (2) PHASE CONDUCTORS & (1) BARE COPPER IN FREE AIR	N/A	N/A	77' MAX
B	#10	#8	THHN/THWN	Cu (6) PHASE CONDUCTORS & (1) GROUND	0.75	EMT	40
C	#6	#8	THHN/THWN	Cu (2) PHASE CONDUCTORS & (1) NEUTRAL & (1) GROUND	0.75	FMC	15
D	#8	#8	THHN/THWN	Cu (2) PHASE CONDUCTORS & (1) NEUTRAL & (1) GROUND	0.75	LFMC	5
E	#8	#8	THHN/THWN	Cu (2) PHASE CONDUCTORS & (1) NEUTRAL & (1) GROUND	0.75	LFMC	10

**CIRCUIT SCHEDULE**

CIRCUIT	INVERTER COUNT	AMPERAGE CALCULATION	BREAKER SIZE
		ENVOY BREAKER:	15 AMP (EB1)
#1	6	6 x 1.35 x 125% = 10.13 A	15 AMP (CB1)
#2	8	8 x 1.35 x 125% = 13.5 A	15 AMP (CB2)
#3	11	11 x 1.35 x 125% = 18.56 A	20 AMP (CB3)

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**EQUIPMENT SCHEDULE**

TAG	EQUIPMENT DETAILS	MOUNTING LOCATION
TAP	200 AMP SQUARE D HOM MAIN SERVICE PANEL WITH 200 AMP MAIN BREAKER (200 AMP SERVICE)	SURFACE MOUNTED ON WALL OPPOSITE UTILITY METER
1	ENPHASE COMBINER (MODEL #X-IQ-AM1-240-5) WITH CIRCUITS AS LISTED IN CIRCUIT SCHEDULE & 3-LINE DIAGRAM [E001]	MOUNTED ADJACENT TO UTILITY METER
2	SERVICE RATED 60A NON-FUSED DISCO (MODEL #DU222RB)	MOUNTED ADJACENT TO UTILITY METER
3	70A MBE (MODEL #SQDHOM24L70F) WITH 2-POLE, 45 AMP BREAKER	MOUNTED ADJACENT TO MAIN SERVICE PANEL

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3-LINE TABLES

**E002**

**NOTES**

CALCULATION FOR PV BREAKER					
SYSTEM CURRENT (Amps)	1.35	X	25	=	33.75
DESIGN CURRENT (Amps)	33.75	X	125%	=	42.19
BUSBAR RATING (120% RULE)	200	X	120%	=	240
EXISTING MAIN BREAKER				=	200
MAX SOLAR BREAKER (Amps)	240	-	200	=	40

ARRAY TO COMBINER	
Conductor Type	THHN/THWN
Conductor Material	COPPER
Largest Circuit Amperage	14.85
Qty. of Current-Carrying Conductors	6
Load Duty Multiplier	1.25
Ambient Temp Derate Factor	0.58
Qty. of Conductors Derate Factor	0.80
Minimum Required Terminal Ampacity	18.56
Minimum Required Conductor Ampacity	20
<b>Selected Conductor Size (AWG)</b>	<b>10</b>
<b>Selected Conductor Ampacity</b>	<b>30</b>
Ohms/MilFt	1.240
Length of Run (ft)	40
Voltage Drop	1.47
<b>Percent Voltage Drop</b>	<b>0.62%</b>

INTERCONNECTION (LINE SIDE TAP)	
Conductor Type	THHN/THWN
Conductor Material	COPPER
Largest Circuit Amperage	33.75
Qty. of Current-Carrying Conductors	3
Load Duty Multiplier	1.25
Ambient Temp Derate Factor	1.00
Qty. of Conductors Derate Factor	1.00
Minimum Required Terminal Ampacity	42.19
Minimum Required Conductor Ampacity	43
<b>Selected Conductor Size (AWG)</b>	<b>6</b>
<b>Selected Conductor Ampacity</b>	<b>65</b>
Ohms/MilFt	0.491
Length of Run (ft)	15
Voltage Drop	0.497
<b>Percent Voltage Drop</b>	<b>0.21%</b>

**REVIEWED**

By Laura DiPasquale at 3:54 pm, Jan 24, 2025

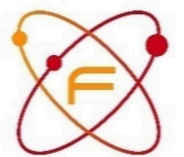
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**FUSION**  
 SOLAR SERVICES

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WIRE CALCS

**E003**

**NOTES**

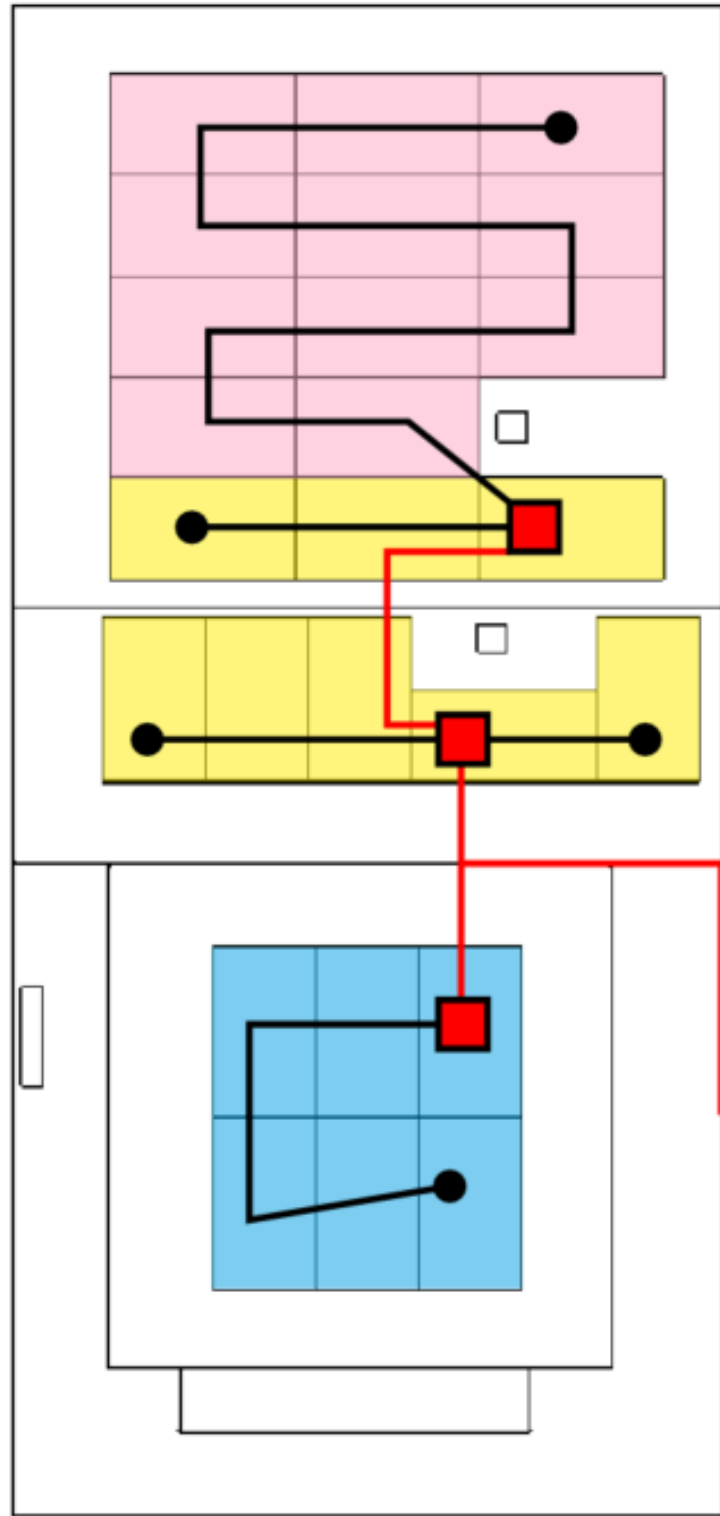
1) 1) ALL CONDUCTORS SHALL BE COPPER, RATED FOR 75°C AND WET ENVIRONMENT, UNLESS OTHERWISE NOTED.

3) MODULE GROUNDING CLIPS TO BE INSTALLED BETWEEN MODULE FRAME AND MODULE SUPPORT RAIL, PER MANUFACTURER'S INSTRUCTION.

2) ALL WIRE TERMINATIONS SHALL BE APPROPRIATELY LABELED AND READILY VISIBLE.

**DESIGN VARIABLES**

Ambient Indoor Temp (°C)	26-30
Ambient Outdoor Temp (°F)	94
Outdoor Temp Adder (°F)	40
Adjusted Outdoor Temp (°F)	134
Terminal Temp Rating (°C)	75



FRONT

Utility Meter  
AC Disconnect  
AC Combiner

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Color	Circuit	Mod. Count
Blue	#1	6
Yellow	#2	8
Pink	#3	11
Orange		
Purple		
Dark Blue		
Light Yellow		
Grey		
Dark Green		
Dark Blue		

CONTRACTOR INFO:



LUMINA  
3600 COMMERCE DR  
SUITE 601  
BALTIMORE, MD 21227  
(443) 955-0779

LICENSE NUMBER:

MHIC-30991

- LEGEND
- JUNCTION BOX
  - ⬠ SOLADECK
  - END CAP
  - EXTERIOR CONDUIT
  - ATTIC CONDUIT
  - INTERIOR CONDUIT
  - CRITTER GUARDS
  - TRUNK CABLE

REV	DATE
IFC	01-23

CIRCUIT &  
CONDUIT MAP

**E004**

**NOTES**  
CRITTER GUARDS ARE NOT A COMPONENT OF THIS INSTALLATION.

Solar Module Ratings	
REC420AA PURE 2	
Length:	73.4 in
Width:	40.9 in
Thickness:	1.2 in
Weight:	47.6 lbs
Imp:	9.96 A
Vmp:	42.2 V
Voc:	49.1 V
Isc:	10.74 A
OCPD:	25 A
Pmax:	420 W
Vmax:	1000 V
Temp. Coefficient:	-0.24 %Voc/°C
Square Footage:	20.85 sq.ft.

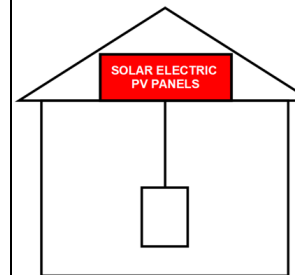
Inverter Ratings	
IQ8M-72-2-US	
Max # Per String:	11
I <sub>max</sub> (ac):	1.35 A
V <sub>max</sub> (dc):	60 V
P <sub>max</sub> :	325 W
Nom. AC Voltage:	240 V
OCPD:	20 A
Weight:	2.38 lbs
I <sub>max</sub> (Input):	20 A
P <sub>max</sub> (dc) Input:	460 W
P <sub>peak</sub> (AC):	330 W

- 1 **WARNING: PHOTOVOLTAIC POWER SOURCE**
- 2 PHOTOVOLTAIC DC DISCONNECT
- 3 PHOTOVOLTAIC AC DISCONNECT
- 4 PHOTOVOLTAIC SYSTEM EQUIPPED WITH RAPID SHUTDOWN
- 5 RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM
- 6 INTERACTIVE PHOTOVOLTAIC SYSTEM CONNECTED
- 7 **WARNING**  
DUAL POWER SOURCE. SECOND SOURCE IS PHOTOVOLTAIC SYSTEM.
- 8 **WARNING**  
INVERTER OUTPUT CONNECTION. DO NOT RELOCATE THIS OVERCURRENT DEVICE.

9 **WARNING**  
**ELECTRICAL SHOCK HAZARD**  
**DO NOT TOUCH TERMINALS! TERMINALS ON BOTH LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION!**

10 **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 ARRAY.



11 **SOLAR PV SYSTEM DISCONNECT**  
RATED AC OUTPUT CURRENT: 33.75 A  
NOM. OPERATING AC VOLTAGE: 240 V

12 **WARNING**  
**ELECTRICAL SHOCK HAZARD**  
**IF GROUND FAULT IS INDICATED, NORMALLY GROUNDED CONDUCTOR MAY BE UNGROUNDED AND ENERGIZED.**

13 **SOLAR PV LOADCENTER**  
10.5 kW DC SOLAR ARRAY  
240 VOLT AC SYSTEM

**INSTALLED COMPONENTS**  
(25) REC420AA PURE 2 Solar Modules  
(25) Enphase IQ8M Microinverters

**EMERGENCY CONTACT:**  
LUMINA SOLAR 800-971-6118

**CIRCUIT CALCULATIONS**

SYSTEM CURRENT:	1.35	x	25 =	33.75 A
DESIGN AMPERAGE:	33.75	x	125% =	42.19 A
CIRCUIT #1 =	6	x	1.35 =	8.1 A
CIRCUIT #2 =	8	x	1.35 =	10.8 A
CIRCUIT #3 =	11	x	1.35 =	14.85 A

**REVIEWED**  
By Laura DiPasquale at 3:54 pm, Jan 24, 2025

APPROVED  
Montgomery County  
Historic Preservation Commission  
*Karen Buelit*

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WORKSITE ADDRESS:

MICHAEL BLUNTSCHI  
7300 MAPLE AVENUE,  
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EQUIP. RATINGS & SIGNAGE

**E005**

- NOTES**
- 1) Label to be installed at exposed raceways, cabletrays, and other wiring methods; spaced at maximum 10ft sections or where separated by enclosures, walls, partitions, ceilings, or floors.
  - 2) Label to be installed at each DC disconnecting means.
  - 3) Label to be installed at each AC disconnecting means.
  - 4) Label to be installed at Rapid Shutdown Switch (RSD).
  - 5) Label to be installed on, or no more than 3ft from, the RSD.
  - 6) Label to be installed at utility meter.
  - 7) Label to be installed on exterior of main electrical panel.
  - 8) Label to be applied to the distribution equipment.
  - 9) Label to be applied at each disconnect means for the PV equipment.
  - 10) Label to be installed on, or no more than 3ft from, the service disco.
  - 11) Label to be installed at an accessible location at the disco means.
  - 12) Label to be applied at each disconnect means for the PV equipment.
  - 13) Label to be applied at the main PV combiner panel.
  - 14) All plaques and labels shall have a red background (or as shown here)
  - 15) All lettering shall be white & have a minimum height of 3/8" (or as shown here)
  - 16) Font shall be arial (or similar) and all lettering shall be capitalized.
  - 17) All plaques and labels shall be of a material suitable for the environment installed

PRODUCT	QTY
<b>Modules &amp; Inverters</b>	
REC420AA PURE 2	25
IQ8M-72-2-US	25
<b>Rails</b>	
14' Light Rail DRK (315168D)	10
20' Light Rail DRK (315240D)	8
<b>Racking, Attachments &amp; Related Items</b>	
Micro-Inverter Mounting Assembly (Bolt+Nut+Washer)	25
Enphase Terminator Cap	5
Enphase Seal Cap	2
Grounding Weeblug	10
TBRW-80 T-bolts + Nuts	91
Small Endclamps 30-32mm	40
Small Midclamps 30-36mm	30
QB II 3in + 5/16x4in SS Lag Bolt + 85mm L-Foot	34 ea.
EcoFasten L-102-3 L Foot Black	57
Enphase IQ Trunk Cable, Landscape	27
S-5-U Clamp	57

<b>Combiners, Disconnects, Enclosures</b>	
5x5x2 PVC Junction Box	3
Enphase Combiner (Model #X-IQ-AM1-240-5)	1
Service Rated 60A Non-Fused Disco (Model #DU222RB)	1
70A MBE (Model #SQDHOM24L70F)	1
<b>Miscellaneous &amp; Manual Additions</b>	
Lumina Salesperson Yard Sign	1
Enphase Consumption CTs	2

PRODUCT	QTY
<b>Breakers, Fuses, Taps</b>	
2 pole, 15 Amp Breaker (For Combiner; check 3-line for type)	2
2 pole, 20 Amp Breaker (For Combiner; check 3-line for type)	1
4/0-10 Insulating Taps	2
2-POLE, 45 AMP BREAKER	1

CONDUCTOR SCHEDULE									
SIZE (AWG)	THWN-2				XHHW-2				
	RED (FT)	BLACK (FT)	WHITE (FT)	GREEN (FT)	RED (FT)	BLACK (FT)	WHITE (FT)	GREEN (FT)	
10	45	45	45						
8	15	15	15	65					
6	5	5	5						
<b>#6 Bare Copper Ground</b>									65 FT
<b>#18 AWG Cu, 7 Strand (CT Wiring)</b>									30 FT

EMT/FMC CONDUIT & ENCLOSURE FITTINGS									
PRODUCT	SIZE (IN) & QUANTITY								
	0.5	0.75	1	1.25	1.5	2	2.5	3	
FMC (Greenfield) Straps		2							
Straight Connector - Squeeze Clamp with Locknut		4							
One-Hole Rigid Conduit Straps		22							
Rigid Conduit Compression Coupler		5							
EMT Compression Connector with Locknut & Rubber Gasket		15							
LB-Type EMT Conduit Body		1							
LL/LR-Type EMT Conduit Body		2							
Square D B-Hub		2							
EMT Grounding Locknut		10							
Exterior Conduit Roof Mount Assemblies (RTs, RT Screws (5 per) OR Metal Brackets for Metal Roofs OR Foam Blocks)									7
Strain Relief Cord Connector with Insulating Plastic Bushing									6

Please note that duplicate line items are not a mistake

**REVIEWED**  
By Laura DiPasquale at 3:54 pm, Jan 24, 2025

APPROVED  
Montgomery County  
Historic Preservation Commission  
*Karen Benoit*

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CONDUIT SCHEDULE					
SIZE (IN)	TYPE AND LENGTH (FT)				
	EMT	FMC	LFMC	Sch80PVC	Sch40PVC
0.75	45	5	15		

WORKSITE ADDRESS:

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SOLAR BOM

X001

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SERVICE BOM

X002

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**RAIL AND SPLICE QUANTITY COUNTING METHOD**

Module Count	PORTRAIT			LANDSCAPE		
	14' Rail	20' Rail	Splice	14' Rail	20' Rail	Splice
1	1			1		
2		1		2		
3	2				2	
4	1	1	1	4		2
5		2		2	2	2
6	2	1	2		4	2
7	1	2	2	2	3	4
8		3	2			
9	2	2	2			
10		4	2			
11		4	2			
12	2	3	4			

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REV	DATE
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IFC	01-23
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PROJECT NOTES

**X003**

**ROOF PROPERTIES**

Roof Label	A	B	C
Material	Stand Seam Metal	Architect. Shingle	Architect. Shingle
Pitch (deg)	5	23	37
Azimuth (deg)	299	119	299
Span (ft)	17	15	8
Mean Height (ft)	15	25	25
Primary Support	2x6 Rafter	2x6 Rafter	2x6 Rafter
Support Spacing (in)	16	16	16
Standoff	S5! Clamp	Quickbolt	Quickbolt
Racking	UniracSM	UniracSM	UniracSM

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**LEGEND**

- EXTERIOR CONDUIT
- ATTIC CONDUIT
- INTERIOR CONDUIT
- TRENCH

**PROJECT DETAILS:**  
**EQUIPMENT**  
(25) REC420AA PURE 2  
(25) IQ8M-72-2-US  
  
**SYSTEM SIZE:**  
DC RATING: 10.5 kW  
AC RATING: 8.125 kW  
  
**AHJ:**  
MONTGOMERY COUNTY (MD)

**WORKSITE ADDRESS:**  
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REV	DATE
PRELIM	01-23

**PRELIMINARY REPORT**  
**P001**

**ARRAY LAYOUT**

AS-SOLD SYSTEM SIZE: (25) MODULES  
CURRENT SYSTEM SIZE: (25) MODULES  
MAX COUNT POSSIBLE: (25) MODULES

**COMMENTS:**

S-5 CLAMPS ON ROOF A

**STRUCTURAL**

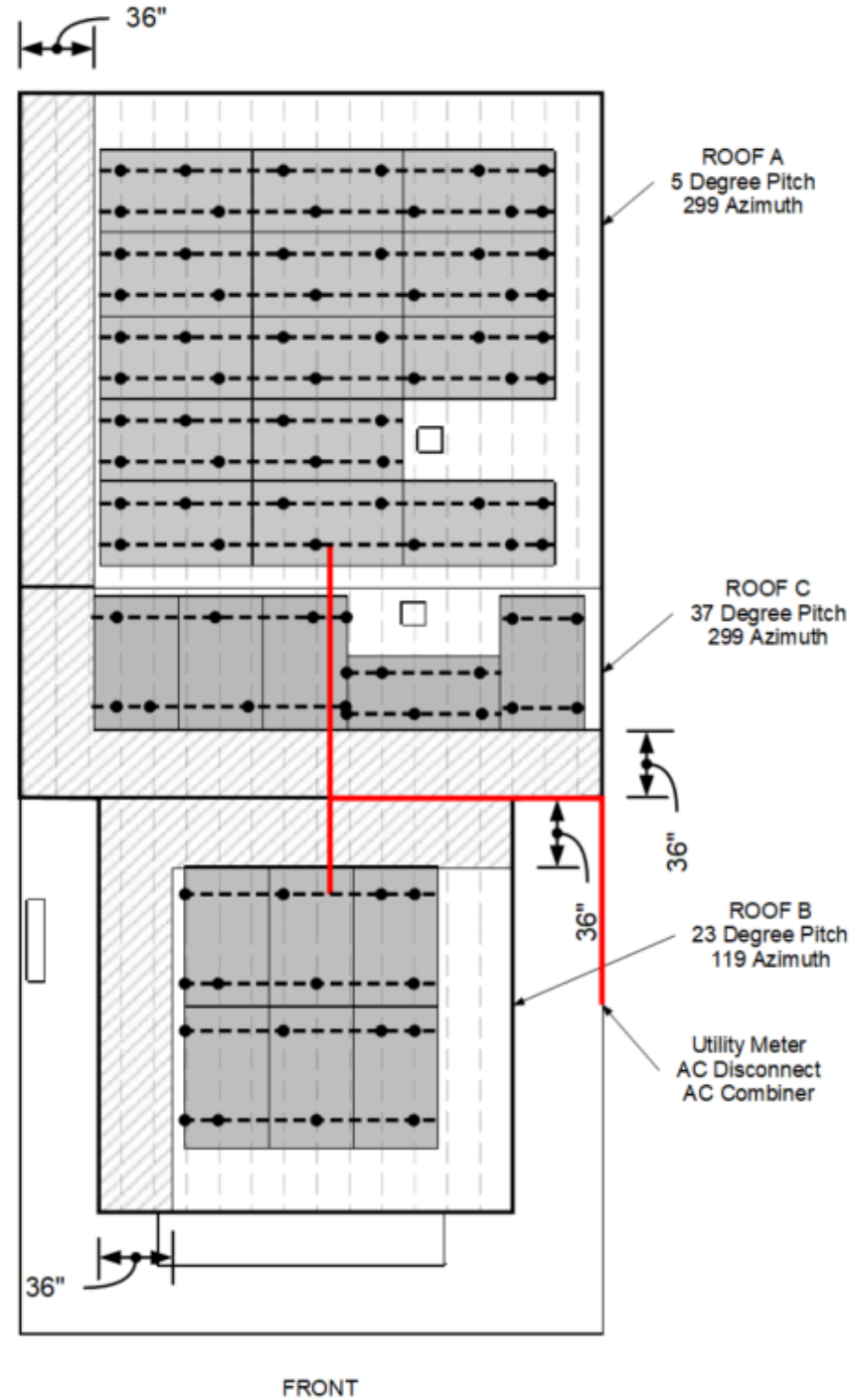
ROOF PLAN AREA: 1298 SQ.FT.  
SOLAR ARRAY AREA: 522 SQ.FT.  
ROOF COVERAGE: 41%

**COMMENTS:**

**ELECTRICAL**

SERVICE SIZE: 200 AMP  
TAP LOCATION: SQUARE D HOM MAIN SERVICE PANEL  
TAP TYPE: LINE SIDE TAP  
PV BREAKER: 45 AMP

**COMMENTS:**





SOLAR'S MOST TRUSTED



# REC ALPHA<sup>®</sup> PURE 2 SERIES PRODUCT SPECIFICATIONS

**REVIEWED**

*By Laura DiPasquale at 3:54 pm, Jan 24, 2025*

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COMPACT PANEL SIZE

420 WP

20.1  $\frac{W}{FT^2}$

21.7% EFFICIENCY



ELIGIBLE



LEAD-FREE  
ROHS COMPLIANT

EXPERIENCE



PERFORMANCE

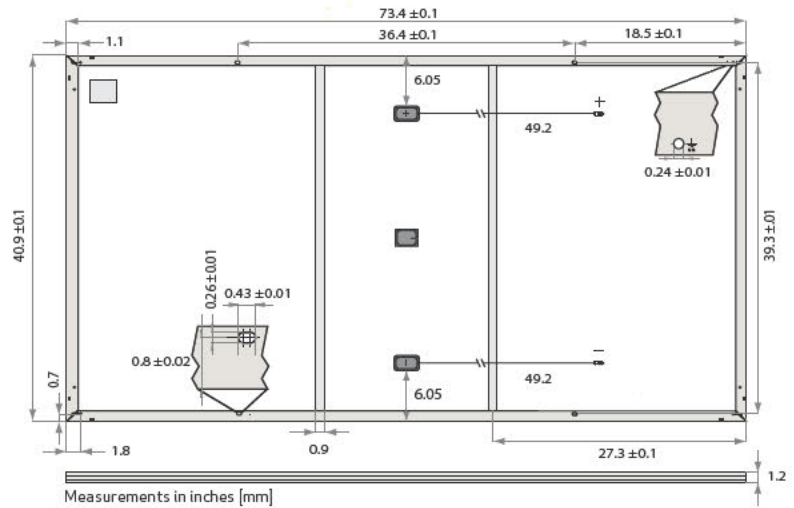
# REC ALPHA PURE 2 SERIES

## PRODUCT SPECIFICATIONS



### GENERAL DATA

Cell type:	132 half-cut REC heterojunction cells with lead-free, gapless technology, 6 strings of 22 cells in series
Glass:	0.12 in solar glass with anti-reflective surface treatment in accordance with EN 12150
Backsheet:	Highly resistant polymer (black)
Frame:	Anodized aluminum (black)
Junction box:	3-part, 3 bypass diodes, lead-free IP68 rated, in accordance with IEC 62790
Connectors:	Stäubli MC4 PV-KBT4/KST4 (12AWG) in accordance with IEC 62852, IP68 only when connected
Cable:	12 AWG solar cable, 49.2 + 49.2 in in accordance with EN 50618
Dimensions:	73.4 x 40.9 x 1.2 in (20.88 sq-ft)
Weight:	47.6 lbs (21.6 kg)
Origin:	Made in Singapore



### ELECTRICAL DATA

Product Code\*: RECxxxAA PURE 2

STC

Power Output - P <sub>MAX</sub> (Wp)	400	410	420	430
Watt Class Sorting - (W)	0/+10	0/+10	0/+10	0/+10
Nominal Power Voltage - V <sub>MPP</sub> (V)	41.1	41.6	42.2	42.8
Nominal Power Current - I <sub>MPP</sub> (A)	9.74	9.86	9.96	10.05
Open Circuit Voltage - V <sub>OC</sub> (V)	48.5	48.8	49.1	49.3
Short Circuit Current - I <sub>SC</sub> (A)	10.60	10.67	10.74	10.81
Power Density (W/ft <sup>2</sup> )	19.2	19.6	20.1	20.6
Panel Efficiency (%)	20.6	21.1	21.7	22.2

NMOT

Power Output - P <sub>MAX</sub> (Wp)	304	312	320	327
Nominal Power Voltage - V <sub>MPP</sub> (V)	38.7	39.2	39.8	40.3
Nominal Power Current - I <sub>MPP</sub> (A)	7.86	7.96	8.05	8.12
Open Circuit Voltage - V <sub>OC</sub> (V)	45.7	45.8	46.0	46.2
Short Circuit Current - I <sub>SC</sub> (A)	8.50	8.62	8.68	8.73

Values at standard test conditions (STC: air mass AM1.5, irradiance 1075 W/sq ft (1000 W/m<sup>2</sup>) temperature 77°F (25°C), based on a production spread with a tolerance of P<sub>MAX</sub>, V<sub>OC</sub> & I<sub>SC</sub> ±3% within one watt class. Nominal module operating temperature (NMOT: air mass AM1.5, irradiance 800 W/m<sup>2</sup>, temperature 68°F (20°C), windspeed 3.3 ft/s (1m/s). \* Where xxx indicates the nominal power class (P<sub>MAX</sub>) at STC above.

### MAXIMUM RATINGS

Operational temperature:	-40...+85°C
System voltage:	1000V
Test load (front):	+7000 Pa (146 lbs/ft <sup>2</sup> )*
Test load (rear):	-4000 Pa (83.5 lbs/ft <sup>2</sup> )*
Series fuse rating:	25 A
Reverse current:	25 A

\* See installation manual for mounting instructions. Design load = Test load / 1.5 (safety factor)

### WARRANTY

	Standard	REC ProTrust	
Installed by an REC Certified Solar Professional	No	Yes	Yes
System Size	All	<25 kW	25-500 kW
Product Warranty (yrs)	20	25	25
Power Warranty (yrs)	25	25	25
Labor Warranty (yrs)	0	25	10
Power in Year 1	98%	98%	98%
Annual Degradation	0.25%	0.25%	0.25%
Power in Year 25	92%	92%	92%

See warranty documents for details. Conditions apply

### CERTIFICATIONS

IEC 61215:2016, IEC 61730:2016, UL 61730	
IEC 62804	PID
IEC 61701	Salt Mist
IEC 62716	Ammonia Resistance
UL 61730	Fire Type 2
IEC 62782	Dynamic Mechanical Load
IEC 61215-2:2016	Hailstone (35mm)
IEC 62321	Lead-free acc. to RoHS EU 863/2015
ISO 14001, ISO 9001, IEC 45001, IEC 62941	



### TEMPERATURE RATINGS\*

Nominal Module Operating Temperature:	44°C (±2°C)
Temperature coefficient of P <sub>MAX</sub> :	-0.24 %/°C
Temperature coefficient of V <sub>OC</sub> :	-0.24 %/°C
Temperature coefficient of I <sub>SC</sub> :	0.04 %/°C

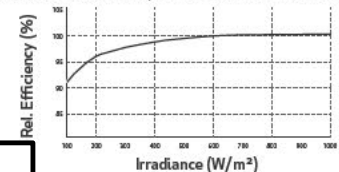
\* The temperature coefficients stated are linear values

### DELIVERY INFORMATION

Panels per pallet:	33
Panels per 40 ft GP/high cube container:	792 (24 pallets)
Panels per 53 ft truck:	858 (26 pallets)

### LOW LIGHT BEHAVIOUR

Typical low irradiance performance of module at STC:



Avail **REVIEWED**  
By Laura DiPasquale at 3:54 pm, Jan 24, 2025

APPROVED  
Montgomery County  
Historic Preservation Commission

*Karen Benoit*

Founded in 1996, REC Group is an international pioneering solar energy company dedicated to providing clean, affordable solar power. As Solar's Most Trusted, REC is committed to high quality solar panels with a low carbon footprint in the solar materials and solar panels it manufactures. Headquartered in Singapore, REC also has regional hubs in North America, Europe, and Asia-Pacific.

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Ref: PD-DS-AA PR Rev.1.4 08.23 Specifications subject to change without notice.