



HISTORIC PRESERVATION COMMISSION

Marc Elrich
County Executive

Jeffrey Hains
Chair

July 17, 2026

TO: Rabbiah Sabbakhan
Department of Permitting Services
FROM: Laura DiPasquale
Historic Preservation Section
Maryland-National Capital Park & Planning Commission
SUBJECT: Historic Area Work Permit #1161903– Solar panel installation

The Montgomery County Historic Preservation Commission (HPC) has reviewed the attached applications for a Historic Area Work Permit (HAWP). This application was **approved with one (1) condition** at the July 15, 2026 HPC meeting:

1. The panel layout on the front roof must be symmetrically oriented and positioned. The applicant must submit revised plans showing the panels reoriented, which may result in the net loss of one to two panels, which may be relocated to the rear, if possible.

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: Andrew Saindon (Tina Crouse, Agent)
Address: 7220 Spruce 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 to schedule a follow-up site visit.



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

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

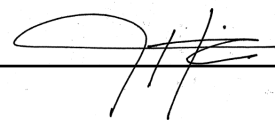
REVIEWED

By Laura DiPasquale at 2:17 pm, Jul 17, 2026

APPROVED

Montgomery County

Historic Preservation Commission

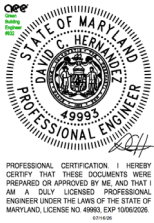
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Critter Guard

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Historic Preservation Commission



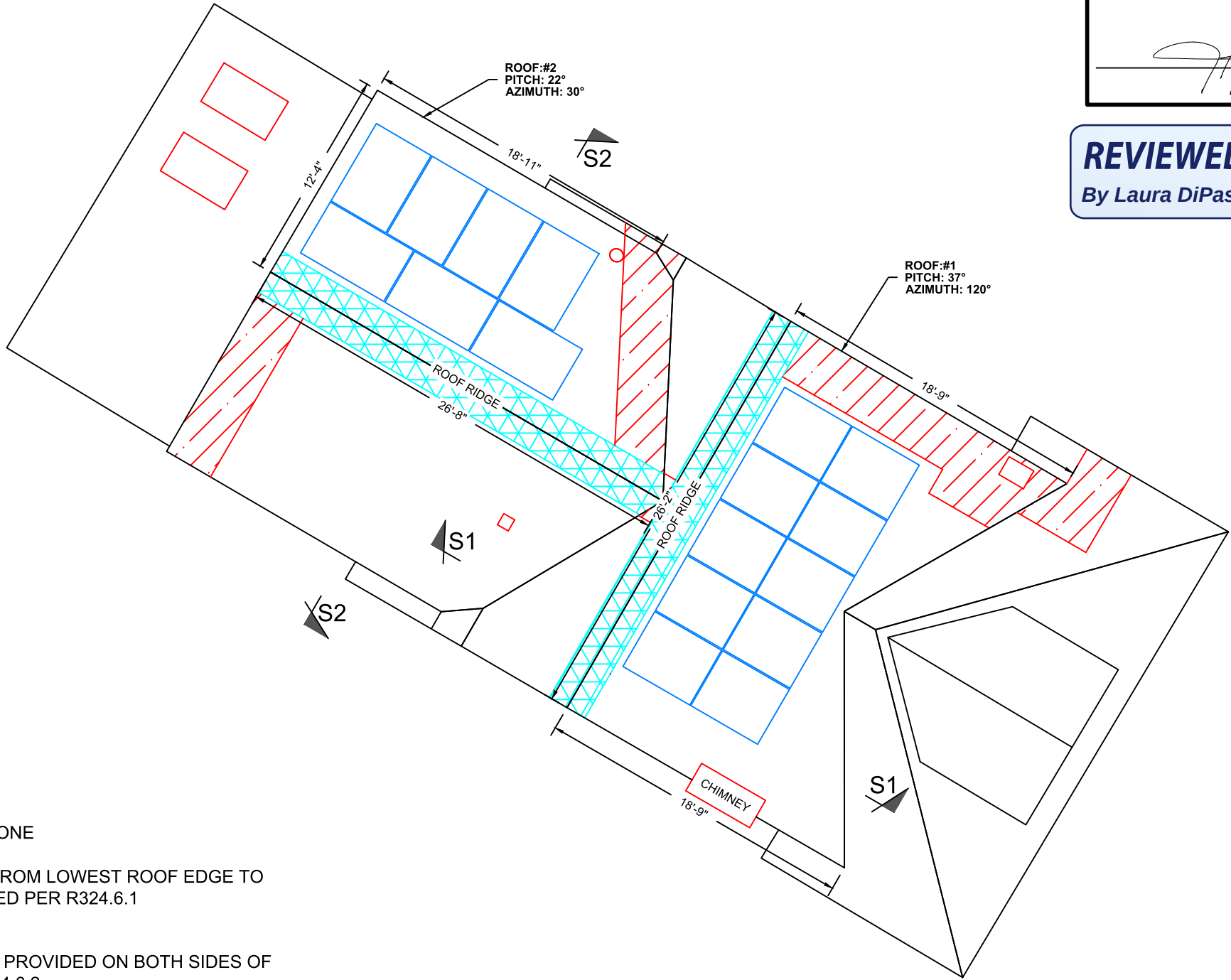
David C. Hernandez, PE

Digitally signed by David C. Hernandez, PE

Date: 2026.07.16 17:38:48 -04:00

REVIEWED

By Laura DiPasquale at 2:17 pm, Jul 17, 2026



- KEY
- FIRE SAFETY ZONE
- 3' PATHWAYS FROM LOWEST ROOF EDGE TO RIDGE PROVIDED PER R324.6.1
- 1'6" PATHWAYS PROVIDED ON BOTH SIDES OF RIDGE PER R324.6.2

PLAN VIEW TOTAL ROOF AREA: 1990 SQFT

SOLAR ARRAY AREA: 357.00 SQFT

THE SOLAR ARRAY IS 17.9% OF THE PLAN VIEW TOTAL ROOF AREA

- NOTES:
- THE SYSTEM SHALL INCLUDE (17) JA SOLAR JAM54D41-440 MB.
 - SNAPNRACK TOPSPEED WILL BE INSTALLED IN ACCORDANCE WITH SNAPNRACK INSTALLATION MANUAL.
 - REFER TO STRUCTURAL DRAWING FOR SECTIONS MARKED AND ADDITIONAL NOTES.

SOLAR PANEL LAYOUT

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


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Because Tomorrow Matters

Solar Energy World LLC.
14880 Sweitzer Lane
Laurel, MD 20707
(888) 856-4580

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Building Code	
International Residential Code (IRC) 2021	
Electrical Code	
National Electrical Code (NEC) 2017	
Wind Speed	Snow Load
115 MPH	30 PSF

Modules

(17) JA SOLAR JAM54D41-440 MB

Inverter(s)

(17) ENPHASE IQ8MC-72-M-US

DC System Size	AC System Size
7.480 kW	5.440 kW

Customer Information

Andrew Saindon
7220 Spruce Avenue,
Takoma Park, MD 20913

Partner/Lender

None

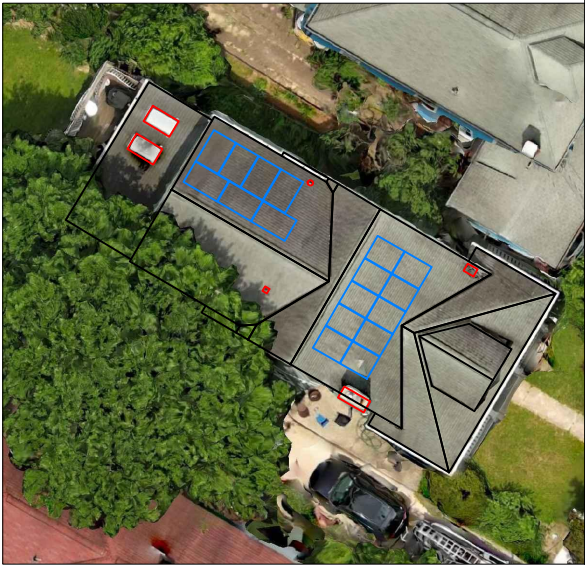
AVJ	Utility
Montgomery	PEPCO

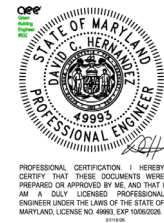
Sheet Name

Solar Panel Layout

Drawn By	Date
GC	July 16, 2026

Scale	Job Number	Sheet
AS NOTED	MD31821	A-1





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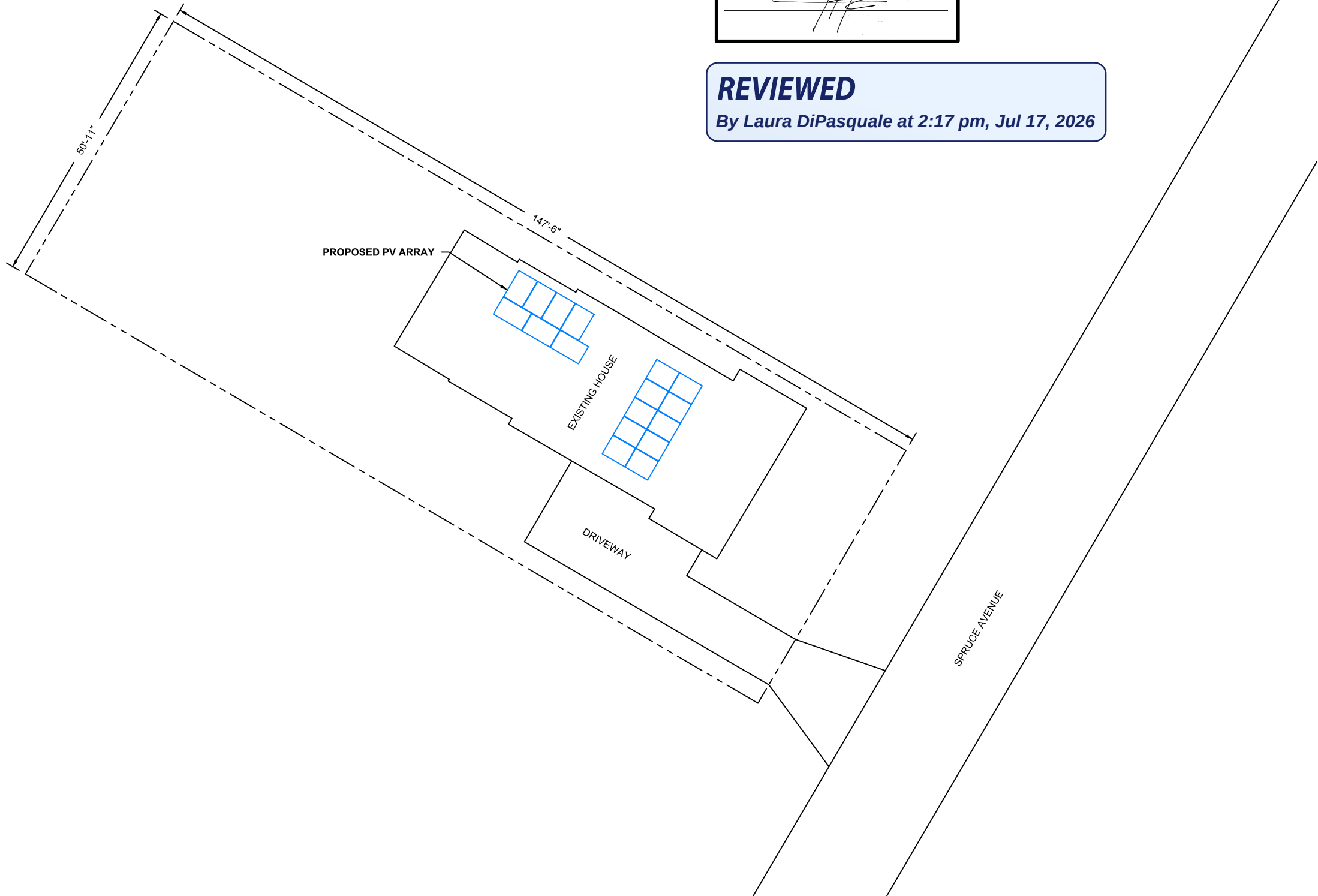
Montgomery County

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SITE PLAN

Scale: 1" = 20'-0"



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Wind Speed 115 MPH	Snow Load 30 PSF
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Inverter(s)
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DC System Size 7.480 kW	AC System Size 5.440 kW
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Customer Information
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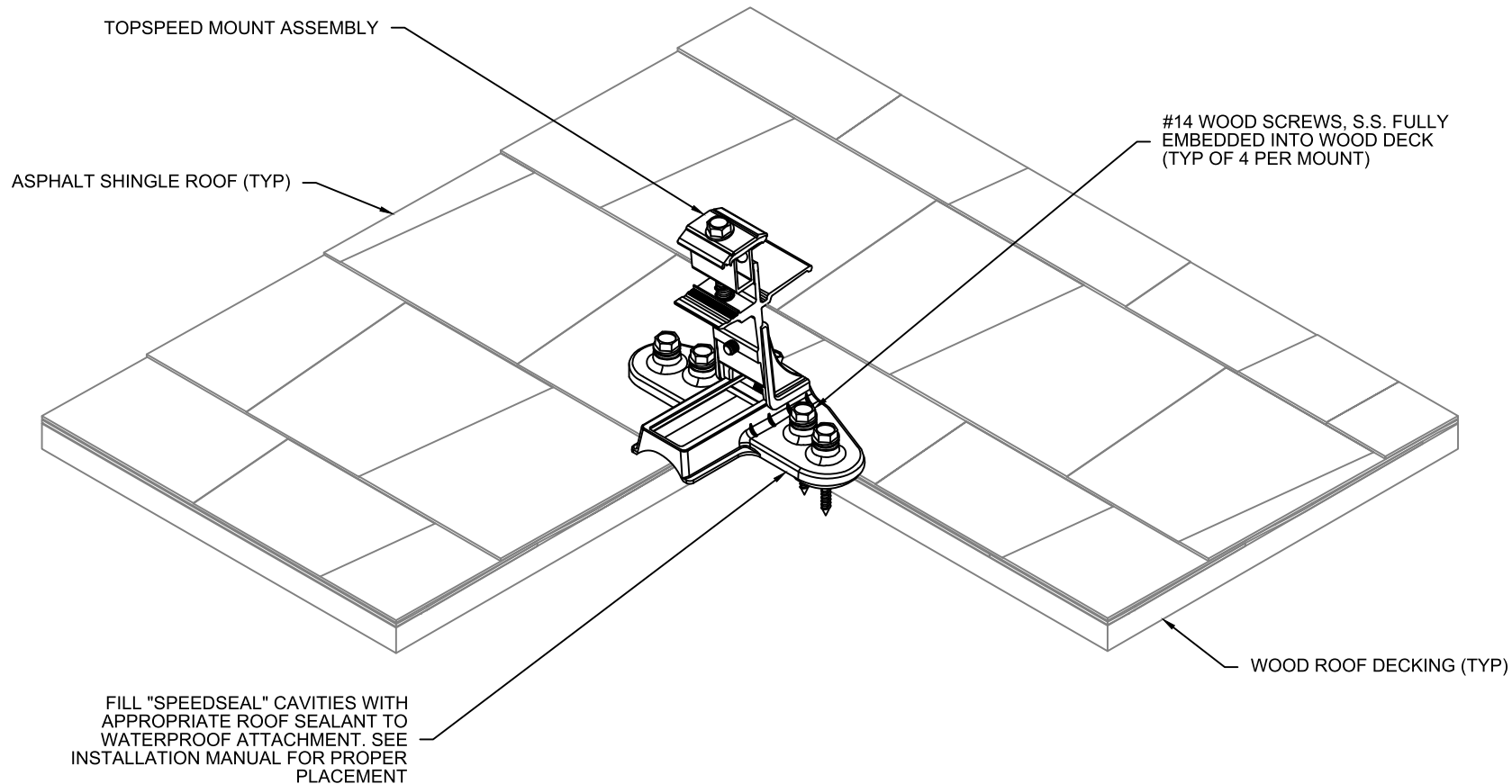
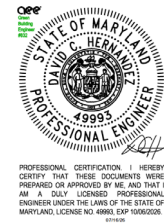
Permit/Lender
None

City Montgomery	Utility PEPCO
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Sheet Name
Site Plan

Drawn By GC	Date July 16, 2026
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Scale AS NOTED	Job Number MD31821	Sheet A-2
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[Signature]

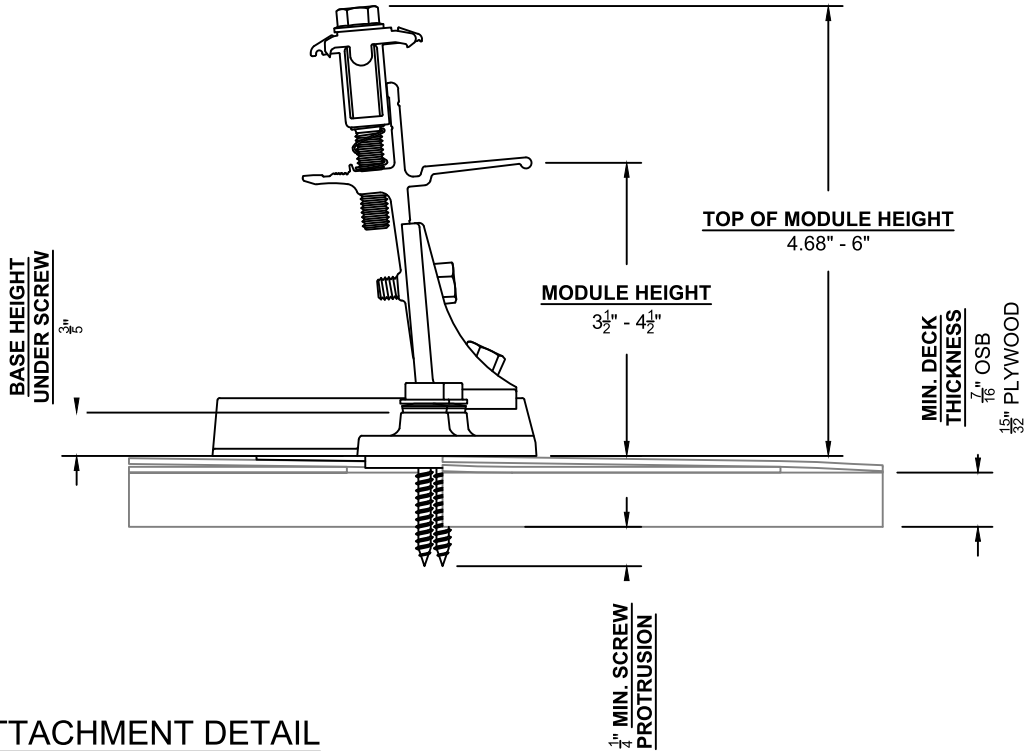
REVIEWED

By Laura DiPasquale at 2:17 pm, Jul 17, 2026

Structural Details		
S1	TJI Rafter	2x12 O.C. 16"
S2	Truss	2x4 O.C. 24"

NOTES:

- ALL WORK SHALL COMPLY WITH REQUIREMENTS OF INTERNATIONAL RESIDENTIAL CODE (IRC 2021), LOADING CODE (ASCE 7-16), WOOD DESIGN CODE (NDS 2018), AND LOCAL REQUIREMENTS.
- LOAD CRITERIA PER :
 - EXPOSURE CATEGORY "B"
 - GROUND SNOW LOAD, $P_g = 30$ PSF
 - LATERAL LOAD RISK CATEGORY "II"
 - ULTIMATE DESIGN WIND SPEED = 115 MPH
- SOLAR PANELS AND RACKING SYSTEMS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATION.
- FOLLOW ALL LOCAL AND FEDERAL SAFETY REQUIREMENTS.



STRUCTURAL ATTACHMENT DETAIL



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Takoma Park, MD 20913

Permit/Lender
None

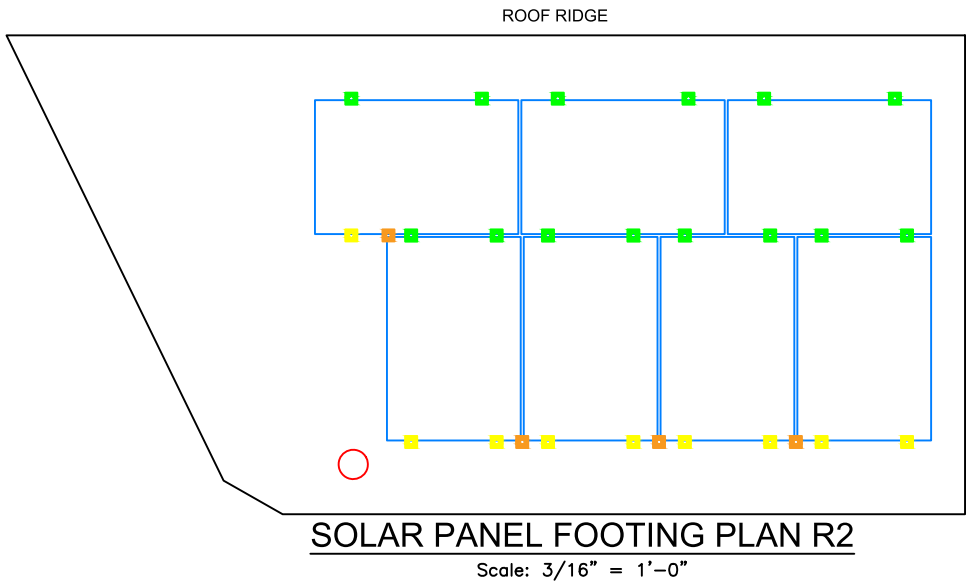
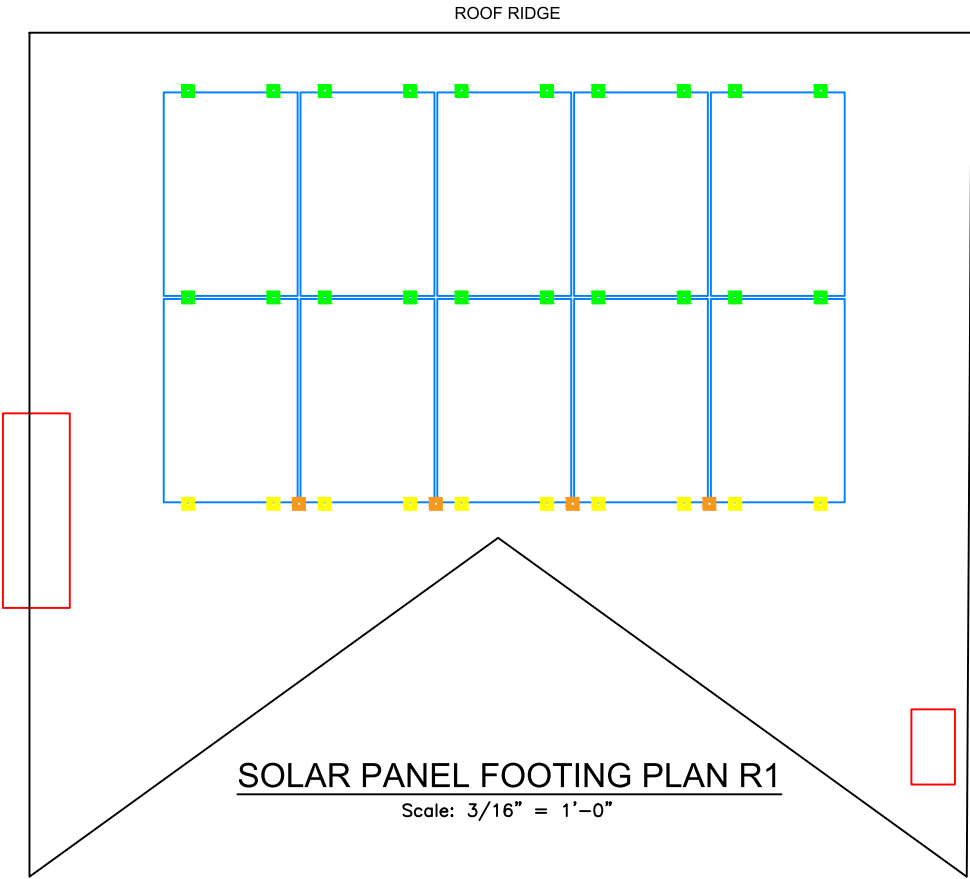
City Montgomery	Utility PEPCO
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Sheet Name
Structural Attachment Details

Drawn By GC	Date July 16, 2026
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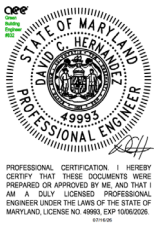
Scale AS NOTED	Job Number MD31821	Sheet S-1
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Bill Of Materials		
Product		Count
Module	JA SOLAR JAM54D41-440 MB	17
Inverter	ENPHASE IQ8MC-72-M-US	17
Racking	Mounts Without Spacers	34
	Mounts With Spacers	19
	Clamps Without Spacers	0
	Clamps With Spacers	8



- KEY**
-  MOUNTS WITHOUT SPACERS
 -  MOUNTS WITH SPACERS
 -  CLAMPS WITHOUT SPACERS
 -  CLAMPS WITH SPACERS

- NOTES:**
- SNAPNRACK TOPSPEED SHALL BE INSTALLED IN ACCORDANCE WITH SNAPNRACK INSTALLATION MANUAL.
 - ADD TOPSPEED CLAMP IF GREATER THAN (SOLAR PANEL LENGTH / 4) FOR LANDSCAPE OR (SOLAR PANEL WIDTH / 4) FOR PORTRAIT
 - NO SOLAR PANEL SHALL CANTILEVER MORE THAN 1/4 SOLAR PANEL LENGTH OR WIDTH DEPENDING ON ORIENTATION. UNLESS FOR MANUFACTURER SPECIFIED CLAMPING ZONE



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30 PSF

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Inverter(s)
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AC System Size
5.440 kW

Customer Information
Andrew Saindon
7220 Spruce Avenue,
Takoma Park, MD 20913

Permit/Lender
None

City
Montgomery

Utility
PEPCO

Sheet Name
Solar Panel Footing Plan

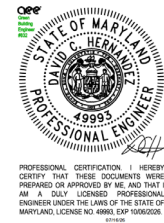
Drawn By
GC

Date
July 16, 2026

Scale
AS NOTED

Job Number
MD31821

Sheet
S-2



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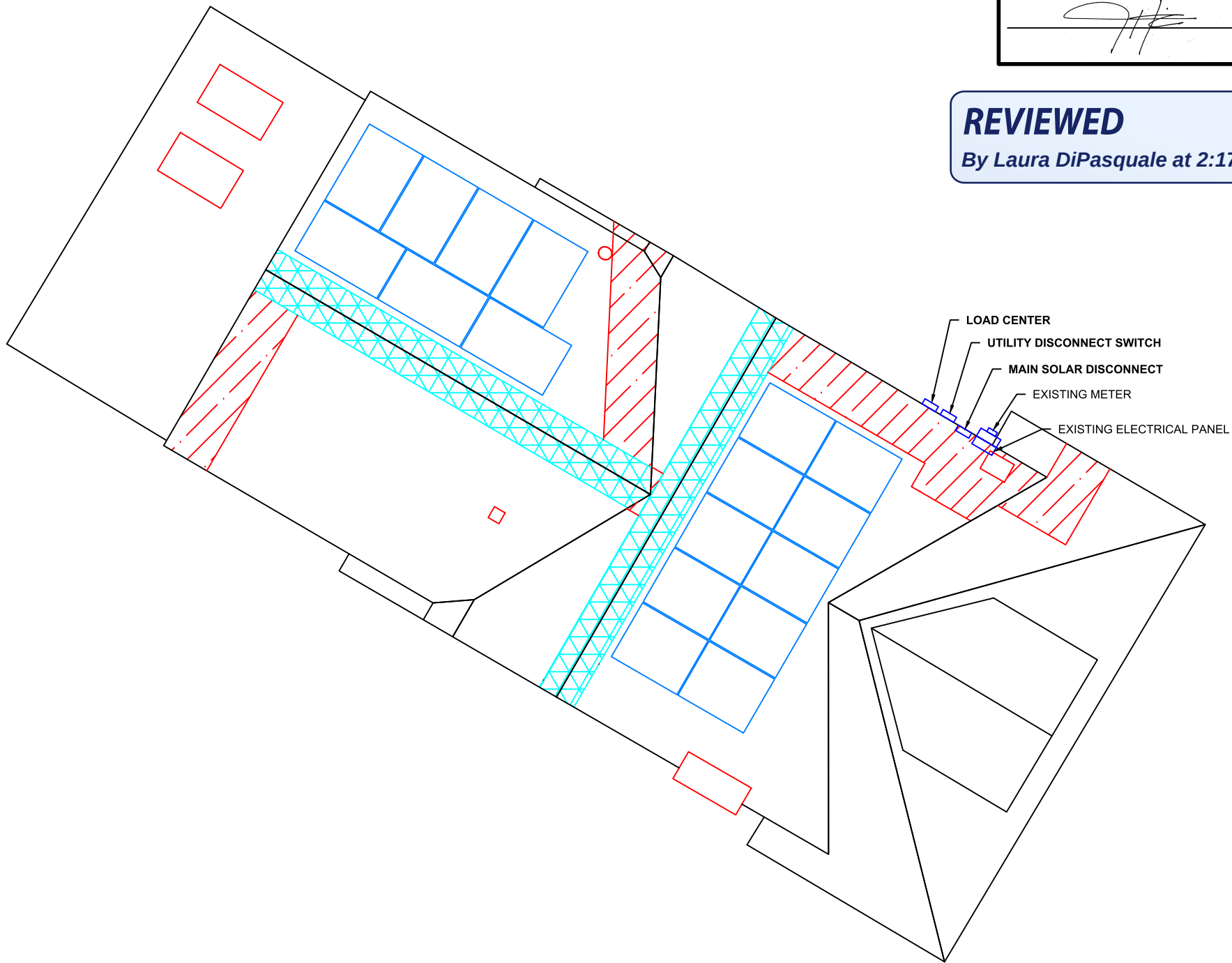
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EQUIPMENT LOCATION PLAN

Scale: NTS

NOTE:

EQUIPMENT LOCATION PLAN IS APPROXIMATE, EXACT LOCATION TO BE VERIFIED WITH INSTALLATION CREW AND HOME OWNER AT THE TIME OF INSTALLATION.



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Inverter(s)
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DC System Size 7.480 kW	AC System Size 5.440 kW
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Customer Information
Andrew Saindon
7220 Spruce Avenue,
Takoma Park, MD 20913

Roofing/Lender
None

City Montgomery	Utility PEPCO
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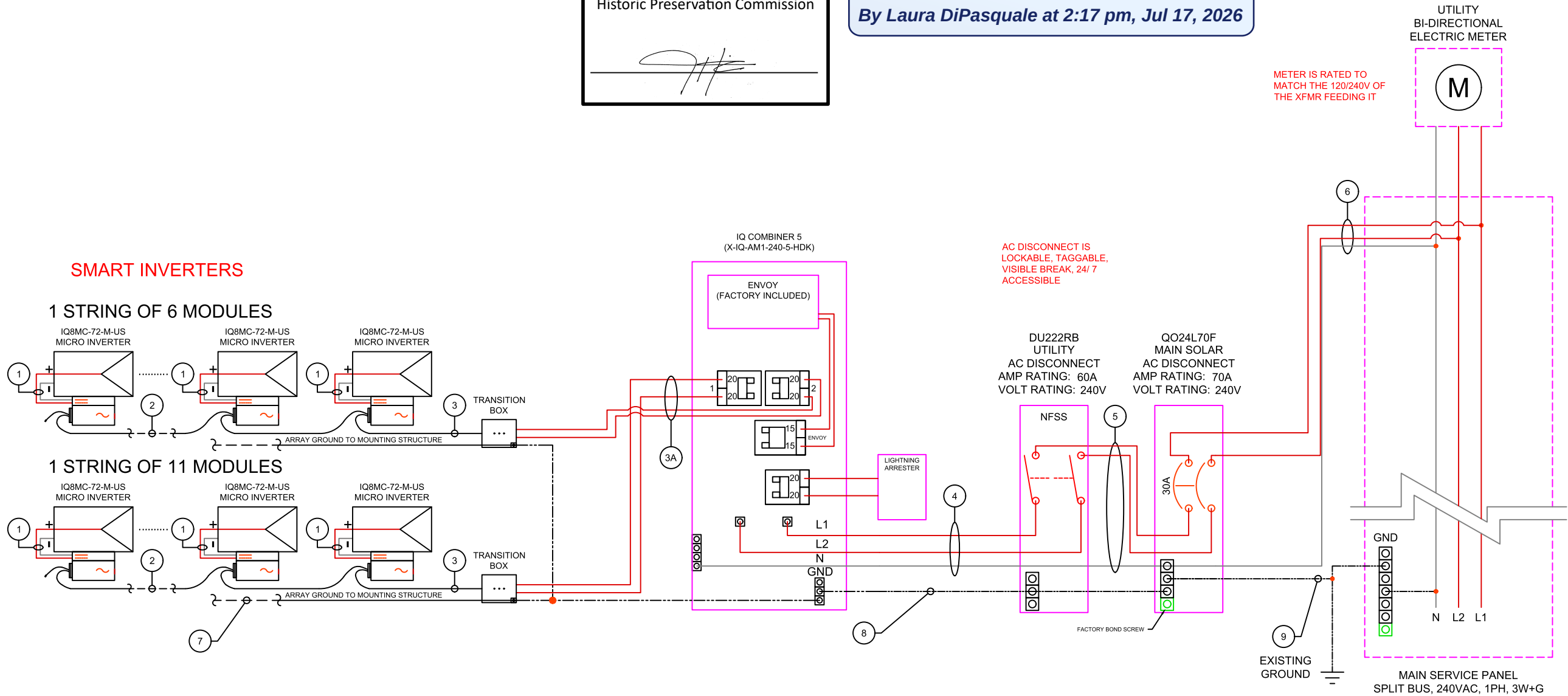
Sheet Name
Equipment Location Plan

Drawn By GC	Date July 16, 2026
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Scale AS NOTED	Job Number MD31821	Sheet E-1
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MODULE SPECIFICATIONS		
MODEL NUMBER	JAM54D41-440 MB	
PEAK POWER	440 W	
RATED VOLTAGE (V _{mpp})	33.37 V	
RATED CURRENT (I _{mp})	13.18 A	
OPEN CIRCUIT VOLTAGE (V _{oc})	39.38 V	
SHORT CIRCUIT CURRENT (I _{sc})	13.85 A	
MAXIMUM SYSTEM VOLTAGE	1500VDC	
INVERTER SPECIFICATIONS		
MODEL NUMBER	IQ8MC-72-M-US	
MAXIMUM DC VOLTAGE	60 V	
MAXIMUM POWER OUTPUT	320 W	
NOMINAL AC VOLTAGE	240 VAC	
MAXIMUM AC CURRENT	1.33 A	
CEC EFFICIENCY	97.0%	
ARRAY DETAILS		
NO. OF MODULES PER STRING	6	11
NO. OF STRINGS	1	1
ARRAY WATTS AT STC	2640	4840

3-LINE DIAGRAM

WIRE/CONDUIT SCHEDULE ARRAY			
TAG	DESCRIPTION	WIRE SIZE/TYPE	NOTES
1	Panel to Micro Inverter	PV Wire (Factory Made)	INTEGRATED
2	Micro Inverter to Micro Inverter	Pre-Manufactured Cable	
3	Micro Inverter to Transition Box	Pre-Manufactured Cable	
3A	Transition Box to Load Center	#10 THHN/THWN-2	
4	Load Center to AC Disconnect	#10 Cu THHN/THWN-2	
5	AC Disconnect to AC Disconnect	#10 Cu THHN/THWN-2	
6	AC Disconnect to Interconnection Point	#6 Cu THHN/THWN-2	
7	Equipment Grounding Conductor	#8 Cu Bare Copper Wire	
8	Equipment Grounding Conductor	#8 Cu THHN/THWN-2	
9	Grounding Electrode Conductor	#6 Cu	

GENERAL ELECTRIC NOTES: NEC2017

- EQUIPMENT USED SHALL BE NEW, UNLESS OTHERWISE NOTED.
 - EQUIPMENT USED SHALL BE UL LISTED, UNLESS OTHERWISE NOTED.
 - EQUIPMENT SHALL BE INSTALLED PROVIDING ADEQUATE PHYSICAL WORKING SPACE AROUND THE EQUIPMENT AND SHALL COMPLY WITH NEC.
 - COPPER CONDUCTORS SHALL BE USED AND SHALL HAVE AN INSULATION RATING OF 600V, 90°C, UNLESS OTHERWISE NOTED.
 - CONDUCTORS SHALL BE SIZED IN ACCORDANCE TO THE NEC. CONDUCTORS AMPACITY SHALL BE DE-RATED FOR TEMPERATURE INCREASE, CONDUIT FILL AND VOLTAGE DROP.
 - ALL CONDUCTORS, EXCEPT PV WIRE SHALL BE INSTALLED IN APPROVED CONDUITS OR RACEWAY. CONDUITS SHALL BE ADEQUATELY SUPPORTED AS PER NEC.
 - AC DISCONNECT SHOWN IS REQUIRED IF THE UTILITY REQUIRES VISIBLE-BLADE SWITCH.
 - EXPOSED NON-CURRENT CARRYING METAL PARTS SHALL BE GROUNDED AS PER NEC.
 - LINE SIDE INTER-CONNECTION SHALL COMPLY WITH NEC.
 - SMS MONITORING SYSTEM AND IT'S CONNECTION SHOWN IS OPTIONAL. IF USED, REFER TO SMS INSTALLATION MANUAL FOR WIRING METHODS AND OPERATION PROCEDURE.
 - ASHRAE FUNDAMENTAL OUTDOOR DESIGN TEMPERATURES DO NOT EXCEED 47°C IN THE U.S. (PHOENIX, AZ OR PALM SPRINGS, CA)
 - FOR LESS THAN 9 CURRENT-CARRYING CONDUCTORS IN ROOF MOUNTED SUNLIGHT CONDUIT USING THE OUTDOOR TEMPERATURE OF 47°C
 - 10AWG CONDUCTOR ARE GENERALLY ACCEPTABLE FOR MODULES WITH AN I_{sc} OF 9.6 AMPS WITH A 15 AMP FUSE.
- WIRE SIZING FOR OCPD
EX (I_{sc} *(1.25)(1.25))/(# OF STRINGS IN PARALLEL) = WIRE AMPACITY OR USING NEC TABLE 690.8



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Building Code International Residential Code (IRC) 2021	
Electrical Code National Electrical Code (NEC) 2017	
Wind Speed 115 MPH	Snow Load 30 PSF
Modules (17) JA SOLAR JAM54D41-440 MB	
Inverter(s) (17) ENPHASE IQ8MC-72-M-US	
DC System Size 7.480 kW	AC System Size 5.440 kW
Customer Information Andrew Saindon 7220 Spruce Avenue, Takoma Park, MD 20913	
Permit/Lender None	
City Montgomery	Utility PEPCO
Sheet Name Electrical 3-Line Diagram	
Drawn By GC	Date July 16, 2026
Scale AS NOTED	Job Number MD31821
Sheet E-2	

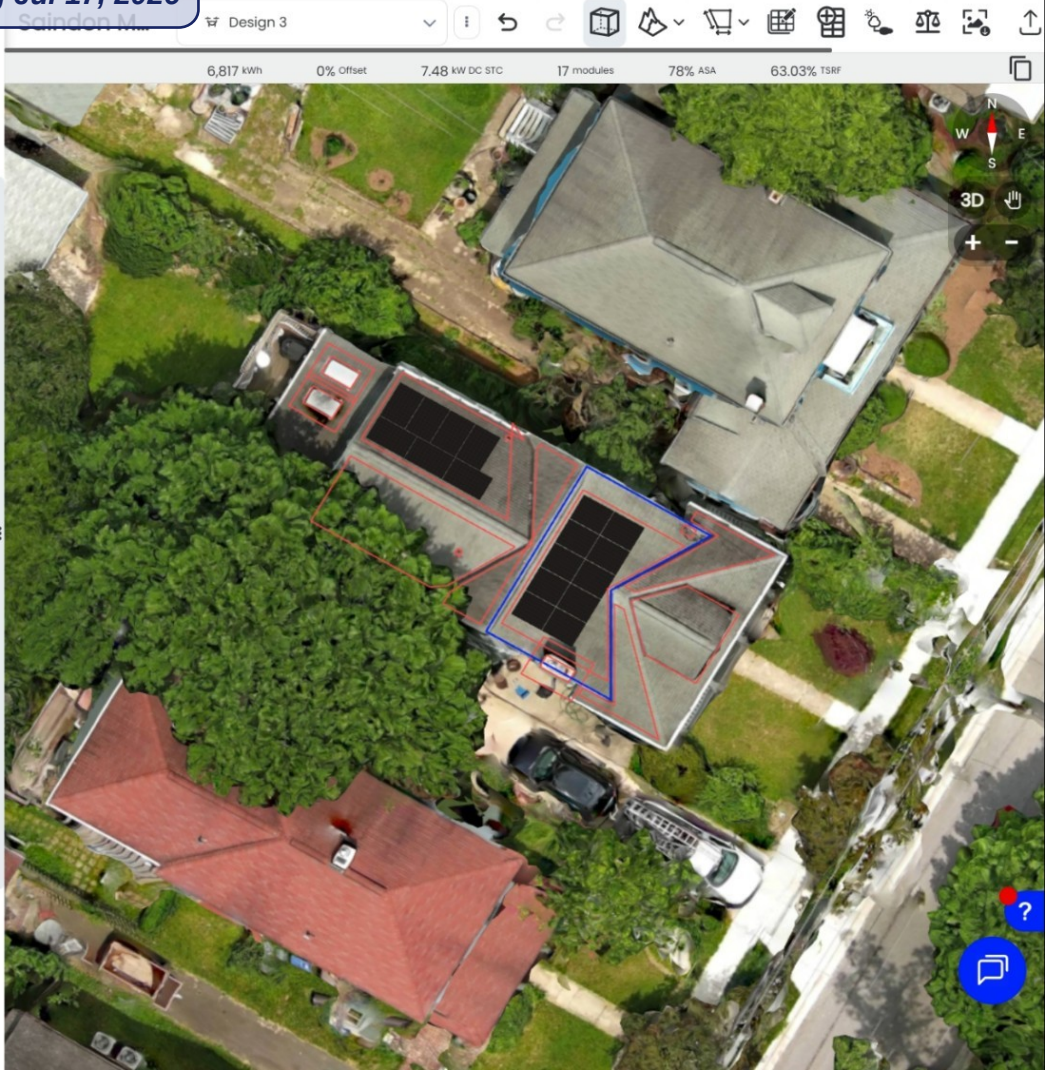
Design Number: Design 3
Module Quantity: 17
Module Type: JA 440W
System Size: 7.48 kW DC
Inverter: Enphase IQ8MC

Sprinkler System: No
Tree Removal: No
Critter Guards: Yes
Roof Type: Asphalt Shingles
Racking: Top Speed (SnapNRack)



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Montgomery County
Historic Preservation Commission

REVIEWED
By Laura DiPasquale at 2:17 pm, Jul 17, 2026

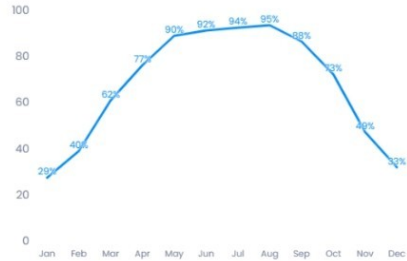


Overview

Segment	Modules	Size	Production	Per module	ASA	TSRF	Consumption	PV Offset	Area	Coverage	Perimeter
All total	17	7.48 kW	6,817 kWh	401 kWh	78%	63.03%	0 kWh	0%	1990 ft²	18.61%	143.8 (ft)

Nearest weather station: 724050, WASHINGTON DC REAGAN AP, VA NSRDB (7.71 mi)

Monthly Average Solar Access



Monthly Consumption and Production (kWh)



Segments

Segment	Modules	Size	Production	Per module	ASA	TSRF	Azimuth	Tilt	Area	Coverage	Perimeter
Segment A	10 (440W)	4.4 kW	4,453 kWh	445 kWh	77.28%	69.55%	120.1°	36.8°	489 ft²	44.52%	60.6 (ft)
Segment B	0	0 kW	0 kWh	0 kWh	--	--	223.7°	22.5°	93 ft²	0.00%	0 (ft)
Segment C	0	0 kW	0 kWh	0 kWh	--	--	30.3°	22.3°	98 ft²	0.00%	0 (ft)
Segment D	0	0 kW	0 kWh	0 kWh	--	--	120.8°	24.7°	248 ft²	0.00%	0 (ft)
Segment E	0	0 kW	0 kWh	0 kWh	--	--	300.1°	37.7°	154 ft²	0.00%	0 (ft)
Segment F	7	3.08 kW	2,364 kWh	338 kWh	76.03%	53.79%	20.3°	21.6°	310 ft²	10.19%	83.2 (ft)

DAVID C. HERNANDEZ, PE

513-418-8812



4912 Prospect Ave., Blue Ash OH 45242



davehernandezpe@gmail.com



DATE: June 17, 2026

RE: 7220 Spruce Avenue, Takoma Park, MD 20913, USA

To Whom It May Concern,

As per your request, Exactus Energy has inspected the structure and has conducted a structural assessment of the building at the above address.

PV solar panels are proposed to be installed on roof areas as shown in the submitted plans. The panels are attached to the roof decking with a rail-less mounting system. The PV system (PV modules, racking, mounting hardware, etc.) shall be installed according to the manufacturer's approved installation specifications. The Engineer of Record and Exactus Energy claim no responsibility for misuse or improper installation.

It was found that the roof system satisfactorily meets the applicable standards included in the 2021 IBC/IRC and ASCE 7-16 as well as the design criteria shown below:

Design Criteria:

Risk Category	= II
Exposure Category	= B
Wind speed	= 115 mph
Ground snow load	= 30 psf
Roof dead load	= 9 psf
Solar system dead load	= 3 psf

Overall, the roof system is adequate to support the PV alteration with no modifications or reinforcements required.

This letter was completed in accordance to recognized design standards, professional engineering experience, and judgement. Prior to installation, the on-site contractor must notify Exactus Energy if there are any discrepancies, or damages to the members, that was not addressed in the plan set.

If you have any further questions, please do not hesitate to contact me.

Acknowledged by:

David C. Hernandez, PE

Digitally signed by David C. Hernandez,
Date: 2026.06.17 16:16:14 -04:00



APPROVED

Montgomery County

Historic Preservation Commission

REVIEWED

By Laura DiPasquale at 2:17 pm, Jul 17, 2026

DAVID C. HERNANDEZ, PE

513-418-8812



4912 Prospect Ave., Blue Ash OH 45242



davehernandezpe@gmail.com



SEISMIC CHECK

Breakdown of Loads		
Asphalt Shingles:	4	psf
Insulation:	1.5	psf
Sheathing:	1.5	psf
Rafters:	1	psf
Misc:	1	psf
Live load:	20	psf

Existing Roof Seismic Weight			
Element	Unit Weight (psf)	Area (Sq.ft)	Weight (lbs)
Roof DL	9	1990.00	17910
Exterior Walls	8	2286.00	18288
Interior Walls	6	2286.00	13716
Existing Seismic Weight @Roof Level, W_e =			49914

New PV System Seismic Weight			
Element	Unit Weight (psf)	Area (Sq.ft)	Weight (lbs)
Pv System	3	357.00	1071.00
Seismic Weight of New PV System, W_{pv} =			1071.00

% Increase in Lateral (Seismic) Weight @Roof Level Due to PV System Addition, %-increase = W_{pv} / W_e	2.15%	< 10% - Pass
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Montgomery County

Historic Preservation Commission

REVIEWED

By Laura DiPasquale at 2:17 pm, Jul 17, 2026

Project Roof Mounted Solar PV Installation Property Owner Andrew Saindon

Address 7220 Spruce Ave, Takoma Park, MD 20913, USA

- ☒ I reviewed the design of the photovoltaic (PV) system, as designed by the manufacturer, and the design criteria utilized for the mounting equipment and panel mounting assembly (rack system) for the installation of (17) panels supported by the rack system, as shown on the drawings prepared for the above referenced address. I certify that the configurations and design criteria meet the standards and requirements of the International Residential Code (IRC) in COMCOR 08.00.02.
- ☒ The attachment of the rack system to the building at the above address, including the location, number, and type of attachment points; the number of fasteners per attachment point; and the specific type of fasteners (size, diameter, length, minimum embedment into structural framing, etc.) meets the standards and requirements of the IRC adopted by Montgomery County in COMCOR 08.00.02.
- ☒ I evaluated the existing roof structure of the building at the above address and analyzed its capacity to support the additional loads imposed by the PV system. I certify that no structural modifications of the existing roof structure are required. The existing roof structure meets the standards and requirements of the IRC, adopted by Montgomery County in COMCOR 08.00.02, necessary to support the PV system.
- ☐ I evaluated the existing roof structure of the building at the above address and analyzed its capacity to support the additional loads imposed by the PV system. Structural modifications of the existing roof structure are required. I certify that the roof structure, as modified on the drawings for this project, will support the additional loads imposed by the PV system. I further certify that design of the modified roof structure meets the standards and requirements of the IRC, adopted by Montgomery County in COMCOR 08.00.02.
- ☒ I prepared or approved the construction documents for the mounting equipment, rack system, roof structure for this project.

Re-installations:

- ☐ I certify that the reinstallation of the photovoltaic system (PV) as shown on the approved drawings for permit _____ (show original permit #) does not alter the approval under the permit or make the PV system, attachment to the building, and roof framing unsafe.

49993

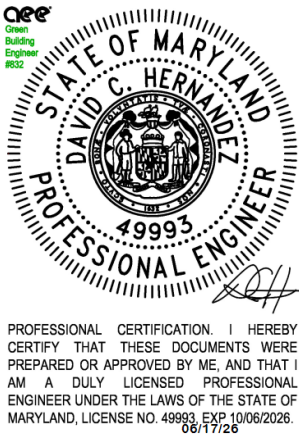
Maryland PE License Number

Date 06/17/2026

Signature David C. Hernandez, PE

Digitally signed by David C. Hernandez,
Date: 2026.06.17 16:16:14 -04:00

Seal



Updated 11/14/2024



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By Laura DiPasquale at 2:17 pm, Jul 17, 2026



Property Owners Name: Andrew Saindon

Property Owners Address: 7220 Spruce Avenue, Takoma Park, 20913

Address of Installation if different than owner's address:

I certify that:

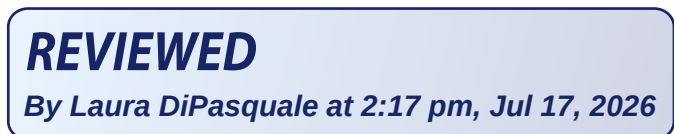
- ☒ I prepared or approved the electrical drawings and related documents for the photovoltaic (PV) system at the above location.
- ☒ The design of the PV System, and all the electrical Installations and equipment, meets the standards and requirements of the National Electrical Code as adopted by Montgomery County in COMCOR 17.02.01
- ☒ I reviewed and completed the Worksheet for PV System, which was attached to the permit application for the PV system at the above location.

40780-State of MD Master Electrician License

Santos M. Andrade

Signature: 

Date: 06/16/2026



Harvest the Sunshine

440W



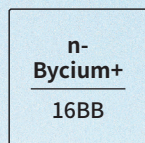
JA SOLAR



JAM54D41 MB USDC-J n-Type Double Glass Bifacial Modules

*Made with USA Domestic Content (See Component Chart Below)

Premium Cells



MBB Half-Cell
Technology

26%



Cell Conversion
Efficiency

Premium Modules



Higher power
generation better LCOE



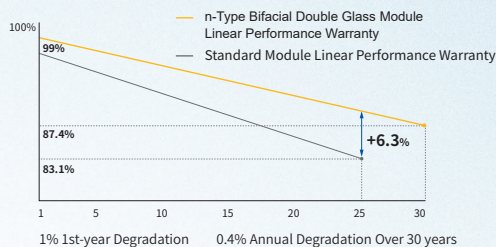
n-Type with very
lower LID



Better temperature
coefficient



Better low irradiance
response



25-year product
warranty



30-year linear power
output warranty

Comprehensive Certificates

- IEC 61215, IEC 61730, UL 612
- ISO 9001: 2015 Quality man
- ISO 14001: 2015 Environmen
- ISO 45001: 2018 Occupation
- management systems
- IEC 62941: 2019 Terrestrial p
- system for PV module manu

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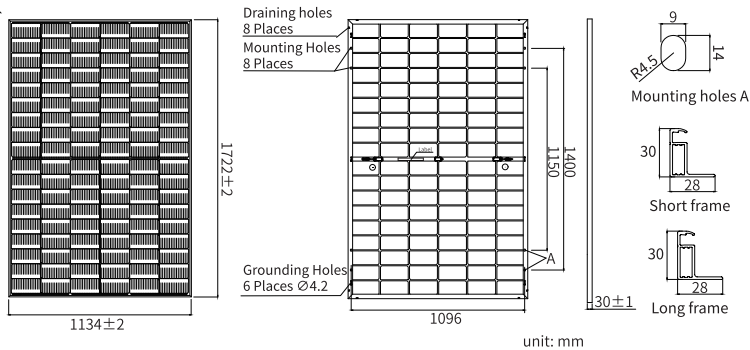
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DEEP BLUE 4.0 Pro

JAM54D41 MB n-Type Double Glass Bifacial Modules



MECHANICAL PARAMETERS

Cell	Mono
Weight	21.5kg
Dimensions	1722±2mm×1134±2mm×30±1mm
Cable Cross Section Size	4mm ² (IEC), 12 AWG(UL)
No. of cells	108(6×18)
Junction Box	IP68, 3diodes
Connector	QC 4.10-351/ MC4-EVO2
Cable Length (Including Connector)	1200mm(+)/1200mm(-)
Front Glass/Back Glass	1.6mm/1.6mm
Packaging Configuration	36pcs/Pallet, 864pcs/40HQ Container

Customized frame color and cable length available upon request

ELECTRICAL PARAMETERS AT STC

TYPE	JAM54D41 -415/MB	JAM54D41 -420/MB	JAM54D41 -425/MB	JAM54D41 -430/MB	JAM54D41 -435/MB	JAM54D41 -440/MB
Rated Maximum Power(P _{max}) [W]	415	420	425	430	435	440
Open Circuit Voltage (V _{oc}) [V]	38.00	38.28	38.56	38.84	39.11	39.38
Maximum Power Voltage(V _{mp}) [V]	32.13	32.38	32.64	32.88	33.13	33.37
Short Circuit Current(I _{sc}) [A]	13.60	13.65	13.70	13.75	13.80	13.85
Maximum Power Current(I _{mp}) [A]	12.92	12.97	13.02	13.08	13.13	13.18
Module Efficiency [%]	21.3	21.5	21.8	22.0	22.3	22.5
Power Tolerance	±2%					
Temperature Coefficient of I _{sc} (α _{Isc})	+0.045%/°C					
Temperature Coefficient of V _{oc} (β _{Voc})	-0.250%/°C					
Temperature Coefficient of P _{max} (γ _{Pmp})	-0.290%/°C					
STC	Irradiance 1000W/m ² , cell temperature 25°C, AM1.5G					

Remark: Electrical data in this catalog do not refer to a single module and they are not part of the offer. They only serve for comparison among different module types.

ELECTRICAL CHARACTERISTICS WITH 10% SOLAR IRRADIATION RATIO

TYPE	JAM54D41 -415/MB	JAM54D41 -420/MB	JAM54D41 -425/MB	JAM54D41 -430/MB	JAM54D41 -435/MB	JAM54D41 -440/MB
Rated Max Power(P _{max}) [W]	448	454	459	464	470	475
Open Circuit Voltage(V _{oc}) [V]	38.00	38.28	38.56	38.84	39.11	39.38
Max Power Voltage(V _{mp}) [V]				32.88	33.13	33.37
Short Circuit Current(I _{sc}) [A]				13.85	14.90	14.96
Max Power Current(I _{mp}) [A]				12.92	14.18	14.24
Irradiation Ratio (rear/front)						

*COMPONENT | USDC CODE

Cells	C	Front Glass
Frame	F	Encapsulant

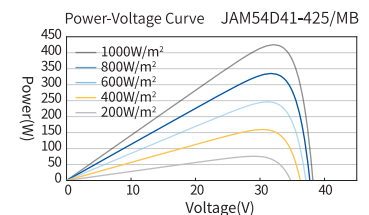
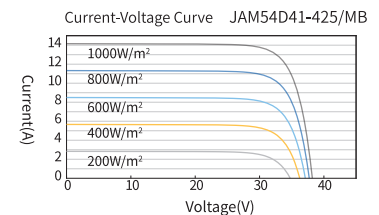
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Bus Ribbons	R	Production	X
Bypass Diodes	D		

CHARACTERISTICS



OPERATING CONDITIONS

Maximum System Voltage	1500V DC
Operating Temperature	-40°C~+85°C
Maximum Series Fuse Rating	30A
Maximum Static Load, Front	5400Pa(112 lb/ft ²)
Maximum Static Load, Back	2400Pa(50 lb/ft ²)
NOCT	45±2°C
Bifaciality	80%±5%
Safety Class	Class II
Fire Performance	UL Type 38/Class C



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SnapNrack™

Solar Mounting Solutions

TopSpeed® Mounting System

Installation Manual



2703 Listed — PV Mounting System

snapnrack.com

Required Tools

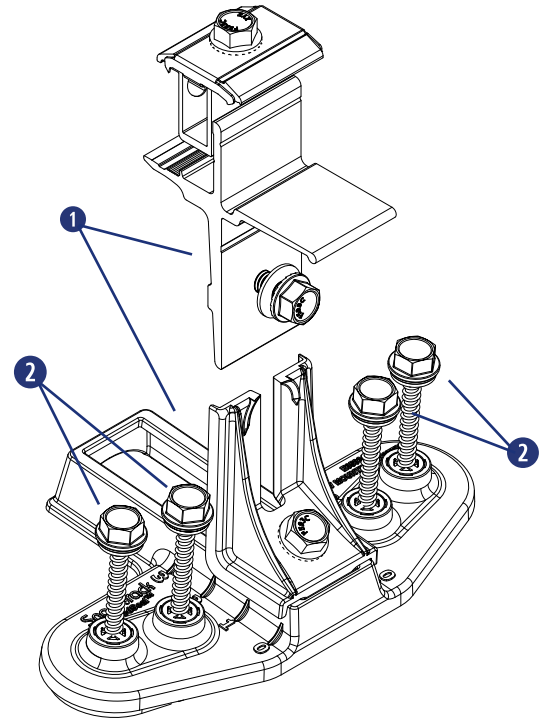
- Socket Wrench/Impact Driver
- Torque Wrench
- 1/2" or 13 mm Socket

Materials Included - TopSpeed System with SpeedSeal™ / SpeedSeal+™ Technologies

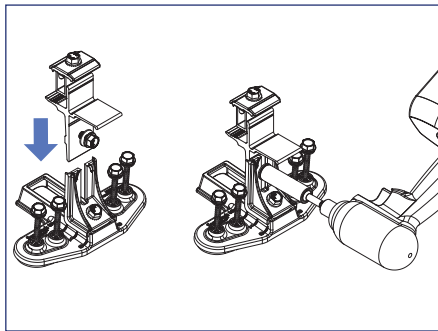
- 1 (1) SnapNrack TopSpeed Mount
- 2 (4) SnapNrack #14 Wood Screw with 1/2" Hex Head & sealing washer

Best Practice:

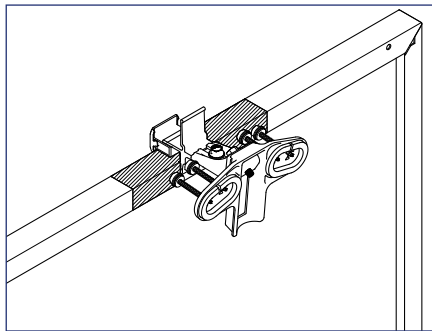
Attach all TopSpeed mounts as the modules are being prepped with MLPEs on the ground. Attach Mounts before attaching MLPEs to simplify wire management.



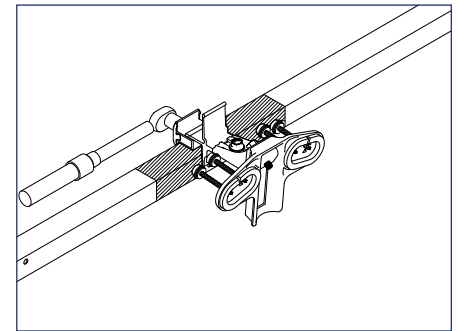
INSTALLATION INSTRUCTIONS



1) Assemble all TopSpeed Mounts required for the installation. Slide the clamp tower assembly onto the angle bracket riser of the module frame and tighten the leveling bolt to 16 ft-lb [21.7 N.m].



2) Position TopSpeed Mount clamp on the module frame within the manufacturer's required clamping zone.



3) Tighten 1/2" clamping bolt to 16 ft-lb [21.7 N.m]. A minimum of 2 Mounts are required per module on one side.



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Install Note:

For high voltage systems, add a third attachment in the middle of the module frame. Refer to SnapNrack TopSpeed® Structural Engineering for details.

TopSpeed® Mount: Skirt Installation

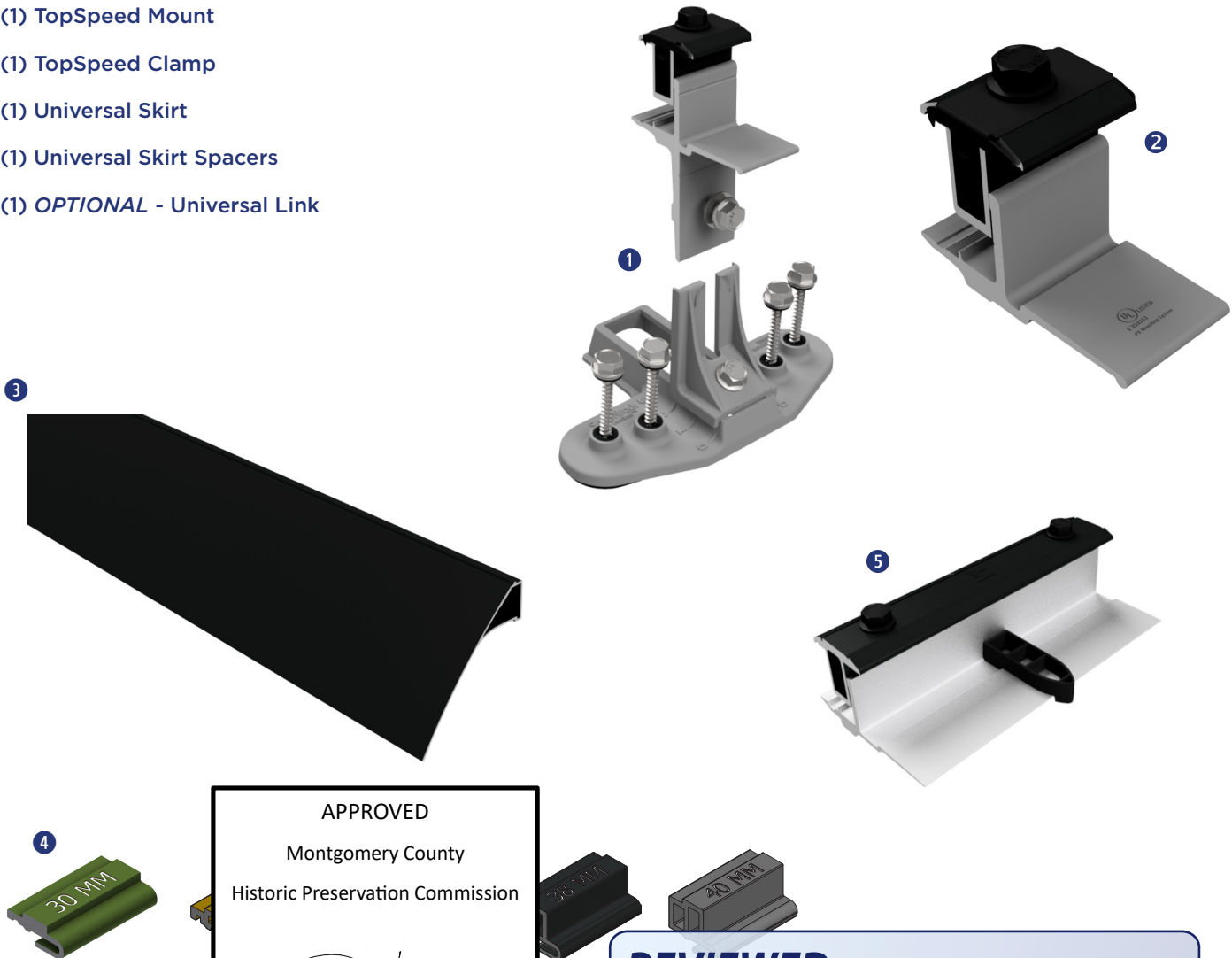
snapnrack.com

Required Tools

- Socket Wrench/Impact Driver
- Torque Wrench
- 1/2" or 13 mm Socket
- Roofing sealant

Materials Included - TopSpeed Mount (SpeedSeal™ or SpeedSeal+™)

- ① (1) TopSpeed Mount
- ② (1) TopSpeed Clamp
- ③ (1) Universal Skirt
- ④ (1) Universal Skirt Spacers
- ⑤ (1) *OPTIONAL* - Universal Link



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Application Note:

SpeedSeal+ Mount:

Compatible roofing substrates and minimum roof pitches: Asphalt shingle- 9.5°

Low slope roofs including metal, rolled composition, EPDM, TPO, PVC, PolyPropylene, and SMS modified bitumen. Ensure positive drainage with no chance of standing water.

Ensure roof construction and pitch meet minimum building code requirements.

Temperature Range:

Installation: 0°F - 150°F (-18°C - 66°C)

Service: -40°F - 200°F (-40°C - 93°C)

For installation temperatures below 32°F (0°C) it is recommended that the butyl is warmed to more easily conform to the roof texture.



IQ8MC Microinverter

Our newest IQ8 Series Microinverters are the industry's first microgrid-forming*, software-defined microinverters with split-phase power conversion capability to convert DC power to AC power efficiently. The brain of the semiconductor-based microinverter is our proprietary application-specific integrated circuit (ASIC), which enables the microinverter to operate in grid-tied or off-grid modes. This chip is built in advanced 55-nm technology with high-speed digital logic and has superfast response times to changing loads and grid events, alleviating constraints on battery sizing for home energy systems.



Part of the Enphase Energy System, IQ8 Series Microinverters integrate with the IQ Battery, IQ Gateway, and the Enphase App monitoring and control software.



Connect PV modules quickly and easily to the IQ8 Series Microinverters that have integrated MC4 connectors.

IQ8 Series Microinverters redefine reliability standards with more than one million cumulative hours of power-on time, setting an industry-leading benchmark of up to 25 years.



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Easy to install

- Lightweight and compact with plug-and-play connectors
- Power line communication (PLC) between components
- Faster installation with simple two-wire cabling

High productivity and reliability

- Produces power even when the grid is down*
- More than one million cumulative hours of testing
- Class II double-insulated enclosure
- Optimized for the latest high-powered PV modules

Microgrid-forming

- Complies with the latest advanced grid support
- Remote automatic updates for the latest grid requirements
- Configurable to support a wide range of grid profiles

- Meets CA Rule 21 (UL 1741-SA) and IEEE 1547:2018 (UL 1741-SB)

- IQ8 Microinverters cannot be mixed together with previous generations of Enphase microinverters (IQ7 Series, IQ6 Series, and so on) in the same system.
- IQ Microinverters ship with default settings that meet North America's IEEE 1547 interconnection standard requirements. Region-specific adjustments may be requested by an Authority Having Jurisdiction (AHJ) or utility representative. An IQ Gateway is required to make these changes during installation.

*Meets UL 1741 only when installed with IQ System Controller 2 or 3.

IQ8MC Microinverter

INPUT DATA (DC)		UNITS	IQ8MC-72-M-US	
Commonly used module pairings ¹		W	260–460	
Module compatibility	—		To meet compatibility, PV modules must be within the following max. input DC voltage and max. module I _{sc} . Module compatibility can be checked at https://enphase.com/installers/microinverters/calculator .	
MPPT voltage range		V	25–45	
Operating range		V	18–58	
Min./Max. start voltage		V	22/58	
Max. input DC voltage		V	60	
Max. continuous operating DC current		A	14	
Max. input DC short-circuit current		A	25	
Max. module I _{sc}		A	20	
Overvoltage class DC port		—	II	
DC port backfeed current		mA	0	
PV array configuration	—		Ungrounded array; no additional DC side protection required; AC side protection requires max 20 A per branch circuit	
OUTPUT DATA (AC)		UNITS	IQ8MC-72-M-US @240 VAC	IQ8MC-72-M-US @208 VAC
Peak output power		VA	330	315
Max. continuous output power		VA	320	310
Nominal grid voltage (L-L)		V	240, split-phase (L-L), 180°	208, single-phase (L-L), 120°
Min./Max. grid voltage ²		V	211–264	183–229
Max. continuous output current		A	1.33	1.49
Nominal frequency		Hz	60	
Extended frequency range		Hz	47–68	
AC short circuit fault current over three cycles		Arms	2.70	
Max. units per 20 A (L-L) branch circuit ³		—	12	10
Total harmonic distortion		%	<5	
Overvoltage class AC port		—	III	
AC port backfeed current		mA	18	
Power factor setting		—	1.0	
Grid-tied power factor (adjustable)			0.85 leading ... 0.85 lagging	
Peak efficiency			97.4	97.2
CEC weighted efficiency				96.5
Nighttime power consumption			0.33	0.25
MECHANICAL DATA			UNITS	
Ambient temperature range			–40°C to 65°C (–40°F to 149°F)	
Relative humidity range			4% to 100% (condensing)	
DC connector type			Stäubli MC4	
Dimensions (H × W × D); Weight			212 mm (8.3") × 175 mm (6.9") × 30.2 mm (1.2"); 1.1 kg (2.43 lbs)	
Cooling			Natural convection – no fans	
Approved for wet locations; Pollution degree			Yes; PD3	
Enclosure			Class II double-insulated, corrosion-resistant polymeric enclosure	
Environ. category; UV exposure rating			NEMA Type 6; outdoor	
COMPLIANCE				
Certifications	CA Rule 21 (UL 1741-SA), UL 62109-1, IEEE 1547:2018 (UL 1741-SB), FCC Part 15 Class B, ICES-0003 Class B, CAN/CSA-C22.2 NO. 107.1-01. This product is UL Listed as PV rapid shutdown equipment and conforms with NEC 2014, NEC 2017, NEC 2020, and NEC 2023 section 690.12 and C22.1-2018 Rule 64-218 rapid shutdown of PV systems for AC and DC conductors when installed according to the manufacturer’s instructions.			

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(1) No enforced DC/AC ratio.

(2) Nominal voltage range can be extended beyond nominal if required by the utility.

(3) Limits may vary. Refer to local requirements to define the number of microinverters per branch in your area.

IQ8MC-MC4-DSH-00049-4.0-EN-US-2024-02-09