



HISTORIC PRESERVATION COMMISSION

Marc Elrich
County Executive

Jeffrey Hains
Chair

Date: February 23, 2026

MEMORANDUM

TO: Rabbiah Sabbakhan
Department of Permitting Services
FROM: Devon Murtha
Historic Preservation Section
Maryland-National Capital Park & Planning Commission
SUBJECT: Historic Area Work Permit #1146702 - Solar panel installation

The Montgomery County Historic Preservation Commission (HPC) has reviewed the attached application for a Historic Area Work Permit (HAWP). This application was **Approved** by HPC Staff.

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: Prasannaa Ayalur; Tina Crouse (agent)
Address: 7055 Eastern Avenue, Takoma Park, MD 20912

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 Devon Murtha at 301-495-1328 or devon.murtha@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:

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Montgomery County
Historic Preservation Commission



Work Item 1: _____	
Description of Current Condition:	Proposed Work:

Work Item 2: _____	
Description of Current Condition:	Proposed Work:

Work Item 3: _____	
Description of Current Condition:	Proposed Work:

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Historic Preservation Commission



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/ Landscaping	*	*		*	*	*	*
Tree Removal	*	*		*	*	*	*
Siding/ Roof Changes	*	*	*	*	*		*
Window/ Door Changes	*	*	*	*	*		*
Masonry Repair/ Repoint	*	*	*	*	*		*
Signs	*	*	*	*	*		*

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Historic Preservation Commission



REVIEWED
By Devon Murtha at 2:08 pm, Feb 23, 2026



Front of Home



Back side of Home

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Historic Preservation Commission



REVIEWED
By Devon.Murtha at 2:08 pm, Feb 23, 2026



Right side of Home



Left side of Home





Utility Meter before Install



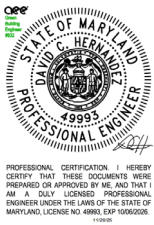
Utility Meter after Install

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REVIEWED
By Devon Murtha at 2:08 pm, Feb 23, 2026

SolarStack Flat Roof Kit
Critter Guard



David C. Hernandez, PE
Digitally signed by David C. Hernandez, PE
Date: 2025.11.20 12:06:34 -05:00



PLAN VIEW TOTAL ROOF AREA: 1377 SQFT
SOLAR ARRAY AREA: 273.00 SQFT
THE SOLAR ARRAY IS 19.8% OF THE PLAN VIEW TOTAL ROOF AREA

- NOTES:
- THE SYSTEM SHALL INCLUDE (13) JAM54D41-440 MB.
 - SOLAR STACK MOUNT KIT WILL BE INSTALLED IN ACCORDANCE WITH SOLAR STACK INSTALLATION MANUAL.
 - REFER TO STRUCTURAL DRAWING FOR SECTIONS MARKED AND ADDITIONAL NOTES.

SOLAR PANEL LAYOUT
Scale: 1/8" = 1'-0"




SolarEnergyWorld
Because Tomorrow Matters
Solar Energy World LLC.
14880 Sweitzer Lane
Laurel, MD 20707
(888) 497-3233

Disclaimer:
This drawing is the property of Solar Energy World Inc. The information herein contained shall be used for the sole benefit of Solar Energy World. It shall not be disclosed to others outside the recipient's organization, in whole or in part, without the written permission of Solar Energy World, except in connection with the sale and use of the respective Solar Energy equipment.

Building Code
International Residential Code (IRC) 2021

Electrical Code
National Electrical Code (NEC) 2017

Wind Speed 115 MPH	Snow Load 30 PSF
-----------------------	---------------------

Modules
(13) JAM54D41-440 MB

Inverter(s)
(13) IQ8MC-72-M-US

DC System Size 5.720 kW	AC System Size 4.160 kW
----------------------------	----------------------------

Customer Information
Prasannaa Ayalur
7055 Eastern Avenue,
Takoma Park, MD 20912

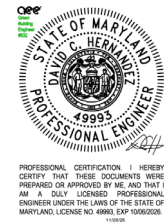
Permit/Lender
None

City Montgomery County	Utility Pepco
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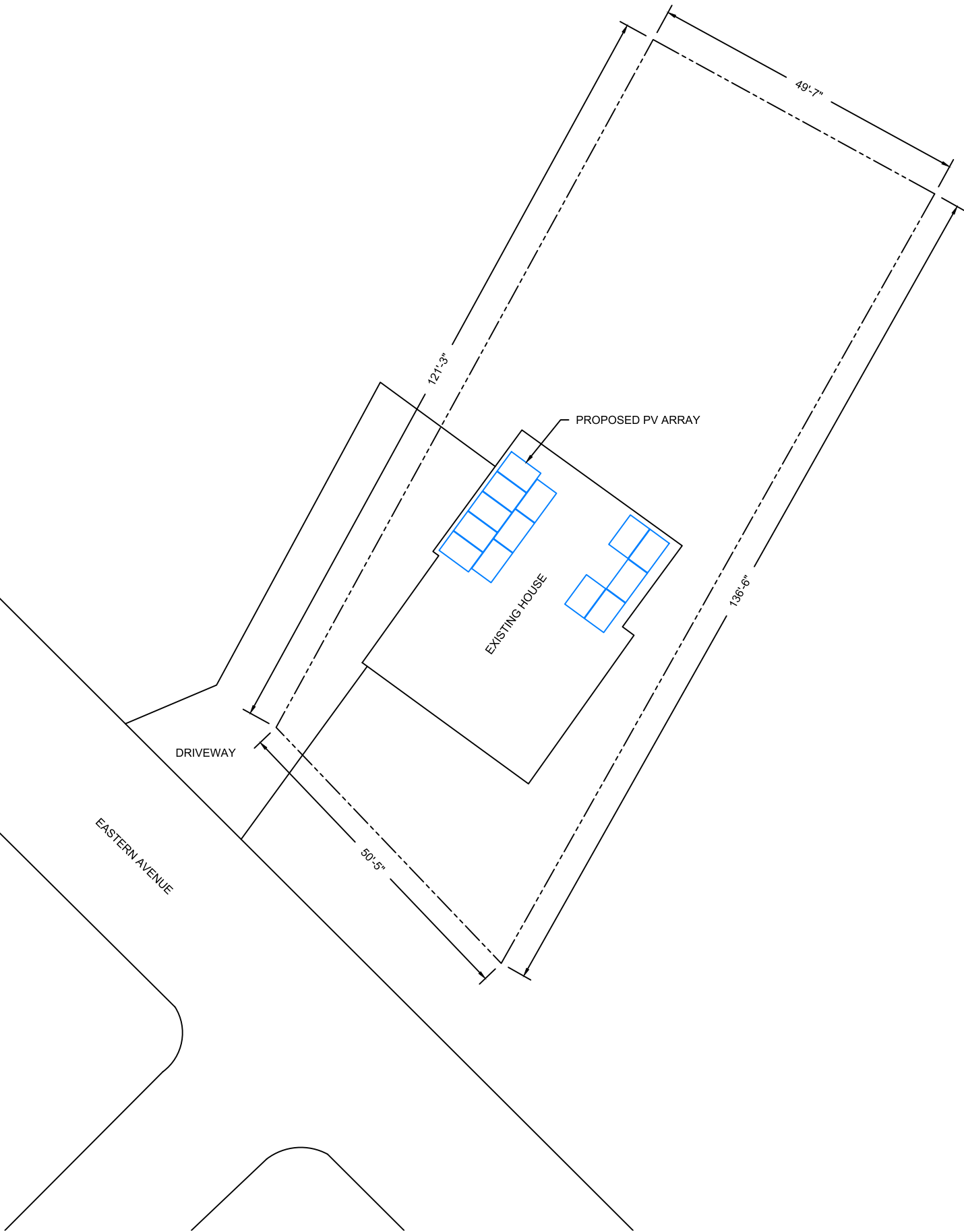
Sheet Name
Solar Panel Layout

Drawn By AMP	Date November 18, 2025
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Scale AS NOTED	Job Number MD28896	Sheet A-1
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Date: 2025.11.20 12:06:34 -05:00



SITE PLAN
Scale: 1" = 20'-0"



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Historic Preservation Commission

REVIEWED
By Devon Murtha at 2:08 pm, Feb 23, 2026



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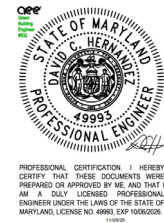
Permit/Lender
None

AGU Montgomery County	Utility Pepco
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Sheet Name
Site Plan

Drawn By AMP	Date November 18, 2025
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Scale AS NOTED	Job Number MD28896	Sheet A-2
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Date: 2025.11.20 12:06:34 -05:00



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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Customer Information
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Takoma Park, MD 20912

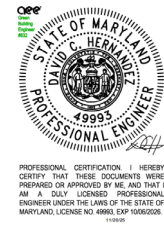
Partner/Lender
None

AGU Montgomery County	Utility Pepco
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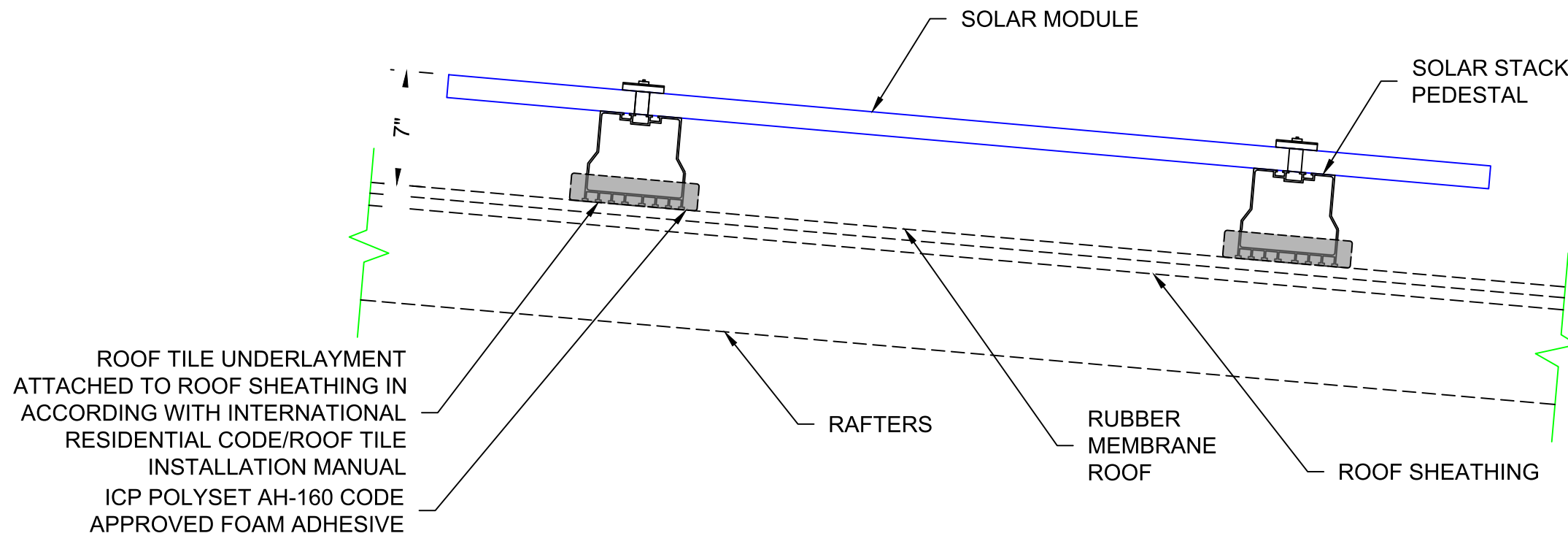
Sheet Name
Equipment Location Plan

Drawn By AMP	Date November 18, 2025
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Scale AS NOTED	Job Number MD28896	Sheet E-1
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Electrical Code		
National Electrical Code (NEC) 2017		
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115 MPH	30 PSF	
Modules		
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Inverter(s)		
(13) IQ8MC-72-M-US		
DC System Size	AC System Size	
5.720 kW	4.160 kW	
Customer Information		
Prasannaa Ayalur 7055 Eastern Avenue, Takoma Park, MD 20912		
Permit/Lender		
None		
City	Utility	
Montgomery County	Pepco	
Sheet Name		
Structural Attachment Details		
Drawn By	Date	
AMP	November 18, 2025	
Scale	Job Number	Sheet
AS NOTED	MD28896	S-1

REVIEWED
By: Devon Murtha at 2:08 pm, Feb 23, 2026

APPROVED

Montgomery County
Historic Preservation Commission

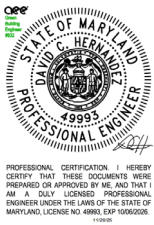
Structural Details

S1	Rafter	2x6 O.C. 16"
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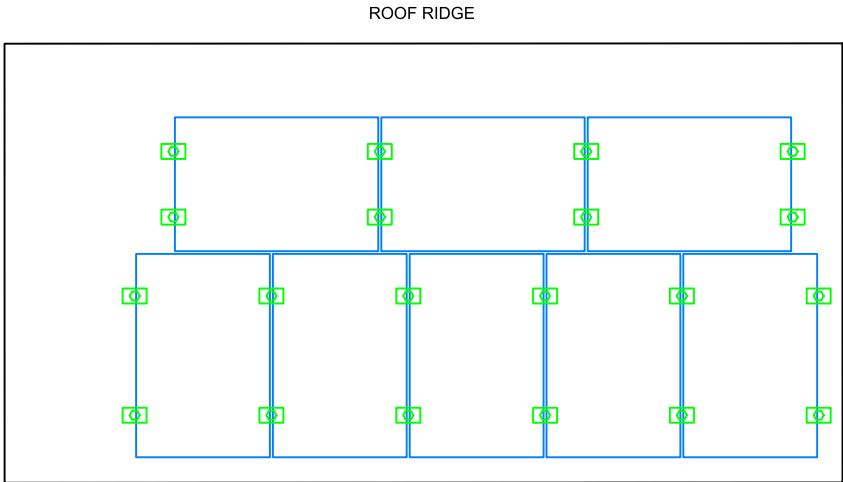
- NOTES:
- ALL WORK SHALL COMPLY WITH REQUIREMENTS OF INTERNATIONAL RESIDENTIAL CODE (IRC 2021), LOADING CODE (ASCE 7-16), WOOD DESIGN CODE (NDS 2015), AND LOCAL REQUIREMENTS.
 - LOAD CRITERIA PER :
 - EXPOSURE CATEGORY "B"
 - GROUND SNOW LOAD, $P_g = 30$ PSF
 - LATERAL LOAD RISK CATEGORY "II"
 - ULTIMATE 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

Bill Of Materials	
Product	Count
Solar Stack	36

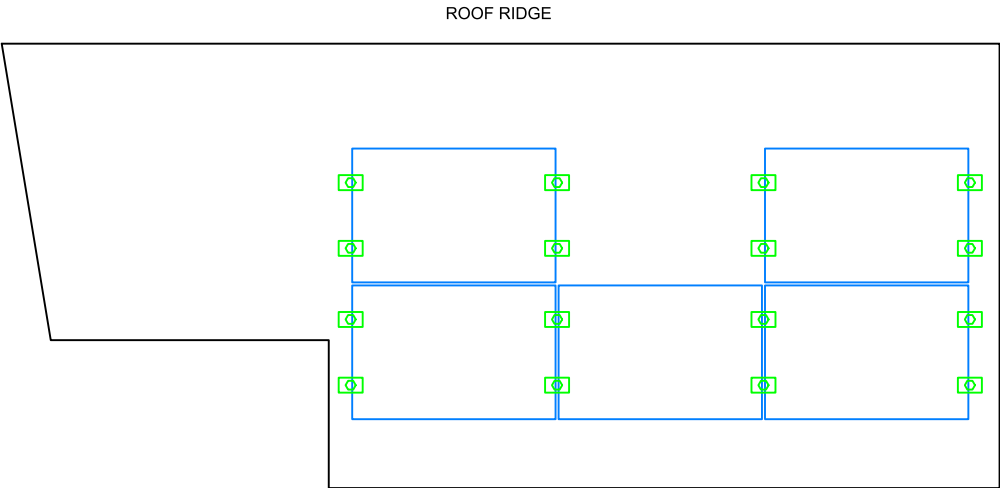


David C. Hernandez, PE
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Date: 2025.11.20 12:06:34 -05:00



SOLAR PANEL FOOTING PLAN R1

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



SOLAR PANEL FOOTING PLAN R2

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



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Customer Information
Prasannaa Ayalur
7055 Eastern Avenue,
Takoma Park, MD 20912

Permit/Lender
None

APU Montgomery County	Utility Pepco
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Sheet Name
Solar Panel Footing Plan

Drawn By AMP	Date November 18, 2025
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Scale AS NOTED	Job Number MD28896	Sheet S-2
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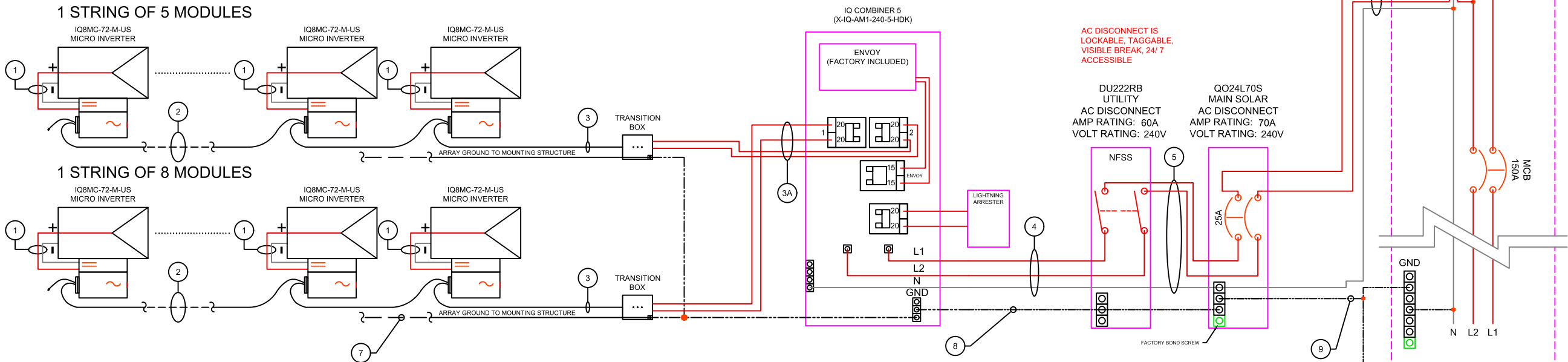
NOTES:

1. SOLAR STACK SHALL BE INSTALLED IN ACCORDANCE WITH SOLAR STACK INSTALLATION MANUAL.

REVIEWED
By Devon Murtha at 2:08 pm, Feb 23, 2026

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Montgomery County
Historic Preservation Commission

SMART INVERTERS



3-LINE DIAGRAM



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Wind Speed
115 MPH

Snow Load
30 PSF

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(13) IQ8MC-72-M-US

DC System Size
5.720 kW

AC System Size
4.160 kW

Customer Information
Prasannaa Ayalar
7055 Eastern Avenue,
Takoma Park, MD 20912

Permit/Label
None

City
Montgomery County

Utility
Pepco

Sheet Name
Electrical 3-Line Diagram

Drawn By
AMP

Date
November 18, 2025

Scale
AS NOTED

Job Number
MD28896

Sheet
E-2

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

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	

MODULE SPECIFICATIONS

MODEL NUMBER	JAM54D41-440 MB
MAXIMUM DC VOLTAGE (V _{mpp})	33.37 V
MAXIMUM DC 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

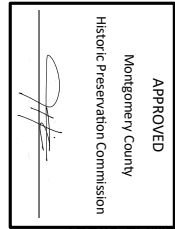
INVERTER SPECIFICATIONS

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	8	5
NO. OF STRINGS	1	1
ARRAY WATTS AT STC	3520	2200

REVIEWED
By Devon Murtha at 2:08 pm, Feb 23, 2025



APPROVED
Montgomery County
Historic Preservation Commission



DAVID C. HERNANDEZ, PE

513-418-8812  4912 Prospect Ave., Blue Ash OH 45242  davehernandezpe@gmail.com 

DATE: November 20, 2025

RE: 7055 Eastern Avenue, Takoma Park, MD 20912

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 with Solar Stack Pedestal mounting system adhered with ICP POLYSET AH-160 foam adhesive. 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 structures satisfactorily meet 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 area is structurally adequate to support the PV alteration with no modifications or reinforcements.

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, PE
Date: 2025.11.20 12:06:34 -05:00



PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 49993, EXP. 10/06/2026.



REVIEWED
By Devon.Murtha at 2:08 pm, Feb 23, 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
Plywood 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	1864.00	16776
Exterior Walls	15	2763.15	41447.252
Interior Walls	6	2763.15	16578.9008
Existing Seismic Weight @Roof Level, We =			74802.1528

New PV System Seismic Weight			
Element	Unit Weight (psf)	Area (Sq.ft)	Weight (lbs)
Pv System	3	273.00	819.00
Seismic Weight of New PV System, Wpv =			819.00

% Increase in Lateral (Seismic) Weight @Roof Level Due to PV System Addition, %-increase = Wpv / We	1.09%	< 10% - Pass
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Montgomery County
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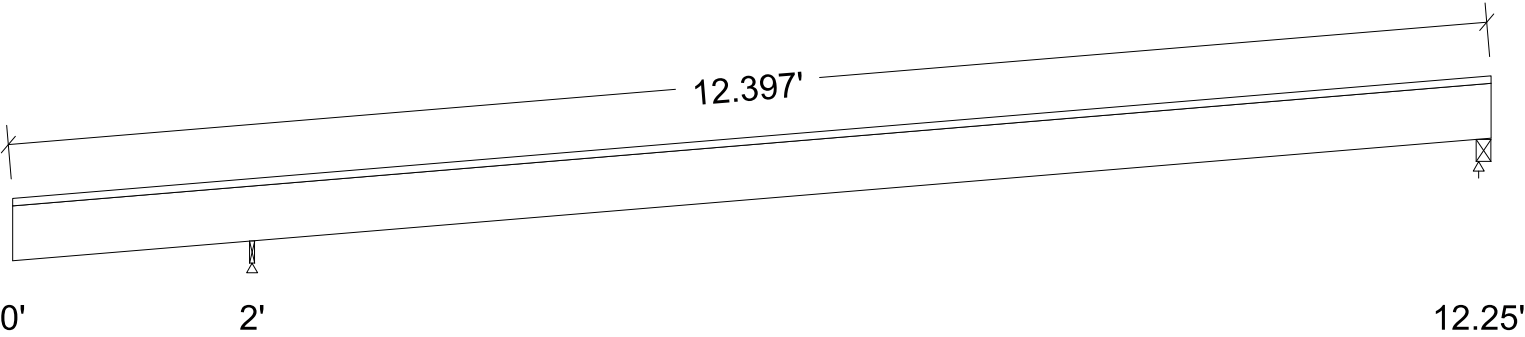
 WoodWorks[®] SOFTWARE FOR WOOD DESIGN	COMPANY	PROJECT
	Nov. 19, 2025 22:45	Roof 1.wwb

Design Check Calculation Sheet
WoodWorks Sizer 13.2.1

Loads:

Load	Type	Distribution	Pat-tern	Location [ft]		Magnitude		Unit
				Start	End	Start	End	
D-ROOF	Dead	Full Area	No			12.00 (16.0")		psf
S1	Snow	Partial Area	No	0.00	0.56	23.10 (16.0")		psf
L1	Roof live	Partial Area	No	0.00	0.56	20.00 (16.0")		psf
S2	Snow	Partial Area	No	10.24	12.25	23.10 (16.0")		psf
L2	Roof live	Partial Area	No	10.24	12.25	20.00 (16.0")		psf
S3	Snow	Partial Area	No	0.56	10.24	23.10 (16.0")		psf
D-PV	Dead	Partial Area	No	0.56	10.24	3.00 (16.0")		psf

Maximum Reactions (lbs), Bearing Capacities (lbs) and Bearing Lengths (in) :



Unfactored:					
Dead			143		94
Snow			225		152
Roof Live			23		46
Factored:					
Total			369		246
Bearing:					
F'theta			427		427
Capacity					
Joist			561		961
Support			398		1195
Des ratio					
Joist			0.66		0.26
Support			0.93		0.21
Load comb			#3		#3
Length			0.50*		1.50
Min req'd			0.46**		0.50*
Cb			1.75		1.00
Cb min			1.75		1.00
Cb support			1.25		1.25
Fcp sup			425		425

*Minimum bearing length setting used: 1/2" for end supports and 1/2" for interior supports
**Minimum bearing length governed by the required width of the supporting member.

Lumber-soft, S-P-F, No.1/No.2, 2x6 (1-1/2"x5-1/2")
Supports: All - Lumber-soft Beam, S-P-F No.1/No.2
Roof joist spaced at 16.0" c/c; Total length: 12.44'; Clear span(horz): 1.979', 10.208'; Volume = 0.7 cu.ft.; Pitch: 1/12
Lateral support: top = continuous, bottom = at supports; Repetitive factor: applied where permitted (refer to online help);
This section PASSES the design code check.

Analysis vs. Allowable Stress and Deflection using NDS 2018 :

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	fv = 44	Fv' = 155	psi	fv/Fv' = 0.29
Bending(+)	fb = 977	Fb' = 1504	psi	fb/Fb' = 0.65
Bending(-)	fb = 155	Fb' = 1123	psi	fb/Fb' = 0.14
Deflection:				
Interior Live	0.24 = L/513	0.51 = L/240	in	0.47
Total	0.47 = L/260	0.69 = L/180	in	0.69
Cantil. Live	-0.14 = L/176	0.20 = L/120	in	0.68
Total	-0.27 = L/89	0.27 = L/90	in	1.01

Additional Data:

FACTORS:	F/E(psi)	CD	CM	Ct	CL	CF	Cfu	Cr	Cfrt	Ci	LC#
Fv'	135	1.15	1.00	1.00	-	-	-	-	1.00	1.00	3
Fb'+	875	1.15	1.00	1.00	1.000	1.300	-	1.15	1.00	1.00	3
Fb'-	875	1.15	1.00	1.00	0.747	1.300	-	1.15	1.00	1.00	3
Fcp'	425	-	1.00	1.00	-	-	-	-	1.00	1.00	-
E'	1.4 million	1.00	1.00	1.00	-	-	-	-	1.00	1.00	3
Emin'	0.51 million	1.00	1.00	1.00	-	-	-	-	1.00	1.00	3

CRITICAL LOAD COMBINATIONS:

Shear : LC #3 = D + S
Bending(+): LC #3 = D + S
Bending(-): LC #3 = D + S
Deflection: LC #3 = D + S (live)
LC #3 = D + S (total)
Bearing : Support 1 - LC #3 = D + S
Support 2 - LC #3 = D + S
Load Types: D=dead S=snow Lr=roof live
Load combinations: ASD Basic from ASCE 7-16 2.4; all LC's listed in the Analysis report

CALCULATIONS:

V max = 269, V design = 244 (NDS 3.4.3.1(a)) lbs
M(+) = 616 lbs-ft; M(-) = 98 lbs-ft
EI = 29.12e06 lb-in^2
"Live" deflection is due to all non-dead loads (live, wind, snow...)
Total deflection = 1.50 permanent + "live"
Bearing: Allowable bearing at an angle F'theta calculated for each support as per NDS 3.10.3
Lateral stability(-): Lu = 10.31' Le = 16.19' RB = 21.8; Lu based on full span

Design Notes:

1. Analysis and design are in accordance with the ICC International Building Code (IBC 2021) and the National Design Specification (NDS 2018), using Allowable Stress Design (ASD). Design values are from the NDS Supplement.
2. Please verify that the default deflection limits are appropriate for your application.
3. Continuous or Cantilevered Beams: NDS Clause 4.2.5.5 requires that normal grading provisions be extended to the middle 2/3 of 2 span beams and to the full length of cantilevers and other spans.
4. Sawn lumber bending members shall be laterally supported according to the provisions of NDS Clause 4.4.1.
5. SLOPED BEAMS: level bearing is required for all sloped beams.
6. The critical deflection value has been determined using maximum back-span deflection. Cantilever deflections do not govern design.



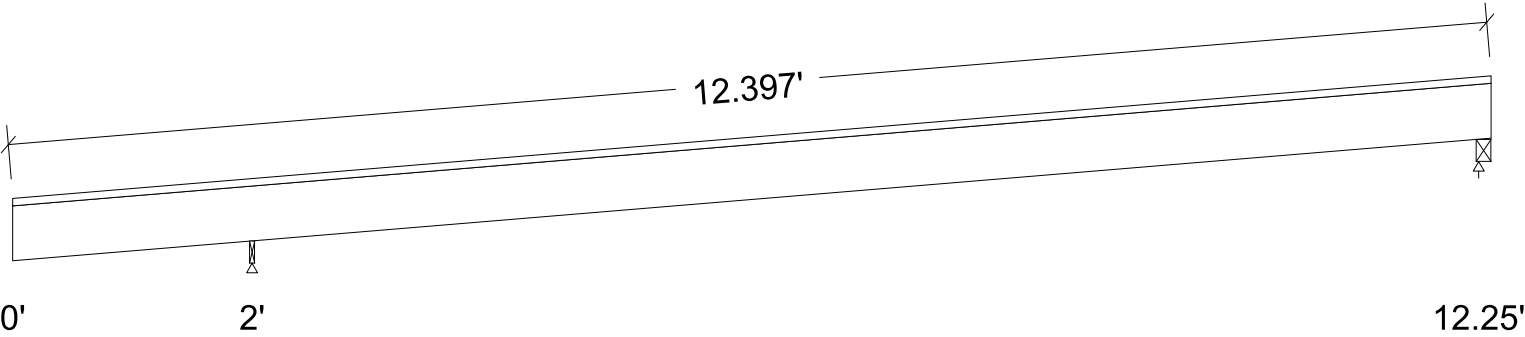
 WoodWorks[®] SOFTWARE FOR WOOD DESIGN	COMPANY	PROJECT
	Nov. 19, 2025 22:47	Roof 2.wwb

Design Check Calculation Sheet
WoodWorks Sizer 13.2.1

Loads:

Load	Type	Distribution	Pat-tern	Location [ft]		Magnitude		Unit
				Start	End	Start	End	
D-ROOF	Dead	Full Area	No			12.00 (16.0")		psf
S1	Snow	Partial Area	No	0.00	1.84	23.10 (16.0")		psf
L1	Roof live	Partial Area	No	0.00	1.84	20.00 (16.0")		psf
S2	Snow	Partial Area	No	9.20	12.25	23.10 (16.0")		psf
L2	Roof live	Partial Area	No	9.20	12.25	20.00 (16.0")		psf
S3	Snow	Partial Area	No	1.84	9.20	23.10 (16.0")		psf
D-PV	Dead	Partial Area	No	1.84	9.20	3.00 (16.0")		psf

Maximum Reactions (lbs), Bearing Capacities (lbs) and Bearing Lengths (in) :



Unfactored:					
Dead			137		91
Snow			225		152
Roof Live			66		64
Factored:					
Total			362		243
Bearing:					
F'theta			427		427
Capacity					
Joist			561		961
Support			398		1195
Des ratio					
Joist			0.65		0.25
Support			0.91		0.20
Load comb			#3		#3
Length			0.50*		1.50
Min req'd			0.45**		0.50*
Cb			1.75		1.00
Cb min			1.75		1.00
Cb support			1.25		1.25
Fcp sup			425		425

*Minimum bearing length setting used: 1/2" for end supports and 1/2" for interior supports
**Minimum bearing length governed by the required width of the supporting member.

Lumber-soft, S-P-F, No.1/No.2, 2x6 (1-1/2"x5-1/2")
Supports: All - Lumber-soft Beam, S-P-F No.1/No.2
Roof joist spaced at 16.0" c/c; Total length: 12.44'; Clear span(horz): 1.979', 10.208'; Volume = 0.7 cu.ft.; Pitch: 1/12
Lateral support: top = continuous, bottom = at supports; Repetitive factor: applied where permitted (refer to online help);
This section PASSES the design code check.

Analysis vs. Allowable Stress and Deflection using NDS 2018 :

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	fv = 44	Fv' = 155	psi	fv/Fv' = 0.28
Bending(+)	fb = 972	Fb' = 1504	psi	fb/Fb' = 0.65
Bending(-)	fb = 149	Fb' = 1123	psi	fb/Fb' = 0.13
Deflection:				
Interior Live	0.24 = L/513	0.51 = L/240	in	0.47
Total	0.47 = L/262	0.69 = L/180	in	0.68
Cantil. Live	-0.14 = L/176	0.20 = L/120	in	0.68
Total	-0.27 = L/89	0.27 = L/90	in	1.01

Additional Data:

FACTORS:	F/E (psi)	CD	CM	Ct	CL	CF	Cfu	Cr	Cfrt	Ci	LC#
Fv'	135	1.15	1.00	1.00	-	-	-	-	1.00	1.00	3
Fb'+	875	1.15	1.00	1.00	1.000	1.300	-	1.15	1.00	1.00	3
Fb'-	875	1.15	1.00	1.00	0.747	1.300	-	1.15	1.00	1.00	3
Fcp'	425	-	1.00	1.00	-	-	-	-	1.00	1.00	-
E'	1.4 million	1.00	1.00	1.00	-	-	-	-	1.00	1.00	3
Emin'	0.51 million	1.00	1.00	1.00	-	-	-	-	1.00	1.00	3

CRITICAL LOAD COMBINATIONS:

Shear : LC #3 = D + S
Bending(+): LC #3 = D + S
Bending(-): LC #3 = D + S
Deflection: LC #3 = D + S (live)
LC #3 = D + S (total)
Bearing : Support 1 - LC #3 = D + S
Support 2 - LC #3 = D + S
Load Types: D=dead S=snow Lr=roof live
Load combinations: ASD Basic from ASCE 7-16 2.4; all LC's listed in the Analysis report

CALCULATIONS:

V max = 267, V design = 243 (NDS 3.4.3.1(a)) lbs
M(+) = 612 lbs-ft; M(-) = 94 lbs-ft
EI = 29.12e06 lb-in^2
"Live" deflection is due to all non-dead loads (live, wind, snow...)
Total deflection = 1.50 permanent + "live"
Bearing: Allowable bearing at an angle F'theta calculated for each support as per NDS 3.10.3
Lateral stability(-): Lu = 10.31' Le = 16.19' RB = 21.8; Lu based on full span

Design Notes:

- Analysis and design are in accordance with the ICC International Building Code (IBC 2021) and the National Design Specification (NDS 2018), using Allowable Stress Design (ASD). Design values are from the NDS Supplement.
- Please verify that the default deflection limits are appropriate for your application.
- Continuous or Cantilevered Beams: NDS Clause 4.2.5.5 requires that normal grading provisions be extended to the middle 2/3 of 2 span beams and to the full length of cantilevers and other spans.
- Sawn lumber bending members shall be laterally supported according to the provisions of NDS Clause 4.4.1.
- SLOPED BEAMS: level bearing is required for all sloped beams.
- The critical deflection value has been determined using maximum back-span deflection. Cantilever deflections do not govern design.

APPROVED
Montgomery County
Historic Preservation Commission

ASCE 7 - 16 WIND CALCULATION FOR: Roof 1
Project Address: 7055 Eastern Ave NW, Takoma Park, MD 20912, USA

DESIGN CRITERIA

Ultimate Wind Speed: 115 mph	Array Edge Factor, γ_E : 1
Exposure Category: B	Solar Array Dead Load: 3 psf
a: 3.176 ft	Mean Roof Height: 16 ft
Velocity Pressure Exposure Coefficient, K_z : 0.59	Roof Pitch: 4°
Topographic Factor, K_{zt} : 1	Roof Type: Flat / Low-Sloped
Wind Directionality Factor, K_d : 0.85	Module Name, Dimensions, Area: JAM54D41-440 MB, 44.6in X 67.8in, 3023.88 sqin
Ground Elevation Factor, K_e : 1	
Solar Array Pressure Equalization Factor, γ_a : 0.6	

CALCULATION

Velocity Pressure Due to Wind:	$q_h = 0.00256(K_z)(K_{zt})(K_d)(I)(V^2)$	(Ch 26. Eq 26.10 – 1)
Actual Uplift Pressure:	$p = 0.6D + 0.6W$	(Ch 2.4.1 LC #7/a)
Wind Uplift Pressure:	$p = q_h (GC_p)(\gamma_E)(\gamma_a)$	(Ch 29. Eq 29.4 – 7)

Landscape / Portrait Panels

Roof Zone	1	1'	2	3
Mount Spacing	67.8"	67.8"	67.8"	67.8"
External Pressure Coefficient (GCp)	-1.69	-0.9	-2.29	-3.18
Actual Uplift Pressure (p)	-16 psf	-16 psf	-16 psf	-17.34 psf
Tributary Area (AT)	10.5 sqft	10.5 sqft	10.5 sqft	10.5 sqft
Uplift Force (P)	-167.99 lbs	-167.99 lbs	-167.99 lbs	-182.06 lbs

Uplift Capacity

Attachment Type = ICP Polyset AH-160 Foam Adhesive - 8" Solar Stack pedestal	Assembly Pullout Capacity = 720.99999 lbs
Adhesive Pullout Capacity = 0 lbs	Safety Factor = 3

Maximum Uplift Force = 182.062 lbs

Allowable Pullout Capacity (Assembly) = Assembly Pullout Capacity / Safety Factor = 240.33333 lbs.

Governing Allowable Pullout Capacity = 240.33 lbs > Uplift Force per Bolt = 182.06 lbs, Therefore OK.

ASCE 7 - 16 WIND CALCULATION FOR: Roof 2

Project Address: 7055 Eastern Ave NW, Takoma Park, MD 20912, USA

DESIGN CRITERIA

Ultimate Wind Speed: 115 mph	Array Edge Factor, γ_E : 1
Exposure Category: B	Solar Array Dead Load: 3 psf
a: 3.176 ft	Mean Roof Height: 16 ft
Velocity Pressure Exposure Coefficient, K_z : 0.59	Roof Pitch: 8°
Topographic Factor, K_{zt} : 1	Roof Type: Gable
Wind Directionality Factor, K_d : 0.85	Module Name, Dimensions, Area: JAM54D41-440 MB, 44.6in X 67.8in, 3023.88 sqin
Ground Elevation Factor, K_e : 1	
Solar Array Pressure Equalization Factor, γ_a : 0.6	

CALCULATION

Velocity Pressure Due to Wind:	$q_h = 0.00256(K_z)(K_{zt})(K_d)(I)(V^2)$	(Ch 26. Eq 26.10 – 1)
Actual Uplift Pressure:	$p = 0.6D + 0.6W$	(Ch 2.4.1 LC #7/a)
Wind Uplift Pressure:	$p = qh (GC_p)(\gamma_E)(\gamma_a)$	(Ch 29. Eq 29.4 – 7)

Landscape / Portrait Panels

Roof Zone	1	2e	2n	2r	3e	3r
Mount Spacing	67.8"	67.8"	67.8"	67.8"	67.8"	67.8"
External Pressure Coefficient (GC_p)	-2	-2	-2.97	-2.97	-2.97	-3.56
Actual Uplift Pressure (p)	-16 psf	-16 psf	-16.1 psf	-16.1 psf	-16.1 psf	-19.67 psf
Tributary Area (AT)	10.5 sqft	10.5 sqft	10.5 sqft	10.5 sqft	10.5 sqft	10.5 sqft
Uplift Force (P)	-167.99 lbs	-167.99 lbs	-169.06 lbs	-169.06 lbs	-169.06 lbs	-206.5 lbs

Uplift Capacity

Attachment Type = ICP Polyset AH-160 Foam Adhesive - 8"	Assembly Pullout Capacity = 720.99999 lbs
Solar Stack pedestal	Safety Factor = 3
Adhesive Pullout Capacity = 0 lbs	

Maximum Uplift Force = 206.5 lbs

Allowable Pullout Capacity (Assembly) = Assembly Pullout Capacity / Safety Factor = 240.33333 lbs.

Governing Allowable Pullout Capacity = 240.33 lbs > Uplift Force per Bolt = 206.5 lbs, Therefore OK.



APPROVED

Montgomery County

Historic Preservation Commission

REVIEWED

By Devon.Murtha at 2:08 pm, Feb 23, 2026

Project Roof Mounted Solar PV Installation Property Owner Prasannaa Ayalur
Address 7055 Eastern Avenue, Takoma Park, MD 20912

- 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 (13) 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 11/20/2025

Seal

Signature David C. Hernandez, PE
Digitally signed by David C. Hernandez,
Date: 2025.11.20 12:06:34 -05:00



Updated 11/14/2024



Property Owners Name: Prasannaa Ayalur

Property Owners Address: 7055 Eastern Avenue, Takoma Park, MD 20912

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: 01/21/2026



City of Takoma Park

Housing and Community Development Department

Main Office 301-891-7119
Fax 301-270-4568
www.takomaparkmd.gov



7500 Maple Avenue
Takoma Park, MD 20912

MUNICIPALITY LETTER

January 21, 2026

To: Prasannaa Ayalur
7055 Eastern Avenue, Takoma Park, MD 20912
pras.v2007@gmail.com 646-309-8840

To: Department of Permitting Services
2425 Reedie Drive, 7th floor
Wheaton, Maryland 20902

From: Planning and Development Services Division

THIS IS NOT A PERMIT – For Informational Purposes Only

VALID FOR ONE YEAR FROM DATE OF ISSUE

The property owner is responsible for obtaining all required permits from Montgomery County and the City of Takoma Park. If this property is in the **Takoma Park Historic District**, it is subject to Montgomery County Historic Preservation requirements.

Representative Name: Tina Crouse-solar energy World tcrouse@solarenergyworld.com 410-570-4157

Location of Project: 7055 Eastern Avenue, Takoma Park, MD 20912

Proposed Scope of Work: Install (13) roof mounted solar panels, 5.72 kW

The purpose of this municipality letter is to inform you that the City of Takoma Park has regulations and city permit requirements that may apply to your project. This municipality letter serves as notification that, in addition to all Montgomery County requirements, you are required to comply with all City permitting requirements, including:

- Tree Impact Assessment/Tree Protection Plan
- Stormwater management
- City Right of Way

Failure to comply with these requirements could result in the issuance of a Stop Work Order and other administrative actions within the provisions of the law. Details of Takoma Park's permit requirements are attached on page 2.

The issuance of this letter does not indicate approval of the project nor does it authorize the property proceed with the project. The City retains the right to review and comment on project plans during the Montgomery County review process.



REVIEWED
By Devon.Murtha at 2:08 pm, Feb 23, 2026

City Of Takoma Park

The City of Takoma Park permits for the following issues:

Tree Impact Assessment/Tree Protection Plan/Tree Removal Application:

Construction activities that occur within 50 feet of any urban forest tree (7 and 5/8" in trunk diameter or greater), located on the project property or on an adjacent property, may require a Tree Impact Assessment and possibly a Tree Protection Plan Permit. Make sure to submit a request for a Tree Impact Assessment and schedule a site visit with the City's Urban Forest Manager if any urban forest tree is in the vicinity of proposed construction activities. See the Tree Permits section of the City website for the specific conditions in which a Tree Impact Assessment is required. Depending on the Urban Forest Manager's conclusion following the Tree Impact Assessment, you may need to prepare a full Tree Protection Plan and apply for a Tree Protection Plan Permit as well. Separately, the removal of any urban forest tree will require a Tree Removal Permit application. The tree ordinance is detailed in the City Code, section 12.12. For permit information check: <https://takomaparkmd.gov/services/permits/tree-permits>. The City's Urban Forest Manager can be reached at 301-891-7612 or urbanforestmanager@takomaparkmd.gov.

Stormwater Management:

If you plan to develop or redevelop property, you may be required to provide appropriate stormwater management measures to control or manage runoff, as detailed in City Code section 16.04. All commercial or institutional development in the city must apply for a Stormwater Management Permit regardless of the size of the land disturbance. Additions or modifications to existing detached single-family residential properties do not require a Stormwater Management permit if the project does not disturb more than 5,000 square feet of land area. For more information visit: <https://takomaparkmd.gov/government/public-works/stormwater-management-program/>. The City Engineer should be contacted to determine if a City permit is required. The City Engineer can be reached at 301-891-7620.

City Right of Way:

- To place a **construction dumpster or storage container** temporarily on a City right of way (usually an adjacent road), you will need to obtain a permit. A permit is not required if the dumpster is placed in a privately-owned driveway or parking lot.
- If you plan to install a new **driveway apron**, or enlarge or replace an existing driveway apron, you need a Driveway Apron Permit.
- If you plan to construct a **fence** in the City right of way, you need to request a Fence Agreement. If approved, the Agreement will be recorded in the Land Records of Montgomery County.

For more information and applications for City permits, see: <https://takomaparkmd.gov/services/permits/> or contact the Department of Public Works at 301-891-7633.

Failure to comply with the City's permitting requirements could result in the issuance of a Stop Work Order and other administrative actions within the provisions of the law.

eSigned via GovOS.com
Tina Crouse
Key: 38b2056622713c0b979ea7ee94776a

Tina Crouse

01-21-2026

eSigned via GovOS.com
Takoma Park Planning Division
Key: 19fe84f123e68a3ff4576219059d5fbc

01-21-202



REVIEWED
By Devon.Murtha at 2:08 pm, Feb 23, 2026



DEPARTMENT OF PERMITTING SERVICES

Marc Elrich
County Executive

Rabbiah Sabbakhan
Director

HISTORIC AREA WORK PERMIT APPLICATION

Application Date: 1/21/2026

Application No: 1146702
AP Type: HISTORIC
Customer No: 1408761

Affidavit Acknowledgement

The Contractor is the Primary applicant authorized by the property owner
This application does not violate any covenants and deed restrictions

Primary Applicant Information

Address 7055 EASTERN AVE
TAKOMA PARK, MD 20912

Othercontact Solar Energy World (Primary)

Historic Area Work Permit Details

Work Type ALTER

Scope of Work INSTALL (13) ROOF MOUNTED SOLAR PANELS, 5.720 KW

APPROVED
Montgomery County
Historic Preservation Commission

A handwritten signature in black ink, likely belonging to Devon Murtha, is written over a horizontal line.

Harvest the Sunshine

445W



JA SOLAR

JAM54D41 MB Black Module
n-type Double Glass Bifacial Modules

Premium Cells

n-
Bycium+
16BB

MBB Half-Cell
Technology

26%

Up To

Cell Conversion
Efficiency

Premium Modules



Higher power
generation better LCOE



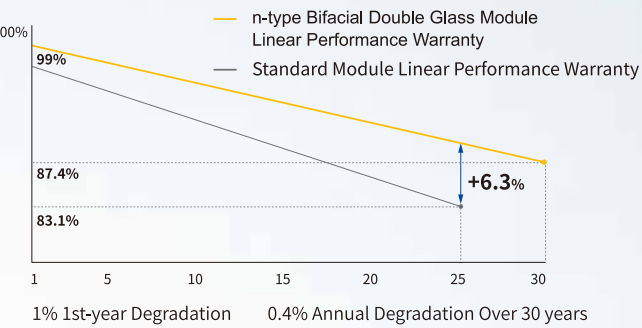
n-type with very
Lower LID



Better Temperature
Coefficient



Better low irradiance
response





12-year product
warranty



30-year linear power
output warranty

Comprehensive Certificates

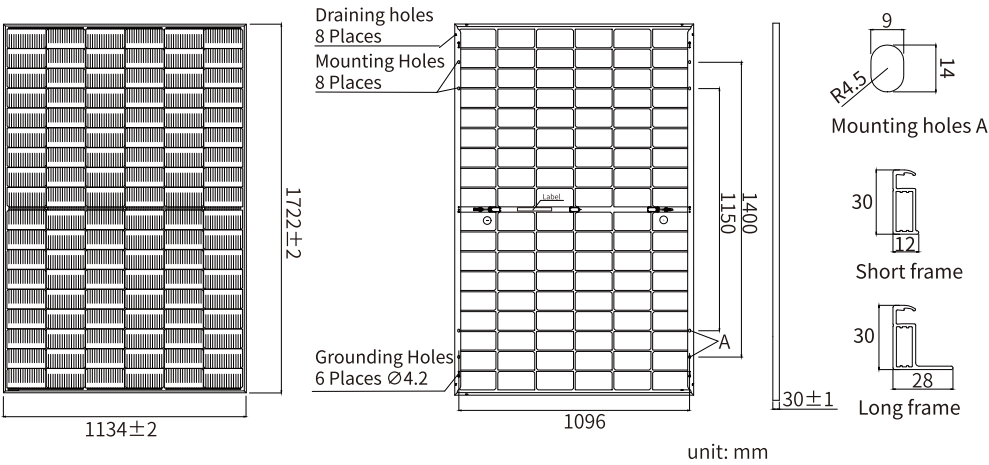
- IEC 61215, IEC 61730, UL 61215, UL 61730
- ISO 9001: 2015 Quality management systems
- ISO 14001: 2015 Environmental management systems
- ISO 45001: 2018 Occupational health and safety management systems
- IEC 62941: 2019 Terrestrial photovoltaic (PV) modules - Quality system for PV module manufacturing



REVIEWED
By Devon.Murtha at 2:08 pm, Feb 23, 2026

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	4mm²(IEC), 12 AWG(UL)
No. of cells	108(6×18)
Junction Box	IP68, 3diodes
Connector	QC 4.10-351/ MC4-EVO2A
Cable Length (Including Connector)	Portrait: 300mm(+)/400mm(-) Landscape: 1100mm(+)/1100mm(-)
Front Glass/Back Glass	1.6mm/1.6mm
Packaging Configuration	36pcs/Pallet, 936pcs/40HQ Container

Remark: customized frame color and cable length available upon request

ELECTRICAL PARAMETERS AT STC

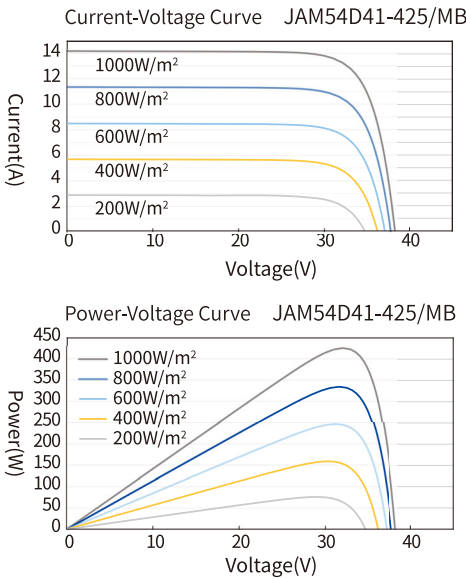
TYPE	JAM54D41 -420/MB	JAM54D41 -425/MB	JAM54D41 -430/MB	JAM54D41 -435/MB	JAM54D41 -440/MB	JAM54D41 -445/MB
Rated Maximum Power(Pmax) [W]	420	425	430	435	440	445
Open Circuit Voltage (Voc) [V]	38.28	38.56	38.84	39.11	39.38	39.65
Maximum Power Voltage(Vmp) [V]	32.38	32.64	32.88	33.13	33.37	33.64
Short Circuit Current(Isc) [A]	13.65	13.70	13.75	13.80	13.85	13.90
Maximum Power Current(Imp) [A]	12.97	13.02	13.08	13.13	13.18	13.23
Module Efficiency [%]	21.5	21.8	22.0	22.3	22.5	22.8
Power Tolerance	0~+3%					
Temperature Coefficient of Isc(α_Isc)	+0.045%/°C					
Temperature Coefficient of Voc (β_Voc)	-0.250%/°C					
Temperature Coefficient of Pmax(γ_Pmp)	-0.290%/°C					
STC	Irradiance 1000W/m², 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 -420/MB	JAM54D41 -425/MB	JAM54D41 -430/MB	JAM54D41 -435/MB	JAM54D41 -440/MB	JAM54D41 -445/MB
Rated Max Power(Pmax) [W]	454	459	464	470	475	481
Open Circuit Voltage(Voc) [V]	38.28	38.56	38.84	39.11	39.38	39.65
Max Power Voltage(Vmp) [V]	32.38	32.64	32.88	33.13	33.37	33.64
Short Circuit Current(Isc) [A]	14.74	14.80	14.85	14.90	14.96	15.01
Max Power Current(Imp) [A]	14.01	14.06	14.12	14.18	14.24	14.29
Irradiation Ratio (rear/front)	10%					

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/ft²)
Maximum Static Load, Back	2400Pa(50 lb/ft²)
NOCT	45±2°C
Bifaciality	80%±10%
Safety Class	Class II
Fire Performance	UL Type 38/Class C



Headquarters

No. 8 Building, Nuode Center, No.1 Courtyard, East Auto Museum Road,
Fengtai District, Beijing
Tel: +86 10 6361 1888 Fax: +86 10 6361 1999
E-mail: sales@jasolar.com marketing@jasolar.com www.jasolar.com

Specifications subject to technical changes and tests.
JA Solar reserves the right of final interpretation.

Version No. : Global-EN-20241105A



REVIEWED
By Devon.Murtha at 2:08 pm, Feb 23, 2026



IQ8MC Microinverter

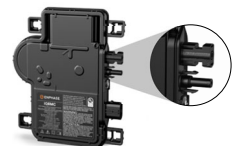
Our newest IQ8 Series Microinverters are the industry’s first microgrid-forming*, software-defined microinverters with split-phase power conversion capability to convert DC power to AC power efficiently. The brain of the semiconductor-based microinverter is our proprietary application-specific integrated 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 analysis software.



IQ8 Series Microinverters redefine reliability standards with more than one million cumulative hours of power-on testing, enabling an industry-leading limited warranty of up to 25 years.



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



IQ8 Series Microinverters are UL Listed as PV rapid shutdown equipment and conforms with various regulations when installed according to the manufacturer’s instructions.

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)

NOTE:

- 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 a local Having Jurisdiction (AHJ) or utility company. An IQ Gateway is required to make 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		%	97.0		96.5	
Nighttime power consumption		mW	33		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 This product is UL Listed as PV rapid shutdown equipment and conforms with NEC 2014, NEC 2017, NEC 2020, and NEC 2023 se C22.1-2018 Rule 64–218 rapid shutdown of PV systems for AC and DC conductors when installed according to the manufacture					

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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 03 2024 02 06

- (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 00 2024 02 09

REVIEWED
 By Devon.Murtha at 2:08 pm, Feb 23, 2026



Revision history

REVISION	DATE	DESCRIPTION
DSH-00049-4.0	February 2024	Added information about IEEE 1547 interconnection standard requirements.
DSH-00049-3.0	October 2023	Included NEC 2023 specification in the “Compliance” section.
DSH-00049-2.0	September 2023	Updated module compatibility information.
DSH-00049-1.0	May 2023	Preliminary release.

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IQ8MC-MC4-DSH-00049-4.0 EN 00 2024 02 03

REVIEWED

By Devon Murtha at 2:08 pm, Feb 23, 2026

COVER LETTER
SOLAR STACK – Roof solar mounting pedestal

Date: December 26, 2025
Re: Solar Stack pedestal – Cover Letter
Subject: State of Maryland, USA

SOLAR STACK Florida Product Approval (FL#21074) is in compliance with:

- ASCE 7-16 IRC 2021 IBC 2021
- ASCE 7-22 IRC 2024 IBC 2024

Performance evaluation, based on testing performed by others, is summarized in Table 7.1 below:

7.0 One Structural Connection Performance

7.1 Uplift Resistance:

Table 7.1 SOLAR STACK attached to Adhesive Ultimate Uplift Resistance Loads (LBF)^{1,2}					
#	Uplift Load applied to the Top of "SOLAR STACK" Assembly (90° To Roof Surface)				
	Adhesive Type:	Pedestal Size: (Length)	Paddy Dimensions: (minimum)	Paddy Weight: Per pedestal (nominal)	Ultimate Load Tension (LBF) ^{1,2}
1	ICP AH-160 Blue	12"	4" dia. x 12" long x 1" high	83.6 grams	1025
2	ICP AH-160 Blue	8"	4" dia. x 8" long x 1" high	51.7 grams	758
3	ICP AH-160	6"	5"-6" dia. x 6" long x 1-1/2" high	57.3 grams	600
4	ICP AH-160	4"	4" dia. x 4" long x 1" high	49.9 grams	325
5	DAP Stormbond 2 (fka Touch 'N Seal Storm Bond 2)	8"	6" dia. x 8" long x 1-1/2" high	44.2 grams	750
6	DAP SmartBond	8"	6" dia. x 8" long x 1-1/2" high	49.5 grams	575
7	DUPONT Tile Bond	12"	4" dia. x 12" long x 1" high	50.1 grams	1233
8	DUPONT Tile Bond	8"	6" dia. x 8" long x 1-1/2" high	35.5 grams	875
9	ICP APOC Polyset RTA-1	8"	5" dia. x 8" long x 1-1/2" high	47.3 grams	882
10	ICP APOC Polyset RTA-1	6"	5" dia. x 6" long x 1-1/2" high	40.4 grams	432
11	ICP APOC Polyset RTA-1	4"	5" dia. x 4" long x 1-1/2" high	27.1 grams	320
Notes:					
1. Ultimate Loads (LBF) with 0 margin of safety applied to the test loads.					
2. Assembly was tested for vertical up.					

The installation of solar rack system shall be as follows:

The unified panel assembly shall be supported on Solar Stack adhered solar mounting feet (pedestal) providing an average of 2.5 mounting feet per module. The brackets, clamps, bolts, screws, nuts, etc that attach the PV modules to the top side of the Solar Stack pedestals (8 inches long and 5 inches wide). Foot attachment to the roof shall be provided with a minimum of 2 per module long side and shared between modules. Mounting feet shall be adhered to the roof deck per the manufacturer's standard installation details to attach the Solar Stack to the roof membrane.

Solar panel mounting systems installed parallel to the plane of a roof shall be no more than 12" above the roof when measured perpendicular to the roof surface. When installed as per the above specifications



system shall meet required 115 MPH wind load, 10 PSF Dead Load, 20 PSF Live Load and 35 PSF Ground Snow load requirements

This review is for structural review only and does not express or imply any review of the roofing materials for weather tightness, condition, or lifespan. Review of the roofing materials should be performed by the installation contractor or a certified roofing professional. Roofing must be cleaned per manufacturer instructions to obtain rated bond strengths listed above. Should you have any further questions or comments please feel free to contact our office.

Respectfully,



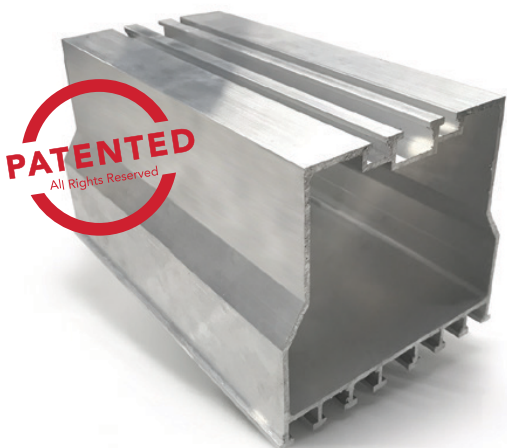
PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 49993, EXP 10/06/2026.





INSTALLATION MANUAL v.1

SOLAR STACK MOUNTING SYSTEM FOR FLAT ROOFS



ZERO
PENETRATION
SOLAR MOUNTING PEDESTAL

US PATENT No 8,104,231

US PATENT No 8,615,954

US PATENT No 9,315,999

INNOVATIVE

PRODUCTS FOR ROOFING & SOLAR

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A handwritten signature in black ink.

REVIEWED

By Devon.Murtha at 2:08 pm, Feb 23, 2018

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BEFORE YOU START

Please carefully read through this installation manual before you begin installation, operation or maintenance work. Failure to follow these installation instructions may result in damage and injury. Please keep this manual safe for future reference.

This installation manual describes proper installation procedures and provides necessary standards required for product reliability. Warranty details are available on www.solarstack.com. All installers must thoroughly read this installation manual and have a clear understanding of the installation procedures prior to installation. Failure to follow these guidelines may result in property damage, bodily injury or even death.

IT IS THE INSTALLER'S RESPONSIBILITY TO:

Ensure safe installation of all electrical aspects of the array. All electrical installation and procedures should be conducted by a licensed electrician or solar contractor. Routine maintenance of a module or panel shall not involve breaking or disturbing the bonding path of the system. All work must comply with national, state and local installation procedures, product and safety standards.

Comply with all applicable local or national building and fire codes, including any that may supersede this manual.

Ensure all products are appropriate for the installation, environment, and array under the site's loading conditions.

Use only Solar Stack parts or parts recommended by Solar Stack. Substituting parts may void any applicable warranty.

Ensure provided information is accurate. Issues resulting from inaccurate information are the installer's responsibility.

Ensure bare copper grounding wire does not contact aluminum and zinc-plated steel components, to prevent risk of galvanic corrosion.

If loose components or loose fasteners are found during periodic inspection, re-tighten immediately. If corrosion is found, replace affected components immediately.

Provide an appropriate method of direct-to-earth grounding according to the latest edition of the National Electrical Code, including NEC 250: Grounding and Bonding, and NEC 690: Solar Photovoltaic Systems.

Disconnect AC power before servicing or removing modules, AC modules, micro inverters and power optimizers.

Review module manufacturer's documentation for compatibility and compliance with warranty terms and conditions.

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IMPORTANT NOTES

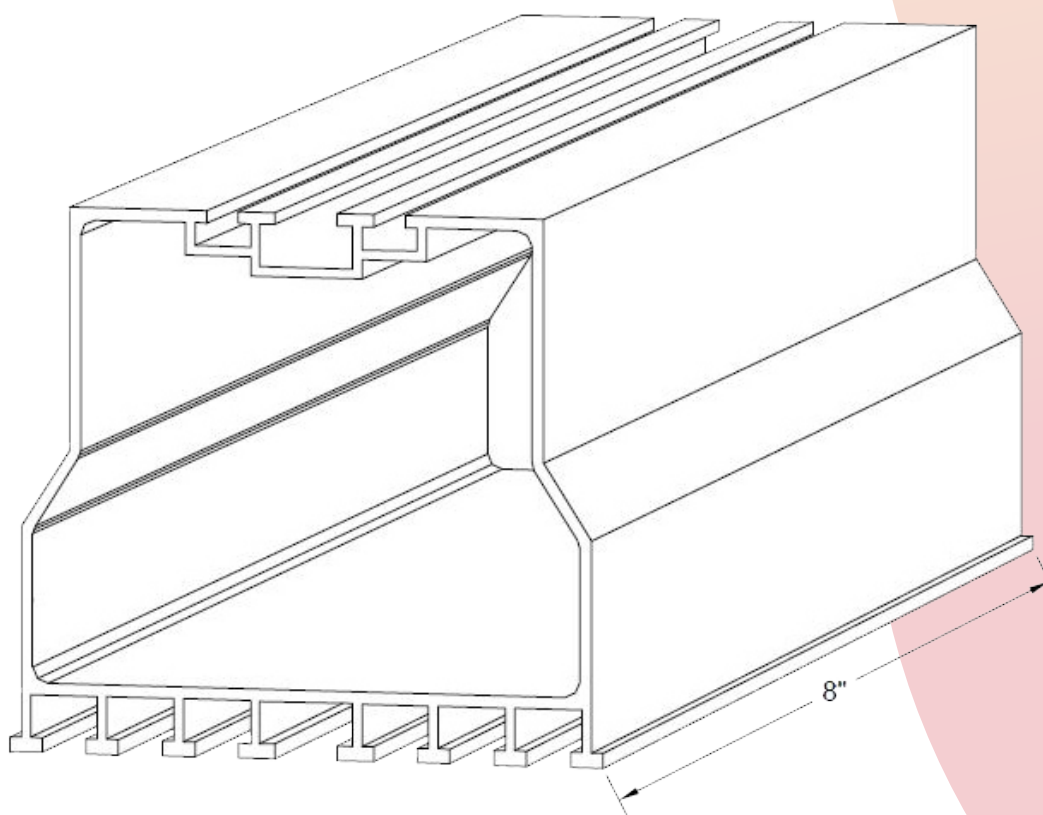
- Solar Stack Roof mounting systems are UL 2703 listed. Standard for safety UL/ANSI 2703, Mounting Systems, Mounting devices, Clamping/Retention Devices and Ground lugs for use with PV modules.
- Solar Stack systems have been evaluated for module-to-system bonding and mechanical load to the requirements of UL/ANSI 2703.
- This racking system may be used to ground and/or mount a PV module complying with UL 1703 only when the specific module has been evaluated for grounding and/or mounting in compliance with the included instructions.
- Solar Stack mounting systems were evaluated assuming a 20 Amp maximum series fuse size.
- The system is a non-separately derived system. The following components have been evaluated for bonding as the fault current ground path: PV module, Mid Clamp, End Clamp, Pedestal and Ground Lugs.
- Solar Stack pedestals can be installed on BUR (Build Up Roofing), Mineral surface (Modified Bitumen), EPDM, PVC, TPO, Hypalon and Concrete roofs.

SOLAR STACK'S COMPONENTS

Solar Stack's innovative design incorporates a patented pedestal used in conjunction with a code-approved adhesive.

Solar Stack eliminates potentially disastrous roof penetrations and allows roof warranties (and the roof itself) to remain intact. Since there's no need for anchor penetrations or locating structural connection points, installation is significantly simplified. Solar Stack's streamlined design cuts labor and installation time in half, avoiding costly, damaging complications associated with accessing attic spaces and modifying structural connection points.

Additionally, Solar Stack eliminates crawling into hot or cold attic spaces to install solar panels. And because there's no drilling, you have total peace of mind that roof leaks won't result from installation. Solar Stack has undergone rigorous testing by accredited facilities and earned the most stringent certifications from the state of Florida for use in High-Velocity Hurricane Zones, ensuring its durability.



SOLAR STACK'S COMPONENTS

System/Components "SOLAR STACK " or "DOUBLE DOWN " Solar Pedestal Models

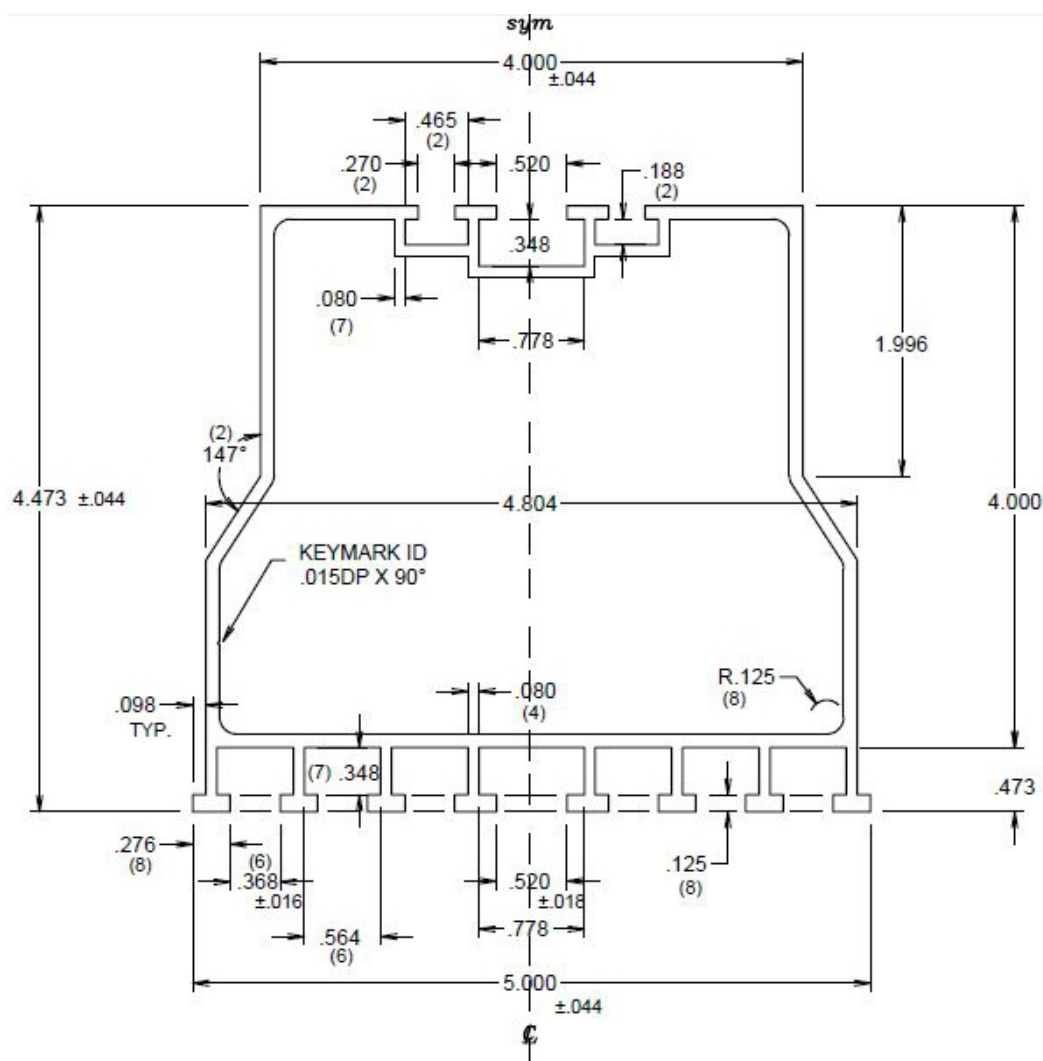
8 in. "SOLAR STACK " or "DOUBLE DOWN " Solar Pedestal

Overall Product Dimensions:

Length: 8.00 in.

Width: 5.00 in.

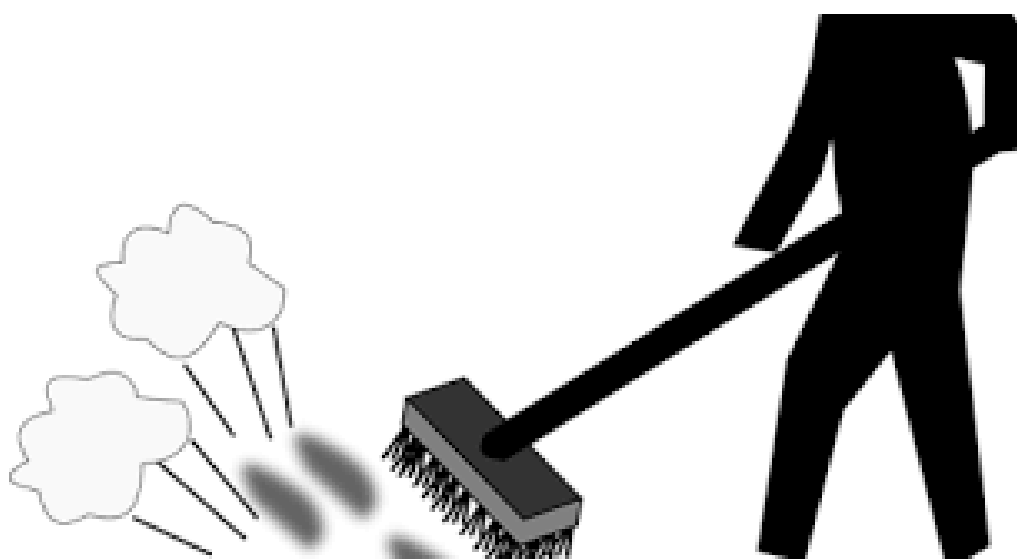
Height: 4.75 in.



PREPARATION OF THE ROOF

Solar Stack pedestals can be installed on the Asphalt, Concrete and TPO roof. Clean the roof with a brush. Make sure that the place where the Solar Stack pedestals and solar panels are to be placed on the roof is clean, dry and flat. The presence of gravel, sand, stones, algae, dust, etc. can lead to instability of the system and/or can cause damage to the roof.

Surface Preparation. All roof surfaces must be free of any debris, dirt, grease, oil, and standing water before adhesive is applied. Clean the hole of any sawdust with appropriate tools and materials. Follow adhesive manufacturers application instructions.



In determining the location of the solar panels on the flat roof, it is very important to pay attention to the incoming sunlight. Throughout the day and throughout the year.

Place the solar panels on a roof that has no shadow. The shadow of a chimney, trees and nearby buildings have a detrimental effect on the yield of the solar panels.

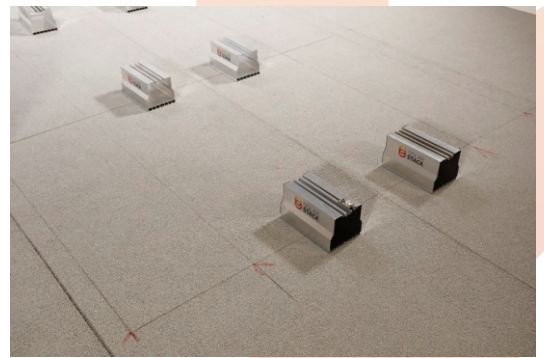
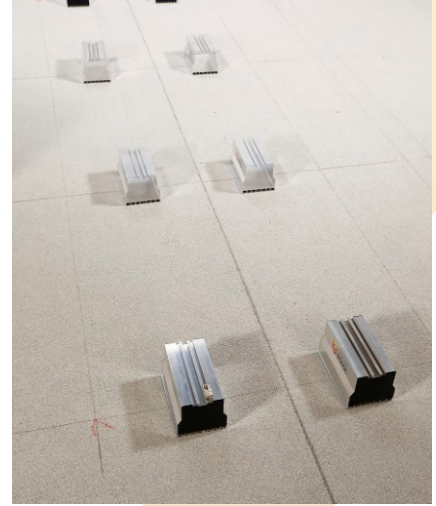
ARRAY LAYOUT

Using your engineered design, locate the array layout on the roof, and determine mount locations.

Measure and determine the spacing between the Solar Stack pedestals according to the solar array design.

Snap and mark the lines across the roof for all the mounts.

Prepare the Solar Stack pedestals and place them next to the marked lines where they will be installed.



INSTALLING SOLAR STACK PEDESTALS

Determine the spacing of Solar Stack pedestals for your solar array design.

Surface Preparation. All roof surfaces must be free of any debris, dirt, grease, oil, and standing water before adhesive is applied. Clean the surface of roof of any sawdust with appropriate tools and materials. Follow adhesive manufacturers application instructions.

Approved adhesive types that can be used for installation of Solar Stack pedestals can be found in the following table.

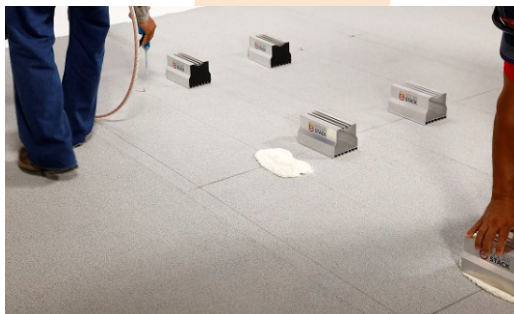
Table 7.1 Uplift Resistance Loads/Pressure ²				
Uplift Load applied to the Top of "SOLAR STACK GEN 3" or "DOUBLE DOWN GEN 3" Assembly (90° To Roof Surface)				
Adhesive Type:	GEN 3 Pedestal Size:	Paddy Dimensions:	Paddy Weight:	Ultimate Load ¹ :
ICP Polyset® AH-160	12"	16-5/8" x 8-7/8"	79.9 grams	-833 LBF
ICP Polyset® AH-160	8"	12-3/8" x 8"	62.6 grams	-658 LBF
DOW Tile Bond	8"	10-1/2" x 7"	55 grams	-383 LBF
DOW Insta-Stik	8"	10-1/2" x 7"	59.8 grams	-400 LBF
DAP Stormbond	8"	10-1/2" x 7"	52.1 grams	-500 LBF
Notes:				
1. Ultimate Loads with 0 margin of safety applied to the test loads.				
2. Assembly was tested for vertical up.				

Table 7-1 (Evaluation report for Florida product approval #FL 21074.6 R4)

INSTALLING SOLAR STACK PEDESTALS

Dispense adhesive into location of mount, making room for expansion of adhesive.

(Note: All Polyurethane Foam Adhesives will expand up to 3 time's original sprayed size. Take care to allow for expansion and required contact area to Solar Stack Pedestal to ensure performance as designed.)



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INSTALLING SOLAR STACK PEDESTALS

Install Solar Stack pedestal into fresh adhesive and allow to cure in accordance with adhesive manufacturer recommendations.

Adhesive is expanding and Ready for Solar Stack pedestal Installation.



All exposed polyurethane adhesive must be protected from UV exposure. This can be accomplished by coating with an exterior grade outdoor acrylic paint/coating or covering the foam adhesive with another method.



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INSTALLING THE MODULES

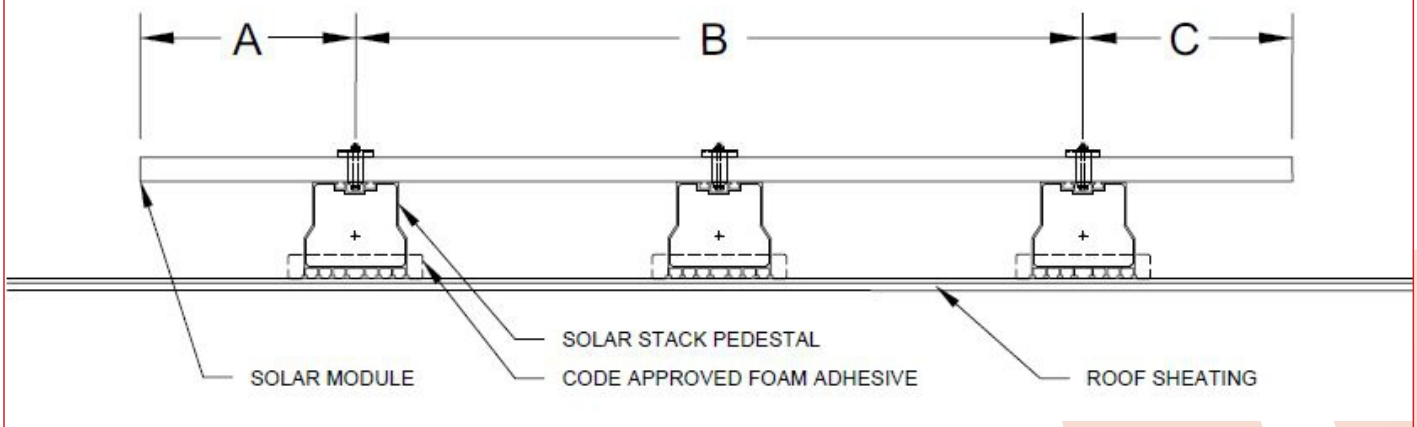
The next step is to lay down the solar modules and install them to the Solar Stack pedestals. Modules can be installed in portrait or landscape orientation, according to the engineering plans. As well as taking measurements, we'll check that the modules look straight – not just from where we're sitting on the roof, but from down on the ground too.

Modules will be connected with each other, according to the provided engineering plans in regards to the proper stringing.

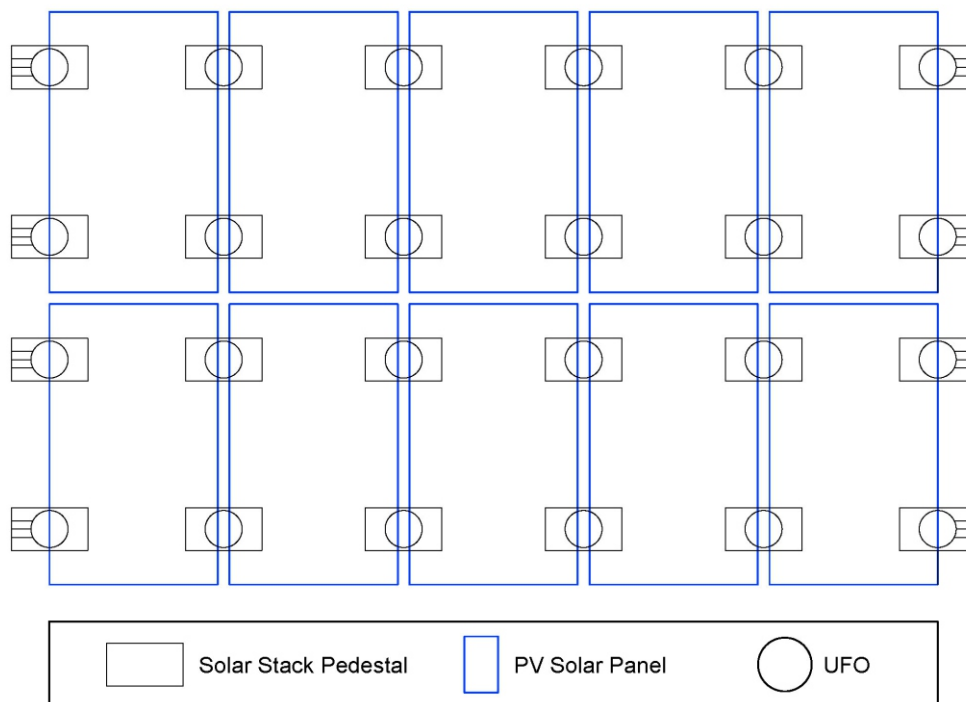


INSTALLING THE MODULES

This is a typical module, installed on the Solar Stack pedestals. Number of the required pedestals per module/row, will be determined according to the provided engineering plans, in regards to the typical geographical region and existing wind loads. If the modules are installed in HVHZ, than Roof underlayment must be approved and installed according to the local (AHJ) regulations and codes. Placement of the pedestals and distance between them (A,B i C) must be determined according to the module manufacturer instructions.



Typical module layout with Solar Stacks mounts.



IMPORTANT: Periodic re-inspection of the installation for loose components, loose fasteners and any corrosion, such that if found, the affected components are to be immediately replaced.

INSTALLING THE MODULE CLAMPS

Clamps hold the modules onto the frame. There are two types: end-clamps and mid-clamps. End-clamps are used at the end of a row of modules fixing the last one in place, while mid-clamps sit between two panels and ensure they're spaced equally.

Attach the modules using the clamps as noted on the drawing:

- Insert the middle clamps and tighten them.
- Insert the end clamps laterally in the pedestal. The end clamps are attached and then tightened at the height of the module frame.



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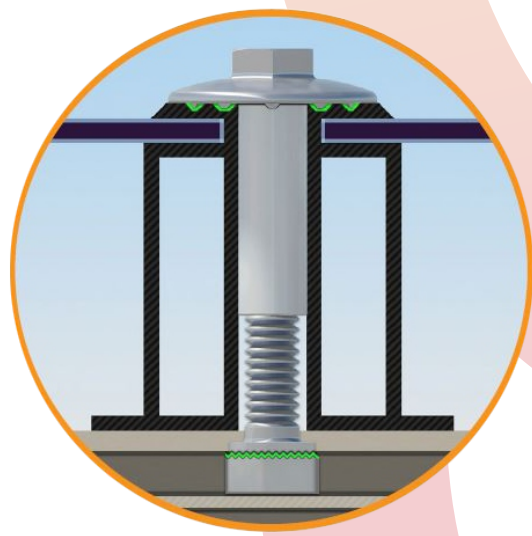
INSTALLING THE MODULE CLAMPS

Modules should be installed to the Solar Stack pedestals with the manufacturer approved middle/end clamps. There are different types of clamps available that can be used for the module installation. Solar Stack recommends Ironridge UFO clamps.

The Universal Fastening Object (UFO) - Ironridge racking, securely bonds solar modules to the Solar Stack pedestals. It comes assembled and lubricated and can fit wide range of module heights. Stopper Sleeve, snaps onto the UFO, and converts it into bonded end clamp.

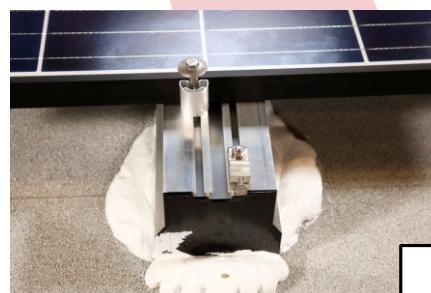
The recommended torque to be applied to the following components and connections for proper assembly and bonding for both systems:

End Clamp	80 in-lbs.	Mid Clamp	80 in-lbs.
-----------	------------	-----------	------------



GROUNDING

Grounding lug will be mounted at every row. Grounding lugs connects the PV modules to the grounding conductors. Attach the grounding lug to the Solar Stack Pedestal with hardware. Secure the grounding wire to the lug by tightening the set screw and torque Grounding Lug 120 in-lbs. at Pedestal terminal and 5 ft-lbs. at wire terminal.



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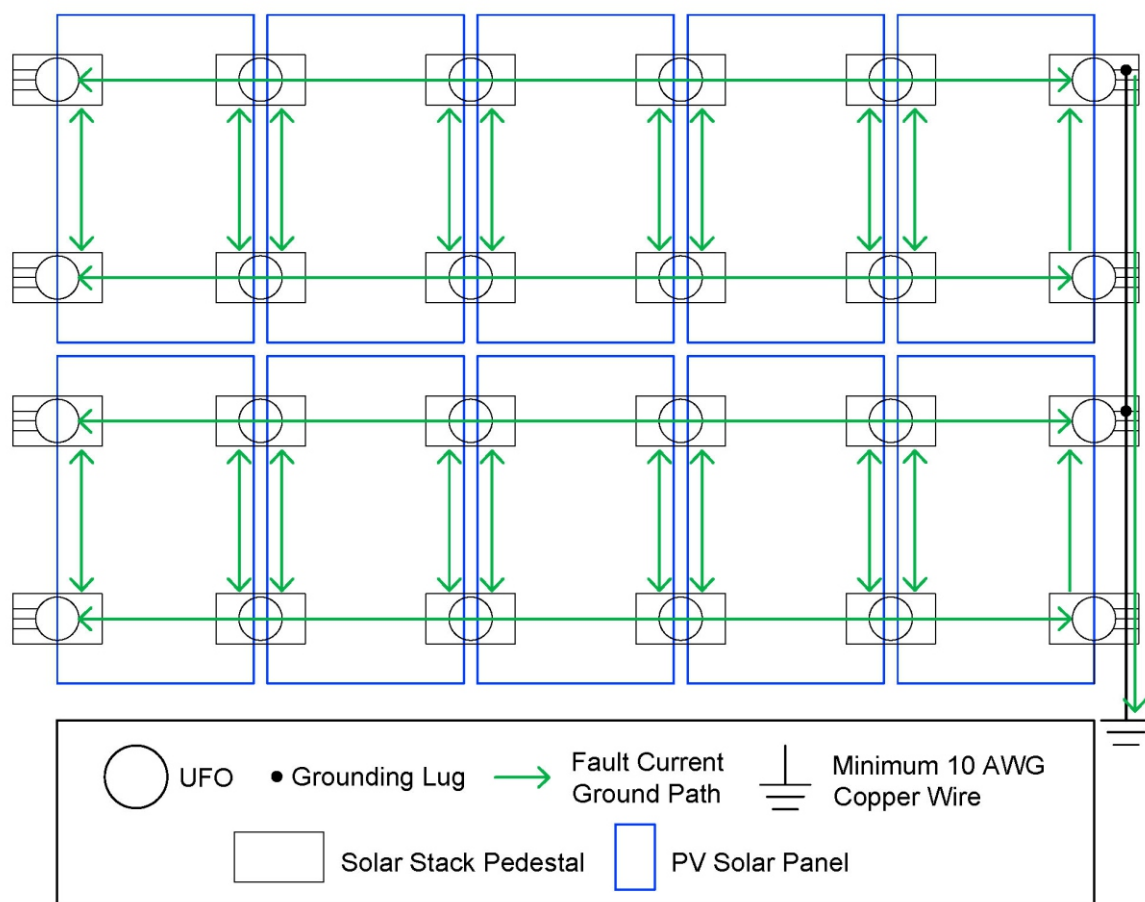


GROUNDING

Entire solar array must be grounded. Modules should be bonded to the Solar Stack pedestals with the manufacturer approved middle/end clamps. Solar Stack recommends Ironridge UFO clamps. The UFO family of components eliminates the need for separate grounding hardware by bonding PV modules directly to the Solar Stack pedestals. UFO hardware forms secure electrical bonds with both the module and the pedestal, resulting in many parallel grounding paths throughout the system. This leads to safer and more reliable installations.

Grounding wire should be installed, in a way that will electrically bond the module rows between each other. Grounding lug will be installed on the Solar Stack pedestal (one per each row) and bond the grounding wire. Grounding wire should be min #10 AWG (Bare Copper wire) size. If other than specified, then must be determined by a Professional Engineer, in accordance to the National Electric Code.

Grounding conductors, from each row of the array, must be bonded together, in order to form a solid electrical connection/system, which will continue to the closest Junction or Combiner box. From that point, according to the Professional Engineer ampacity calculations, based on the NEC, proper grounding wire will continue to run all the way down to the determined system grounding point.



The system is a non-separately derived system. The following components have been evaluated for bonding as the fault current ground path: PV module, Mid Clamp, End Clamp, Pedestal and Ground Lugs.

MODULE COMPATIBILITY

Solar Stack racking system may be used to ground and/or mount a PV module complying with UL 1703 only when the specific module has been evaluated for grounding and/or mounting in compliance with the included instructions.





ICC-ES Evaluation Report

ESR-5606

Issued May 2025

Subject to renewal May 2026

This report also contains:

- [City of LA Supplement](#)
- [City of Chicago Supplement](#)
- [CA Supplement w/DSA and OSHPD](#)

ICC-ES Evaluation Reports are not to be construed as representing aesthetics or any other attributes not specifically addressed, nor are they to be construed as an endorsement of the subject of the report or a recommendation for its use. There is no warranty by ICC Evaluation Service, LLC, express or implied, as to any finding or other matter in this report, or as to any product covered by the report.

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DIVISION: 05 00 00 — METALS Section: 05 50 00 — Metal Fabrications	REPORT HOLDER: SOLAR STACK INC 	EVALUATION SUBJECT: SOLAR STACK® 	
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1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2024, 2021 and 2018 [International Building Code® \(IBC\)](#)

Property evaluated:

- Structural

2.0 USES

The SOLAR STACK® solar mounting pedestal is used to attach photovoltaic (PV) panels to flat and sloped roof systems.

3.0 DESCRIPTION

3.1 General:

When attached to a supporting structure, the SOLAR STACK® solar mounting pedestal is compatible with tile, metal, granulated cap sheet (roll roofing), BUR (build up roofing), modified bitumen, TPO, EPDM, PVC, hypalon, SPF (spray polyurethane foam), and concrete roof systems. The SOLAR STACK® solar mounting pedestal is not compatible with shingle, shake, architectural metal, or silicone coated roof systems.

3.2 Material:

The SOLAR STACK® solar mounting pedestal consists of a 0.095-inch thick (2.4 mm) extruded aluminum with an alloy-temper designation of 6005A-T61 in accordance with ASTM B221. The SOLAR STACK® solar mounting pedestal is 5-inches wide (127 mm), 8-inches (203 mm) or 12-inches (305 mm) long, and 4.5-inches (114 mm) tall. See [Figure 1](#).

4.0 DESIGN

4.1 Design:

The allowable strength value shown in [Table 1](#) of this report represents the tension / uplift capacity of the SOLAR STACK® solar mounting pedestal center top c-channel, see [Figure 1](#). The connection of the SOLAR STACK® solar mounting pedestal to the roof deck must be designed by a registered design professional and must not exceed the published allowable load value shown in [Table 1](#).



4.2 Installation:

Installation of the SOLAR STACK® solar mounting pedestal must comply with this report and the manufacturer’s published installation instructions. If there is a conflict between this report and the manufacturer’s published installation instructions, this report governs.

5.0 CONDITIONS OF USE:

The SOLAR STACK® solar mounting pedestal described in this report complies with, or is a suitable alternative to what is specified in, the codes listed in [Section 1.0](#) of this report, subject to the following conditions:

- 5.1 Calculations showing compliance with this report must be submitted to the code official. The calculations must be prepared by a registered design professional where required by the statutes of the jurisdiction in which the project is to be constructed.
- 5.2 The attachment of the SOLAR STACK® mounting pedestal to the supporting structure is outside the scope of this report.
- 5.3 The SOLAR STACK® solar mounting pedestals are manufactured under a quality control program with inspections by ICC-ES.

6.0 EVIDENCE SUBMITTED

- 6.1 Data in accordance with Section 3.2 of the [ICC-ES Acceptance Criteria for Proprietary Attachment Systems of Photovoltaic \(PV\) Arrays to Roof Assemblies \(AC467\)](#), approved June 2016 (editorially revised February 2024).
- 6.2 Quality documentation in accordance with the ICC-ES Acceptance Criteria for Quality Documentation (AC10).
- 6.3 Published installation instructions.

7.0 IDENTIFICATION

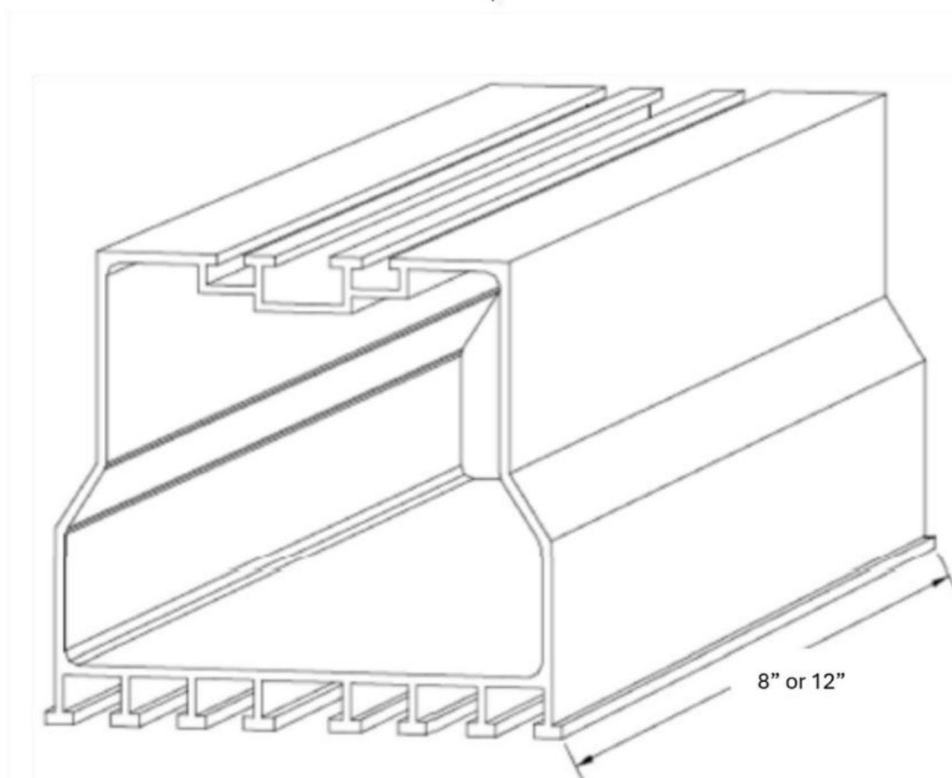
- 7.1 The ICC-ES mark of conformity, electronic labeling, or the evaluation report number (ICC-ES ESR-5606) along with the name, registered trademark, or registered logo of the report holder must be included in the product label.
- 7.2 In addition, the SOLAR STACK® solar mounting pedestal is identified with the product name or designation.
- 7.3 The report holder’s contact information is the following:

SOLAR STACK INC
1071 SW 30 AVENUE
DEERFIELD BEACH, FLORIDA 33442
(877) 757-7822
www.SolarStack.com
tim@solarstack.com

TABLE 1 — ALLOWABLE LOAD VALUE OF SOLAR STACK® SOLAR MOUNTING PEDESTAL¹

LOAD CONDITION ²	ULTIMATE LOAD ³ (lbf)	ALLOWABLE LOAD ⁴ (lbf)
TENSION / UPLIFT	938	313

For SI: 1 lbf = 4.45 N.
¹The attachment of the SOLAR STACK solar mounting pedestal to the supporting structure is outside the scope of this report.
²Load condition is based on attachment to the center-top channel of the SOLAR STACK solar mounting pedestal. See [Figure 1](#) for details.
³Ultimate load is from the average of five specimens.
⁴Allowable load based on an average ultimate test load divided by a safety factor of three.



APPROVED
Montgomery County
Historic Preservation Commission





ICC-ES Evaluation Report

ESR-5606 City of LA Supplement

Issued May 2025

This report is subject to renewal May 2026.

www.icc-es.org | (800) 423-6587 | (562) 699-0543

A Subsidiary of the International Code Council®

DIVISION: 05 00 00—METALS
Section: 05 50 00—Metal Fabrications

REPORT HOLDER:

SOLAR STACK INC

EVALUATION SUBJECT:

SOLAR STACK®

1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that the SOLAR STACK® solar mounting pedestal, described in ICC-ES evaluation report [ESR-5606](#), has also been evaluated for compliance with the code noted below as adopted by the Los Angeles Department of Building and Safety (LADBS).

Applicable code editions:

- 2023 City of Los Angeles Building Code ([LABC](#))

2.0 CONCLUSIONS

The SOLAR STACK® solar mounting pedestal, described in Sections 2.0 through 7.0 of the evaluation report [ESR-5606](#), complies with the LABC Chapter 15, and is subject to the conditions of use described in this supplement.

3.0 CONDITIONS OF USE

The SOLAR STACK® solar mounting pedestal described in this evaluation report supplement must comply with all of the following conditions:

- All applicable sections in the evaluation report [ESR-5606](#).
- The design, installation, conditions of use and identification of the SOLAR STACK® solar mounting pedestal are in accordance with the 2021 *International Building Code*® (IBC) provisions, as applicable, noted in the evaluation report [ESR-5606](#).
- The design, installation and inspection are in accordance with additional requirements of LABC Chapters 15, 16 and 17, as applicable.
- Roof slope must not exceed 4:12.
- Solar photovoltaic system installation must comply with Los Angeles Fire Department Requirement No. 96.

This supplement expires concurrently with the evaluation report issued May 2025.

ICC-ES Evaluation Reports are not to be construed as representing aesthetics or any other attributes not specifically addressed, nor are they to be construed as an endorsement of the subject of the report or a recommendation for its use. There is no warranty by ICC Evaluation Service, LLC, express or implied, as to any finding or other matter in this report, or as to any product covered by the report.

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Page 4 of 6



REVIEWED
By Devon.Murtha at 2:08 pm, Feb 23, 2026



ICC-ES Evaluation Report

ESR-5606 CA Supplement
w/ DSA and OSHPD

Issued May 2025

This report is subject to renewal May 2026.

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DIVISION: 05 00 00—METALS
Section: 05 50 00—Metal Fabrications

REPORT HOLDER:

SOLAR STACK INC

EVALUATION SUBJECT:

SOLAR STACK®

1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that the SOLAR STACK® solar mounting pedestal, described in ICC-ES evaluation report ESR-5606, has also been evaluated for compliance with the code noted below.

Applicable code edition(s):

- 2022 California Building Code (CBC)

For evaluation of applicable Chapters adopted by the California Office of Statewide Health Planning and Development (OSHPD) AKA: California Department of Health Care Access and Information (HCAI) and the Division of State Architect (DSA), see Sections 2.1.1 and 2.1.2 below.

2.0 CONCLUSIONS

2.1 CBC:

The SOLAR STACK® solar mounting pedestal, described in Sections 2.0 through 7.0 of the evaluation report ESR-5606, complies with CBC Chapter 15, provided the design and installation are in accordance with the 2021 *International Building Code*® (IBC) provisions noted in the evaluation report and the additional requirements of CBC Chapters 15, 16 and 17, as applicable.

2.1.1 OSHPD:

The SOLAR STACK® solar mounting pedestal, described in Sections 2.0 through 7.0 of the evaluation report ESR-5606, complies with CBC Chapters 15 and applicable amendments, [OSHPD 1, 1R, 2 ,3, 4 and 5], 16 and applicable amendments [OSHPD 1R, 2, 3 and 5], 17 and applicable amendments [OSHPD 1R, 2, 3 and 5], and Chapters 16A [OSHPD 1 and 4] and 17A [OSHPD 1 and 4], provided the design and installation are in accordance with the 2021 *International Building Code*® (IBC) provisions noted in the evaluation report.

2.1.2 DSA:

The Solar Stack® solar mounting pedestal, described in Sections 2.0 through 7.0 of the evaluation report ESR-5606, complies with CBC Chapters 15 and applicable amendments [DSA-SS and DSA-SS/CC], 16 and applicable amendments [DSA-AC and DSA-SS/CC], CBC Chapters 16A and applicable amendments [DSA-AC and DSA-SS] and 17A [DSA-SS and DSA-SS/CC], provided the design and installation are in accordance with the 2021 *International Building Code*® (IBC) provisions noted in the evaluation report.

This supplement expires concurrently with the evaluation report, issued May 2025.

ICC-ES Evaluation Reports are not to be construed as representing aesthetics or any other attributes not specifically addressed, nor are they to be construed as an endorsement of the subject of the report or a recommendation for its use. There is no warranty by ICC Evaluation Service, LLC, express or implied, as to any finding or other matter in this report, or as to any product covered by the report.

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Montgomery County
Historic Preservation Commission

REVIEWED
By Devon.Murtha at 2:08 pm, Feb 23, 2026



ICC-ES Evaluation Report

ESR-5606 City of Chicago Supplement

Issued May 2025

This report is subject to renewal May 2026.

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DIVISION: 05 00 00—METALS
Section: 05 50 00—Metal Fabrications

REPORT HOLDER:

SOLAR STACK INC

EVALUATION SUBJECT:

SOLAR STACK®

1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that the SOLAR STACK® solar mounting pedestal, described in ICC-ES evaluation report ESR-5606, has also been evaluated for compliance with the Chicago Construction Codes (Title 14 of the Chicago Municipal Code) as noted below.

Applicable code editions:

- 2019 *Chicago Building Code* (Title 14B)

2.0 CONCLUSIONS

The SOLAR STACK® solar mounting pedestal, described in Sections 2.0 through 7.0 of the evaluation report ESR-5606 complies with Title 14B, and is subject to the conditions of use described in this supplement.

3.0 CONDITIONS OF USE

The SOLAR STACK® solar mounting pedestal described in this evaluation report supplement must comply with all of the following conditions:

- All applicable sections in the evaluation report ESR-5606.
- The design, installation, conditions of use and identification of the Solar Stack® solar mounting pedestal are in accordance with the 2018 *International Building Code*® (IBC) provisions noted in the evaluation report ESR-5606.
- The design, installation and inspection are in accordance with additional requirements of Chapters 15 and 16 of Title 14B, as applicable.

This supplement expires concurrently with the evaluation report, issued May 2025.

ICC-ES Evaluation Reports are not to be construed as representing aesthetics or any other attributes not specifically addressed, nor are they to be construed as an endorsement of the subject of the report or a recommendation for its use. There is no warranty by ICC Evaluation Service, LLC, express or implied, as to any finding or other matter in this report, or as to any product covered by the report.

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DEPARTMENT OF REGULATORY AND ECONOMIC RESOURCES (RER)
BOARD AND CODE ADMINISTRATION DIVISION

MIAMI-DADE COUNTY
PRODUCT CONTROL SECTION
11805 SW 26 Street, Room 208
Miami, Florida 33175-2474
T (786) 315-2590 F (786) 315-2599
www.miamidade.gov/economy

NOTICE OF ACCEPTANCE (NOA)

Solar Stack, Inc.
1071 SW 30th Ave
Deerfield Beach, FL. 33442

SCOPE:

This NOA is being issued under the applicable rules and regulations governing the use of construction materials. The documentation submitted has been reviewed and accepted by Miami-Dade County RER - Product Control Section to be used in Miami Dade County and other areas where allowed by the Authority Having Jurisdiction (AHJ).

This NOA shall not be valid after the expiration date stated below. The Miami-Dade County Product Control Section (In Miami Dade County) and/or the AHJ (in areas other than Miami Dade County) reserve the right to have this product or material tested for quality assurance purposes. If this product or material fails to perform in the accepted manner, the manufacturer will incur the expense of such testing and the AHJ may immediately revoke, modify, or suspend the use of such product or material within their jurisdiction. RER reserves the right to revoke this acceptance, if it is determined by Miami-Dade County Product Control Section that this product or material fails to meet the requirements of the applicable building code.

This product is approved as described herein, and has been designed to comply with the Florida Building Code including the High Velocity Hurricane Zone of the Florida Building Code.

DESCRIPTION: Solar Stack PV Mounts

LABELING: Each unit shall bear a permanent label with the manufacturer's name or logo, city, state and following statement: "Miami-Dade County Product Control Approved", unless otherwise noted herein.

RENEWAL of this NOA shall be considered after a renewal application has been filed and there has been no change in the applicable building code negatively affecting the performance of this product.

TERMINATION of this NOA will occur after the expiration date or if there has been a revision or change in the materials, use, and/or manufacture of the product or process. Misuse of this NOA as an endorsement of any product, for sales, advertising or any other purposes shall automatically terminate this NOA. Failure to comply with any section of this NOA shall be cause for termination and removal of NOA.

ADVERTISEMENT: The NOA number preceded by the words Miami-Dade County, Florida, and followed by the expiration date may be displayed in advertising literature. If any portion of the NOA is displayed, then it shall be done in its entirety.

INSPECTION: A copy of this entire NOA shall be provided to the user by the manufacturer or its distributors and shall be available for inspection at the job site at the request of the Building Official.

This NOA revises NOA# 24-0723.07 and consists of pages 1 through 7.

The submitted documentation was reviewed by Alex Tigera.

01/23/25



NOA No.: 24-1216.01
Expiration Date: 09/09/26
Approval Date: 01/23/25
Page 1 of 7



ROOFING COMPONENT APPROVAL

Category: Roofing
Sub-Category: Other
Materials Aluminum

SCOPE

This approves the “Solar Stack PV Mounts” as described in this Notice of Acceptance.

PRODUCT DESCRIPTION

<u>Product</u>	<u>Dimensions</u>	<u>Test Specifications</u>	<u>Product Description</u>
Solar Stack PV Mount – 8” Solar Stack	Length = 8” Width = 5” Height = 4.473” Yield Strength = Min 35ksi	Proprietary	Extruded aluminum support for Roofing Accessory.
Solar Stack PV Mount – 12” Solar Stack	Length = 12” Width = 5” Height = 4.473” Yield Strength = Min 35ksi	Proprietary	Extruded aluminum support for Roofing Accessory.
Low Solar Stack PV Mount – 8” Solar Stack – 5 degree	Length = 8” Width = 5” Height = 3.85” to 3.5” Yield Strength = Min 35ksi	Proprietary	Extruded aluminum support for Roofing Accessory.
High Solar Stack PV Mount – 8” Solar Stack – 5 degree	Length = 8” Width = 5” Height = 6.95” to 6.6” Yield Strength = Min 35ksi	Proprietary	Extruded aluminum support for Roofing Accessory.

MANUFACTURING LOCATION

1. Lake Worth, FL.

EVIDENCE SUBMITTED

<u>Test Agency</u>	<u>Test Identifier</u>	<u>Test Name/Report</u>	<u>Date</u>
Keymark Corporation	SS-EMS-2021-01	Mechanical Properties	01/14/21
American Test Lab of South Florida	0628.01-24	TAS 114 App D	07/15/24
	1121.02-24	Shear Testing	11/29/24
	1121.01-24	Shear Testing	11/29/24
	0606.03-24	TAS 114 App D	06/13/24



NOA No.: 24-1216.01
Expiration Date: 09/09/26
Approval Date: 01/23/25
Page 2 of 7



ATTACHMENT RESISTANCE DATA¹

<u>Components</u>	<u>Substrate</u>	<u>Adhesive</u>	<u>Uplift</u>	<u>Side Shear</u>	<u>End Shear</u>
Solar Stack PV Mount – 12” Solar Stack	GAF Everguard TPO	ICP Adhesives Polyset AH-160	631.25 lbf.	331.25 lbf.	712.5 lbf.
Solar Stack PV Mount – 8” Solar Stack	GAF Everguard PVC	DAP Storm Bond 2 Roof Tile Adhesive	333.33 lbf.	612.6 lbf.	685.8 lbf.
Solar Stack PV Mount – 12” Solar Stack	GAF Everguard PVC	DAP Storm Bond 2 Roof Tile Adhesive	490 lbf.	842.1 lbf.	1171.5 lbf.
Solar Stack PV Mount – 8” Solar Stack	GAFGLAS Mineral Surface Cap Sheet	DAP Storm Bond 2 Roof Tile Adhesive	926.67 lbf.	897 lbf.	1119.4 lbf.
Solar Stack PV Mount – 12” Solar Stack	GAFGLAS Mineral Surface Cap Sheet	DAP Storm Bond 2 Roof Tile Adhesive	1200 lbf.	1090.1 lbf.	1561.2 lbf.
1. This data is being provided as reference for the Authority Having Jurisdiction for the analasys of the load path transfer from the Photovoltaic/Solar Stack assembly through the roof to the deck for submittal of a permit. See limitation 2 below.					

LIMITATIONS

1. Fire classification is not part of this acceptance; refer to a current Approved Roofing Materials Directory for fire ratings of this product.
2. Refer to prepared roofing system Product Control Notice of Acceptance for listed approval of this product with specific prepared roofing products. **Solar Stack PV Mounts** may be used with any approved roof covering Notice of Acceptance listing **Solar Stack PV Mounts** as a component part of an assembly in the Notice of Acceptance.

If **Solar Stack PV Mounts** are not listed, a request may be made to the Authority Having Jurisdiction (AHJ) or the Miami-Dade County Product Control Section for approval provided that appropriate documentation is provided to detail compatibility of the products, wind uplift resistance, and fire testing results.
3. All products listed herein shall have a quality assurance audit in accordance with the Florida Building Code and Rule 61G20-3 of the Florida Administrative Code.



NOA No.: 24-1216.01

Expiration Date: 09/09/26

Approval Date: 01/23/25

Page 3 of 7



LABELING

- 1. Solar Stack PV Mounts shall be labeled with the Miami-Dade Product Control Approved Seal as seen below or the wording “Miami-Dade County Product Control Approved”.



BUILDING PERMIT REQUIREMENTS

Application for building permit shall be accompanied by copies of the following.

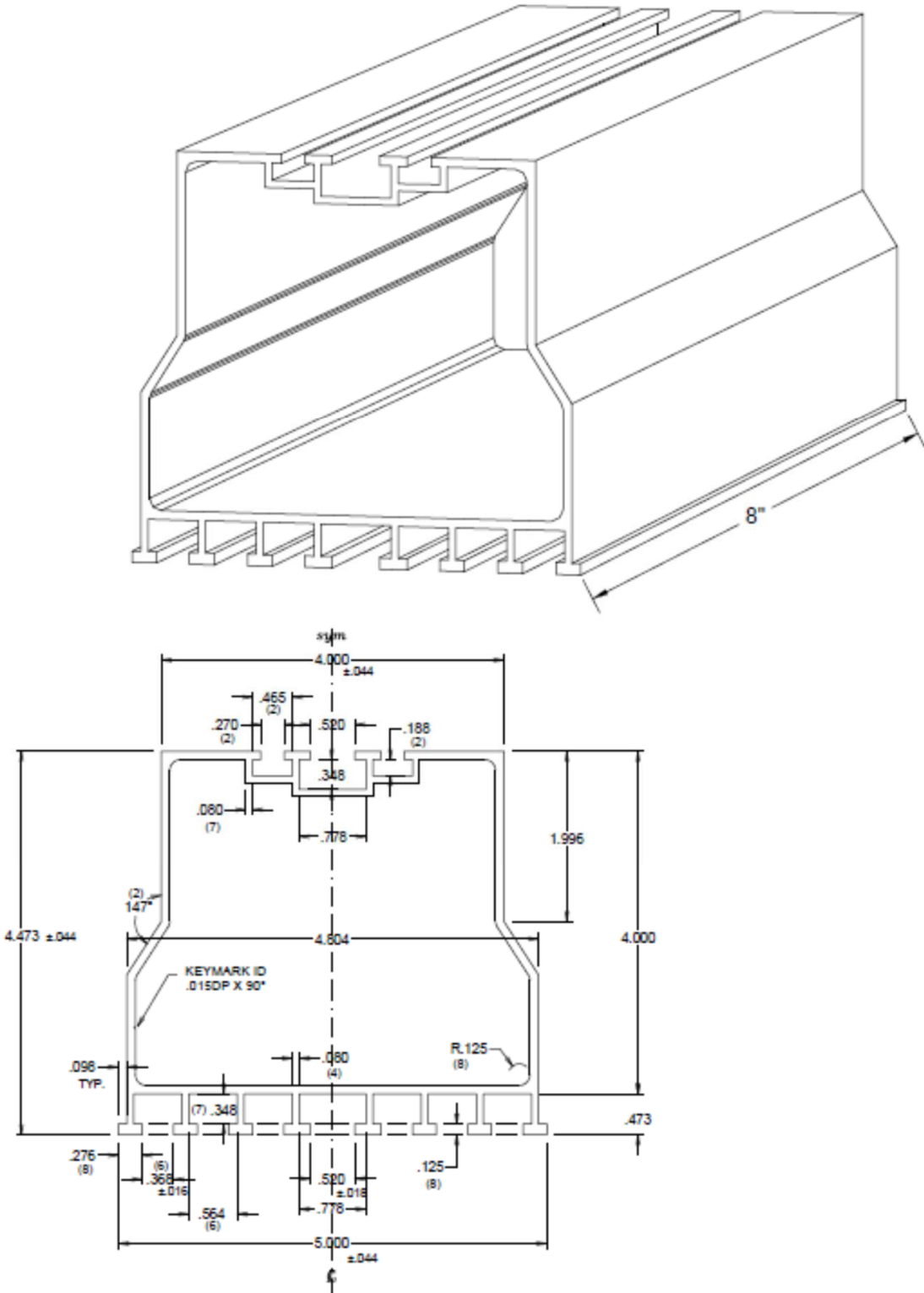
- 1. This Notice of Acceptance.
- 2. Any other documents required by the Building Official or the applicable code in order to properly evaluate the installation of this component



NOA No.: 24-1216.01
Expiration Date: 09/09/26
Approval Date: 01/23/25
Page 4 of 7



DETAIL A



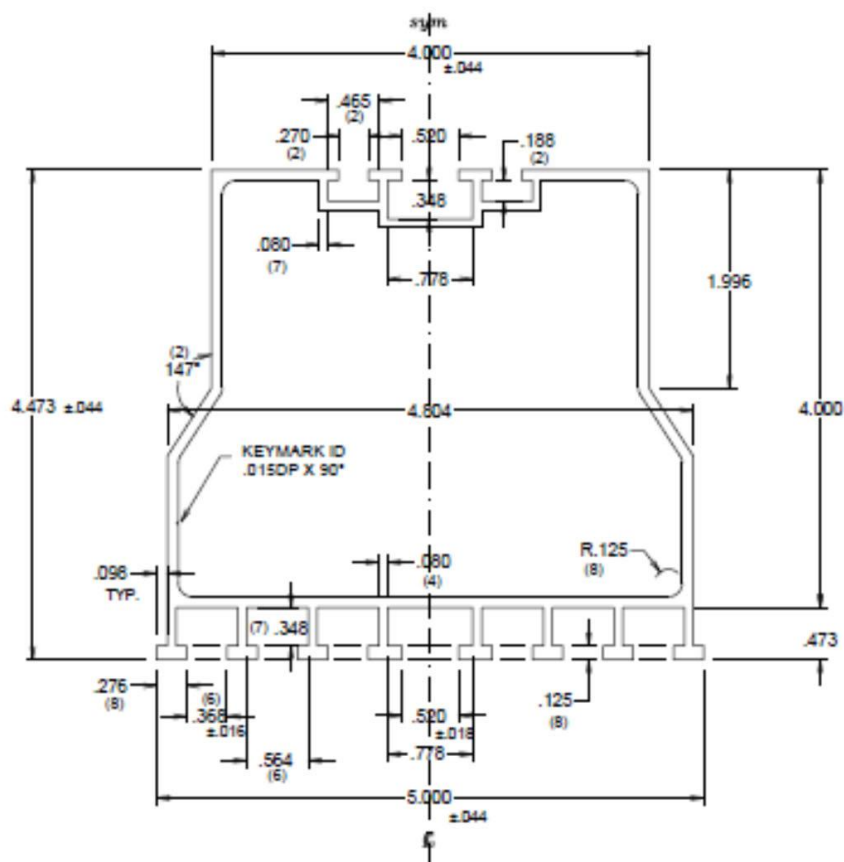
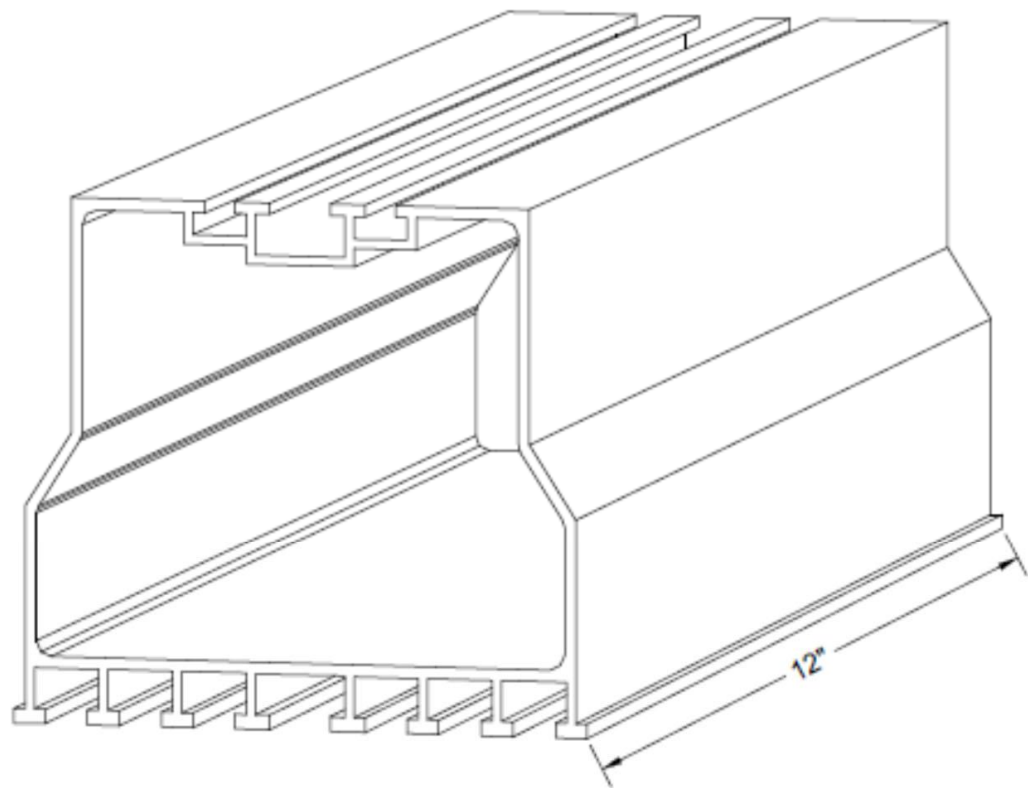
SOLAR STACK PV MOUNT – 8” SOLAR STACK



NOA No.: 24-1216.01
Expiration Date: 09/09/26
Approval Date: 01/23/25
Page 5 of 7



REVIEWED
By Devon.Murtha at 2:08 pm, Feb 23, 2026



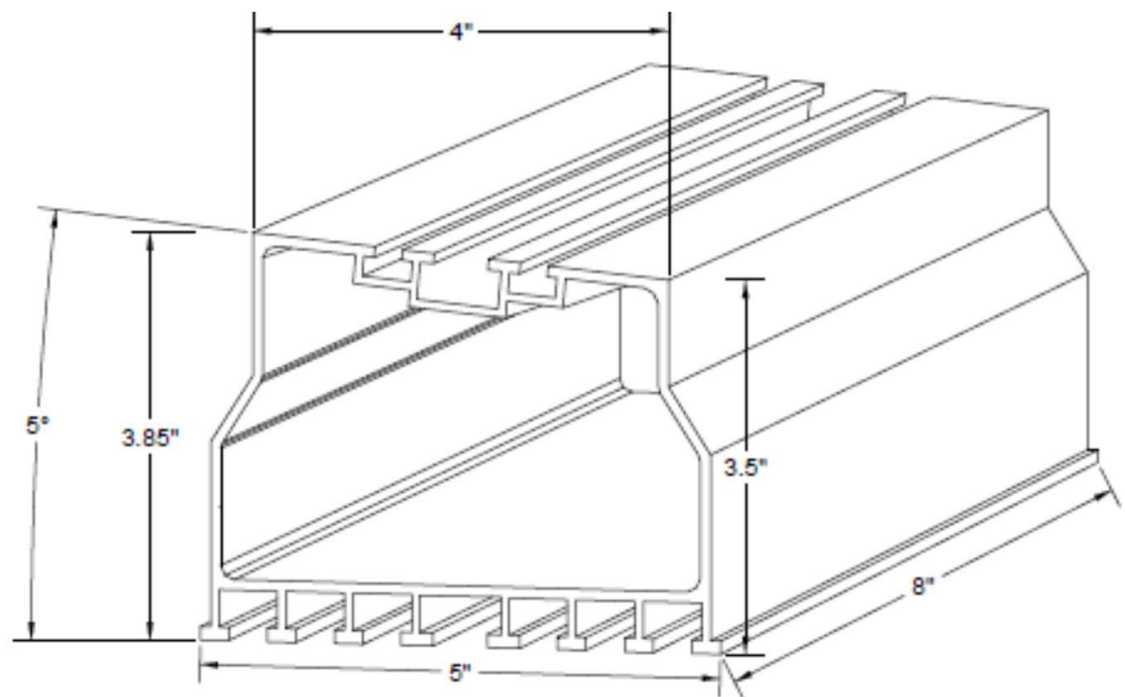
SOLAR STACK PV MOUNT – 12” SOLAR STACK



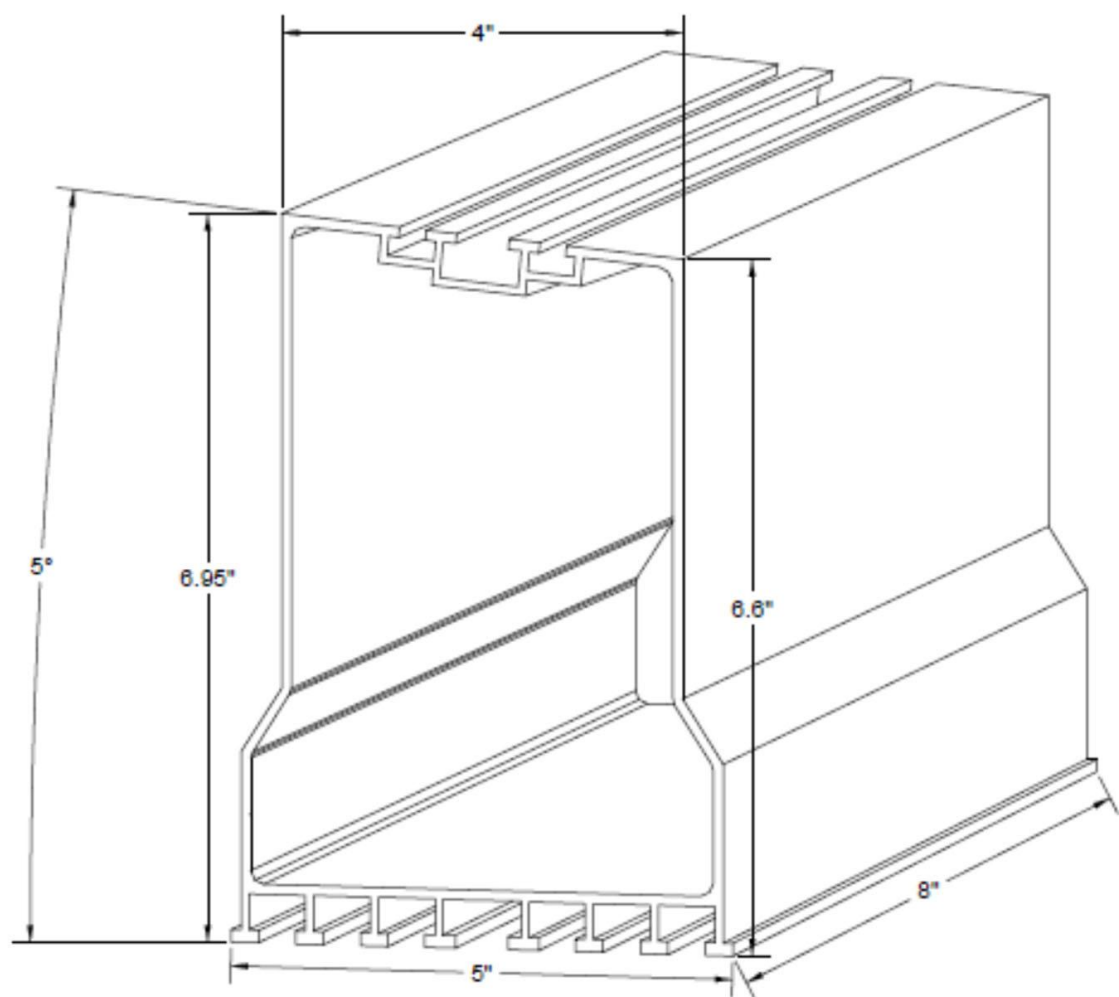
NOA No.: 24-1216.01
Expiration Date: 09/09/26
Approval Date: 01/23/25
Page 6 of 7



REVIEWED
By Devon.Murtha at 2:08 pm, Feb 23, 2026



LOW SOLAR STACK PV MOUNT – 8” SOLAR STACK – 5 DEGREE



HIGH SOLAR STACK PV MOUNT – 8” SOLAR STACK – 5 DEGREE

END OF THIS ACCEPTANCE



NOA No.: 24-1216.01
Expiration Date: 09/09/26
Approval Date: 01/23/25
Page 7 of 7





American Test Lab of South Florida
6801 NW 17 Ave Ft Lauderdale, FL 33309
office 954-972-6208 fax 954-972-6285
www.atlsf.com email:info@atlsf.com

TEST REPORT for STATIC UPLIFT RESISTANCE

Client: Solar Stack
1071 S.W. 30th Avenue
Deerfield Beach, Florida 33442
Attention: Tim Graboski

Report Date: 11/29/23
Report #: 1121.01-23

Test Authorized by:	Tim Graboski
Sampled by:	Client
Reference Test Method:	Test Procedure for Simulated Uplift Pressure Resistance of Adhered Roof System Assemblies. Testing Application Standard, (TAS) 114-95, Appendix D, Modified as Reported Below. Uplift Loading, as reported below
Miami-Dade Proposal #:	None provided
Manufacturer:	Solar Stack
Series/Model:	Solar Stack, Solar Panel Mounts
Overall Dimensions:	8" long x 5" wide x 4.500" high
Material:	Aluminum, alloy: 6005A temper: T-5
MDBNC Notification #:	1228-0050
MDBNC Lab Certificate #:	21-1228.03
Comments:	TAS 114-95, Appendix D was used as a reference. Deviations from the test method were: 1. The product was an adhered rigid component with a proposed use of attaching roof mounted solar panels. 2. The component dimensions are provided herein. 3. Incremental loads were applied in 15 lbf increments and held for 1 minute. 4. The requirement in section 7.1 for additional testing was not applied.

David C. Hernandez, PE
Digitally signed by David C. Hernandez,
Date: 2025.02.21 10:53:02 -0500



APPROVED
Montgomery County
Historic Preservation Commission

TEST REPORT for STATIC UPLIFT and Shear RESISTANCE

Client: Solar Stack

Report #:1121.01-23

Test Method: TAS 114-95, Appendix D (modified) Uplift

Description of Test Specimens:

Each test specimen consisted of one (1), 8" long, hollow, 0.095" thick, extruded aluminum Solar Stack unit. The top section was 4.030" wide and had three (3) recessed "C" channels the full length of the unit. The two (2) outside channels were 0.290" deep and spaced 1.295" o.c. from each side. The top 0.100" was 0.270" wide then opened up to 0.465" wide. The top plane of the unit extended over each side of the channel 0.098". The center channel was 0.450" deep and spaced 2.015" o.c. from each side. The top 0.100" was 0.535" wide then opened up to 0.778" wide. The top plane of the unit extended over the channel 0.122". The top 1.996" of the sides was perpendicular to the top. The sides then flared out 147° for 0.725" then returned down 33° for 1.360" to the bottom side of the bottom wall of the unit. Extending 0.473" from the bottom wall were eight (8), "T" shaped legs that formed one (1), 0.778" wide center "C" channel the full length of the unit and three (3), 0.560" wide "C" channels on each side of the center channel. The center channel bottom opening was 0.520" and the bottom opening on the remaining six (6) channels was 0.368". The overall bottom width was 4.995". The interface of the side walls with the top and bottom walls were structural.

All units were adhered to one (1) layer of GAF GAFGLAS Mineral Surface Cap Sheet (White), GAFGGMS125WH, asphalt-coated glass mat cap sheet surfaced with mineral granules, manufactured by GAF. The membrane was adhered to one (1), 4' x 8' x 19/32" thick, APA 40/20 span rated plywood of with 4 plys, unknown grade, in a full mopping of ASTM D 312, type IV asphalt.

The sheathing was attached to a 2" x 6" frame, with intermediate supports spaced 24" on center, with #9 x 2-1/2" long deck screws with a flat #2 Phillips head spaced 6" on the panel edges at the intermediate supports. Each test specimen was set into a full bed of ICP Adhesives Polyset AH 160, Blue, manufactured by ICP Construction, Inc., Miami-Dade County Notice of Acceptance #:22-0614.10, using a ProPack 30 dispenser. For each test specimen, the bed of ICP Adhesive consisted of two (2), +/-4-1/2" diameter patties placed next to each other. The test specimens were nestled and pressed into the adhesive. Six (6) beds of adhesive, representative of the beds used to install the test specimens, were sprayed onto a plastic sheet and allowed to cure 72 hours. The beds were measured and weighed. The cured dimensions were 10" long x 6" wide x 1-1/4" thick. The average weight of the six (6) samples was 48.7 grams.

When cured the adhesive wrapped the bottom edges of the test specimens. The adhesive was allowed to cure a minimum 72 hours before testing.

Uplift Test Apparatus:

The test apparatus consisted of a hydraulic loading arm lift with an in-line load cell, (ATLSF Asset #:104), (model # SBO-2K, serial # 230152), equipped with a digital recorder capable of 0.5% full scale resolution, manufactured by Transducer Techniques, (model # DPM-3, serial # 1121.01-23)



TEST REPORT for STATIC UPLIFT and Shear RESISTANCE

Client: Solar Stack

Report #: 1121.01-23

Test Method: TAS 114-95, Appendix D (modified) Uplift

232838), last calibrated 10/13/23. Attached to the load cell was a turnbuckle connected to an eye connector threaded onto a 1/2"-14 steel bolt with a 0.743" hex head x 0.310" thick. The head of the bolt was inserted into the top center channel of each unit, at mid-length. The test deck was parallel to the floor and load was applied vertically and perpendicular to the floor.

Uplift Test Procedure:

The loading and load measurement device was rigidly connected to the load transfer device and the uplift load was gradually applied. The loads were applied in 15 lbf increments, until failure. Each load increment was maintained for one (1) minute.

Failure:

Failure was defined as the inability to achieve or maintain the next load increment for one (1) minute due to delamination of the test specimen from the membrane. The last load maintained for 1 minute and observed mode of failure is reported as the Ultimate load and the mode of failure was recorded.

Uplift Test Results:

Unit #	Weight (lbf.)	Ultimate Load (lbf.)
1	1.667	925
2	1.784	270
3	1.780	730
4	1.775	460
5	1.777	925
6	1.623	1015
average	1.734	720.8

Average Ultimate Load – Average Tile Weight with 2:1 Margin of Safety= $720.8 - 1.734/2 = 359.5$
 $359.5 \text{ lbf} / 0.28 \text{ ft}^2 = 1,284 \text{ psf}$

Specimen #1: Max. load 926.8 lbf.- The head of the bolt pulled out of the channel of the test unit.

Specimen #2: Max. load 285.4 lbf.- The membrane delaminated from the plywood substrate.

Specimen #3: Max. load 742.5 lbf.- There was cohesive failure in the membrane and foam adhesive.

Specimen #4: Max. load 465.1 lbf.- The membrane delaminated from the plywood substrate.

Specimen #5: Max. load 935.1 lbf.- There was cohesive failure in the foam adhesive.

Specimen #6: Max. load 1121.4 lbf.- The head of the bolt pulled out of the channel of the test unit.

Disclaimer: This test report was prepared by American Test Lab of South Florida, (ATLSF), for the exclusive use of the above named client and does not constitute certification of this product. The results relate to the particular specimens tested and does not imply that the quality of similar or identical products manufactured or installed from specifications or shop drawings identical to the product tested. ATLSF is an independent testing laboratory and assumes that all information provided by the client is accurate and does not guarantee or warrant any product tested or installed.



**TEST REPORT for
STATIC UPLIFT and Shear RESISTANCE**

Client: Solar Stack

Report #:1121.01-23

Test Method: TAS 114-95, Appendix D (modified) Uplift

American Test Lab of South Florida, its employees, and witnessing engineers do not own, operate, or are controlled by any manufacturer and have no financial interest in the manufacture, manufacture of any related parts, specification, or installation of this or a competing product.

The attached die drawing, dated 1/3/18, as verified and marked with the ATLSF stamp is part of this report.

End of report.

Test Conducted by:
Tony Porcello

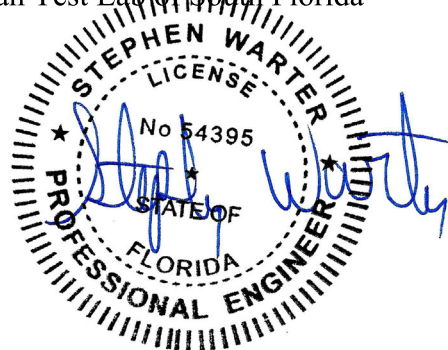
Test Report Prepared by:



Tony Porcello
President
American Test Lab of South Florida

Test Report Reviewed by:

Stephen W. Warter, P.E.
Reg. State of Florida # 54395
American Test Lab of South Florida



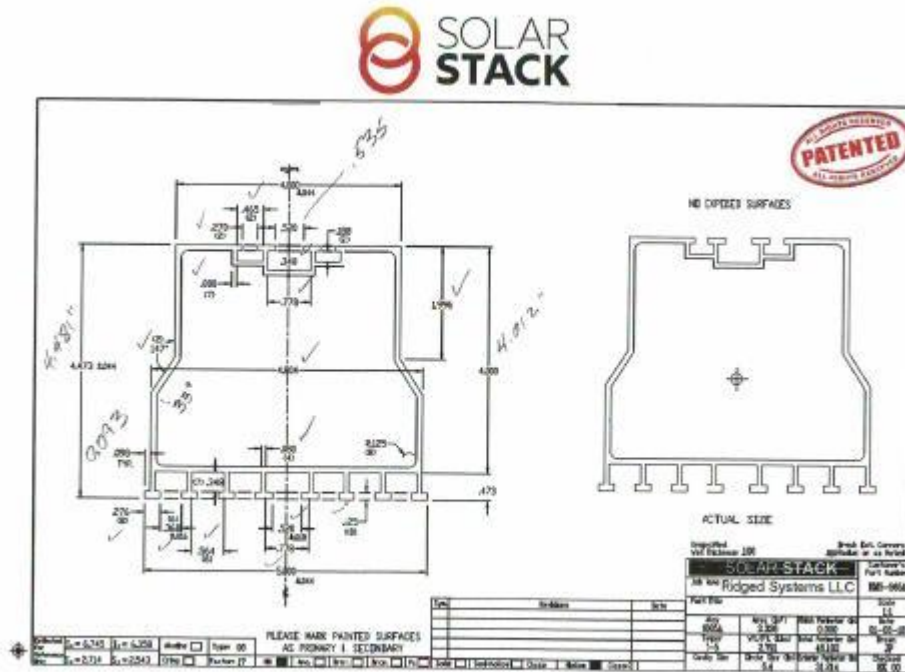
TEST REPORT for and Shear RESISTANCE

Report #:1121.01-23

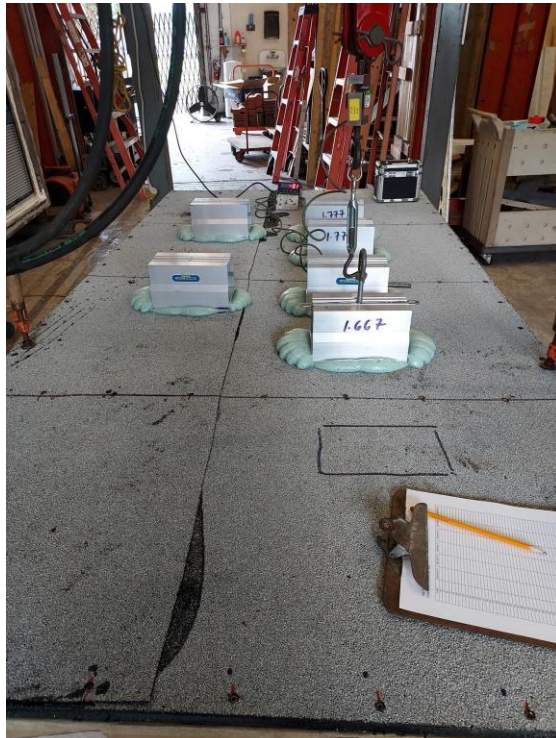
Client: Solar Stack

Test Method: TAS 114-95, Appendix D (modified) Uplift

Die Drawing of Test Product.



Photographs #1: Test Assembly



APPROVED
Montgomery County
Historic Preservation Commission

REVIEWED
By Devon.Murtha at 2:08 pm, Feb 23, 2026

TEST REPORT for STATIC UPLIFT and Shear RESISTANCE

Client: Solar Stack

Report #:1121.01-23

Test Method: TAS 114-95, Appendix D (modified) Uplift

Photographs #2, #3, & #4: Sample Patties



TEST REPORT for STATIC UPLIFT and Shear RESISTANCE

Client: Solar Stack

Report #:1121.01-23

Test Method: TAS 114-95, Appendix D (modified) Uplift



Photographs #5-#10: – Test Specimens in order tested



**TEST REPORT for
STATIC UPLIFT and Shear RESISTANCE**

Report #:1121.01-23

Client: Solar Stack

Test Method: TAS 114-95, Appendix D (modified) Uplift



**TEST REPORT for
STATIC UPLIFT and Shear RESISTANCE**

Report #:1121.01-23

Client: Solar Stack

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01/22/26

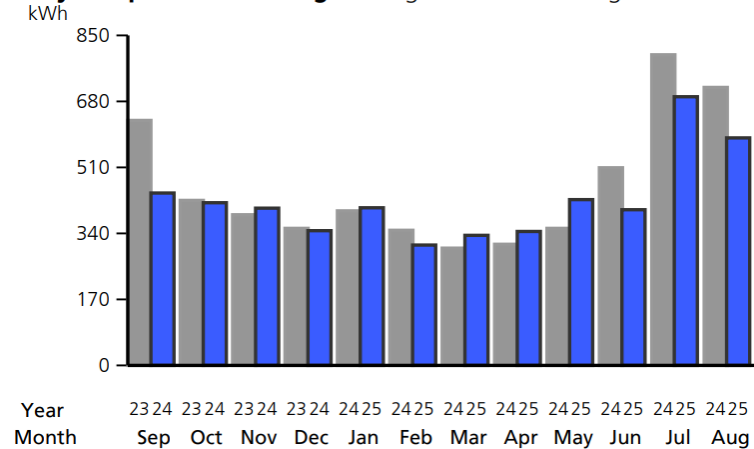
To whom it may concern,

- Justification of panels on the front of the house and heat map.

Monthly energy consumption for Address vs the proposed system monthly production

Your monthly Electricity use in kWh

Daily temperature averages: Aug 2024: 80° F Aug 2025: 79° F



Overview

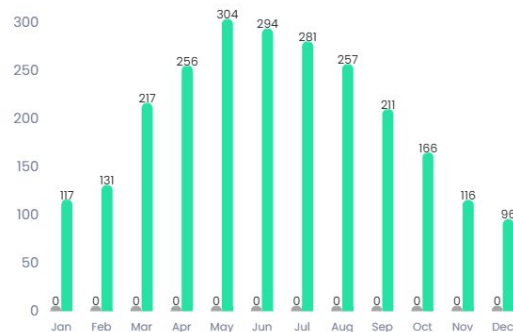
Segment	Modules	Size	Production	Per module	ASA	TSRF	Consumption	PV Offset	Area	Coverage	Perimeter
All total	13	5.72 kW	2,444 kWh	188 kWh	35.37%	29.8%	0 kWh	0%	1377 ft²	20.56%	147.7 (ft)

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

Monthly Average Solar Access



Monthly Consumption and Production (kWh)



- The home had an estimated annual usage of roughly 5,170 kWh in 2025. Our proposed system is estimated to have 2,444 kWh in annual production.

The panels will vary in production based on their location on the structure, but this estimated production for a 13-panel system breaks down to roughly 188 kWh per panel annually.

- The 8 panels on the flat west facing roof plane have an average of 195 kWh per panel with an estimated annual production of 1,562 kWh.
- The 5 panels on the flat east facing roof planes have an average of 176 kWh per panel with an estimated annual production of 882 kWh.

Justification for the Placement of the panels.

- If we use the south front facing roof plane, we would be able to fit 12 modules with an average of 13 kWh per module and estimated annual production of 153 kWh.
- As noted above, the panels on the upper west of the home have a higher average kWh per module compared to modules on the east part of the house and on the front of the house.
- There are also trees on the front of the property that would be limiting visibility from the right-of-way

Shade Map.



Thank you,
Andrew Tam
Design Engineer.