HISTORIC PRESERVATION COMMISSION

Marc Elrich
County Executive

Robert K. Sutton
Chairman

Date: February 23, 2023

MEMORANDUM

TO: Rabbiah Sabbakhan, DPS Director
Department of Permitting Services
FROM: Michael Kyne
Historic Preservation Section
Maryland-National Capital Park & Planning Commission
SUBJECT: Historic Area Work Permit #1019618: 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** at the February 22, 2023 HPC meeting.

The HPC staff has reviewed and stamped the attached construction drawings**.**

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: Julie Finegan (Zayn Bradley, Agent)
Address: 508 New York 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 Michael Kyne at 301.563.3403 or michael.kyne@montgomeryplanning.org to schedule a follow-up site visit.

FOR STAFF ONLY:

APPROVED

Montgomery County

Historic Preservation Commission

REVIEWED

By Michael Kyne at 3:56 pm, Feb 23, 2023

APPLICATION FO
HISTORIC AREA WOR
HISTORIC PRESERVATION COMMISSION
301.563.3400

APPLICANT:

Name: Julie Finegan E-mail: afinegan@live.com

Address: 508 New York Ave City: Takoma Park Zip: 20912

Daytime Phone: 504-232-5085 Tax Account No.: 01068744

AGENT/CONTACT (if applicable):

Name: Zayn Bradley E-mail: permitting@sustainableenergysystems.net

Address: 4509 Metropoltain Ct City: Frederick Zip: 21704

Daytime Phone: 301-569-2342 Contractor Registration No.: _____

LOCATION OF BUILDING/PREMISE: MIHP # of Historic Property_____

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: 508 Street: New York Avenue

Town/City: Takoma Park Nearest Cross Street: Highway 410

Lot: 16B Block: 74 Subdivision: 0025 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:

- ☐ New Construction
- ☐ Addition
- ☐ Demolition
- ☐ Grading/Excavation
- ☐ Deck/Porch
- ☐ Fence
- ☐ Hardscape/Landscape
- ☐ Roof
- ☐ Shed/Garage/Accessory Structure
- ☑ Solar
- ☐ Tree removal/planting
- ☐ Window/Door
- ☐ 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.

Signature of owner or authorized agent

1/25/2023

Date

REVIEWED
By Michael Kyne at 3:56 pm, Feb 23, 2023

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Montgomery County
Historic Preservation Commission

HAWP APPLICATION: MAILING ADD
[Owner, Owner's Agent, Adjacent and Confronting Property Owners]

Owner's mailing address	**Owner's Agent's** mailing address
508 new york ave takoma park MD 20912	4509 metropoltain ct frederick md 21704

Adjacent and confronting Property Owners mailing addresses

Sandra Ainsfield - 509 New york ave	Charle Lange - 507 new york ave
Edward Drozed - 510 new york ave	Taunton Paine - 505 new york ave
7426 Buffalo venue, Takoma Park 20912 511 New York Avenue, Takoma Park MD 20912	7427 Buffalo Avenue, Takoma Park MD 20912 515 New York Avenue, Takoma Park MD 20912

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

Amazing 2 bed 1 bath 864sqft corner lot cottage with vaulted ceilings w/ skylights, open floor plan, well maintained pine floors, bright, natural light pristine condition, white kitchen with breakfast bar, huge attic for storage. NEW AC UNIT and new grass and lattice fence on the back yard. Perfect location close to Takoma and Silver Spring MS.

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

Installing 14 Asphalt Roof Mounted Solar Panels - 5.670 kW

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By Michael Kyne at 3:56 pm, Feb 23, 2023

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Work Item 1: _____

Description of Current Condition:	Proposed Work:

Work Item 2: _____

Description of Current Condition:	Proposed Work:

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Montgomery County
Historic Preservation Commission

Work Item 3: _____

Description of Current Condition:	Proposed Work:

HISTORIC AREA WORK PERMIT
CHECKLIST OF
APPLICATION REQUIREMENTS

	Required Attachments						
Proposed Work	1. Written Description	2. Site Plan	3. Plans/ Elevations	4. Material Specifications	5. Photographs	6. Tree Survey	7. Property Owner Addresses
New Construction	*	*	*	*	*	*	*
Additions/ Alterations	*	*	*	*	*	*	*
Demolition	*	*	*		*		*
Deck/Porch	*	*	*	*	*	*	*
Fence/Wall	*	*	*	*	*	*	*
Driveway/ Parking Area	*	*		*	*	*	*
Grading/Excavation/Landscaing	*	*		*	*	*	*
Tree Removal	*	*		*	*	*	*
Siding/ Roof Changes	*	*	*	*	*		*
Window/ Door Changes	*	*	*	*	*		*
Masonry Repair/ Repoint	*	*	*	*	*		*
Signs	*	*	*	*	*		*

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Montgomery County
Historic Preservation Commission

Sustainable Energy Systems LLC
4509 Metropolitan Court Unit H
Frederick, MD 21704
(301) 788-4003

To whom it may concern:

The panels on the front elevation of 508 New York Ave must be placed there as it is the only other optimal location beyond the rear elevation.

The panels located on the rear of the home will not be able to support the energy usage of this household. The roof gable on the additional two roof planes does not allow enough room to install panels while following the proper building codes.

Additionally, this property does not have a detached structure to install panels nor does tree coverage allow for free standing panels.

Kind Regards,

Sustainable Energy Systems

REVIEWED
By Michael Kyne at 3:56 pm, Feb 23, 2023

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Montgomery County
Historic Preservation Commission

Aurora Shade Report

Customer
Julie Finegan

Address
508 New York Ave
Takoma Park, MD 20912,
USA

Designer
Rollie Belles

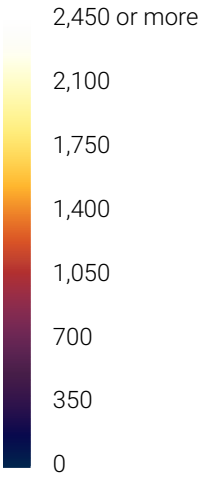
Coordinates
(38.983140, -77.019057)

Organization
Sustainable Energy Systems

Date
21 September 2022

Annual irradiance

kWh/m^2/year



Summary

Array	Panel Count	Azimuth (deg.)	Pitch (deg.)	Annual TOF (%)	Annual Solar Access (%)	Annual TSRF (%)
1	7	209	23	97	63	61
2	7	29	23	69	73	50
Weighted average by panel count	-	-	-	-	68	55.8

Monthly solar access (%) across arrays

Array	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	58	50	50	63	75	79	77	68	51	49	54	61
2	69	59	58	72	82	87	85	74	60	51	64	67

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By Michael Kyne at 3:56 pm, Feb 23, 2023

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Montgomery County
Historic Preservation Commission

Customer
Julie Finegan

Address
508 New York Ave
Takoma Park, MD 20912,
USA

Designer
Rollie Belles

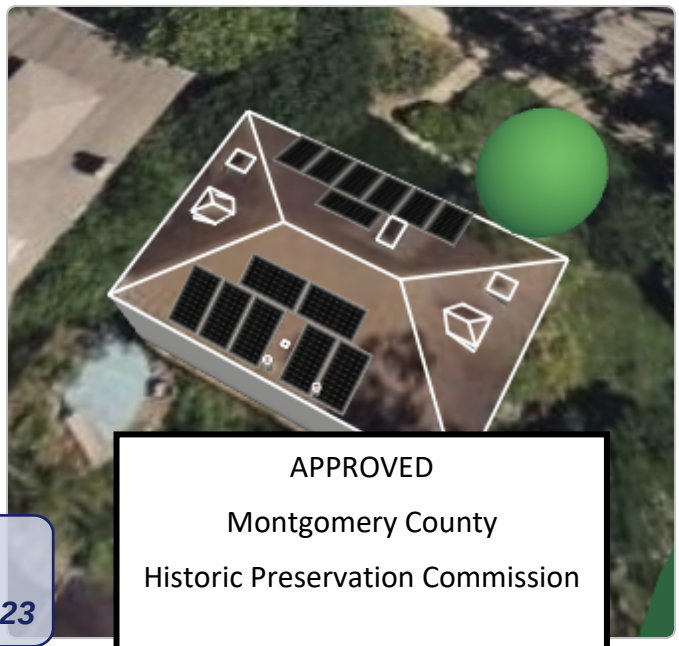
Coordinates
(38.983140, -77.019057)

Organization
Sustainable Energy Systems

Date
21 September 2022

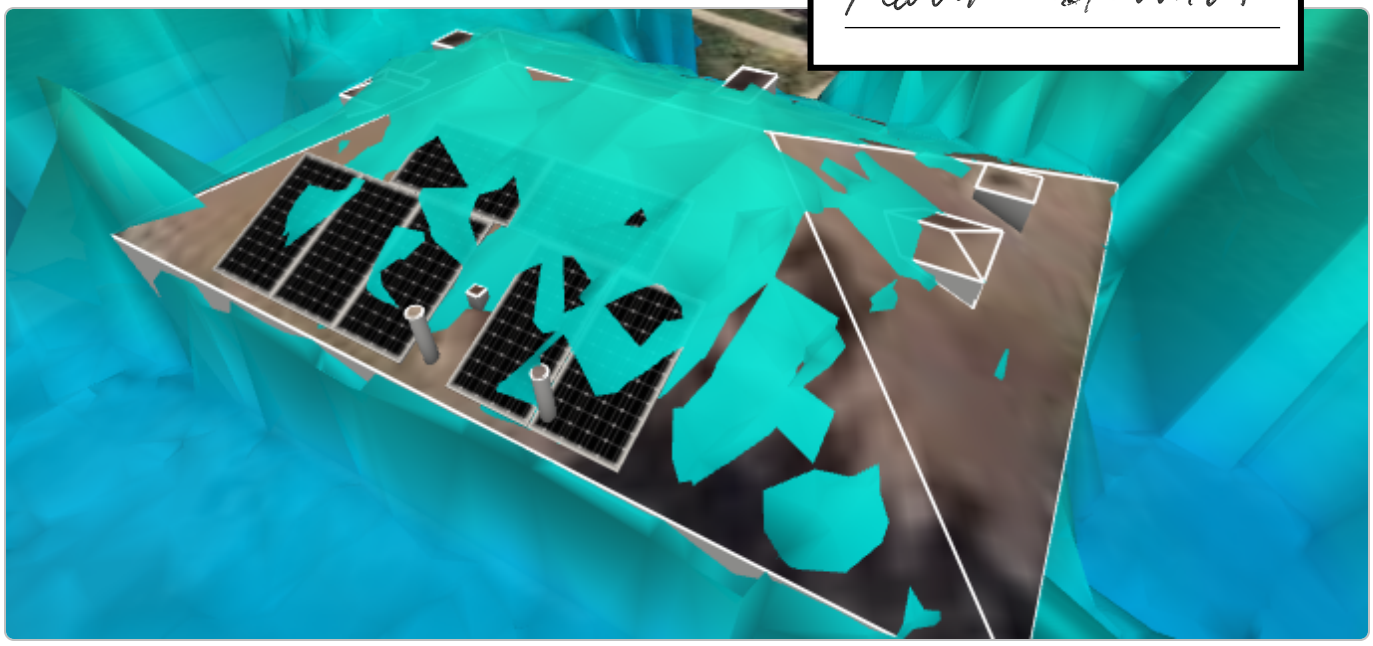
Zoomed out satellite view

3D model



3D model with LIDAR overlay

13 ft



Customer
Julie Finegan

Address
508 New York Ave
Takoma Park, MD 20912,
USA

Designer
Rollie Belles

Coordinates
(38.983140, -77.019057)

Organization
Sustainable Energy Systems

Date
21 September 2022

Street view and corresponding 3D model

I, **Rollie Belles**, certify that I have generated this shading report to the best of my abilities, and I believe its contents to be accurate.

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By Michael Kyne at 3:56 pm, Feb 23, 2023

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SOLAR PV PROJECT, FINEGAN, JULIE 5

508 New York Ave, Takoma Park, MD 20912

DRAWING INDEX	BOS DRAWINGS	MSP DRAWINGS

G000 COVER
Z001 SITE PLAN
S001 ARRAY LAYOUT
S002 SECTION
E001 ONE LINE
CUTSHEETS

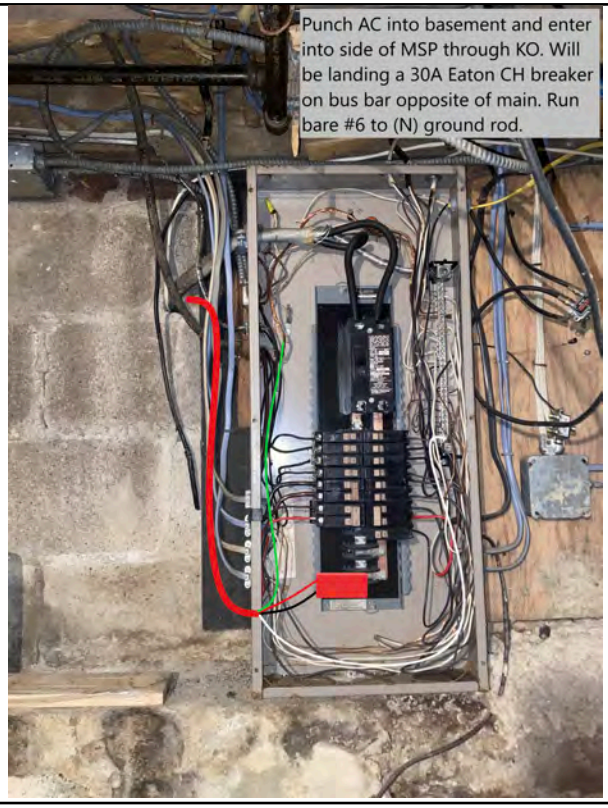
SCOPE OF WORK:
Installing 14 Asphault Roof Mounted Solar Panels - 5.670 kW

FINANCING:	Cash

Sales Person Contact:

SES TARA (240) 520-7058

APPROVED BY:



Julie Finegan 5.670 kW
508 New York Ave
Takoma Park, MD 20912
(504) 232-5085
jafinegan@live.com

Panels will be equal to or less than 6 inches from the roof to the face of the panel

N
E
W
S

New York Ave.

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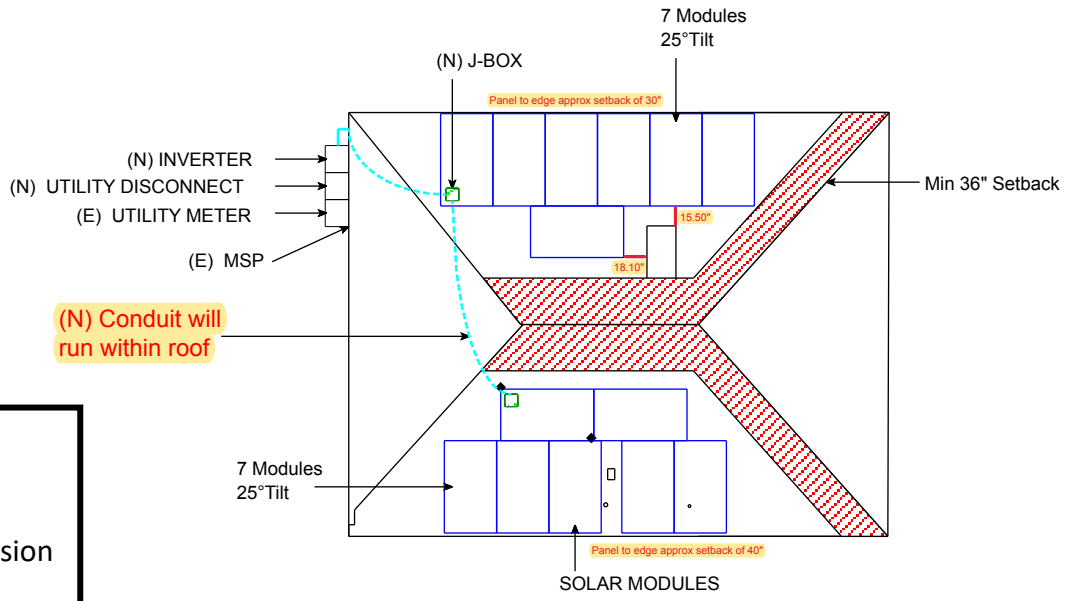
PANELS WILL BE FLUSHMOUNTED/
WILL FOLLOW SLOPE



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301-569-2342	4509 METROPOLITAN CT, FREDERICK, MD 21704	GP	001 SITE PLAN

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ARRAY LAYOUT

Roof 1 Specs:	Roof 2 Specs:
Modules : 7	Modules : 7
Pitch: 25°	Pitch: 25°
Azimuth: 209°	Azimuth:29°
Rafter Spacing: 16" O.C.	Rafter Spacing: 16" O.C.

STRUCTURAL NOTES:

1. MOUNTS ARE APPROXIMATE LOCATION BUT ACCURATELY SPACED
2. MOUNTS SHOULD BE STAGGERED WHEN POSSIBLE TO EVENLY DISTRIBUTE LOAD
3. DO NOT SPLICE RAILS IN MIDDLE 50% OF SPAN BETWEEN TWO MOUNTS
4. ON TRUSS ROOF SYSTEMS, KEEP ATTACHMENTS 6" MIN. FROM NAIL PLATES

PV MODULE SPECS:
REC 405 Watt
Module Weight: 45 lbs
Module Length: 71.7"
Module Width: 40"
Frame: 1.2" (30mm)

Inverter: (1) SolarEdge SE5000H
String 1- 14 modules

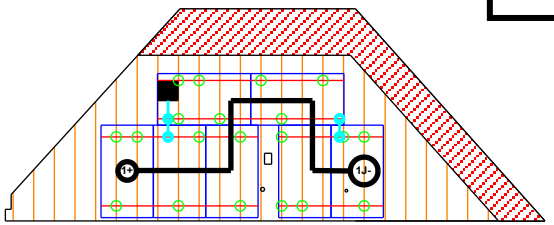
Racking: Everest

Optimizer: SolarEdge S440(1 per module)

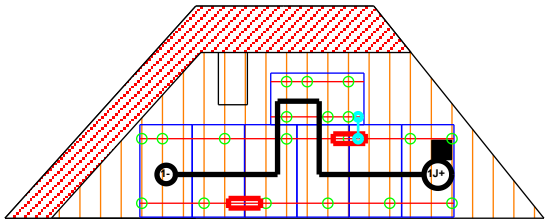
Mount: 20+19=39
# of Rails: 9
# of Mid Clips: 18
# of End Clips: 20
# of Splices: 2
# of Grounding Lugs: 6
J-Box: 2

String Homerun
String Jumper

ROOF 1:



ROOF 2:



Julie Finegan 5.670 kW
508 New York Ave
Takoma Park, MD 20912
(504) 232-5085
jafinegan@live.com

SUSTAINABLE ENERGY SYSTEMS, LLC	301-569-2342	4509 METROPOLITAN CT, FREDERICK, MD, 21704	GP	S001

Julie Finegan 5.670 kW
508 New York Ave
Takoma Park, MD, 20912
(504) 232-5085
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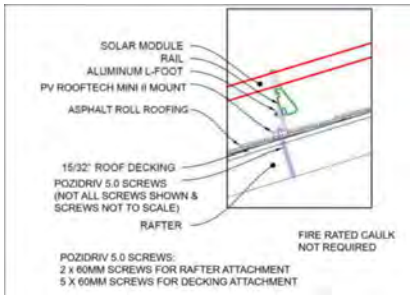
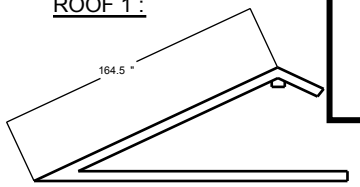
PV MODULE SPECS:
REC 405 watt
Module Weight: 45 lbs
Module Length: 71.7"
Module Width: 40"
Frame: 1.2" (30mm)



ROOF 1 :



ROOF 1 SPECS :
2 x 6 Top Chord
Rafter Spacing: 16"
Roof Material: Asphalt

ROOF 2 SPECS :
2 x 6 Top Chord
Rafter Spacing: 16"
Roof Material: Asphalt

ARRAY 1 SPECS :
Pitch: 25°
Azimuth: 209°
Of Modules: 7
Total Module Weight: 315 lbs
Racking Weight: 39.9 lbs
Array Weight: 354.9 lbs
Array Area: 139.3 sq.ft.
Array Dead Load: 2.5 lbs/sq.ft.
Number of Mounts: 20
Load Per Mount: 17.75 lbs

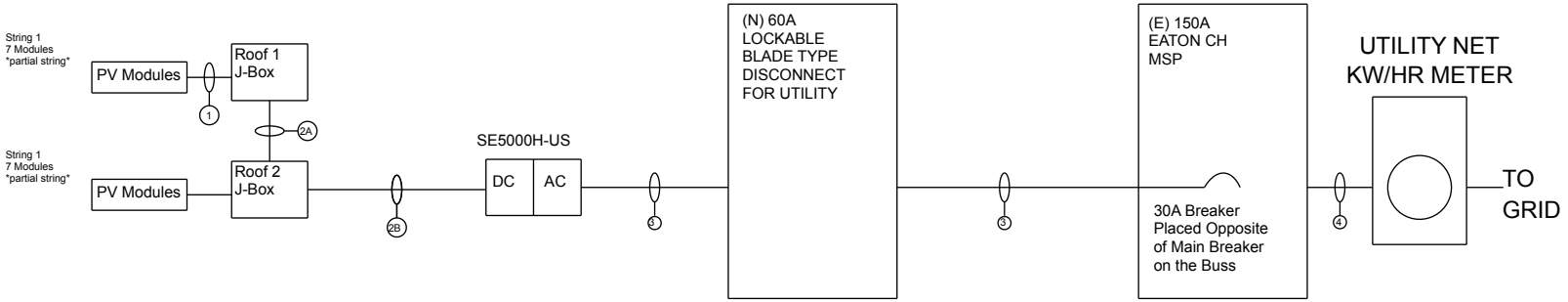
ARRAY 2 SPECS :
Pitch: 25°
Azimuth: 29°
Of Modules: 7
Total Module Weight: 315 lbs
Racking Weight: 39.9 lbs
Array Weight: 354.9 lbs
Array Area: 139.3 sq.ft.
Array Dead Load: 2.5 lbs/sq.ft.
Number of Mounts: 19
Load Per Mount: 18.68 lbs

Sustainable Energy Systems, LLC	301-569-2342	4509 METROPOLITAN CT, FREDERICK, MD, 21704	GP	S002 SECTION

REVIEWED

By Michael Kyne at 3:56 pm, Feb 23, 2023

PV MODULE SPECS	INVERTER 1 SPECS	AC OUTPUT
REC 405 watt Module Weight: 45 lbs Module Length: 71.7" Module Width: 40" Frame: 1.2" (30mm)	SOLAREDGE SE5000H-US OPERATING CURRENT (IMP): 13.5A OPERATINGVOLTAGE (VMP): 380VDC MAX SHORT CIRCUIT CURRENT (ISC): 30A MAX SYSTEM VOLTAGE (VOC): 480VDC STRINGS: 1&2 OCPD 30A	SYSTEM VOLTAGE: 240 VAC SYSTEM AMPERAGE: 21A



DC SOURCE CONDUCTORS - all conductors are Cu				AC SOURCE CONDUCTORS - all conductors are THHN/Cu *unless noted					
#	CONDUIT	CONDUCTOR	GROUND	#	CONDUIT	CONDUCTOR	NEUTRAL	GROUND	CT WIRE
1	NONE	(2) 10 AWG PV WIRE	(1) 8 AWG BARE	3	3/4" EMT	(2) 10 AWG (R,B)	(1) 10 AWG	(1) 8 AWG (G)	(4) 18 AWG (TP,BW)
2A	3/4"	(2) 10 AWG THHN (1Y, 1R)	(1) 8 AWG THHN						
2B	3/4"	(2) 10 AWG THHN (1B, 1R)	(1) 8 AWG THHN						
				4	(E) SEC	(2) 4/0 (R,B) Al	(1) 4/0 AWG Bare Al	NONE	NONE

SUSTAINABLE ENERGY SYSTEMS, LLC | 301-569-2342 | 4509 METROPOLITAN CT FREDERICK, MD 21

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Historic Preservation Commission

SOLAR'S MOST TRUSTED

REC

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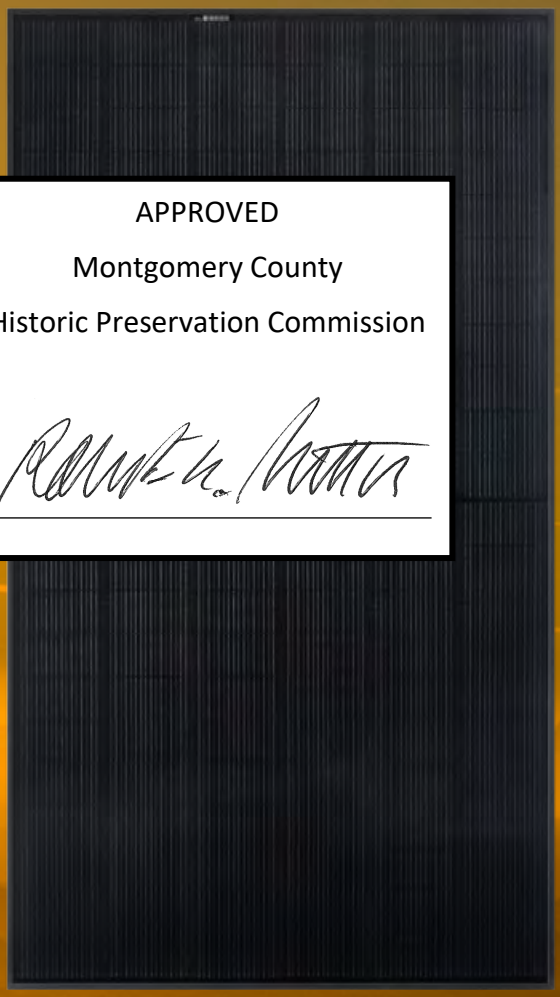


REC ALPHA® PURE SERIES

PRODUCT SPECIFICATIONS

405 WP
20.3 W/FT²

PRODUCT
REC 25 YEAR ProTrust WARRANTY
LABOR PERFORMANCE
ELIGIBLE

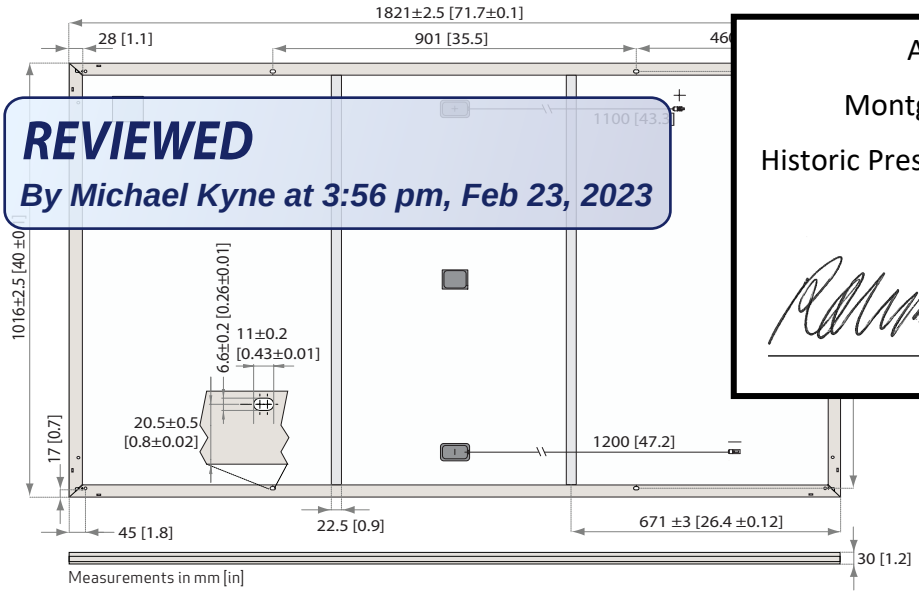
LEAD-FREE
ROHS COMPLIANT

EXPERIENCE
α
PERFORMANCE

REC
SOLAR'S MOST TRUSTED

PRODUCT SPECIFICATIONS

REC ALPHA PURE SERIES > PRODUCT SPECIFICATIONS



Measurements in mm [in]

REVIEWED
By Michael Kyne at 3:56 pm, Feb 23, 2023

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Montgomery County
Historic Preservation Commission

2016, UL 61730 (Pending)
15, OHSAS 18001:2007, IEC 62941

Intertek

	Standard	REC ProTrust	
	No	Yes	Yes
	All	≤25 kW	25-500 kW
	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

GENERAL DATA

Cell type:	132 half-cut REC heterojunction cells with lead-free, gapless technology 6 strings of 22 cells in series	Connectors:	Stäubli MC4 PV-KBT4/KST4, 12 AWG (4 mm²) in accordance with IEC 62852 IP68 only when connected
Glass:	0.13 in (3.2 mm) solar glass with anti-reflection surface treatment	Cable:	12 AWG (4 mm²) PV wire, 43+47 in (1.1+1.2 m) accordance with EN 50618
Backsheet:	Highly resistant polymer (black)	Dimensions:	71.7 x 40 x 1.2 in (1821 x 1016 x 30 mm)
Frame:	Anodized aluminum (black)	Weight:	45 lbs (20.5 kg)
Junction box:	3-part, 3 bypass diodes, IP68 rated in accordance with IEC 62790	Origin:	Made in Singapore

MAXIMUM RATINGS

Operational temperature:	-40 ... +185°F (-40 ... +85°C)
Maximum system voltage:	1000 V
Maximum test load (front):	+7000 Pa (146 lbs/sq ft)*
Maximum test load (rear):	-4000 Pa (83.5 lbs/sq ft)*
Max series fuse rating:	25 A
Max reverse current:	25 A

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

ELECTRICAL DATA

	Product Code*: RECxxxAA Pure				
STC					
Power Output - P_{MAX} (Wp)	385	390	395	400	405
Watt Class Sorting - (W)	0/+5	0/+5	0/+5	0/+5	0/+5
Nominal Power Voltage - V_{MPP} (V)	41.2	41.5	41.8	42.1	42.4
Nominal Power Current - I_{MPP} (A)	9.35	9.40	9.45	9.51	9.56
Open Circuit Voltage - V_{OC} (V)	48.5	48.6	48.7	48.8	48.9
Short Circuit Current - I_{SC} (A)	10.10	10.15	10.20	10.25	10.30
Power Density (W/sq ft)	19.3	19.6	19.8	20.1	20.3
Panel Efficiency (%)	20.8	21.1	21.3	21.6	21.9
NMOT					
Power Output - P_{MAX} (Wp)	293	297	301	305	309
Nominal Power Voltage - V_{MPP} (V)	38.8	39.1	39.4	39.7	40.0
Nominal Power Current - I_{MPP} (A)	7.55	7.59	7.63	7.68	7.72
Open Circuit Voltage - V_{OC} (V)	45.7	45.8	45.9	46.0	46.1
Short Circuit Current - I_{SC} (A)	8.16	8.20	8.24	8.28	8.32

Values at standard test conditions (STC: air mass AM 1.5, irradiance 10.75 W/sq ft (1000 W/m²), temperature 77°F (25°C), based on a production spread with a tolerance of P_{MAX}, V_{OC} & I_{SC} ±3% within one watt class. Nominal module operating temperature (NMOT: air mass AM 1.5, irradiance 800 W/m², temperature 68°F (20°C), windspeed 3.3 ft/s (1 m/s). * Where xxx indicates the nominal power class (P_{MAX}) at STC above.

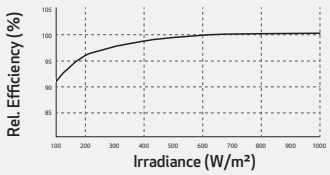
TEMPERATURE RATINGS*

Nominal Module Operating Temperature:	44°C (±2°C)
Temperature coefficient of P_{MAX}:	-0.26 %/°C
Temperature coefficient of V_{OC}:	-0.24 %/°C
Temperature coefficient of I_{SC}:	0.04 %/°C

*The temperature coefficients stated are linear values

LOW LIGHT BEHAVIOUR

Typical low irradiance performance of module at STC:



Specifications subject to change without notice.

Ref: PM-DS-12-01-Rev-A 03.21

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

REC
www.recgroup.com

Single Phase Inverter with HD-Wave Technology

for North America

SE3000H-US / SE3800H-US / SE5000H-US / SE6000H-US / SE7600H-US / SE10000H-US / SE11400H-US

INVERTERS

12-25 YEAR WARRANTY

Optimized installation with HD-Wave technology

- Specifically designed to work with power optimizers
- Record-breaking efficiency
- Quick and easy inverter commissioning directly from a smartphone using the SolarEdge SetApp
- Fixed voltage inverter for longer strings
- Integrated arc fault protection and rapid shutdown for NEC 2014 and 2017, per article 690.11 and 690.12
- UL1741 SA certified, for CPUC Rule 21 grid compliance
- Extremely small
- Built-in module-level monitoring
- Outdoor and indoor installation
- Optional: Revenue grade data, ANSI C12.20 Class 0.5 (0.5% accuracy)

solaredge

Single Phase Inverter with HD-Wave Technology for North America

SE3000H-US / SE3800H-US / SE5000H-US / SE6000H-US/ SE7600H-US / SE10000H-US / SE11400H-US

	SE3000H-US	SE3800H-US	SE5000H-US	SE6000H-US	SE7600H-US	SE10000H-US	SE11400H-US	
APPLICABLE TO INVERTERS WITH PART NUMBER	SEXXXXH-XXXXXBXX4							
OUTPUT								
Rated AC Power Output	3000	3800 @ 240V 3300 @ 208V	5000	6000 @ 240V 5000 @ 208V	7600	10000	11400 @ 240V 10000 @ 208V	VA
Maximum AC Power Output	3000	3800 @ 240V 3300 @ 208V	5000	6000 @ 240V 5000 @ 208V	7600	10000	11400 @ 240V 10000 @ 208V	VA
AC Output Voltage Min.-Nom.-Max. (211 - 240 - 264)	✓	✓	✓	✓	✓	✓	✓	Vac
AC Output Voltage Min.-Nom.-Max. (183 - 208 - 229)	-	✓	-	✓	-	-	✓	Vac
AC Frequency (Nominal)	59.3 - 60 - 60.5[1]							Hz
Maximum Continuous Output Current @240V	12.5	16	21	25	32	42	47.5	A
Maximum Continuous Output Current @208V	-	16	-	24	-	-	48.5	A
Power Factor	1, adjustable -0.85 to 0.85							
GFDI Threshold	1							A
Utility Monitoring, Islanding Protection, Country Configurable Thresholds	Yes							
INPUT								
Maximum DC Power @240V	4650	5900	7750	9300	11800	15500	17650	W
Maximum DC Power @208V	-	5100	-	7750	-	-	15500	W
Transformer-less, Ungrounded	Yes							
Maximum Input Voltage	480							Vdc
Nominal DC Input Voltage	380				400			Vdc
Maximum Input Current @240V[2]	8.5	10.5	13.5	16.5	20	27	30.5	Adc
Maximum Input Current @208V[2]	-	9	-	13.5	-	-	27	Adc
Max. Input Short Circuit Current	45							Adc
Reverse-Polarity Protection	Yes							
Ground-Fault Isolation Detection	600kΩ Sensitivity							
Maximum Inverter Efficiency	99	99.2						%
CEC Weighted Efficiency	99						99 @ 240V 98.5 @ 208V	%
Nighttime Power Consumption	< 2.5							W

[1] For other regional settings please contact SolarEdge support
[2] A higher current source may be used; the inverter will limit its input current to the values stated

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By Michael Kyne at 3:56 pm, Feb 23, 2023

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Historic Preservation Commission

Single Phase Inverter with HD-Wave Technology for North America

SE3000H-US / SE3800H-US / SE5000H-US / SE6000H-US/ SE7600H-US / SE10000H-US / SE11400H-US

	SE3000H-US	SE3800H-US	SE5000H-US	SE6000H-US	SE7600H-US	SE10000H-US	SE11400H-US	
ADDITIONAL FEATURES								
Supported Communication Interfaces	RS485, Ethernet, ZigBee (optional), Cellular (optional)							
Revenue Grade Data, ANSI C12.20	Optional[3]							
Inverter Commissioning	with the SetApp mobile application using built-in Wi-Fi station for local connection							
Rapid Shutdown - NEC 2014 and 2017 690.12	Automatic Rapid Shutdown upon AC Grid Disconnect							
STANDARD COMPLIANCE								
Safety	UL1741, UL1741 SA, UL1699B, CSA C22.2, Canadian AFCI according to T.I.L. M-07							
Grid Connection Standards	IEEE1547, Rule 21, Rule 14 (HI)							
Emissions	FCC Part 15 Class B							
INSTALLATION SPECIFICATIONS								
AC Output Conduit Size / AWG Range	3/4" minimum / 14-6 AWG					3/4" minimum /14-4 AWG		
DC Input Conduit Size / # of Strings / AWG Range	3/4" minimum / 1-2 strings / 14-6 AWG					3/4" minimum / 1-3 strings / 14-6 AWG		
Dimensions with Safety Switch (HxWxD)	17.7 x 14.6 x 6.8 / 450 x 370 x 174					21.3 x 14.6 x 7.3 / 540 x 370 x 185		in / mm
Weight with Safety Switch	22 / 10		25.1 / 11.4		26.2 / 11.9	38.8 / 17.6		lb / kg
Noise	< 25				<50			dBA
Cooling	Natural Convection							
Operating Temperature Range	-40 to +140 / -40 to +60[4]							°F / °C
Protection Rating	NEMA 4X (Inverter with Safety Switch)							

[3] Revenue grade inverter P/N: SExxxxH-US000BNC4
[4] Full power up to at least 50°C / 122°F; for power de-rating information refer to: https://www.solaredge.com/sites/default/files/se-temperature-derating-note-na.pdf

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RoHS

/ Power Optimizer
For North America
P370 / P400 / P401 / P485 / P505

Optimizer model (typical module compatibility)	P370 (for higher-power 60 and 72 cell modules)	P400 (for 72 & 96-cell modules)	P401 (for high power 72 cell modules)			
INPUT						
Rated Input DC Power[1]	370	400				W
Absolute Maximum Input Voltage (Voc at lowest temperature)	60	80	60			Vdc
MPPT Operating Range	8 - 60	8 - 80	8-60			Vdc
Maximum Short Circuit Current (Isc)	11	10.1	11.75			Adc
Maximum Efficiency	99.5					%
Weighted Efficiency	98.8					%
Overvoltage Category	II					
OUTPUT DURING OPERATION (POWER OPTIMIZER CONNECTED TO OPERATING SOLAREDGE INVERTER)						
Maximum Output Current	15					Adc
Maximum Output Voltage	60			80		Vdc
OUTPUT DURING STANDBY (POWER OPTIMIZER DISCONNECTED FROM SOLAREDGE INVERTER OR SOLAREDGE INVERTER OFF)						
Safety Output Voltage per Power Optimizer	1 ± 0.1					Vdc
STANDARD COMPLIANCE						
Photovoltaic Rapid Shutdown System	NEC 2014, 2017 & 2020			NEC 2014, 2017 & 2020	NEC 2014, 2017 & 2020	
EMC	FCC Part 15 Class B, IEC61000-6-2, IEC61000-6-3					
Safety	IEC62109-1 (class II safety), UL1741					
Material	UL94 V-0 , UV Resistant					
RoHS	Yes					
INSTALLATION SPECIFICATIONS						
Maximum Allowed System Voltage	1000					Vdc
Compatible inverters	All SolarEdge Single Phase and Three Phase inverters					
Dimensions (W x L x H)	129 x 153 x 27.5 / 5.1 x 6 x 1.1	129 x 153 x 33.5 / 5.1 x 6 x 1.3	129 x 153 x 29.5 /5.1 x 6 x 1.16	129 x 153 x 33.5 / 5.1 x 6 x 1.3	129 x 162 x 59 / 5.1 x 6.4 x 2.3	mm / in
Weight (including cables)	655 / 1.4	750 / 1.7	655 / 1.4	845 / 1.9	1064 / 2.3	gr / lb
Input Connector	MC4[3]			Single or dual MC4[3][4]	MC4[3]	
Input Wire Length	0.16 / 0.52, 0.9 / 2.95[4]	0.16 / 0.52	0.16 / 0.52, 0.9 / 2.95[4]	0.16 / 0.52	0.16 / 0.52	m / ft
Output Wire Type / Connector	Double Insulated / MC4					
Output Wire Length	1.2 / 3.9					m / ft
Operating Temperature Range[5]	-40 to +85 / -40 to +185					°C / °F
Protection Rating	IP68 / NEMA6P					
Relative Humidity	0 - 100					%

(1) Rated power of the module at STC will not exceed the optimizer "Rated Input DC Power". Modules with up to +5% power tolerance are allowed
(2) NEC 2017 requires max input voltage be not more than 80V
(3) For other connector types please contact SolarEdge
(4) For dual version for parallel connection of two modules use P485-4NMDMRM. In the case of an odd number of PV modules in one string, installing one P485 dual version power optimizer connected to one PV module. When connecting a single module seal the unused input connectors with the supplied pair of seals
(5) For ambient temperature above +85°C / +185°F power de-rating is applied. Refer to Power Optimizers Temperature De-Rating Technical Note for more details

PV System Design Using a SolarEdge Inverter[6][7]		Single Phase HD-Wave	Single phase	Three Phase for 208V grid	Three Phase for 277/480V grid	
Minimum String Length (Power Optimizers)	P370, P400, P401	8		10	18	
	P485, P505	6		8	14	
Maximum String Length (Power Optimizers)		25		25	50	
Maximum Nominal Power per String		5700[8] (6000 with SE7600-US - SE11400-US)	5250[8]	6000[9]	12750[10]	W
Parallel Strings of Different Lengths or Orientations		Yes				

(6) For detailed string sizing information refer to: http://www.solaredge.com/sites/default/files/string_sizing_na.pdf
(7) It is not allowed to mix P485/P505 with P370/P400/P401 in one string
(8) If the inverters rated AC power ≤ maximum nominal power per string, then the maximum power per string will be able to reach up to the inverters maximum input DC power. Refer to: https://www.solaredge.com/sites/default/files/se-power-optimizer-single-string-design-application-note.pdf
(9) For 208V grid: it is allowed to install up to 7,200W per string when the maximum power difference between each string is 1,000W
(10) For 277/480V grid: it is allowed to install up to 15,000W per string when the maximum power difference between each string is 2,000W

Intertek RoHS

Power Optimizer

For Residential Installa

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By Michael Kyne at 3:56 pm, Feb 23, 2023

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Montgomery County
Historic Preservation Commission

S440, S500, S500B

25 YEAR WARRANTY

POWER OPTIMIZER

Enabling PV power optimization at the module level

- Specifically designed to work with SolarEdge residential inverters
- Detects abnormal PV connector behavior, preventing potential safety issues*
- Module-level voltage shutdown for installer and firefighter safety
- Superior efficiency (99.5%)
- Mitigates all types of module mismatch loss, from manufacturing tolerance to partial shading
- Faster installations with simplified cable management and easy assembly using a single bolt
- Flexible system design for maximum space utilization
- Compatible with bifacial PV modules

* Functionality subject to inverter model and firmware version

solaredge

/ Power Optimizer

For Residential Installations

S440, S500, S500B

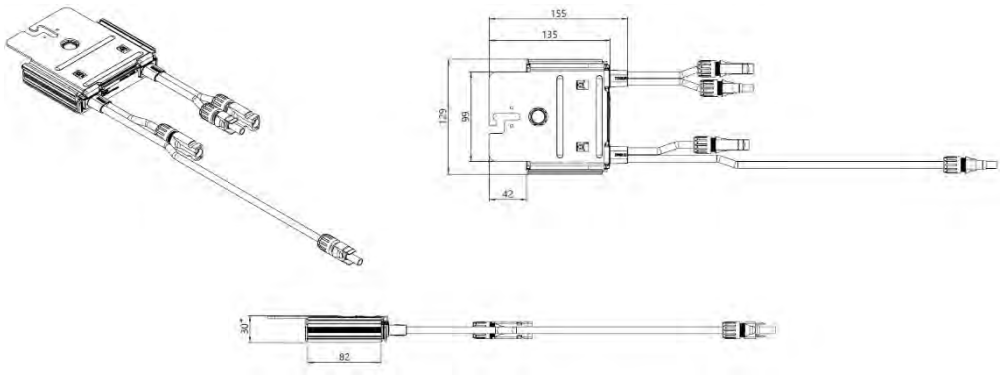
	S440		NIT
Rated Input DC Power(1)	440		W
Absolute Maximum Input Voltage (Voc at lowest temperature)	60		Vdc
MPPT Operating Range	8 - 60		Vdc
Maximum Short Circuit Current (Isc) of Connected PV Module	14.5		Adc
Maximum Efficiency			%
Weighted Efficiency			%
Overvoltage Category			
OUTPUT DURING OPERATION			
Maximum Output Current	15		Adc
Maximum Output Voltage	60	80	Vdc
OUTPUT DURING STANDBY (POWER OPTIMIZER DISCONNECTED FROM INVERTER OR INVERTER OFF)			
Safety Output Voltage per Power Optimizer	1 +/- 0.1		Vdc
STANDARD COMPLIANCE			
EMC	FCC Part 15 Class B, IEC61000-6-2, IEC61000-6-3, CISPR11, EN-55011		
Safety	IEC62109-1 (class II safety), UL1741		
Material	UL94 V-0, UV Resistant		
RoHS	Yes		
Fire Safety	VDE-AR-E 2100-712:2013-05		
INSTALLATION SPECIFICATIONS			
Maximum Allowed System Voltage	1000		Vdc
Dimensions (W x L x H)	129 x 155 x 30	129 x 155 x 45	mm
Weight (including cables)	655		gr
Input Connector	MC4(2)		
Input Wire Length	0.1		m
Output Connector	MC4		
Output Wire Length	(+) 2.3, (-) 0.10		m
Operating Temperature Range(3)	-40 to +85		˚C
Protection Rating	IP68		
Relative Humidity	0 - 100		%

(1) Rated power of the module at STC will not exceed the Power Optimizer Rated Input DC Power. Modules with up to +5% power tolerance are allowed.
(2) For other connector types please contact SolarEdge.
(3) For ambient temperature above +70°C power de-rating is applied. Refer to Power Optimizers Temperature De-Rating Technical Note for details.

PV System Design Using a SolarEdge Inverter(4)		Single Phase HD-Wave	Three Phase SExxK-RWB	Three Phase for 230/400V Grid	Three Phase for 277/480V Grid	
Minimum String Length (Power Optimizers)	S440, S500	8	9	16	18	
	S500B	6	8	14		
Maximum String Length (Power Optimizers)		25	20	50		
Maximum Continuous Power per String		5700	5625	11250	12750	W
Maximum Allowed Connected Power per String (Permitted only when the power difference between strings is less than 2,000W)		See(5)	See(5)	13500	15000	W
Parallel Strings of Different Lengths or Orientations		Yes				

(4) It is not allowed to mix S-series and P-series Power Optimizers in new installations.

(5) If the inverter's rated AC power ≤ maximum nominal power per string, then the maximum power per string will be able to reach up to the inverters maximum input DCpower. Refer to https://www.solaredge.com/sites/default/files/se-power-optimizer-single-string-design-application-note.pdf.



*45mm for S500B

CE RoHS

Cut Sheet

IRONRIDGE

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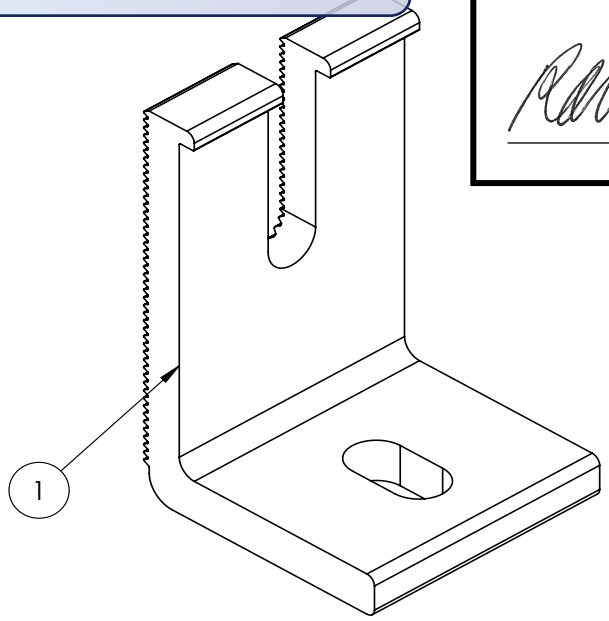
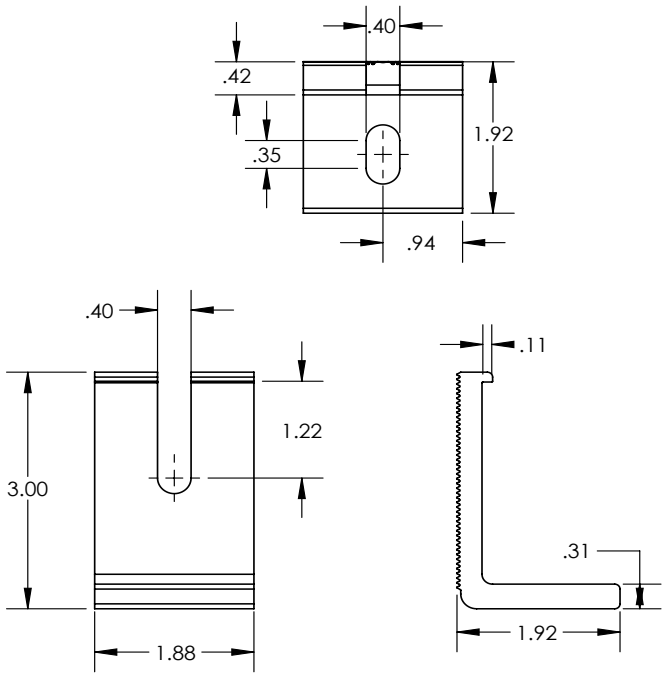


ITEM NO	DESCRIPTION	QTY IN KIT
1	FOOT, EXTRUDED L - SLOTTED	4

PART NUMBER	DESCRIPTION
FM-LFT-003	Kit, 4Pcs, Slotted L-Foot, Mill
FM-LFT-003-B	Kit, 4Pcs, Slotted L-Foot, Black

1) Foot, Extruded L - Slotted



v1.11

RT-MINI

Self-flashing base for asphalt & metal ro ems

REVIEWED
By Michael Kyne at 3:56 pm, Feb 23, 2023

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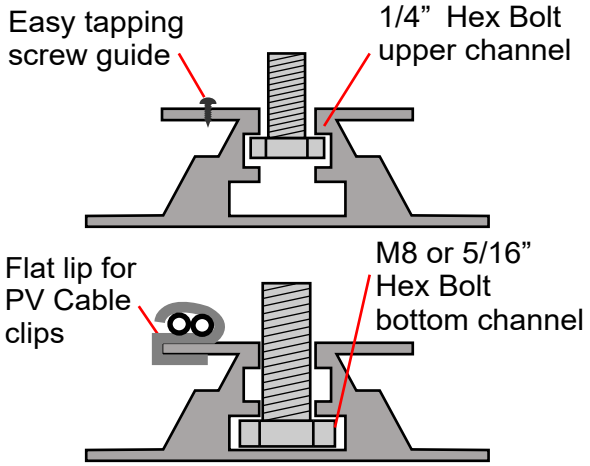
RT-MINI is suitable for
mounting any rail system
with a conventional L-Foo

Proven PV mounting since 1994
25 YEARS
WARRANTY

Dual bolt design: M8 or 5/16” for L-Foot & 1/4” for EMC

Installation Manual

ICC ES
ICC ESR 3575



Roof Tech
The Standard for Waterproof Flexible Flashing Since 1994
www.roof-tech.us info@roof-tech.us

RT-MINI

Flexible Flashing certified by the Interr l (ICC)

Eng ndard n Wood)

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Components

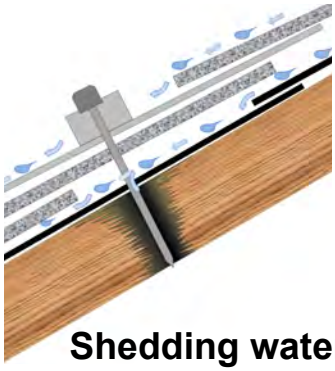
RT2-00-MINIBK

MINI base : 20 ea.
Screw : 40 ea.
Extra RT-Butyl : 10 ea.

Optional item
5 x 60mm Mounting screw (RT2-04-SD5-60) : 100 ea./Bag
5/16” Hex bolt, washer & nut set (RT-04-BN30SL-US) : 100 ea./Bag
RT-Butyl (RT2-04-BUTYLT) : 10 ea./Box

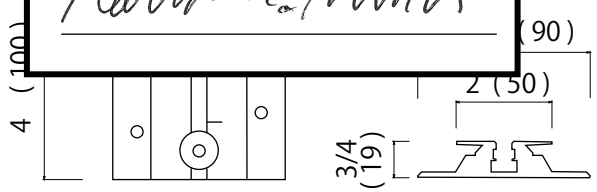
RT-Butyl is Roof Tech’s flexible flashing used in one million residential PV systems for the last 26 years. It is the first PV mounting system with Flexible Flashing certified by the ICC. Engineered to withstand wind speeds up to 180 mph and ground snow up to 90 psf.

Metal Flashing Retrofit **Flexible Flashing**

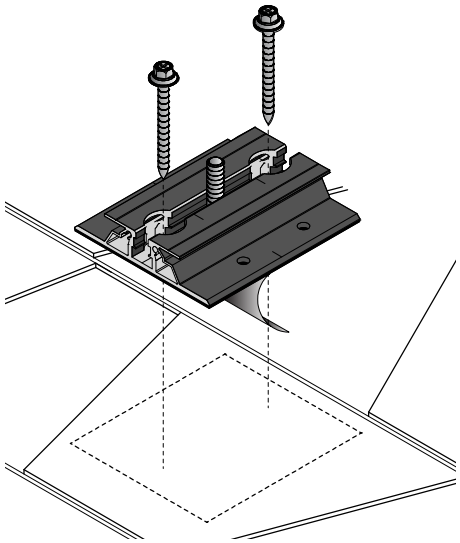


Shedding water? **100% Waterproof**

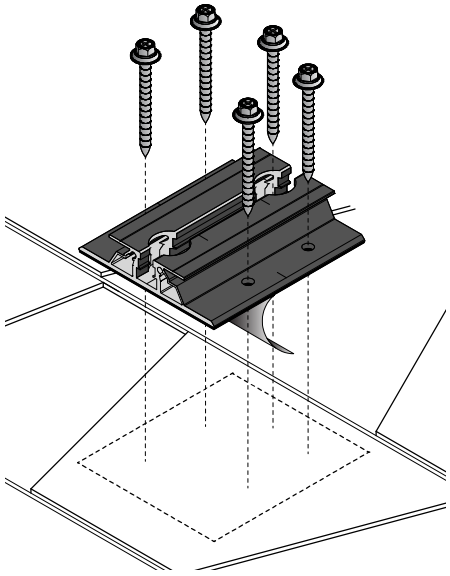
ICC ESR-3575 ASTM2140 testing UV testing (7500 hrs.)



Rafter installation



Deck installation



P.E. Stamped Letters available at www.roof-tech.us/support
TAS 100 A on metal and asphalt roof.

Roof Tech Inc.
www.roof-tech.us info@roof-tech.us
10620 Treena Street, Suite 230, San Diego, CA 92131
858.935.6064

March 2020

SUNMOD

Cut Sheet

SMR100 Rail

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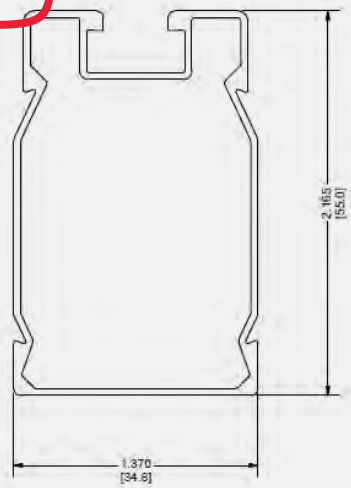
By Michael Kyne at 3:56 pm, Feb 23, 2023

SMR100 Rail

Will be using SMR100



Mechanical Properties

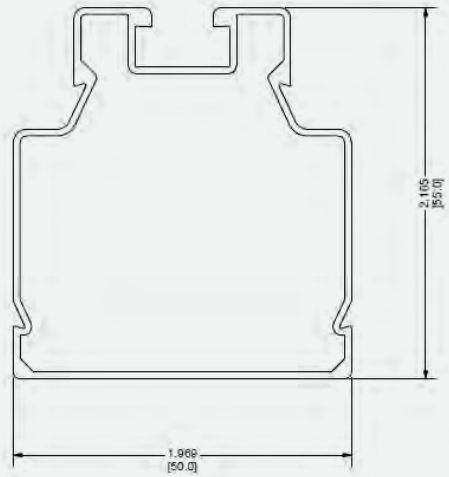
Material: 6005-T5 Aluminum
Weight: 0.4126 lbs/ft (0.614 kg/m)
Ultimate Tensile Strength: 37.7 ksi (260 MPa)
Yield Strength: 34.8 ksi (240 MPa)

Section Properties

Sx: 0.196 in^3 (3.21 cm^3)
Sy: 0.146 in^3 (2.39 cm^3)
Area (X-section): 0.352 in^2 (2.27 cm^2)

SMR200 Rail

SMR200 Rail



Mechanical Properties

Material: 6005-T5 Aluminum
Weight: 0.645 lbs/ft (0.960 kg/m)
Ultimate Tensile Strength: 37.7 ksi (260 MPa)
Yield Strength: 34.8 ksi (240 MPa)

Section Properties

Sx: 0.321 in^3 (5.26 cm^3)
Sy: 0.272 in^3 (4.46 cm^3)
Area (X-section): 0.551 in^2 (3.55 cm^2)

Part Number	Description
A20422-168-BK	SMR100 Rail, Black Anodized, 168"
A20453-168-BK	SMR200 Rail, Black Anodized, 168"
A20440-BK1	Rail End Cap, SMR100, Black
A20440-BK2	Rail End Cap, SMR200, Black

SUNMODO

Cut Sheet

SMR Rail Splices

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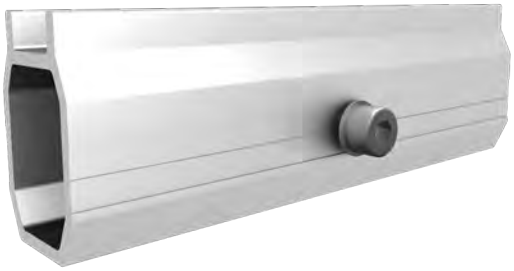
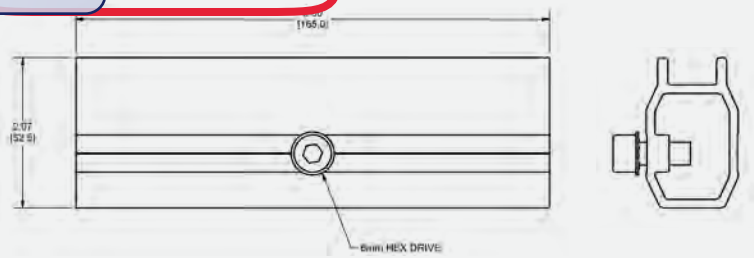
By Michael Kyne at 3:56 pm, Feb 23, 2023

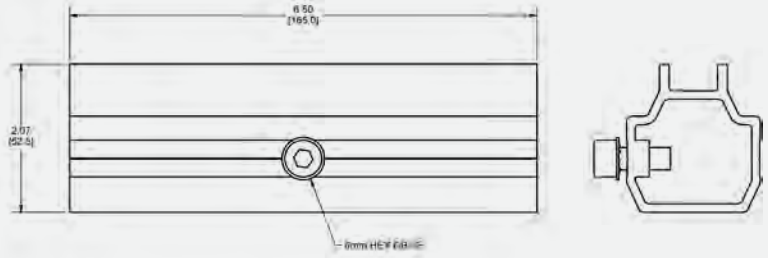


SMR100 Bonding Rail Splice

Will be using SMR100



SMR200 Bonding Rail Splice



L-Foot Adaptors

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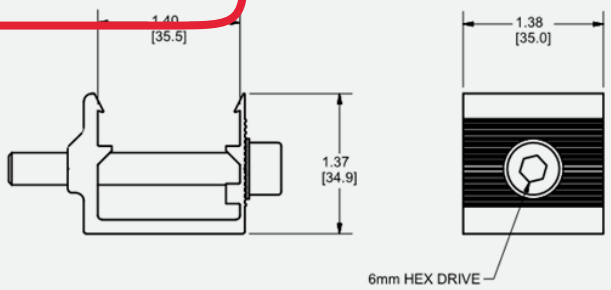
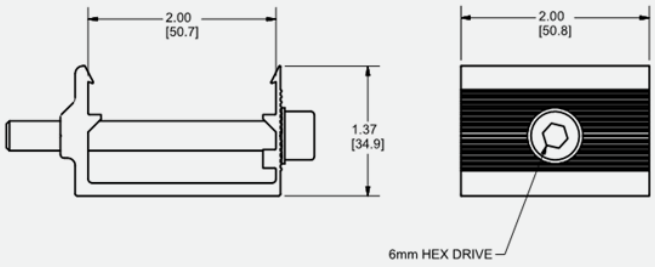
SMR100 L-Foot Adaptor

Will be using SMR100



SMR200 L-Foot Adaptor



Part Number	Description
K10421-002	Structural Splice, SMR100
K10462-002	Structural Splice, SMR200
K10433-BK1	L Foot Adaptor, SMR100, Black
K10434-BK1	L Foot Adaptor, SMR200, Black

Materials:
1. Extrusions 6005-T5 Aluminum
2. Hardware 304 Stainless Steel

D10225-V003

Dimensions shown are inches (and millimeters)

Details are subject to change without notice

SUNMODO

Cut Sheet

Pop-On Mid Clamp

REVIEWED
By Michael Kyne at 3:56 pm, Feb 23, 2023

Pop-On End Clamp

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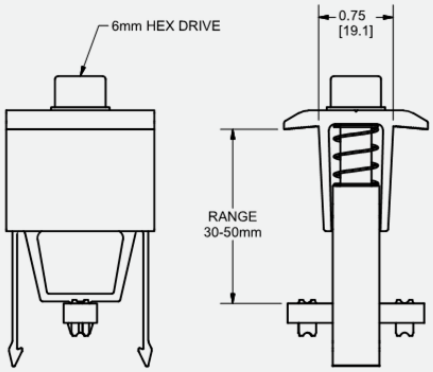
Shared Rail Mid/End Clamp

Part Number	Description
K10417-BK1	Mid Clamp, SMR Pop-On, Black
K10418-BK1	End Clamp, SMR Pop-On, Black
K10419-BK1	Shared Rail Mid Clamp, SMR Pop-On, Black
K10420-BK1	Shared Rail End Clamp, SMR Pop-On, Black

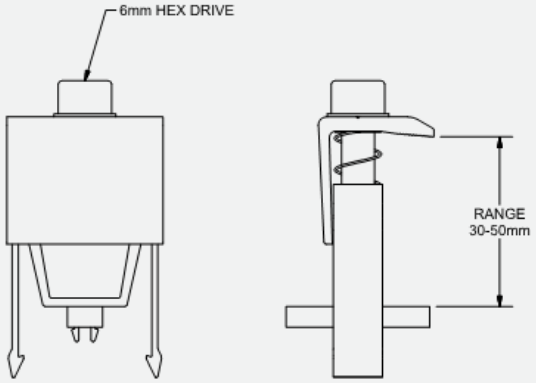
Pop-On Bonding Mid Clamp

Material: Aluminum



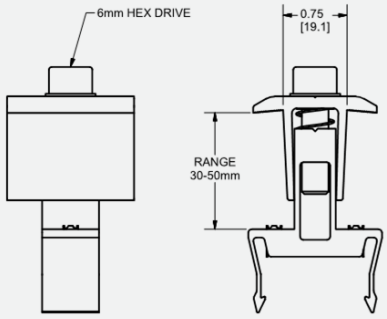
Pop-On End Clamp

Material: Aluminum



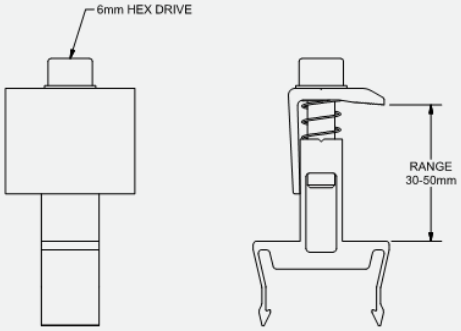
Shared Rail Bonding Mid Clamp

Material: Aluminum



Shared Rail End Clamp

Material: Aluminum



D10225-V003

Dimensions shown are inches (and millimeters)

Details are subject to change without notice