EXPEDITED

HISTORIC PRESERVATION COMMISSION STAFF REPORT

Address:	10031 Pratt Place, Silver Spring	**Meeting Date:**	9/11/2019
Resource:	Non-Contributing Resource Capitol View Park Historic District	**Report Date:**	9/4/2019
Review:	HAWP	**Public Notice:**	8/28/2019
Case Number:	31/7-19F	**Tax Credit:**	n/a
Applicant:	Mary Cuanico Kelli Delacruz, Agent	**Staff:**	Dan Bruechert
Proposal:	Solar Panel Installation		

STAFF RECOMMENDATION:

☑ **Approve**
☐ **Approve with conditions**

PROJECT DESCRIPTION

SIGNIFICANCE: Non-Contributing Resource to the Capitol View Park Historic District
STYLE: Neo-Colonial
DATE: 1985

Figure 1: 10031 Pratt Pl. is located in a cul-de-sac with several c. 1980s houses.

PROPOSAL

The applicant proposes to install 27 (twenty-seven) roof-mounted solar panels on the rear of the roof. Due to the house shape and orientation, the solar panels will not be visible from the public right-of-way. This house does not contribute to the character of the historic district (it was considered "spatial" when the district was established in 1982).

Staff Recommends approval.

Figure 2: Front elevation of 10031 Pratt Place.

APPLICABLE GUIDELINES

The use of the expedited review form is supported by the second item on the Policy on Use of Expedited Staff Reports for Simple HAWP Cases:

2. Modifications to a property, which do not significantly alter its visual character.

Montgomery County Code; Chapter 24A-8

(b) The commission shall instruct the director to issue a permit, or issue a permit subject to such conditions as are found to be necessary to insure conformity with the purposes and requirements of this chapter, if it finds that:

(2) The proposal is compatible in character and nature with the historical, archeological, architectural or cultural features of the historic site or the historic district in which an historic resource is located and would not be detrimental thereto or to the achievement of the purposes of this chapter.

Secretary of the Interior's Standards for Rehabilitation

2. The historic character of a property will be retained and preserved. The removal of distinctive materials or alteration of features, space and spatial relationships that characterize a property will be avoided.
9. New additions, exterior alterations, or related new construction will not destroy historic materials, features, and spatial relationships that characterize the property. The new work shall be differentiated from the old and will be compatible with the historic materials, features, size, scale and proportions, and massing to protect the integrity of the property and its environment.
10. New additions and adjacent or related new construction will be undertaken in such a manner that, if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.

STAFF RECOMMENDATION

Staff recommends that the Commission **approve** the HAWP application under the Criteria for Issuance in *Chapter 24A-8(b)(1)* and *(2)* having found that the proposal will not substantially alter the exterior features of the historic resource and is compatible in character with the district, the *Capitol View Park Design Guidelines,* and the purposes of *Chapter 24A*; and with the *Secretary of the Interior's Standards for Rehabilitation #2, #9, and #10,*

and with the general condition that the applicant shall present the **3 permit sets of drawings, if applicable, to Historic Preservation Commission (HPC) staff for review and stamping** prior to submission for the Montgomery County Department of Permitting Services (DPS) building permits;

and with the general condition that final project design details, not specifically delineated by the Commission, shall be approved by HPC staff or brought back to the Commission as a revised HAWP application at staff's discretion;

and with the general condition that the applicant shall notify the Historic Preservation Staff if they propose to make **any alterations** to the approved plans. Once the work is completed the applicant will contact the staff person assigned to this application at 301-563-3400 or dan.bruechert@montgomeryplanning.org to schedule a follow-up site visit.

PRELIM

[redacted]

DPS - #8

HISTORIC PRESERVATION COMMISSION
301/563-3400

APPLICATION FOR HISTORIC AREA WORK PERMIT

Contact Email: Kelli.delacruz@vivintsolar.com Contact Person: Kelli Delacruz
Daytime Phone No.: 301 674 5219

Tax Account No.: 13 02360133

Name of Property Owner: Mary J Luanico Daytime Phone No.: 202 878 2661

Address: 10031 Pratt Pl (Street Number) Silver Spring (City) MD (State) 20910 (Zip Code)

Contractor: Vivint Solar Developer, LLC Phone No.: 877 404 4129

Contractor Registration No.:

Agent for Owner: Daytime Phone No.:

LOCATION OF BUILDING/PREMISE

House Number: 10031 Street: Pratt PL

Town/City: Silver Spring Nearest Cross Street:

Lot: Block: Subdivision:

Liber: Folio: Parcel:

PART ONE: TYPE OF PERMIT ACTION AND USE

1A. CHECK ALL APPLICABLE:

☐ Construct ☐ Extend ☐ Alter/Renovate
☐ Move ☐ Install ☐ Wreck/Raze
☐ Revision ☐ Repair ☐ Revocable

CHECK ALL APPLICABLE:

☐ A/C ☐ Slab ☐ Room Addition ☐ Porch ☐ Deck ☐ Shed
☐ Solar ☐ Fireplace ☐ Woodburning Stove ☐ Single Family
☐ Fence/Wall (complete Section 4) ☐ Other:

1B. Construction cost estimate: $

1C. If this is a revision of a previously approved active permit, see Permit #

PART TWO: COMPLETE FOR NEW CONSTRUCTION AND EXTEND/ADDITIONS

2A. Type of sewage disposal: 01 ☐ WSSC 02 ☐ Septic 03 ☐ Other:

2B. Type of water supply: 01 ☐ WSSC 02 ☐ Well 03 ☐ Other:

PART THREE: COMPLETE ONLY FOR FENCE/RETAINING WALL

3A. Height feet inches

3B. Indicate whether the fence or retaining wall is to be constructed on one of the following locations:

☐ On party line/property line ☐ Entirely on land of owner ☐ On public right of way/easement

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

K. Delacruz
Signature of owner or authorized agent

8/9/19
Date

Approved: For Chairperson, Historic Preservation Commission

Disapproved: Signature: Date:

Application/Permit No.: 887206 Date Filed: Date Issued:

Edit 6/21/99

SEE REVERSE SIDE FOR INSTRUCTIONS

887206

DPS - #8

HISTORIC PRESERVATION COMMISSION
301/563-3400

APPLICATION FOR HISTORIC AREA WORK PERMIT

Contact Email: Kelli.delacruz@vivintsolar.com Contact Person: Kelli DelaCruz
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Town/City: Silver Spring Nearest Cross Street: _____

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Liber: _____ Folio: _____ Parcel: _____

PART ONE: TYPE OF PERMIT ACTION AND USE

1A. CHECK ALL APPLICABLE:

☐ Construct ☐ Extend ☐ Alter/Renovate ☐ A/C ☐ Slab ☐ Room Addition ☐ Porch ☐ Deck ☐ Shed

☐ Move ☐ Install ☐ Wreck/Raze ☐ Solar ☐ Fireplace ☐ Woodburning Stove ☐ Single Family

☐ Revision ☐ Repair ☐ Revocable ☐ Fence/Wall (complete Section 4) ☐ Other: _____

1B. Construction cost estimate: $ _____

1C. If this is a revision of a previously approved active permit, see Permit # _____

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K. DelaCruz
Signature of owner or authorized agent

8/9/19
Date

Approved: _____ For Chairperson, Historic Preservation Commission

Disapproved: _____ Signature: _____ Date: _____

Application/Permit No.: _____ Date Filed: _____ Date Issued: _____

Edit 6/21/99

SEE REVERSE SIDE FOR INSTRUCTIONS

THE FOLLOWING ITEMS MUST BE COMPLETED AND THE REQUIRED DOCUMENTS MUST ACCOMPANY THIS APPLICATION.

1. **WRITTEN DESCRIPTION OF PROJECT**

   a. Description of existing structure(s) and environmental setting, including their historical features and significance:

   Install of 27 roof mounted Solar panels.

   b. General description of project and its effect on the historic resource(s), the environmental setting, and, where applicable, the historic district:

2. **SITE PLAN**

   Site and environmental setting, drawn to scale. You may use your plat. Your site plan must include:

   a. the scale, north arrow, and date;

   b. dimensions of all existing and proposed structures; and

   c. site features such as walkways, driveways, fences, ponds, streams, trash dumpsters, mechanical equipment, and landscaping.

3. **PLANS AND ELEVATIONS**

   You must submit 2 copies of plans and elevations in a format no larger than 11" x 17". Plans on 8 1/2" x 11" paper are preferred.

   a. ***Schematic construction plans***, with marked dimensions, indicating location, size and general type of walls, window and door openings, and other fixed features of both the existing resource(s) and the proposed work.

   b. Elevations (facades), with marked dimensions, clearly indicating proposed work in relation to existing construction and, when appropriate, context. All materials and fixtures proposed for the exterior must be noted on the elevations drawings. An existing and a proposed elevation drawing of each facade affected by the proposed work is required.

4. **MATERIALS SPECIFICATIONS**

   General description of materials and manufactured items proposed for incorporation in the work of the project. This information may be included on your design drawings.

5. **PHOTOGRAPHS**

   a. Clearly labeled photographic prints of each facade of existing resource, including details of the affected portions. All labels should be placed on the front of photographs.

   b. Clearly label photographic prints of the resource as viewed from the public right-of-way and of the adjoining properties. All labels should be placed on the front of photographs.

6. **TREE SURVEY**

   If you are proposing construction adjacent to or within the dripline of any tree 6" or larger in diameter (at approximately 4 feet above the ground), you must file an accurate tree survey identifying the size, location, and species of each tree of at least that dimension.

7. **ADDRESSES OF ADJACENT AND CONFRONTING PROPERTY OWNERS**

   For **ALL** projects, provide an accurate list of adjacent and confronting property owners (not tenants), including names, addresses, and zip codes. This list should include the owners of all lots or parcels which adjoin the parcel in question, as well as the owner(s) of lot(s) or parcel(s) which lie directly across the street/highway from the parcel in question.

PLEASE PRINT (IN BLUE OR BLACK INK) OR TYPE THIS INFORMATION ON THE FOLLOWING PAGE.
PLEASE STAY WITHIN THE GUIDES OF THE TEMPLATE, AS THIS WILL BE PHOTOCOPIED DIRECTLY ONTO MAILING LABELS.

JURISDICTIONAL NOTES:

7

GOVERNING CODES

ALL WORK SHALL CONFORM TO THE FOLLOWING CODES

a. 2014 NATIONAL ELECTRICAL CODE
b. 2018 INTERNATIONAL BUILDING CODE
c. 2018 INTERNATIONAL RESIDENTIAL CODE
d. ANY OTHER LOCAL AMENDMENTS

SHEET INDEX:

GENERAL ELECTRICAL NOTES:

1. ALL WIRING MUST BE PROPERLY SUPPORTED BY DEVICES OR MECHANICAL MEANS DESIGNED AND LISTED FOR SUCH USE. FOR ROOF-MOUNTED SYSTEMS, WIRING MUST BE PERMANENTLY AND COMPLETELY HELD OFF OF THE ROOF SURFACE.
2. ANY CODE VIOLATIONS EVIDENT IN THE INTERCONNECTION PANEL WILL BE CORRECTED ON INSTALLATION.
3. SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH ALL RELEVANT CODE
4. RAPID SHUTDOWN INITIATION TAKES PLACE WITHIN THE FIRMWARE OF THE INVERTER. RAPID SHUTDOWN COMMENCES UPON LOSS OF UTILITY SOURCE VOLTAGE.
5. SEE PE 1.0 AND PE 2.0 FOR DIAGRAMS, CALCULATIONS, SCHEDULE AND SPECIFICATIONS.

GENERAL STRUCTURAL NOTES:

a. THE SOLAR PANELS ARE TO BE MOUNTED TO THE ROOF FRAMING USING THE ROCK-IT SYSTEM BY ECOFASTEN. THE MOUNTING FEET ARE TO BE SPACED AS SHOWN IN THE DETAILS, AND MUST BE STAGGERED TO ADJACENT FRAMING MEMBERS TO SPREAD OUT THE ADDITIONAL LOAD.
b. UNLESS NOTED OTHERWISE, MOUNTING ANCHORS SHALL BE 5/16" LAG SCREWS WITH A MINIMUM OF 2 1/2" PENETRATION INTO ROOF FRAMING.
c. THE PROPOSED PV SYSTEM ADDS 2.6 psf TO THE ROOF FRAMING SYSTEM.
d. ROOF LIVE LOAD = 20 psf TYPICAL, 0 psf UNDER NEW PV SYSTEM.
e. GROUND SNOW LOAD = 30 psf
f. WIND SPEED = 115 mph
g. EXPOSURE CATEGORY = B

PHOTOVOLTAIC SYSTEM SPECIFICATIONS:

SYSTEM SIZE - 8.505kW DC | 7.600kW AC
MODULE TYPE & AMOUNT - (27) Jinko Solar JKM315M-60HBL WITH 27 SolarEdge P320 OPTIMIZERS
MODULE DIMENSIONS - (L/W/H) 66.3"/ 39.45"/ 1.38"
INVERTER - (1) SolarEdge Technologies SE7600H-US000BNC4
INTERCONNECTION METHOD - LOAD BREAKER

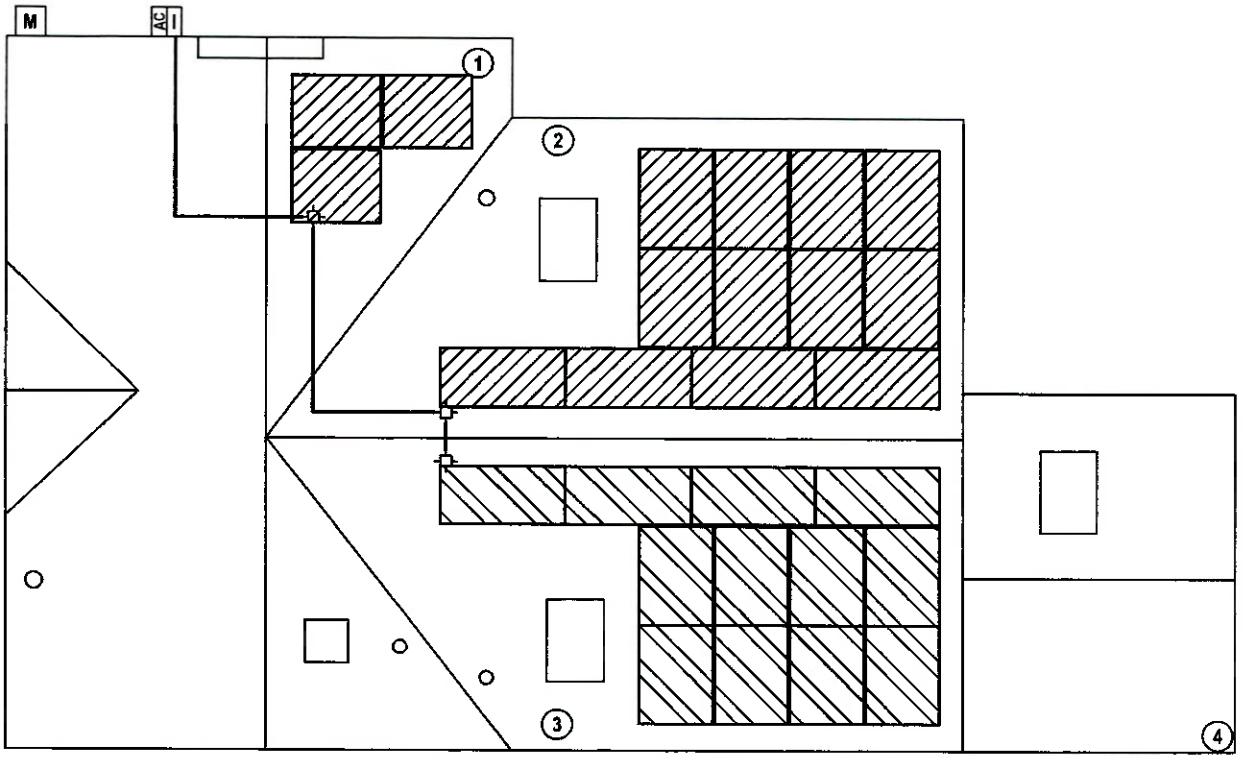
vivint.Solar
1800 ASHTON BLVD. LEHI, UT, 84043
1.877.404.4129
MD LICENSE: HIC-130385
ME.11592

CABANILLA RESIDENCE
10031 PRATT PL
SILVER SPRING, MD, 20910-1070
UTILITY ACCOUNT #: 5501 6099 008

SERVICE # S-6163782	COVER SHEET
REGIONAL OPERATING CENTER: MD-01	
DATE 7.31.2019	
DRAWN BY: CLAUDE DEJDA	

10031 PRATT PL

FRONT OF HOUSE.



PV STRING(S):

#1: 15 MODULES

#2: 12 MODULES

ROOF SECTION(S):

1 SLOPE - 45
AZIMUTH - 144.33
MATERIAL - COMPOSITION SHINGLE

2 SLOPE - 37
AZIMUTH - 54.33
MATERIAL - COMPOSITION SHINGLE

3 SLOPE - 37
AZIMUTH - 234.33
MATERIAL - COMPOSITION SHINGLE

4 SLOPE - 37
AZIMUTH - 234.33
MATERIAL - COMPOSITION SHINGLE

SITE PLAN

SCALE: 3/16" = 1'-0"

SYSTEM LEGEND

PV SYSTEM SIZE:

NEW 8.505kW DC | 7.600kW AC

M — EXISTING INTERIOR MAIN SERVICE PANEL & POINT OF INTERCONNECTION, TIED TO UTILITY METER #NXA121326691.

AC — NEW PV SYSTEM AC DISCONNECT, LOCATED WITHIN 10' OF MSP.

I — 1 NEW PV SYSTEM INVERTER SolarEdge Technologies SE7600H-US000BNC4 (RSD EQUIPPED)

27 NEW JINKO SOLAR JKM315M-60HBL MODULES. NEW SOLAR EDGE P320 OPTIMIZERS MOUNTED ON THE BACK OF EACH MODULE.

NEW PV CONDUIT RUN, *SEE EE1.0 CONDUIT SCHEDULE*

= EXTERIOR RUN - - - - = ATTIC RUN

NEW JUNCTION BOX, *(MOUNTED TO PV MODULE)*

STATE OF MARYLAND
MATTHEW WALKER
52248
PROFESSIONAL ENGINEER

vivint.Solar
1.877.404.4129

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SILVER SPRING, MD. 20910-1070
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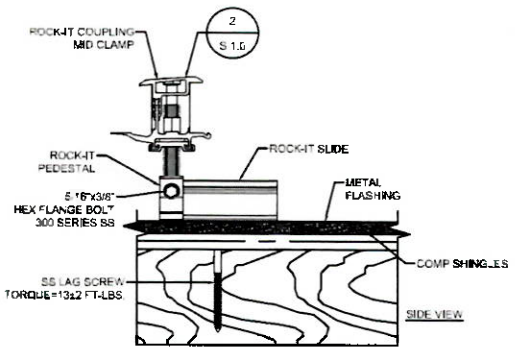
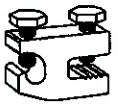
DRAWN BY: CLAUDE DEUDA

PV 1.0

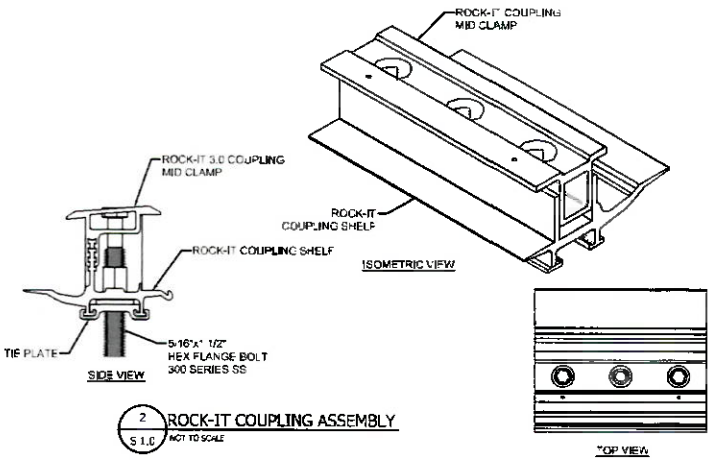


1 S 1.0 ROCK-IT MOUNT DETAIL NOT TO SCALE

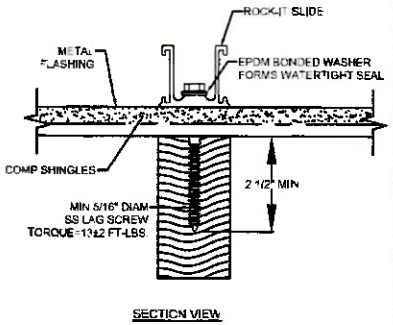


8 S 1.0 ILSCO SGB-4 GROUNDING LUGS NOT TO SCALE

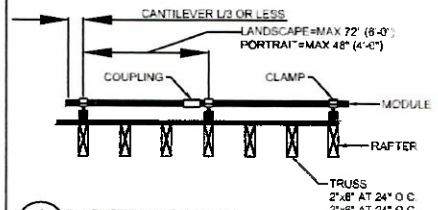
UL LISTING FOR ECOFASTEN, 2"C3
WEIGHT 2.3lb.



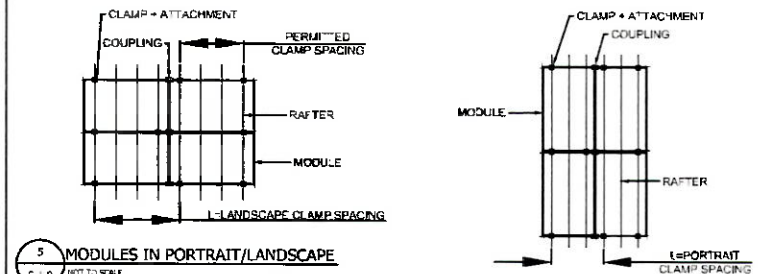
2 S 1.0 ROCK-IT COUPLING ASSEMBLY NOT TO SCALE



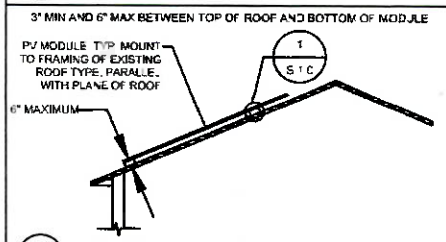
3 S 1.0 SECTION VIEW NOT TO SCALE



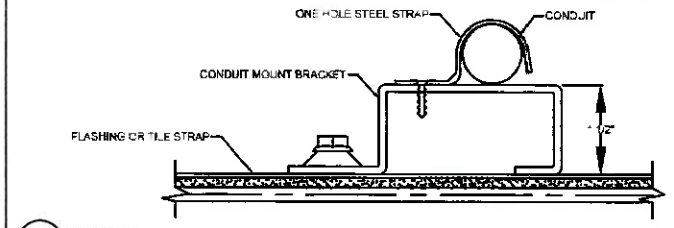
4 S 1.0 PV SYSTEM MOUNTING DETAIL NOT TO SCALE



5 S 1.0 MODULES IN PORTRAIT/LANDSCAPE NOT TO SCALE



6 S 1.0 PV ARRAY TYP. ELEVATION NOT TO SCALE



7 S 1.0 CONDUIT MOUNTING DETAIL NOT TO SCALE

MOUNT DETAILS

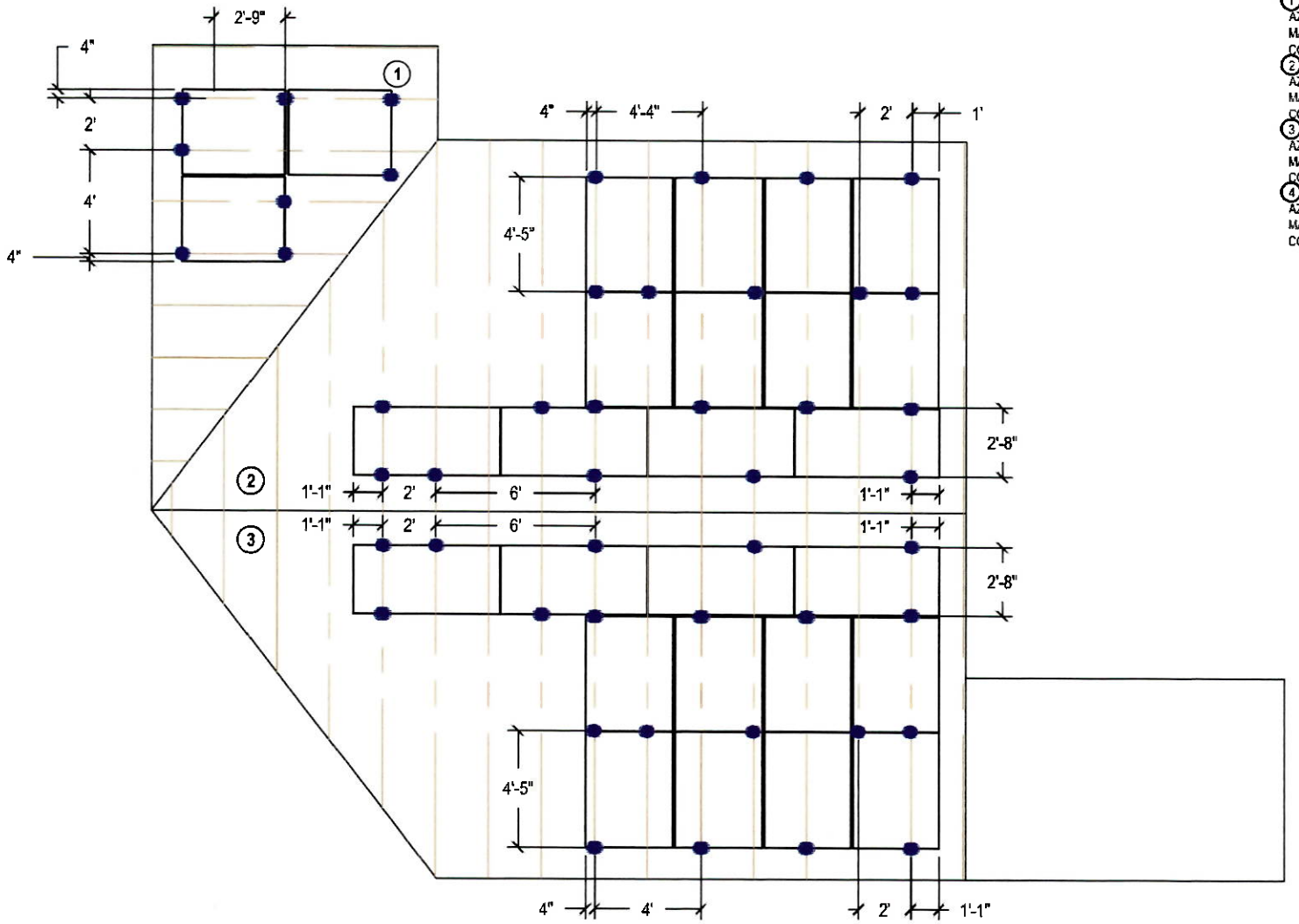
SCALE: NOT TO SCALE

MOUNTING LEGEND

vivint.Solar
1.877.404.4129

CABANILLA RESIDENCE
10031 PRATT PL
SILVER SPRING MD, 20910-1070
UTILITY ACCOUNT #: 5501 6099 008

SERVICE #: S-5*63782	S 1.0
REGIONAL OPERATING CENTER: MD-01	
DATE: 7.31.2019	
DRAWN BY: CLAUDE DEUDA	



ROOF SECTION(S)

1. SLOPE - 45
   AZIMUTH - 144.33
   MATERIAL - COMPOSITION SHINGLE
2. SLOPE - 37
   AZIMUTH - 54.33
   MATERIAL - COMPOSITION SHINGLE
3. SLOPE - 37
   AZIMUTH - 234.33
   MATERIAL - COMPOSITION SHINGLE
4. SLOPE - 37
   AZIMUTH - 234.33
   MATERIAL - COMPOSITION SHINGLE

MOUNT DIAGRAM

SCALE: 1/4" = 1'-0"

MOUNTING LEGEND 10

RAFTER =

MOUNTING FEET =

STATE OF MARYLAND
MATTHEW WALKER
52248
PROFESSIONAL ENGINEER

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1.877.404.4129

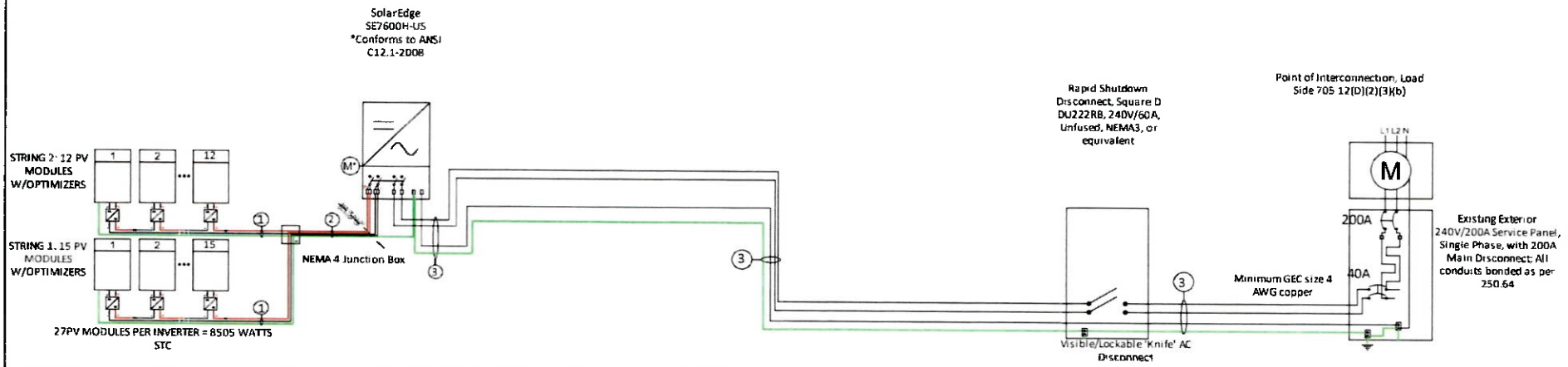
CABANILLA RESIDENCE
10031 PRATT PL
SILVER SPRING, MD, 20910-1670
UTILITY ACCOUNT # 5501 6099 008

SERVICE #: S-6*63782	S 1.1
REGIONAL OPERATING CENTER: MD-01	
DATE: 7.31.2019	
DRAWN BY: CLAUDE DEUDA	

Photovoltaic System	
DC System Size (Watts)	8505
AC System Size (Watts)	7600
Total Module Count	27

Conduit Conductor Schedule (ALL CONDUCTORS MUST BE COPPER)

Tag #	Description	Wire Gauge	# of Conductors/Color	Conduit Type	Conduit Size
1	PV Output (PV Wire)	12 AWG	2(V+, V-)	N/A-Free Air	N/A-Free Air
1	EGC (Bare Copper Ground)	6 AWG	1 BARE	N/A-Free Air	N/A-Free Air
2	Inverter Input (THWN-2)	10 AWG	4(2V+, 2V-) B/R	EMT	1/2"
2	EGC (THWN-2)	12 AWG	1(GRN)	EMT	1/2"
3	Inverter Output (THWN-2)	8 AWG	3(L1, L2, N) B/R/W	EMT	3/4"
3	EGC (THWN-2)	10 AWG	1(GRN)	EMT	3/4"



Cabanilla Residence
10031 PRATT PL
SILVER SPRING, MD 20910
Utility Account:5501 6099 008

vivint.solar

Created: 7/31/19

INSTALLER: VIVINT SOLAR
INSTALLER NUMBER: 1.877.404.4129
MD LICENSE: 11692
6163782

SHEET NAME: 3-Line Drawing

SHEET NUMBER: E. 1

DC Safety Switch
Rated for max operating condition of inverter. Art. 690.35 compliant. Opens all ungrounded conductors

Optimizer	SolarEdge P320	
DC Input Power	320	Watts
DC Max. Input Voltage	48	Volts
DC Max. Input Current	13.75	Amps
DC Max. Output Current	15	Amps
Max. string rating inverter dependent. See SE documents.		
Inverter Make/Model	SolarEdge SE7600H-US	
CEC Efficiency	99	%
AC Operating Voltage	240	Volts
Cont. Max. Output Current	32	Amps
DC Max. Input Current	20	Amps
Short Circuit Current	40	Amps
Max. Output Fault Current	40 A/20 ms	

PV Module Rating @ STC		
Module Make/Model	Jinko Solar JKM315M-60HBL	
Max. Power-Point Current (Imp)	9.49	Amps
Max. Power-Point Voltage (Vmp)	33.2	Volts
Open-Circuit Voltage (Voc)	40.7	Volts
Short-Circuit Current (Isc)	10.04	Amps
Max. Series Fuse (OCPD)	20	Amps
Nom. Max. Power at STC (Pmax)	315	Watts
Max. System Voltage	1000 VDC (UL/IEC)	
Voc Temperature Coefficient	-0.28	%/C

AC Output Current According to art. 690.8(B)(1)	31.67	Amps
Nominal AC Voltage	240	Volts
THIS PANEL IS FED BY MULTIPLE SOURCES (UTILITY AND SOLAR)		

Rooftop conductor ampacities designed in compliance with art. 690.8, Tables 310.15(B)(2)(a), 310.15(B)(3)(a), 310.15(B)(3)(c), 310.15(B)(16), Chapter 9 Table 4, 5, & 9. Location specific temperature obtained from ASHRAE 2017 data tables.

ASHRAE 2017 - RONALD REAGAN WASHINGTON NATL
Highest Monthly 2% D.B. Design Temp.: 35.3 °C
Lowest Mn. Mean Extreme D.B.: -14.5 °C

Conductor Calculations

Wire gauge calculated from code art. 310.15(B)(16) with ambient temperature calculations from art. 310.15(B)(2)(a).
For "On Roof" conductors we use the 90°C column ampacity, 0.5"-3.5" off-the-roof temperature adjustment from 310.15(B)(3)(c), and raceway fill adjustments from 310.15(B)(16). Conduit shall be installed at least 1" above the roof deck
For "Off Roof" conductors we use the 75°C column ampacity, or the 90°C column ampacity with the relevant ambient temperature and raceway fill adjustments, whichever is less.
The rating of the conductor after adjustments MUST be greater than, or equal to, the continuous duty uprated output current.
Calculation Example - Wire Rating (90°C) x Ambient Temperature Adjustment x Conduit Fill Adjustment >= Continuous Duty Output Current
(Tag 2 On Roof):
Inverter Input: 10 AWG rated 40 A, 40 A x 0.71 x 0.8 = 22.72 A >= 18.75 A
(Tag 3 Off Roof):
Inverter Output: 8 AWG rated 50 A, 50 A >= 39.58 A

OCPD Calculations

Breakers sized according to continuous duty output current. PV circuit nominal current based off inverter continuous output current X (1.25[art. 690.8(A)]).

Inverter 1: SE7600H-US Max Output = 31.67 A x 1.25 [art. 690.8(A)]
= 39.58 A < 40 A (OCPD)
System output current w/ continuous duty = 39.58 < 40A (System OCPD)

Other Notes

- Designed according to, and all code citations are relevant to, the NEC 2014.
- All interior raceways carrying DC current shall be metallic

Cabanilla Residence
10031 PRATT PL
SILVER SPRING, MD 20910
Utility Account:5501 6099 008

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Created: 7/31/19

INSTALLER: VIVINT SOLAR
INSTALLER NUMBER: 1.877.404.4129
MD LICENSE 11692
6163782

SHEET NAME: Notes Page

SHEET NUMBER: E. 2

Conduit, Raceways, and J-Boxes (Labeled Every 10') Per 690.31(G)(3) & (4)

WARNING: PHOTOVOLTAIC POWER SOURCE

Interactive System Point of Interconnection Per 690.54

PHOTOVOLTAIC AC POWER SOURCE
RATED AC OUTPUT CURRENT: 31.67 A
NOM. OPERATING AC VOLTAGE: 240 V

PV System Disconnects Per 690.13(B)

PV SYSTEM DISCONNECT

All Disconnecting Means Per 690.13(B) & 690.15(D)

WARNING
ELECTRICAL SHOCK HAZARD
TERMINALS ON THE LINE AND LOAD SIDES
MAY BE ENERGIZED IN THE OPEN POSITION

Power Source Output Connection, Adjacent to Back-fed Breaker Per 705.12

WARNING
POWER SOURCE OUTPUT CONNECTION
DO NOT RELOCATE THIS OVERCURRENT
DEVICE

Rapid Shutdown Switch Per 690.56(C)(3)

RAPID SHUTDOWN SWITCH FOR
SOLAR PV SYSTEM

Plaques and Directories at the Service Equipment (MSP) and the Location of All System Disconnects Per 690.56(B) & 705.10

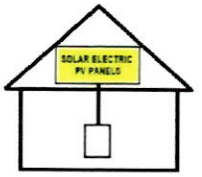
CAUTION:
POWER TO THIS BUILDING IS ALSO SUPPLIED FROM THE FOLLOWING SOURCES WITH DISCONNETS LOCATED AS SHOWN

AT:
METER AND MAIN SERVICE
AC DISCONNECT
DC DISCONNECT
INVERTER

PV With Rapid Shutdown, Installed Within 3 ft of the Service Disconnecting Means Per 690.56(C)(1)(a)

SOLAR PV SYSTEM EQUIPPED WITH RAPID SHUTDOWN

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



SE7600H-US String 1 DC Disconnecting Means Per 690.53

PHOTOVOLTAIC DC POWER SOURCE DISCONNECT
STRING 1
MAXIMUM VOLTAGE: 400 V
MAXIMUM CURRENT: 15 A
DC-TO-DC CONVERTER MAXIMUM RATED OUTPUT CURRENT: 15 A

SE7600H-US String 2 DC Disconnecting Means Per 690.53

PHOTOVOLTAIC DC POWER SOURCE DISCONNECT
STRING 2
MAXIMUM VOLTAGE: 400 V
MAXIMUM CURRENT: 15 A
DC-TO-DC CONVERTER MAXIMUM RATED OUTPUT CURRENT: 15 A

ALL STICKERS DESCRIBED HEREIN SHALL BE MADE OF WEATHERPROOF ADHESIVE, THEY SHALL BE REFLECTIVE, THEY SHALL CONTAIN NO SMALLER THAN 3/8" WHITE ARIAL FONT TEXT, AND HAVE A RED BACKGROUND, UNLESS OTHERWISE DEPICTED OR DESCRIBED. ALL PLACARDS SHALL BE WEATHER-RESISTANT, PERMANENTLY ETCHED PLACARDS. HANDWRITTEN SIGNS WILL NOT BE ACCEPTABLE.

Cabanilla Residence
10031 PRATT PL
SILVER SPRING, MD 20910
Utility Account:5501 6099 008

vivint.solar

Created: 7/31/19

INSTALLER: VIVINT SOLAR
INSTALLER NUMBER: 1.877.404.4129
MD LICENSE: 11692
6163782

SHEET NAME: Warning Labels Page

SHEET NUMBER: E. 3

1. MAIN BREAKER DE-RATED TO *** DUE TO SOLAR CIRCUITS
MAX OF ***AMPS PV SOURCE ALLOWED
DO NOT INCREASE MAIN BREAKER RATING
Property of Vivint Solar

2. WARNING
ELECTRICAL SHOCK HAZARD
TERMINALS ON THE LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION
Property of Vivint Solar

3. PV SYSTEM DISCONNECT
Property of Vivint Solar

4. PHOTOVOLTAIC AC POWER SOURCE
RATED AC OUTPUT CURRENT: *** A
NOM. OPERATING AC VOLTAGE: *** V
Property of Vivint Solar

5. WARNING: PHOTOVOLTAIC POWER SOURCE
Property of Vivint Solar

6. WARNING
POWER SOURCE OUTPUT CONNECTION
DO NOT RELOCATE THIS OVERCURRENT DEVICE
Property of Vivint Solar

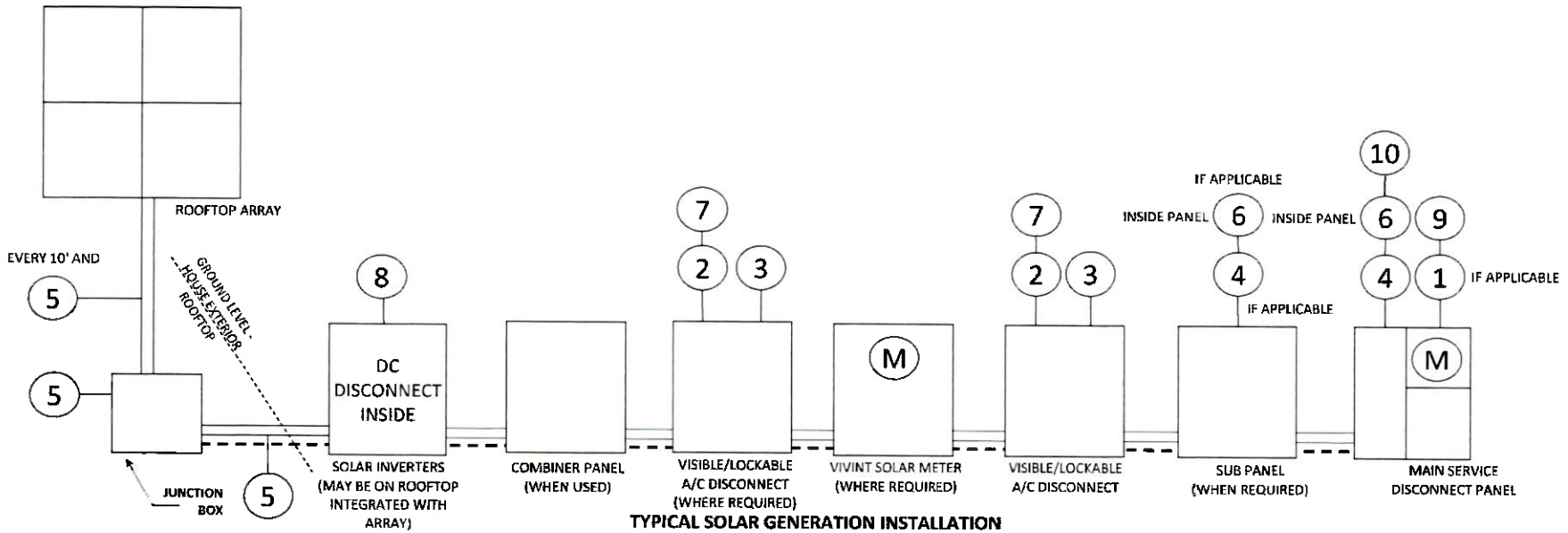
7. RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM
Property of Vivint Solar

8. PHOTOVOLTAIC DC POWER SOURCE DISCONNECT
MAXIMUM VOLTAGE: *** A
MAXIMUM CURRENT: ***V
DC-TO-DC CONVERTER MAXIMUM RATED OUTPUT CURRENT: ***A
Property of Vivint Solar

9. SITE PLAN PLACARD SHOWING ADDITIONAL POWER SOURCE AND DISCONNECT LOCATIONS. PLACARD SHALL BE MOUNTED ON EXTERIOR OF ELECTRICAL PANEL
Property of Vivint Solar

10. PV rapid shutdown label required by 690.56(C)(1) indicated on E.3

*** value calculated for each account, for specific value see the previous warning label page



TYPICAL SOLAR GENERATION INSTALLATION
(NOT ALL DEVICES ARE REQUIRED IN EVERY JURISDICTION)

ALL STICKERS DESCRIBED HEREIN SHALL BE MADE OF WEATHERPROOF ADHESIVE, THEY SHALL BE REFLECTIVE, THEY SHALL CONTAIN NO SMALLER THAN 3/8" WHITE ARIAL FONT TEXT, AND HAVE A RED BACKGROUND, UNLESS OTHERWISE DEPICTED OR DESCRIBED. ALL PLACARDS SHALL BE WEATHER-RESISTANT, PERMANENTLY ETCHED PLACARDS. HANDWRITTEN SIGNS WILL NOT BE ACCEPTABLE.

THESE PLACARDS SHALL BE PLACED ON ALL INTERIOR AND EXTERIOR DIRECT-CURRENT (DC) CONDUIT, ENCLOSURES, RACE-WAYS, CABLE ASSEMBLIES, JUNCTION BOXES COMBINER BOXES, AND DISCONNECTS TO ALERT THE FIRE SERVICE TO AVOID CUTTING THEM. MARKINGS SHALL BE PLACED ON ALL DC CONDUIT EVERY 10 FT (3048 MM), ABOVE AND BELOW PENETRATIONS OF ROOF/CEILING ASSEMBLIES, WALLS OR BARRIERS.

Cabanilla Residence
10031 PRATT PL
SILVER SPRING, MD 20910
Utility Account 5501 6099 008

vivint. solar

Created: 7/31/19

INSTALLER: VIVINT SOLAR
INSTALLER NUMBER: 1.877.404.4129
MD LICENSE: 11692
6163782

SHEET NAME: Warning Labels Page

SHEET NUMBER: E. 4

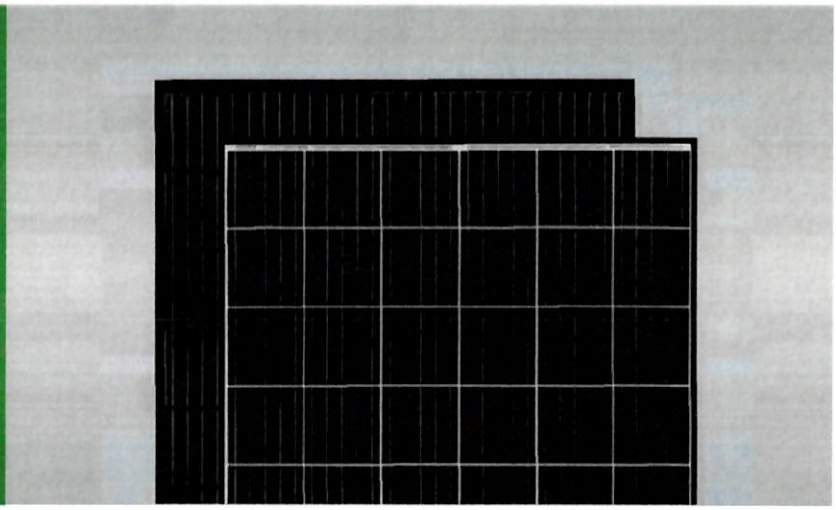
Jinko Solar
Building Your Trust in Solar

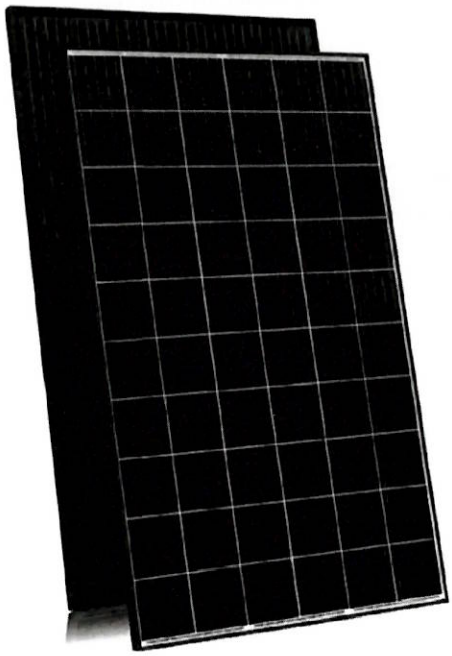
Eagle 60M G2

305-325 Watt

MONO PERC MODULE

Positive power tolerance of 0~+3%





KEY FEATURES

Diamond Cell Technology
Uniquely designed high performance 5 busbar mono PERC cell

PID FREE
Reinforced cell prevents potential induced degradation

Better Low-Light Performance
Excellent performance in low-light environments

Strength and Durability
Certified for high snow (5400Pa) and wind (2400 Pa) loads

Weather Resistance
Certified for salt mist and ammonia resistance

- ISO9001:2008 Quality Standards
- ISO14001:2004 Environmental Standards
- OHSAS18001 Occupational Health & Safety Standards
- IEC61215, IEC61730 certified products
- UL1703 certified products

Nomenclature:

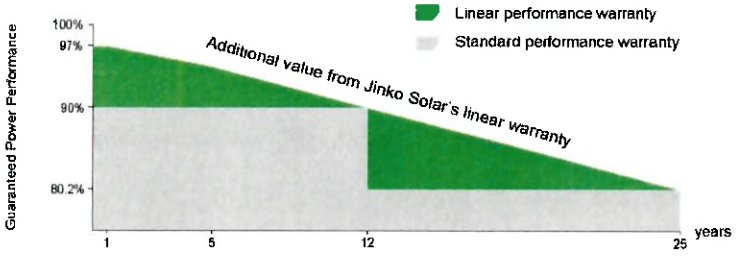
JKM325M - 60BL

Code	Backsheet	Code	Cell
null	White	null	Normal
B	Black	L	Diamond

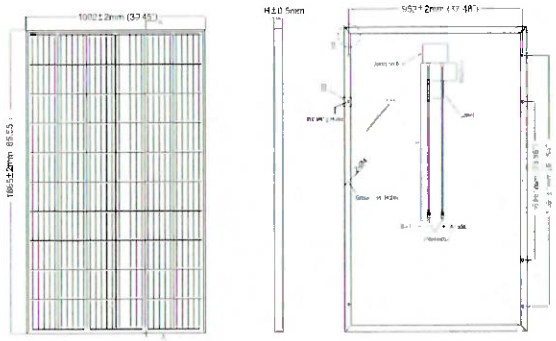
c UL us LISTED

LINEAR PERFORMANCE WARRANTY

10 Year Product Warranty • 25 Year Linear Power Warranty



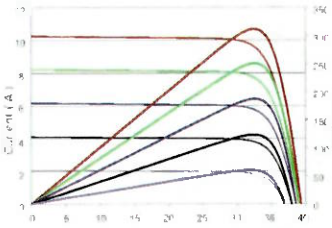
Engineering Drawings



Front Side Back

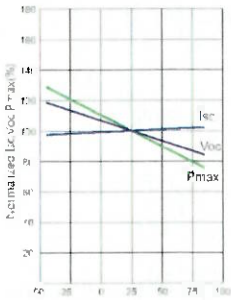
Electrical Performance & Temperature Dependence

Current-Voltage & Power-Voltage Curves (310W)



Voltage (V)

Temperature Dependence of Isc,Voc,Pmax



Cell Temperature(°C)

Packaging Configuration

(Two pallets = One stack)

30pcs/pallet, 60pcs/stack, 840pcs/40'HQ Container

Mechanical Characteristics

Cell Type	Mono PERC Diamond Cell (158.75 x 158.75 mm)
No. of cells	60 (6×10)
Dimensions	1665×1002×35mm (65.55×39.45×1.38 inch)
Weight	19.0 kg (41.9 lbs)
Front Glass	3.2mm, Anti-Reflection Coating, High Transmission, Low Iron, Tempered Glass
Frame	Anodized Aluminium Alloy
Junction Box	IP67 Rated
Output Cables	12 AWG, Length 1000mm (39.37 in) or Customized Length
Fire Type	Type 1

SPECIFICATIONS

Module Type	JKM305M-60L		JKM310M-60L		JKM315M-60L		JKM320M-60L		JKM325M-60L	
	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Maximum Power (Pmax)	305Wp	227Wp	310Wp	231Wp	315Wp	235Wp	320Wp	239Wp	325Wp	242Wp
Maximum Power Voltage (Vmp)	32.8V	30.8V	33.0V	31.0V	33.2V	31.2V	33.4V	31.4V	33.6V	31.6V
Maximum Power Current (Imp)	9.30A	7.40A	9.40A	7.49A	9.49A	7.56A	9.59A	7.62A	9.68A	7.66A
Open-circuit Voltage (Voc)	40.3V	37.2V	40.5V	37.4V	40.7V	37.6V	40.9V	37.8V	41.1V	38.0V
Short-circuit Current (Isc)	9.83A	8.12A	9.92A	8.20A	10.04A	8.33A	10.15A	8.44A	10.20A	8.54A
Module Efficiency STC (%)	18.28%		18.58%		18.88%		19.18%		19.48%	
Operating Temperature (°C)	-40°C~+85°C									
Maximum System Voltage	1000VDC(UL)/1000VDC(IEC)									
Maximum Series Fuse Rating	20A									
Power Tolerance	0~+3%									
Temperature Coefficients of Pmax	-0.37%/°C									
Temperature Coefficients of Voc	-0.28%/°C									
Temperature Coefficients of Isc	0.048%/°C									
Nominal Operating Cell Temperature (NOCT)	45±2°C									

STC: Irradiance 1000W/m² Cell Temperature 25°C AM=1.5

NOCT: Irradiance 800W/m² Ambient Temperature 20°C AM=1.5 Wind Speed 1m/s

* Power measurement tolerance ± 3%

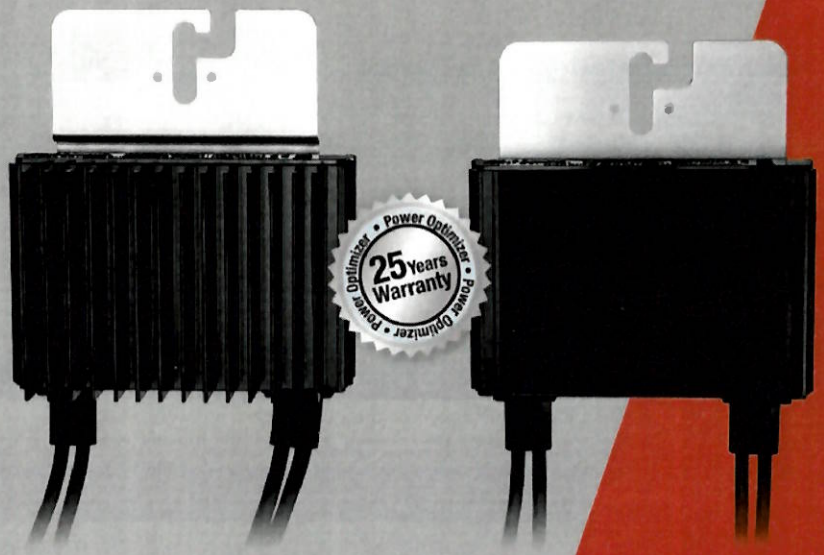
solaredge

SolarEdge Power Optimizer

Module Add-On For North America

P320 / P370 / P400 / P405 / P505

POWER OPTIMIZER



PV power optimization at the module-level

- Specifically designed to work with SolarEdge inverters
- Up to 25% more energy
- Superior efficiency (99.5%)
- Mitigates all types of module mismatch losses, from manufacturing tolerance to partial shading
- Flexible system design for maximum space utilization
- Fast installation with a single bolt
- Next generation maintenance with module-level monitoring
- Compliant with arc fault protection and rapid shutdown NEC requirements (when installed as part of the SolarEdge system)
- Module-level voltage shutdown for installer and firefighter safety

SolarEdge Power Optimizer

Module Add-On for North America

P320 / P370 / P400 / P405 / P505

OPTIMIZER MODEL (typical module compatibility)	P320 (for high-power 60-cell modules)	P370 (for higher-power 60 and 72-cell modules)	P400 (for 72 & 96-cell modules)	P405 (for thin film modules)	P505 (for higher current modules)	
INPUT						
Rated Input DC Power[1]	320	370	400	405	505	W
Absolute Maximum Input Voltage (Voc at lowest temperature)	48	60	80	125	83	Vdc
MPPT Operating Range	8 - 48	8 - 60	8 - 80	12.5 - 105	12.5 - 83	Vdc
Maximum Short Circuit Current (Isc)	11		10.1		14	Adc
Maximum DC Input Current	13.75		12.63		17.5	Adc
Maximum Efficiency	99.5					%
Weighted Efficiency	98.8				98.6	%
Overvoltage Category	II					
OUTPUT DURING OPERATION (POWER OPTIMIZER CONNECTED TO OPERATING SOLAREDGE INVERTER)						
Maximum Output Current	15					Adc
Maximum Output Voltage	60			85		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						
EMC	FCC Part15 Class B, IEC61000-6-2, IEC61000 6-3					
Safety	IEC62109-1 (class II safety), UL1741					
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)	128 x 152 x 28 / 5 x 5.97 x 1.1		128 x 152 x 36 / 5 x 5.97 x 1.42	128 x 152 x 50 / 5 x 5.97 x 1.96	128 x 152 x 59 / 5 x 5.97 x 2.32	mm / in
Weight (including cables)	630 / 1.4		750 / 1.7	845 / 1.9	1064 / 2.3	gr / lb
Input Connector	MC4[2]					
Output Wire Type / Connector	Double Insulated; MC4					
Output Wire Length	0.95 / 3.0	1.2 / 3.9				m / ft
Operating Temperature Range	-40 - +85 / -40 - +185					°C / °F
Protection Rating	IP68 / NEMA6P					
Relative Humidity	0 - 100					%

[1] Rated STC power of the module. Module of up to +5% power tolerance allowed

[2] For other connector types please contact SolarEdge

PV SYSTEM DESIGN USING A SOLAREDGE INVERTER[3][4]		SINGLE PHASE HD-WAVE	SINGLE PHASE	THREE PHASE 208V	THREE PHASE 480V	
Minimum String Length (Power Optimizers)	P320, P370, P400	8		10	18	
	P405 / P505	6		8	14	
Maximum String Length (Power Optimizers)		25		25	50[5]	
Maximum Power per String		5700 (6000 with SE7600H-US)	5250	6000	12750	W
Parallel Strings of Different Lengths or Orientations		Yes				

[3] For detailed string sizing information refer to: http://www.solaredge.com/sites/default/files/string_sizing_na.pdf

[4] It is not allowed to mix P405/P505 with P320/P370/P400/P600/P700/P800 in one string

[5] A string with more than 30 optimizers does not meet NEC rapid shutdown requirements; safety voltage will be above the 30V requirement

INVERTERS

solaredge

Single Phase Inverters

for North America

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

Optimized installation with HD-Wave technology

- Specifically designed to work with power optimizers
- Record-breaking efficiency
- 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
- High reliability without any electrolytic capacitors
- Built-in module-level monitoring
- Outdoor and indoor installation
- Optional: Revenue grade data, ANSI C12.20 Class 0.5 (0.5% accuracy)

HD wave

Single Phase Inverters for North America

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

	SE3000H-US	SE3800H-US	SE5000H-US	SE6000H-US	SE7600H-US	SE10000H-US	
OUTPUT							
Rated AC Power Output	3000	3800	5000	6000	7600	10000	VA
Max. AC Power Output	3000	3800	5000	6000	7600	10000	VA
AC Output Voltage Min.-Nom.-Max. (211 - 240 - 264)	✓	✓	✓	✓	✓	✓	Vac
AC Frequency (Nominal)	59.3 - 60 - 60.5[1]						Hz
Maximum Continuous Output Current@240V	12.5	16	21	25	32	42	A
GFDI Threshold	1						A
Utility Monitoring, Islanding Protection, Country Configurable Thresholds	Yes						
INPUT							
Maximum DC Power	4650	5900	7750	9300	11800	15500	W
Transformer-less, Ungrounded	Yes						
Maximum Input Voltage	480						Vdc
Nominal DC Input Voltage	380				400		Vdc
Maximum Input Current@240V	8.5	10.5	13.5	16.5	20	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						%
Nighttime Power Consumption	< 2.5						W
ADDITIONAL FEATURES							
Supported Communication Interfaces	RS485, Ethernet, ZigBee (optional), Cellular (optional)						
Revenue Grade Data, ANSI C12.20	Optional[2]						
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 / 20-4 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				Natural convection		
Operating Temperature Range	-13 to +140 / -25 to +60[3] (-40°F / -40°C option)[4]						°F / °C
Protection Rating	NEMA 3R (Inverter with Safety Switch)						

[1] For other regional settings please contact SolarEdge support
[2] Revenue grade inverter P/N: SExxxxH-US000NNC2
[3] For power de-rating information refer to: https://www.solaredge.com/sites/default/files/se-temperature-derating-note-na.pdf
[4] -40 version P/N: SExxxxH-US000NNU4

RoHS