HISTORIC PRESERVATION COMMISSION

Marc Elrich
County Executive

Robert Sutton
Chairman

Date: July 29, 2024

MEMORANDUM

TO: Rabbiah Sabbakhan
Department of Permitting Services
FROM: Laura DiPasquale
Historic Preservation Section
Maryland-National Capital Park & Planning Commission
SUBJECT: Historic Area Work Permit #1079608 - Solar panel installation

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The Montgomery County Historic Preservation Commission (HPC) has reviewed the attached application for a Historic Area Work Permit (HAWP). This application was **Approved** 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: Marc Pfeuffer & Evelyn Thorton
Address: 7100 Sycamore Ave, 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 Laura DiPasquale at 301.495.2167 or laura.dipasquale@montgomeryplanning.org to schedule a follow-up site visit.

HISTORIC PRESERVATION COMMISSION

HAWP #: 1079608 at: 7100 Sycamore Avenue

submitted on: 7/24/2024

has been reviewed and determined that the proposal fits into the following category/categories:

☐ Repair or replacement of a masonry foundation with new masonry materials that closely match the original in appearance;

☐ Installation of vents or venting pipes in locations not visible from the public right-of-way;

☐ New gutters and downspouts;

☐ Removal of vinyl, aluminum, asbestos, or other artificial siding when the original siding is to be repaired and/or replaced in kind;

☐ Removal of accessory buildings that are not original to the site or non-historic construction;

☐ Repair or replacement of missing or deteriorated architectural details such as trim or other millwork, stairs or stoops, porch decking or ceilings, columns, railings, balusters, brackets shutters, etc., with new materials that match the old in design, texture, visual characteristics, and, where possible materials, so long as the applicant is able to provide one extant example, photographic evidence, or physical evidence that serves as the basis for the work proposed;

☐ Construction of wooden decks that are at the rear of a structure and are not visible from a public right-of-way;

☐ Roof replacement with -compatible roofing materials, or with architectural shingles replacing 3-Tab asphalt shingles;

☐ Installation of storm windows or doors that are compatible with the historic resource or district;

☐ Repair, replacement or installation of foundation-level doors, windows, window wells, and areaways, or foundation vents, venting pipes, or exterior grills that do not alter the character-defining features and/or the historic character of the resource;

☐ Construction of fences that are compatible with the historic site or district in material, height, location, and design;

☐ Fence is lower than 48" in front of rear wall plane;

☐ Construction of walkways, parking pads, patios, driveways, or other paved areas that are not visible from a public right-of-way and measure no more than 150 square feet in size;

☐ Replacement of existing walkways, parking pads, patios, driveways, or other paved areas with materials that are compatible with the visual character of the historic site and district and that are no greater than the dimensions of the existing hardscape;

☐ Construction of small accessory buildings no larger than 250 square feet in size that are not visible from the public right-of-way;

☐ Installations of skylights on the rear of a structure that will not be visible from the public right-of-way, and would not remove or alter character-defining roof materials;

☑ Installation of solar panels and arrays in locations that are not readily visible from the public right-of-way or that are designed so as to have a minimal impact on the historic resource or the historic district (e.g., systems that are ground-mounted in areas other than the front or side yard of a corner lot, located on accessory or outbuildings, on non-historic additions, or on rear facing roof planes);

☐ Installation of car charging stations in any location on a property or in the right-of-way;

Installation of satellite dishes;

☐ Removal of trees greater than 6" in diameter (d.b.h.) that are dead, dying, or present an immediate hazard.

☐ Removal of trees greater than 6" in diameter (d.b.h.) in the rear of the property that will not impact the overall tree canopy of the surrounding district or historic site;

☐ Replacement tree required as a condition; and,

☐ Other minor alterations that may be required by the Department of Permitting Services post-Commission approval that would have no material effect on the historic character of the property.

Staff finds the proposal complies with Chapter 24A, the Secretary of the Interior's Standards for Rehabilitation, and any additional requisite guidance. Under the authority of COMCOR No. 24A.04.01, this HAWP is approved by Laura B Pogunle on 7/29/2024. The approval memo and stamped drawings follow.

FOR STAFF ONLY:
HAWP# 1079608
DATE ASSIGNED 7/25/2024

APPLICATION FOR HISTORIC AREA WORK PERMIT

HISTORIC PRESERVATION COMMISSION
301.563.3400

APPLICANT:

Name: Marc Pfeuffer & Evelyn Thorton E-mail: Evelynaa.thornton@gmail.com

Address: 7100 Sycamore Avenue City: Takoma Park Zip: 20912

Daytime Phone: (571) 438-3770 Tax Account No.: 13-01079235

AGENT/CONTACT (if applicable):

Name: Solar Energy World-Tina Crouse E-mail: tcrouse@solarenergyworld.com

Address: 14880 Sweitzer Lane City: Laurel Zip: 20707

Daytime Phone: 410-579-2009 Contractor Registration No.: 127353

LOCATION OF BUILDING/PREMISE: MIHP # of Historic Property 1079608

Is the Property Located within an Historic District? X Yes/District Name Takoma Park
__No/Individual Site Name_____

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

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

Building Number: 7100 Street: Sycamore Avenue

Town/City: Takoma Park Nearest Cross Street: Elm Avenue

Lot: 17 Block: 21 Subdivision: 0025 Parcel: 0000

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

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

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

Signature of owner or authorized agent Date

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

Owner's mailing address	**Owner's Agent's** mailing address
Mark Pfeuffer & Evelyn Thornton 7100 Sycamore Avenue Takoma Park, MD 20912	Solar Energy World 14880 Sweitzer Lane Laurel, MD 20707
Adjacent and confronting Property Owners mailing addresses	
Martha Hoff 7013 Sycamore Avenue Takoma Park, MD 20912 (Confronting Property)	Samuel Allen 7015 Sycamore Avenue Takoma Park, MD 20912
Thomas Smerling 7105 Sycamore Avenue Takoma Park, MD 20912 (Adjacent Property)	Christopher Yost 7103 Sycamore Avenue Takoma Park, MD 20912 (Adjacent Property)

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

Home built in 1923

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

-Install (21) roof mounted solar panels, 8.61 kW

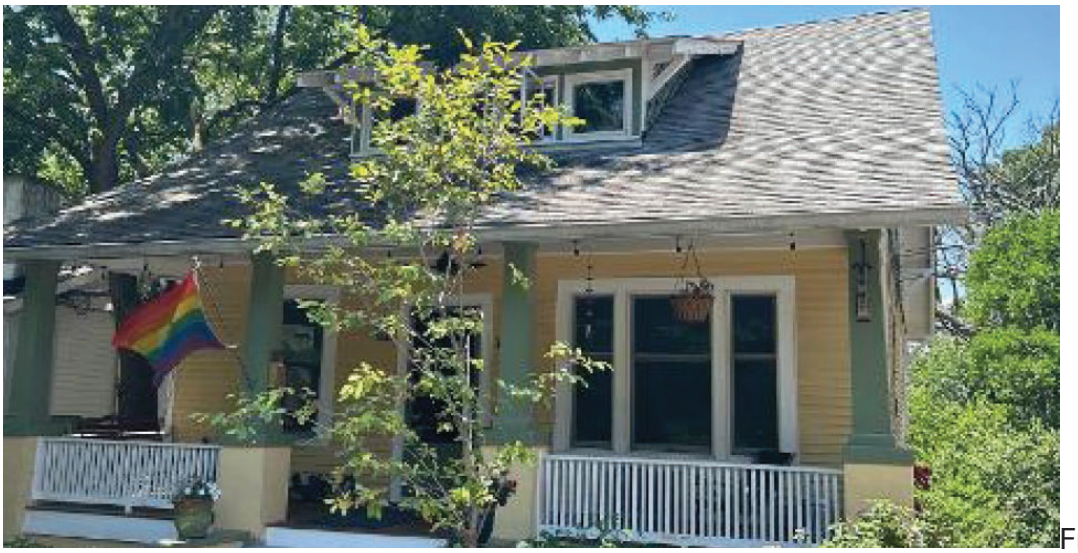
-Micro inverters to be installed under each solar panel.

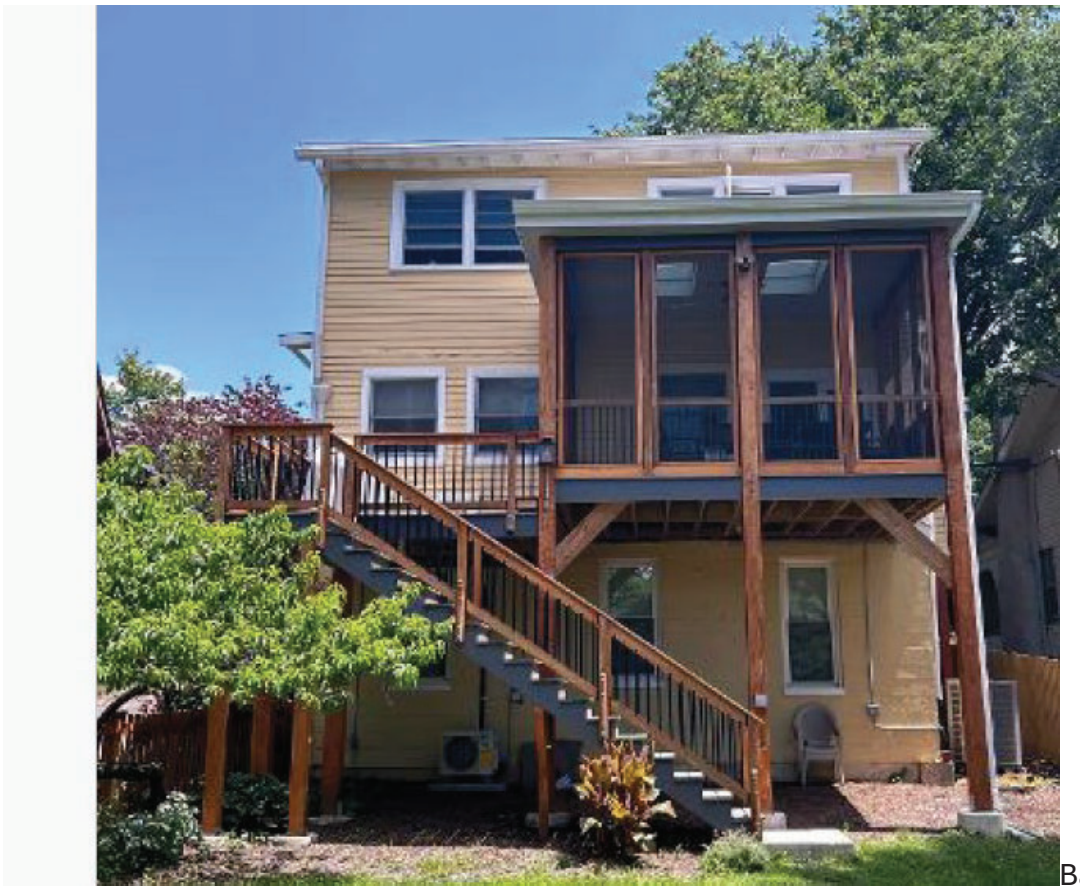
-Utility disconnect to be installed next to utility meter along with electrical combiner box for micro inverters.

-Galvanized stell conduit to run from equipment along and tucked into attic.

REVIEWED
By Laura DiPasquale at 1:40 pm, Jul 29, 2024

APPROVED
Montgomery County
Historic Preservation Commission

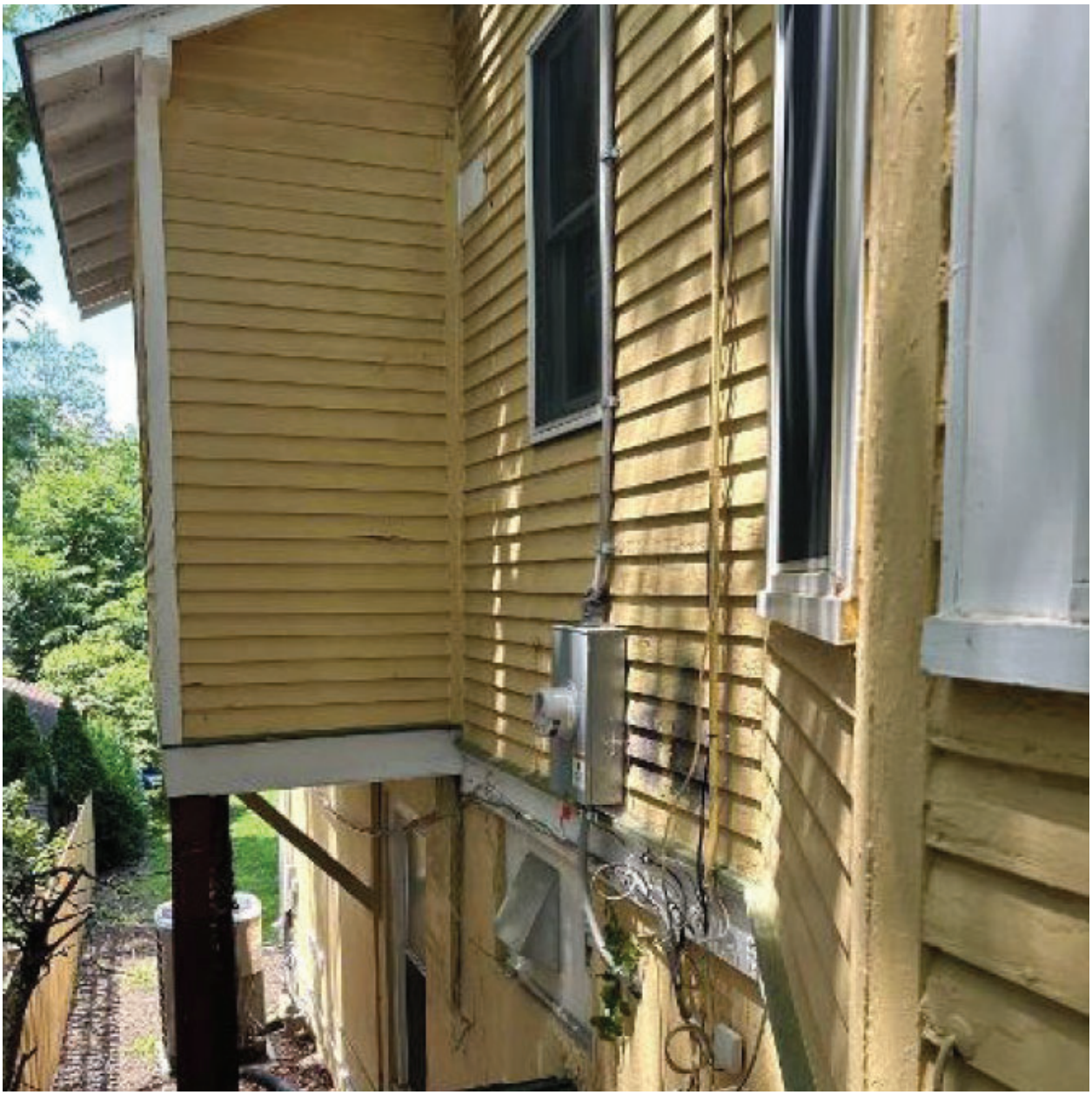

Front/Home


Back/Home

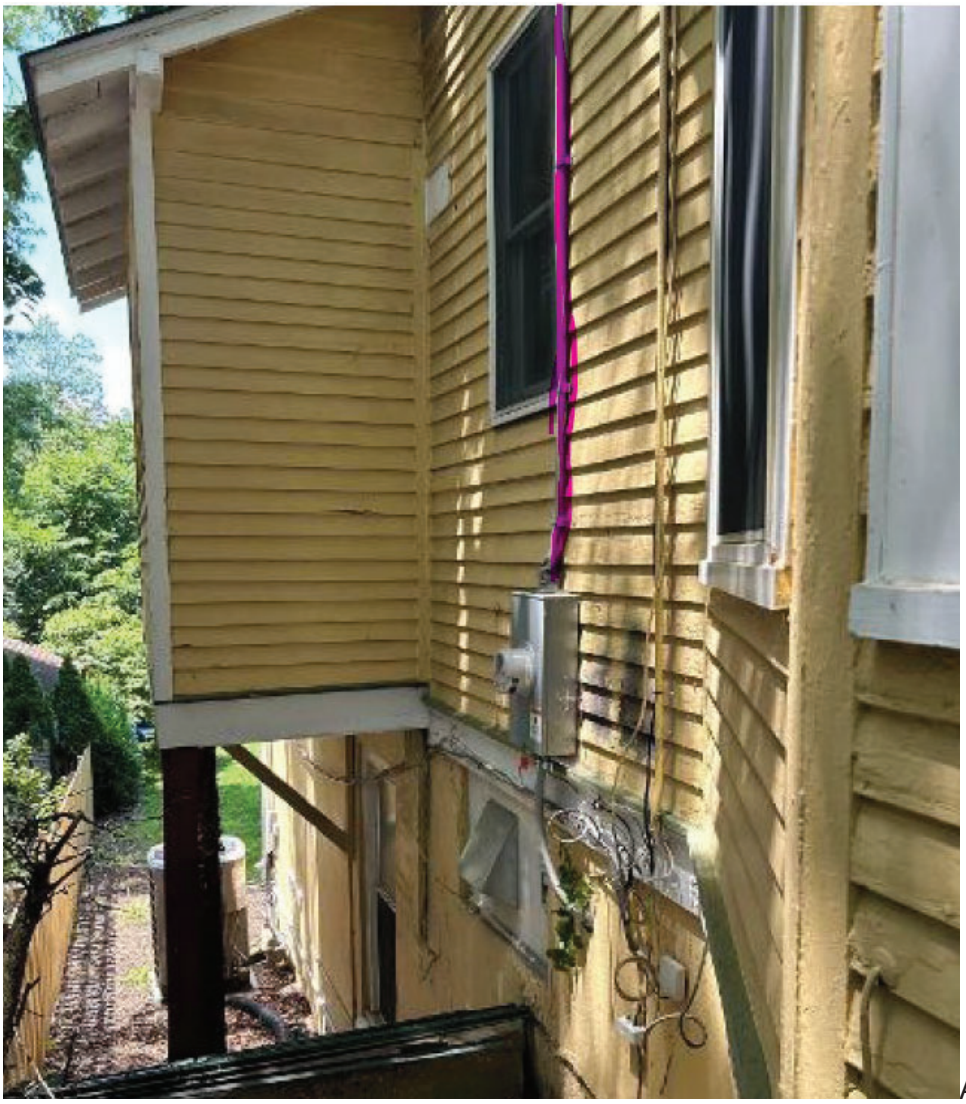

Left side of Home


Right side of Home

U



Utility Meter before Installation



After Installation

Running from utility meter to/through the attic

REVIEWED

By Laura DiPasquale at 1:41 pm, Jul 29, 2024

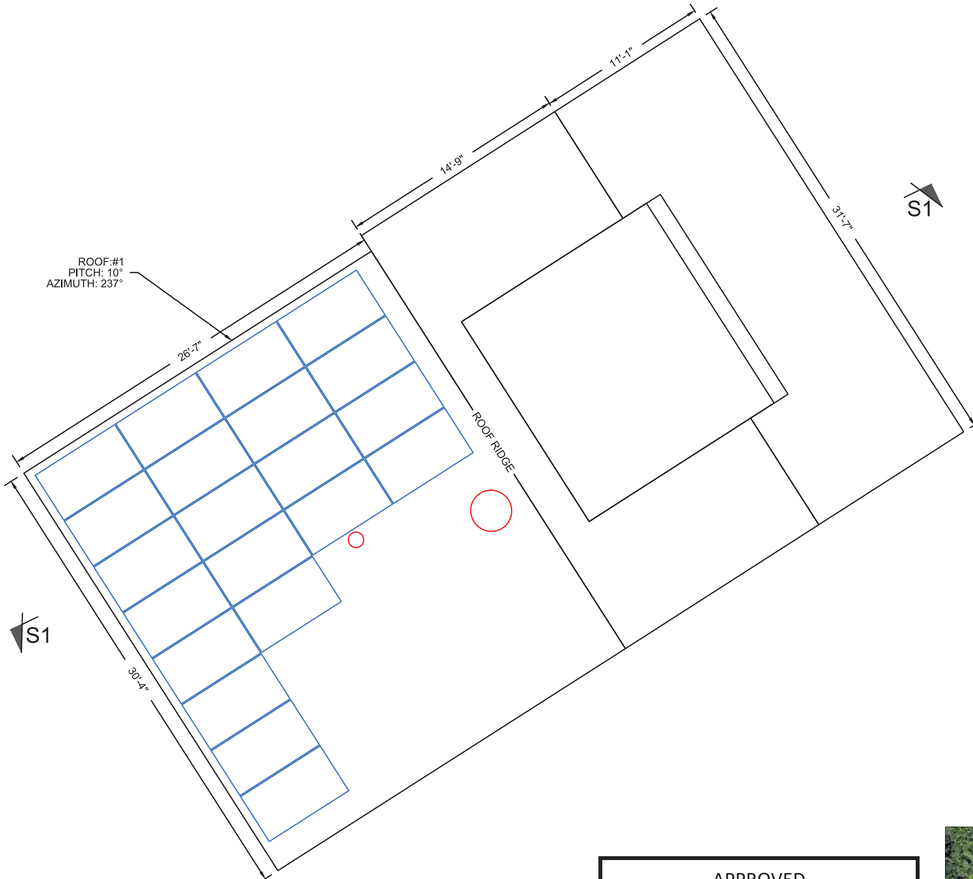
APPROVED

Montgomery County

Historic Preservation Commission

Solarstack

Critter Guard



David C. Hernandez
Digitally signed by David C. Hernandez
Date: 2024.07.23 11:30:32 -04'00'

STATE OF MARYLAND
DAVID C. HERNANDEZ
49993
PROFESSIONAL ENGINEER

DCH GLOBAL

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 10/06/2024.

Sgd.07/23/24

PLAN VIEW TOTAL ROOF AREA: 1755 SQFT

SOLAR ARRAY AREA: 443.94 SQFT

THE SOLAR ARRAY IS 25.3% OF THE PLAN VIEW TOTAL ROOF AREA

NOTES:

1. THE SYSTEM SHALL INCLUDE (21) HANWHA Q.PEAK DUO BLK ML-G10+-410W.
2. SOLAR STACK MOUNT KIT WILL BE INSTALLED IN ACCORDANCE WITH SOLAR STACK INSTALLATION MANUAL.
3. REFER TO STRUCTURAL DRAWING FOR SECTIONS MARKED AND ADDITIONAL NOTES.

REVIEWED

By Laura DiPasquale at 1:41 pm, Jul 29, 2024

APPROVED

Montgomery County

Historic Preservation Commission

SOLAR PANEL LAYOUT

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

Solar Energy World
Because Tomorrow Matters

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

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Building Code: International Residential Code (IRC) 2018	
Electrical Code: National Electrical Code (NEC) 2017	
Wind Speed: 115 MPH	Snow Load: 30 PSF
Modules: (21) HANWHA Q.PEAK DUO BLK ML-G10+-410W	
Inverter(s): (21) IQ8+-72-2-US	
DC System Size: 8.610 kW	AC System Size: 6.090 kW
Customer Information: Marc Pfeuffer & Evelyn Thornton, 7100 Sycamore Ave, Takoma Park, MD 20912	
Partner/Lender: Dividend	
AHJ: Montgomery	Utility: Pepco
Sheet Name: Solar Panel Layout	
Drawn By: CB	Date: June 14, 2024
Scale: AS NOTED	Job Number: MD19692
Sheet: A-1	

David C. Hernandez
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Date: 2024.07.23 11:30:32 -04'00'

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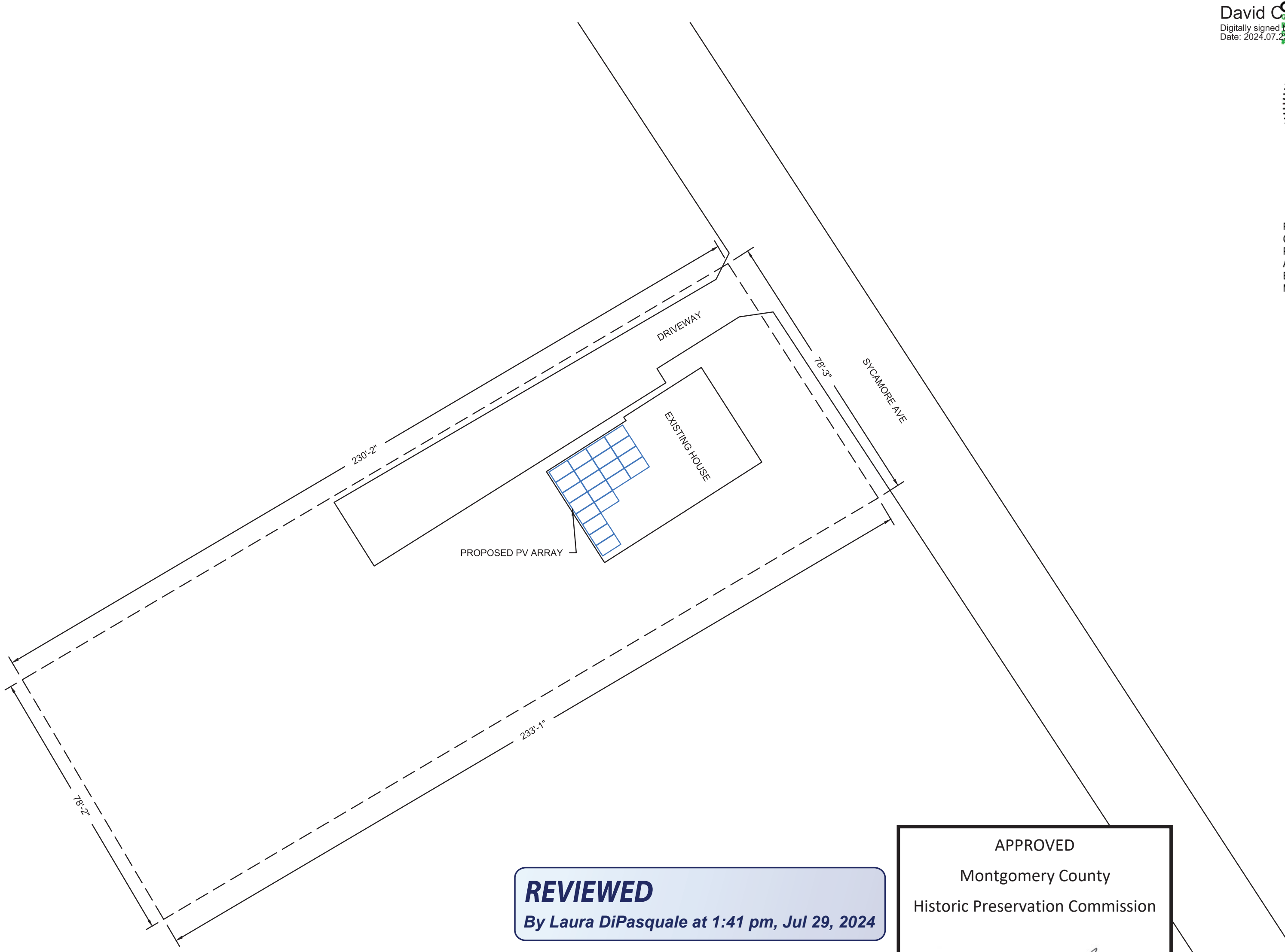

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REVIEWED
By Laura DiPasquale at 1:41 pm, Jul 29, 2024

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SITE PLAN
Scale: 1" = 30'-0"

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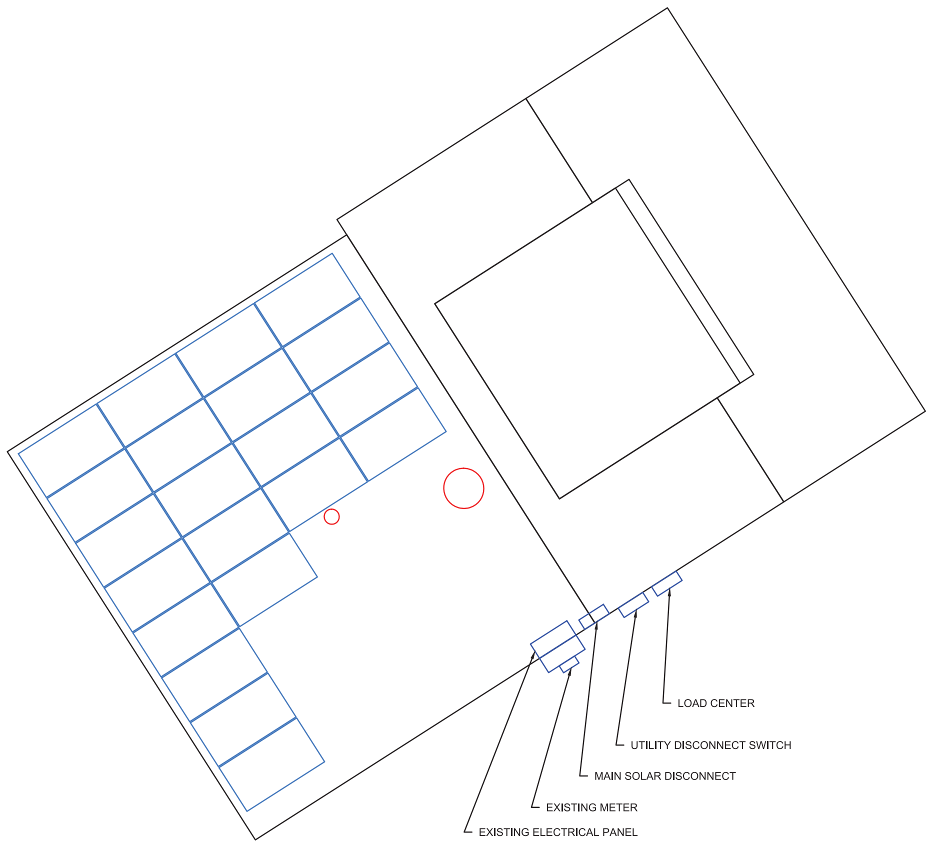
Partner/Lender: Dividend	
AHJ: Montgomery	Utility: Pepco
Sheet Name: Site Plan	
Drawn By: CB	Date: June 14, 2024
Scale: AS NOTED	Job Number: MD19692
Sheet: A-2	



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.

APPROVED

Montgomery County

Historic Preservation Commission

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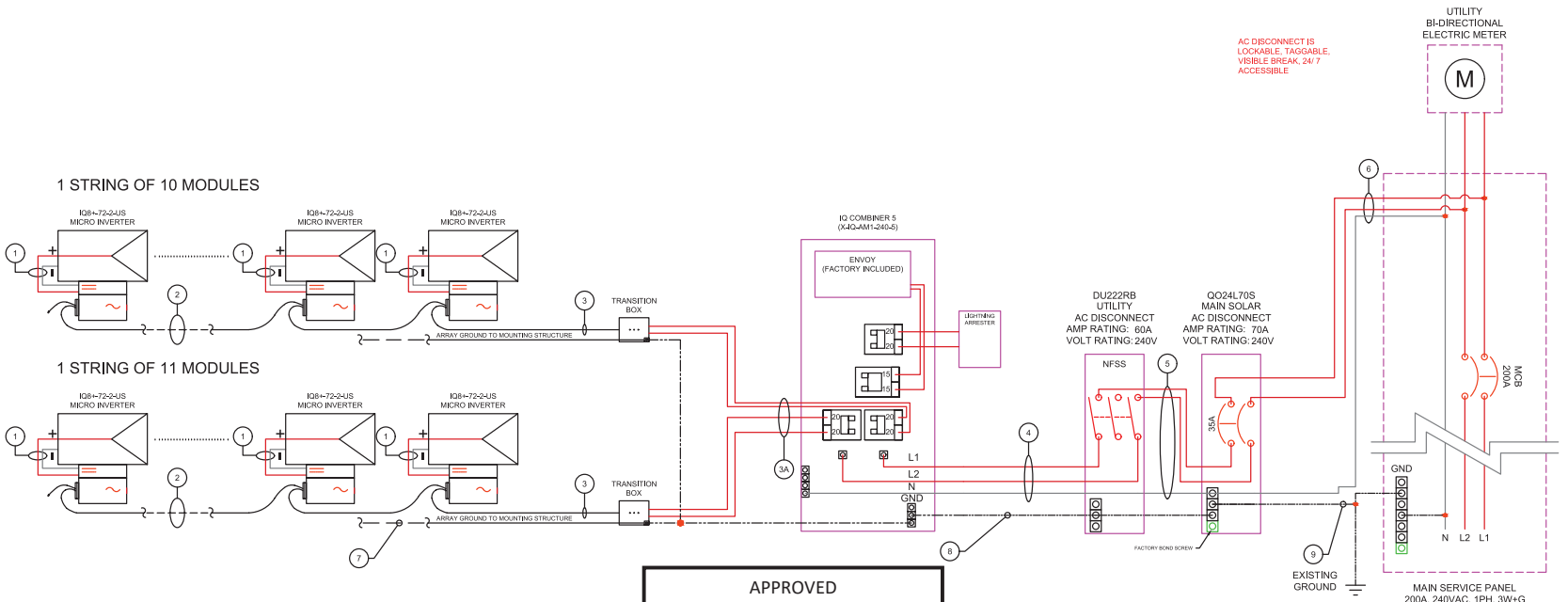
Customer Information: Marc Pfeuffer & Evelyn Thornton, 7100 Sycamore Ave, Takoma Park, MD 20912	
Partner/Lender: Dividend	
AHJ: Montgomery	Utility: Pepco
Sheet Name: Equipment Location Plan	
Drawn By: CB	Date: June 14, 2024
Scale: AS NOTED	Job Number: MD19692
Sheet: E-1	



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3-LINE DIAGRAM

MODULE SPECIFICATIONS		
MODEL NUMBER	Q.PEAK DUO BLK ML-G10+-410W	
PEAK POWER	410 W	
RATED VOLTAGE (Vmpp)	38.48 V	
RATED CURRENT (Imp)	10.65 A	
OPEN CIRCUIT VOLTAGE (Voc)	45.31 V	
SHORT CIRCUIT CURRENT (Isc)	11.11 A	
MAXIMUM SYSTEM VOLTAGE	1000VDC	
INVERTER SPECIFICATIONS		
MODEL NUMBER	IQ8PLUS-72-2-US	
MAXIMUM DC VOLTAGE	60 V	
MAXIMUM POWER OUTPUT	290 W	
NOMINAL AC VOLTAGE	240 VAC	
MAXIMUM AC CURRENT	1.21 A	
CEC EFFICIENCY	97.0%	
ARRAY DETAILS		
NO. OF MODULES PER STRING	10	11
NO. OF STRINGS	1	1
ARRAY WATTS AT STC	4100	4510
MAX. VOLTAGE	480 V	480 V

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	INTEGRATED
4	Load Center to AC Disconnect	#8 Cu THHN/THWN-2	
5	AC Disconnect to AC Disconnect	#8 Cu THHN/THWN-2	
6	AC Disconnect to Interconnection Point	#6 Cu THHN/THWN-2	
7	Equipment Grounding Conductor	#8 Cu Bare Copper Wire	
8	Equipment Grounding Conductor	#8 Cu THHN/THWN-2	
9	Grounding Electrode Conductor	#6 Cu	

GENERAL ELECTRIC NOTES: NEC2017

1. EQUIPMENT USED SHALL BE NEW, UNLESS OTHERWISE NOTED.
2. EQUIPMENT USED SHALL BE UL LISTED, UNLESS OTHERWISE NOTED.
3. EQUIPMENT SHALL BE INSTALLED PROVIDING ADEQUATE PHYSICAL WORKING SPACE AROUND THE EQUIPMENT AND SHALL COMPLY WITH NEC.
4. COPPER CONDUCTORS SHALL BE USED AND SHALL HAVE AN INSULATION RATING OF 600V, 90°C, UNLESS OTHERWISE NOTED
5. CONDUCTORS SHALL BE SIZED IN ACCORDANCE TO THE NEC. CONDUCTORS AMPACITY SHALL BE DE-RATED FOR TEMPERATURE INCREASE, CONDUIT FILL AND VOLTAGE DROP.
6. ALL CONDUCTORS, EXCEPT PV WIRE SHALL BE INSTALLED IN APPROVED CONDUITS OR RACEWAY. CONDUITS SHALL BE ADEQUATELY SUPPORTED AS PER NEC.
7. AC DISCONNECT SHOWN IS REQUIRED IF THE UTILITY REQUIRES VISIBLE-BLADE SWITCH.
8. EXPOSED NON-CURRENT CARRYING METAL PARTS SHALL BE GROUNDED AS PER NEC.
9. LINE SIDE INTER-CONNECTION SHALL COMPLY WITH NEC.
10. SMS MONITORING SYSTEM AND IT'S CONNECTION SHOWN IS OPTIONAL. IF USED, REFER TO SMS INSTALLATION MANUAL FOR WIRING METHODS AND OPERATION PROCEDURE.
11. ASHRAE FUNDAMENTAL OUTDOOR DESIGN TEMPERATURES DO NOT EXCEED 47°C IN THE U.S. (PHOENIX, AZ OR PALM SPRINGS, CA)
12. FOR LESS THAN 9 CURRENT-CARRYING CONDUCTORS IN ROOF MOUNTED SUNLIGHT CONDUIT USING THE OUTDOOR TEMPERATURE OF 47°C
    12.1. 10AWG CONDUCTOR ARE GENERALLY ACCEPTABLE FOR MODULES WITH AN Isc OF 9.6 AMPS WITH A 15 AMP FUSE.

WIRE SIZING FOR OCPD
EX (Isc *(1.25)(1.25)(# OF STRINGS IN PARALLEL) = WIRE AMPACITY OR USING NEC TABLE 690.8

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Customer Information: Marc Pfeuffer & Evelyn Thornton, 7100 Sycamore Ave, Takoma Park, MD 20912
Partner/Lender: Dividend
AHJ: Montgomery | Utility: Pepco
Sheet Name: Electrical 3-Line Diagram
Drawn By: CB | Date: June 14, 2024
Scale: AS NOTED | Job Number: MD19692 | Sheet: E-2

David C. Hernandez
Digitally signed by David C. Hernandez
Date: 2024.07.23 11:30:32 -04'00'

STATE OF MARYLAND
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DCH GLOBAL

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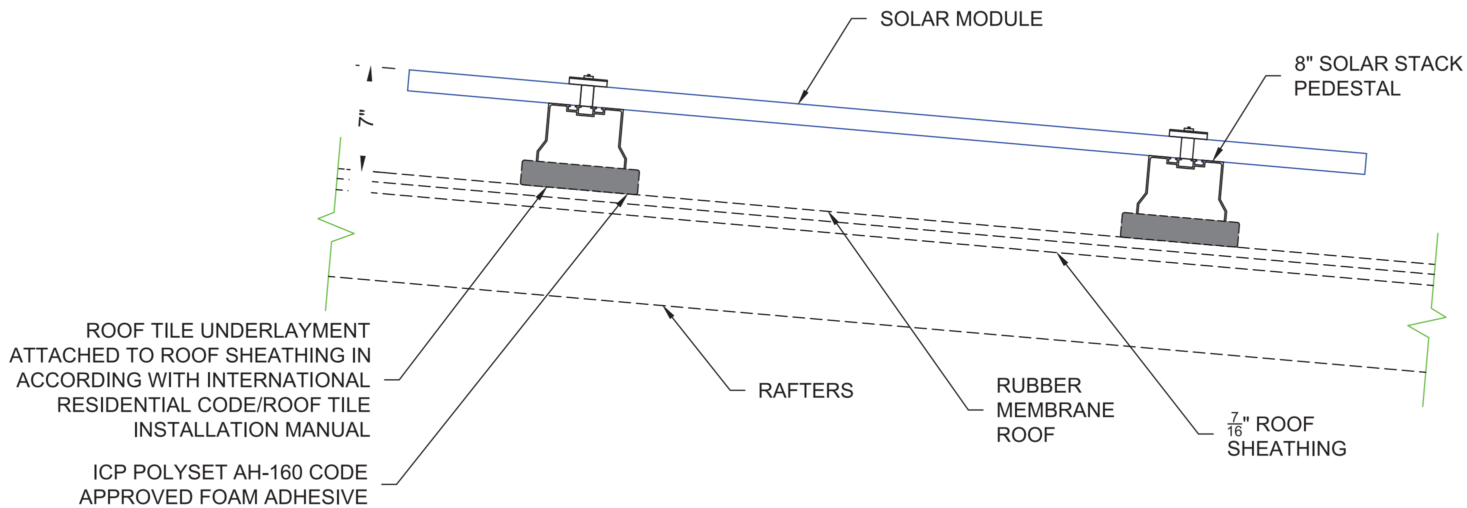

Structural Details		
S1	Rafter	2x10 O.C. 16"

REVIEWED

By Laura DiPasquale at 1:41 pm, Jul 29, 2024

APPROVED
Montgomery County
Historic Preservation Commission

NOTES:

1. ALL WORK SHALL COMPLY WITH REQUIREMENTS OF INTERNATIONAL RESIDENTIAL CODE (IRC 2018), LOADING CODE (ASCE 7-16), WOOD DESIGN CODE (NDS 2015), AND LOCAL REQUIREMENTS.
2. LOAD CRITERIA PER :
   - EXPOSURE CATEGORY "B"
   - GROUND SNOW LOAD, Pg = 30 PSF
   - LATERAL LOAD RISK CATEGORY "II"
   - ULTIMATE DESIGN WIND SPEED = 115 MPH
3. SOLAR PANELS AND RACKING SYSTEMS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATION.
4. FOLLOW ALL LOCAL AND FEDERAL SAFETY REQUIREMENTS.

STRUCTURAL ATTACHMENT DETAIL

Solar Energy World
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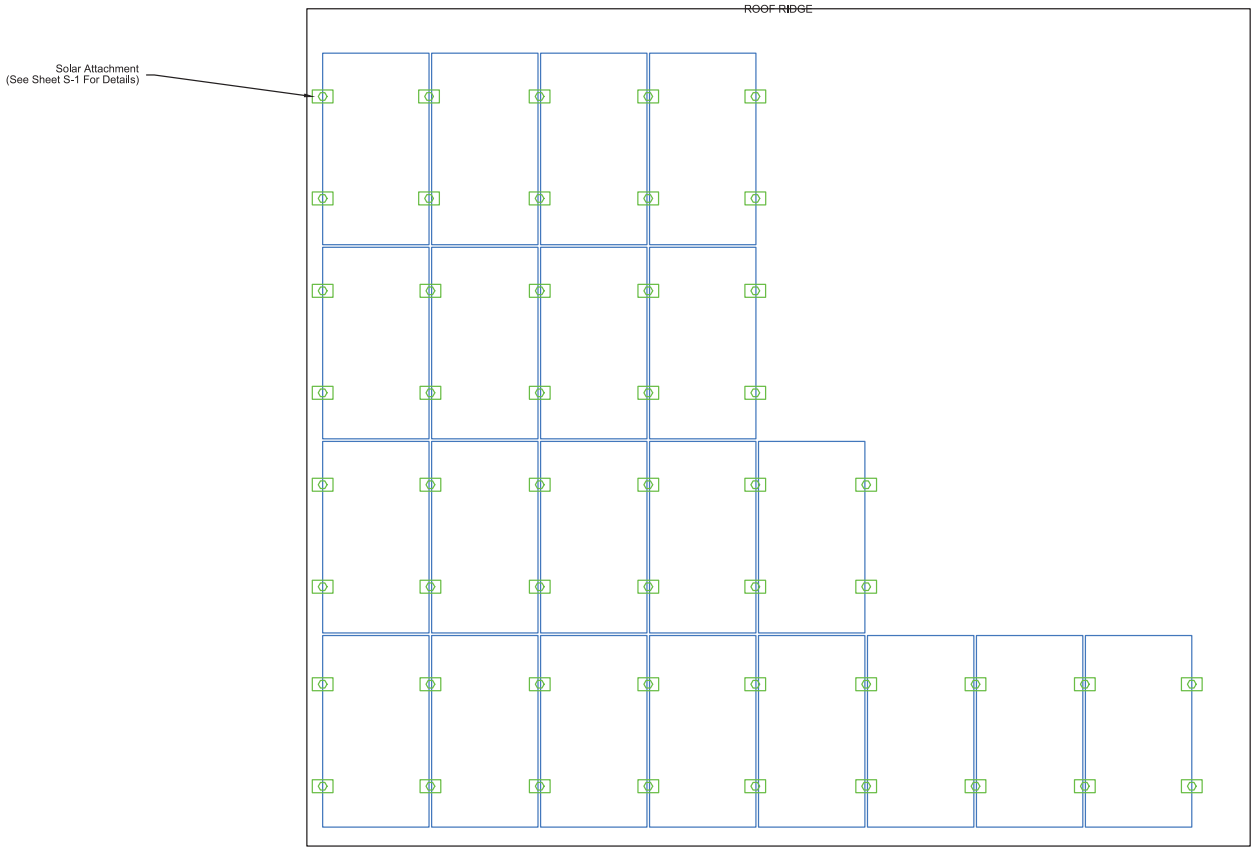
Customer Information: Marc Pfeuffer & Evelyn Thornton, 7100 Sycamore Ave, Takoma Park, MD 20912	
Partner/Lender: Dividend	
AHJ: Montgomery	Utility: Pepco
Sheet Name: Structural Attachment Details	
Drawn By: CB	Date: June 14, 2024
Scale: AS NOTED	Job Number: MD19692
Sheet: S-1	



SOLAR PANEL FOOTING PLAN R1

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

NOTES:

1. SOLAR STACK SHALL BE INSTALLED IN ACCORDANCE WITH SOLAR STACK INSTALLATION MANUAL.
2. SOLAR STACK SHALL BE SPACED AT A MAXIMUM OF 4' O/C.
3. MAX OVERHANG (CANTILEVER) OF MODULES SHALL NOT EXCEED 12".

REVIEWED
By Laura DiPasquale at 1:42 pm, Jul 29, 2024

APPROVED
Montgomery County
Historic Preservation Commission

David C. Hernande
Digitally signed by David C. Hernande
Date: 2024.07.23 11:[illegible]4.00

Green Building Engineer #852

STATE OF MARYLAND
DAVID C. HERNANDEZ
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PROFESSIONAL ENGINEER
DCH GLOBAL

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(888) 497-3233

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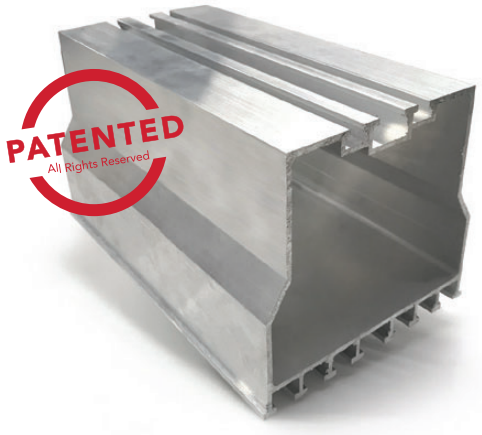
Building Code	International Residential Code (IRC) 2018
Electrical Code	National Electrical Code (NEC) 2017
Wind Speed: 115 MPH	Snow Load: 30 PSF
Modules	(21) HANWHA Q.PEAK DUO BLK ML-G10+-410W
Inverter(s)	(21) IQ8+-72-2-US
DC System Size: 8.610 kW	AC System Size: 6.090 kW
Customer Information	Marc Pfeuffer & Evelyn Thornton 7100 Sycamore Ave Takoma Park, MD 20912
Partner/Lender	Dividend
AHJ: Montgomery	Utility: Pepco
Sheet Name	Solar Panel Footing Plan
Drawn By: CB	Date: June 14, 2024
Scale: AS NOTED	Job Number: MD19692
Sheet: S-2	

SOLAR STACK

APPROVED
Montgomery County
Historic Preservation Commission

REVIEWED
By Laura DiPasquale at 1:42 pm, Jul 29, 2024

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

TABLE OF CONTENTS

INSTALLATION INSTRUCTIONS

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.

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.

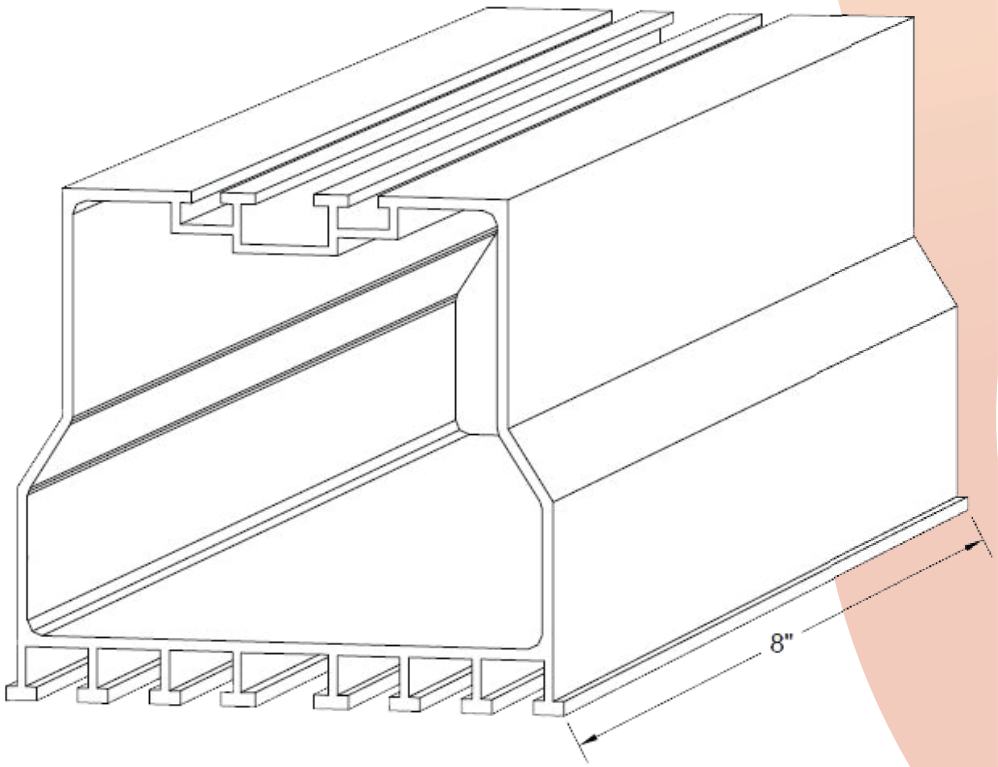
- Solar Stack pedestals can be installed on BUR (Build Up Roofing), Mineral surface (Modified Bitumen), EPDM, PVC, TPO, Hypalon and Concrete roofs.

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.

REVIEWED
By Laura DiPasquale at 1:59 pm, Jul 29, 2024

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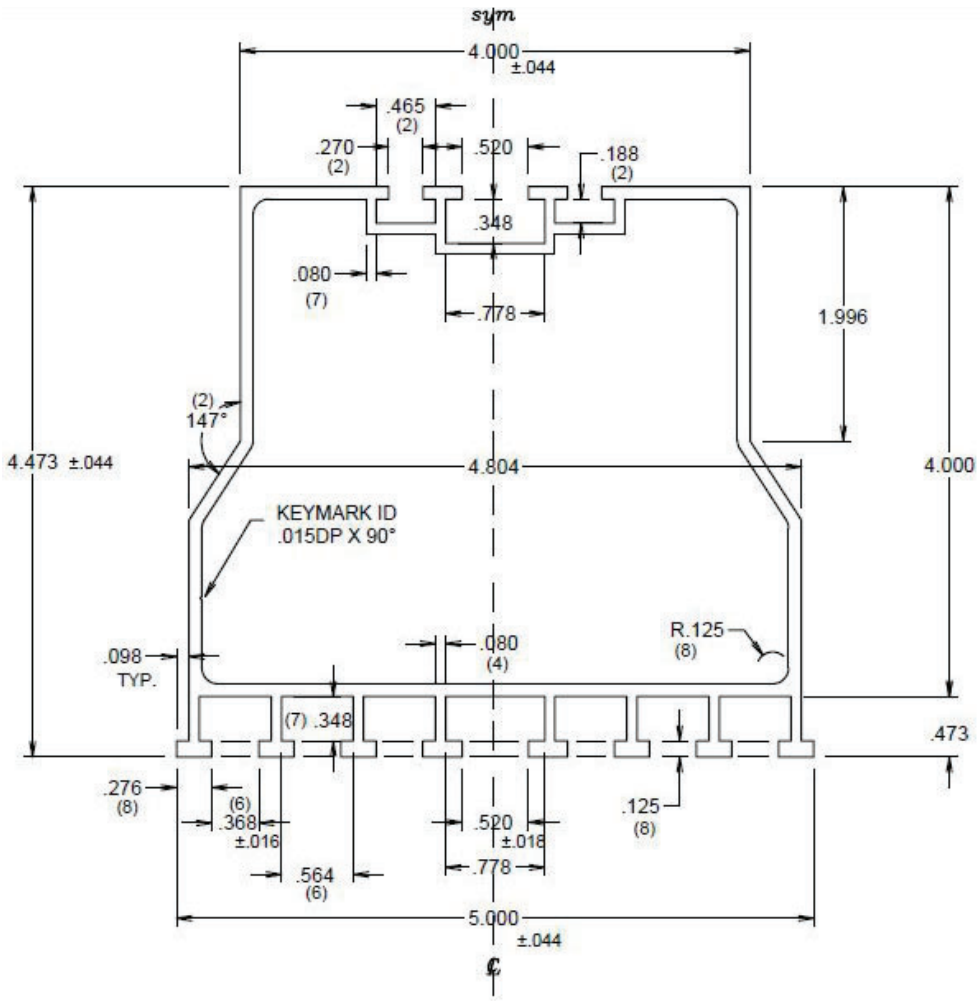
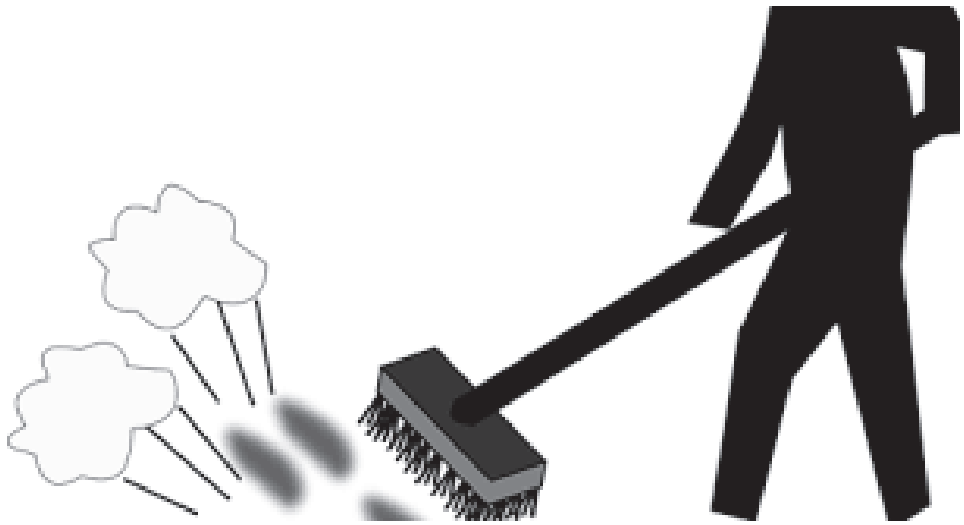


PREPARATION OF THE ROOF

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.

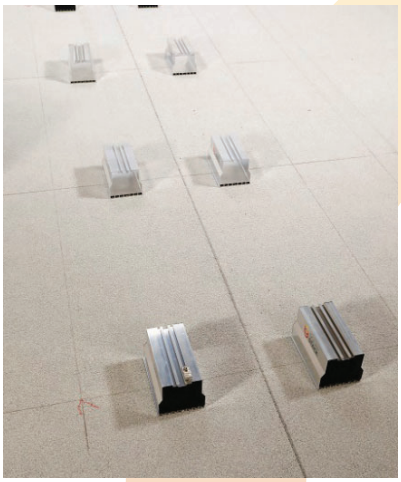
ARRAY LAYOUT

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 find 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**

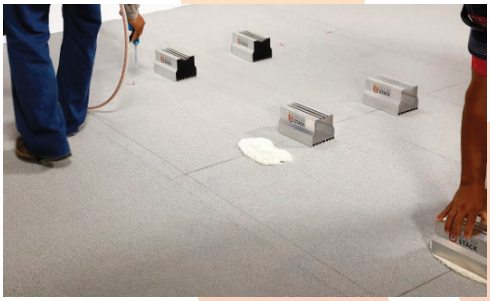
Notes:
1. Ultimate Loads with 0 margin of safety applied to the test loads.
2. Assembly was tested for vertical up.

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.)



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.

REVIEWED
By Laura DiPasquale at 1:53 pm, Jul 29, 2024

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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.

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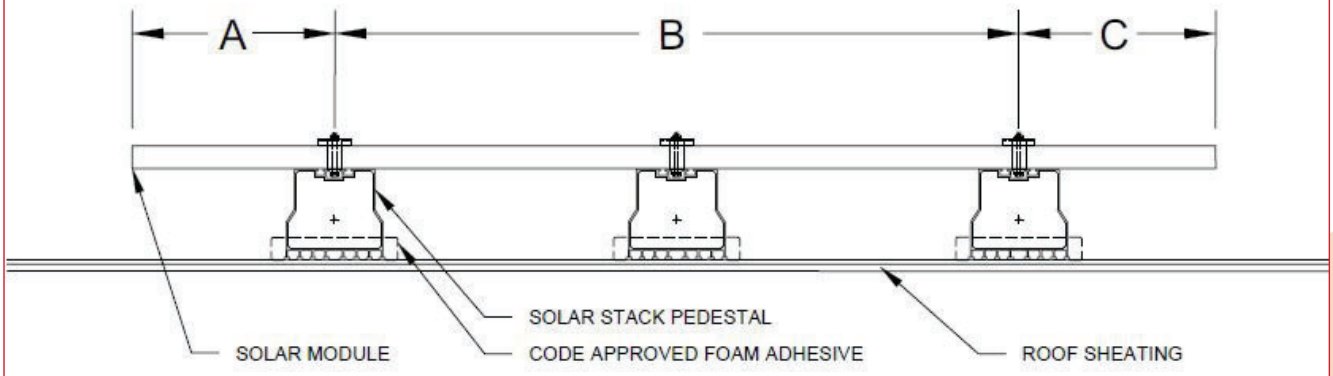
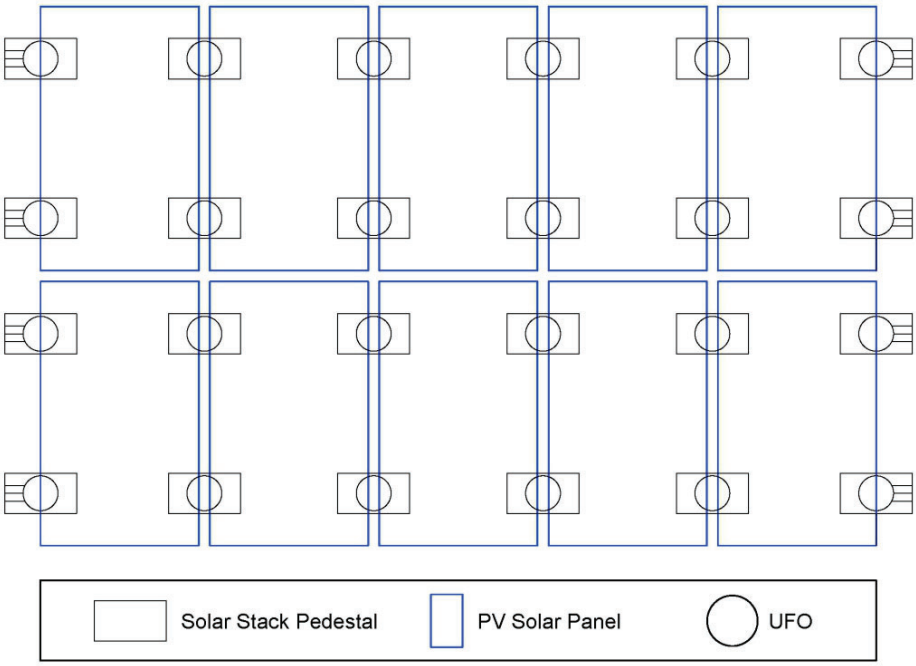
INSTALLING THE MODULES

This is a typical module, installed on the Solar Stack pedestals. Number of the required pedestals per module/raw, will be determined according to the provided engineering plans, in regards to the typical geographical region and existing wind loads. вf the modules are installed in HVHZ, than Roof underlayment must be approved and installed according to the local (AHJ) regulations and codes. йlacement 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.

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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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By Laura DiPasquale at 1:54 pm, Jul 29, 2024

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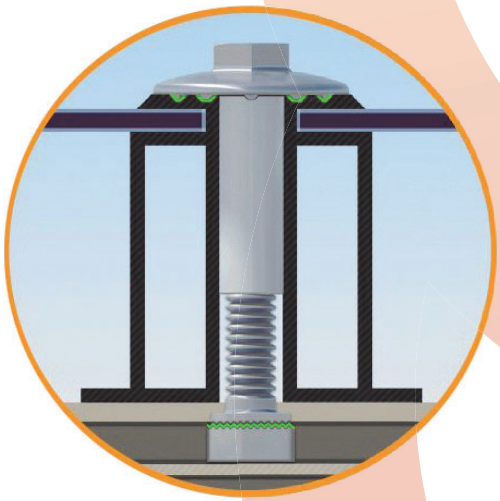
INSTALLING THE MODULE CLAMPS

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.



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By Laura DiPasquale at 1:55 pm, Jul 29, 2024

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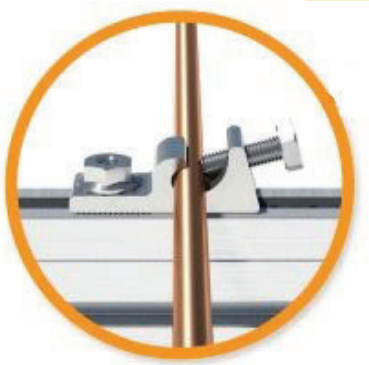
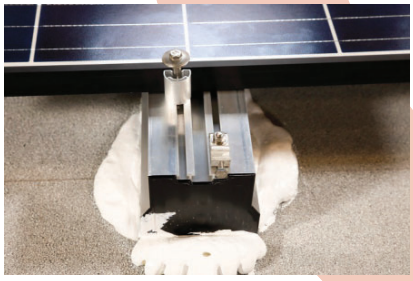
GROUNDING

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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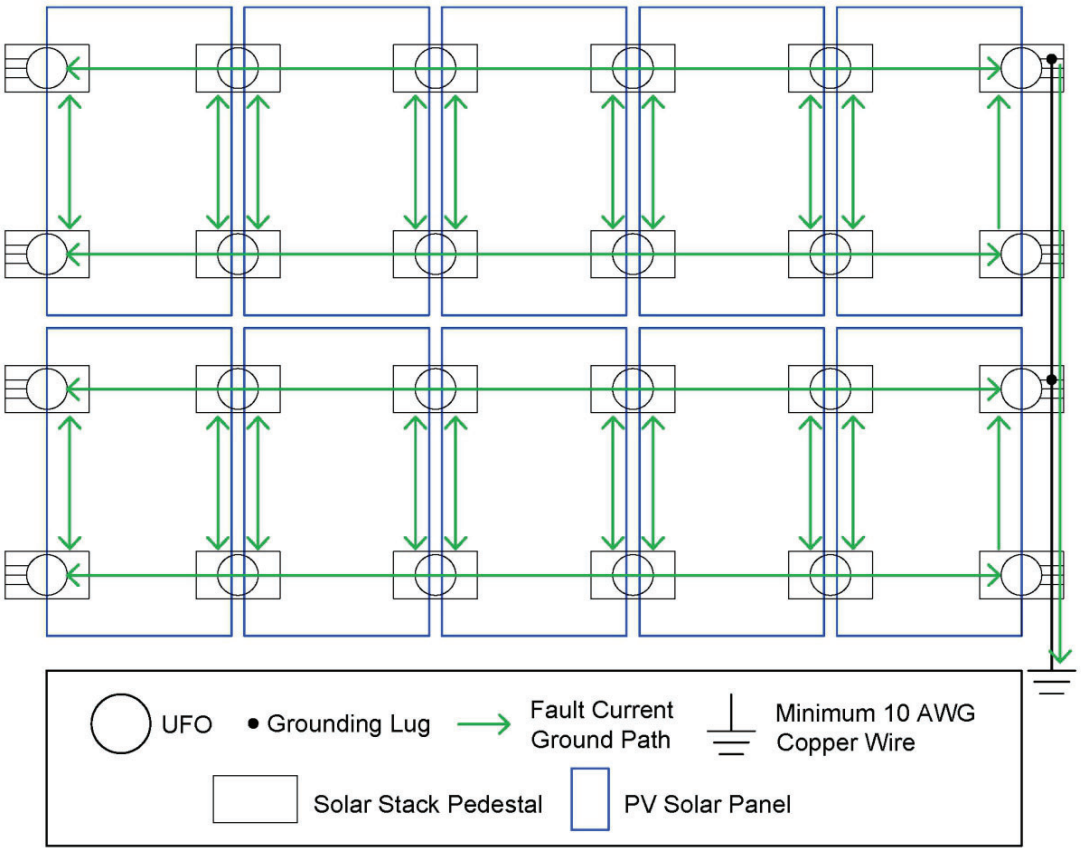
GROUNDING

REVIEWED
By Laura DiPasquale at 1:55 pm, Jul 29, 2024

Entire solar array must me 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.

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By Laura DiPasquale at 1:55 pm, Jul 29, 2024

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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.

Q.PEAK DUO BLK ML-G10+ SERIES

385 - 410 Wp | 132 Cells
20.9 % Maximum Module Efficiency

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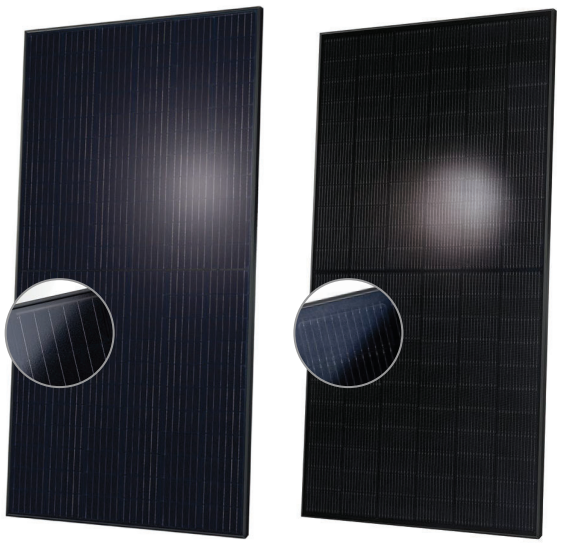
MODEL Q.PEAK DUO BLK ML-G10+



6 busbar
cell technology

12 busbar
cell technology

Breaking the 20 % efficiency barrier

Q.ANTUM DUO Z Technology with zero gap cell layout boosts module efficiency up to 20.9 %.

A reliable investment

Inclusive 25-year product warranty and 25-year linear performance warranty[1].

Enduring high performance

Long-term yield security with Anti LeTID Technology, Anti PID Technology[2] and Hot-Spot Protect.

Extreme weather rating

High-tech aluminium alloy frame, certified for high snow (5400 Pa) and wind loads (4000 Pa).

Innovative all-weather technology

Optimal yields, whatever the weather with excellent low-light and temperature behaviour.

The most thorough testing programme in the industry

Qcells is the first solar module manufacturer to pass the most comprehensive quality programme in the industry: The new “Quality Controlled PV” of the independent certification institute TÜV Rheinland.

[1] See data sheet on rear for further information.
[2] APT test conditions according to IEC / TS 62804-1:2015, method A (–1500 V, 96 h)

The ideal solution for:

Rooftop arrays on residential buildings

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By Laura DiPasquale at 1:56 pm, Jul 29, 2024

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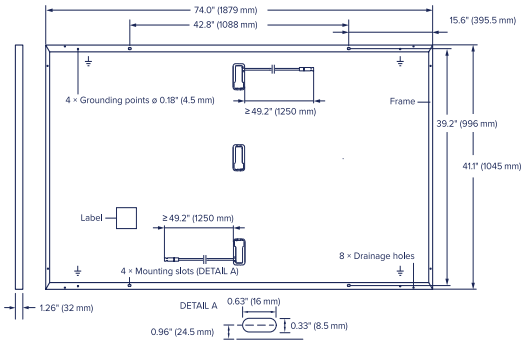
Q.PEAK DUO BLK ML-G10+ SERIES

Mechanical Specification

Format	74.0 in × 41.1 in × 1.26 in (including frame) (1879 mm × 1045 mm × 32 mm)
Weight	48.5 lbs (22.0 kg)
Front Cover	0.13 in (3.2 mm) thermally pre-stressed glass with anti-reflection technology
Back Cover	Composite film
Frame	Black anodised aluminium
Cell	6 × 22 monocrystalline Q.ANTUM solar half cells
Junction box	2.09-3.98 in × 1.26-2.36 in × 0.59-0.71 in (53-101 mm × 32-60 mm × 15-18 mm), IP67, with bypass diodes
Cable	4 mm² Solar cable; (+) ≥ 49.2 in (1250 mm), (−) ≥ 49.2 in (1250 mm)
Connector	Stäubli MC4; IP68

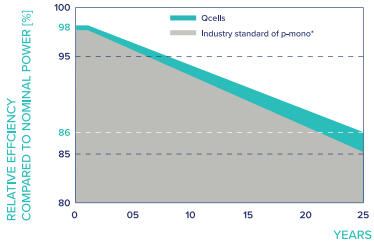


Electrical Characteristics

POWER CLASS				385	390	395	400	405	410
MINIMUM PERFORMANCE AT STANDARD TEST CONDITIONS, STC[1] (POWER TOLERANCE +5 W / −0 W)									
Minimum	Power at MPP[1]	P_{MPP}	[W]	385	390	395	400	405	410
	Short Circuit Current[1]	I_{SC}	[A]	11.04	11.07	11.10	11.14	11.17	11.20
	Open Circuit Voltage[1]	V_{OC}	[V]	45.19	45.23	45.27	45.30	45.34	45.37
	Current at MPP	I_{MPP}	[A]	10.59	10.65	10.71	10.77	10.83	10.89
	Voltage at MPP	V_{MPP}	[V]	36.36	36.62	36.88	37.13	37.39	37.64
	Efficiency[1]	η	[%]	≥19.6	≥19.9	≥20.1	≥20.4	≥20.6	≥20.9
MINIMUM PERFORMANCE AT NORMAL OPERATING CONDITIONS, NMOT[2]									
Minimum	Power at MPP	P_{MPP}	[W]	288.8	292.6	296.3	300.1	303.8	307.6
	Short Circuit Current	I_{SC}	[A]	8.90	8.92	8.95	8.97	9.00	9.03
	Open Circuit Voltage	V_{OC}	[V]	42.62	42.65	42.69	42.72	42.76	42.79
	Current at MPP	I_{MPP}	[A]	8.35	8.41	8.46	8.51	8.57	8.62
	Voltage at MPP	V_{MPP}	[V]	34.59	34.81	35.03	35.25	35.46	35.68

[1]Measurement tolerances P_{MPP} ±3 %; I_{SC}; V_{OC} ±5 % at STC: 1000 W/m², 25 ± 2 °C, AM 1.5 according to IEC 60904-3 • [2]800 W/m², NMOT, spectrum AM 1.5

Qcells PERFORMANCE WARRANTY

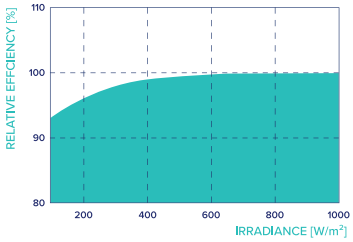


At least 98 % of nominal power during first year. Thereafter max. 0.5 % degradation per year. At least 93.5 % of nominal power up to 10 years. At least 86 % of nominal power up to 25 years.

All data within measurement tolerances. Full warranties in accordance with the warranty terms of the Qcells sales organisation of your respective country.

*Standard terms of guarantee for the 5 PV companies with the highest production capacity in 2021 (February 2021)

PERFORMANCE AT LOW IRRADIANCE



Typical module performance under low irradiance conditions in comparison to STC conditions (25 °C, 1000 W/m²).

TEMPERATURE COEFFICIENTS

Temperature Coefficient of I_{SC}	α	[%/K]	+0.04	Temperature Coefficient of V_{OC}	β	[%/K]	−0.27
Temperature Coefficient of P_{MPP}	γ	[%/K]	−0.34	Nominal Module Operating Temperature	NMOT	[°F]	109 ± 5.4 (43 ± 3 °C)

Properties for System Design

Maximum System Voltage	V_{SYS}	[V]	1000 (IEC) / 1000 (UL)	PV module classification	Class II
Maximum Series Fuse Rating		[A DC]	20	Fire Rating based on ANSI / UL 61730	TYPE 2
Max. Design Load, Push / Pull[3]		[lbs / ft²]	75 (3600 Pa) / 55 (2660 Pa)	Permitted Module Temperature on Continuous Duty	−40 °F up to +185 °F (−40 °C up to +85 °C)
Max. Test Load, Push / Pull[3]		[lbs / ft²]	113 (5400 Pa) / 84 (4000 Pa)		

[3] See Installation Manual

Qualifications and Certificates

UL 61730, CE-compliant,
Quality Controlled PV - TÜV Rheinland,
IEC 61215:2016, IEC 61730:2016,
U.S. Patent No. 9,893,215 (solar cells),

C Certified US
UL 61730

TÜVRheinland CERTIFIED
www.tuv.com
ID 1111220277

Specifications subject to technical changes © Qcells Q.PEAK_DUO_BLK_ML-G10+_series_385-410_2023-01_Rev03_NA

Qcells pursues minimizing paper output in consideration of the global environment.

Note: Installation instructions must be followed. Contact our technical service for further information on approved installation of this product.

Hanwha Q CELLS America Inc. 400 Spectrum Center Drive, Suite 1400, Irvine, CA 92618, USA I TEL +1 949 748 59 96 I EMAIL hqc-inquiry@qcells.com I WEB www.qcells.com

qcells

REVIEWED
By Laura DiPasquale at 1:43 pm, Jul 29, 2024

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Montgomery County
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ENPHASE

DATA SHEET

IQ8 and IQ8+ Microinverters

Our newest IQ8 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 using 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.

Enphase 25 year limited warranty

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 IQ8 Series Microinverters using the included Q-DCC-2 adapter cable with plug-and-play MC4 connectors.

UL CERTIFIED SAFETY

IQ8 Series Microinverters are UL Listed as PV rapid shutdown equipment and conform 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

- Produce 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

- Compliant 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 with previous generations of Enphase microinverters (IQ7 Series, IQ6 Series, and so on) in the same system.
- IQ Microinverters ship with default settings that meet North America's IEEE 1547 interconnection standard requirements. Region-specific adjustments may be requested by an Authority Having Jurisdiction (AHJ) or utility representative according to the IEEE 1547 interconnection standard. An IQ Gateway is required to make these changes during installation.

*Meets UL 1741 only when installed with IQ System Controller 2 or 3.
**IQ8 and IQ8+ support split-phase, 240 V installations only.

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REVIEWED
By Laura DiPasquale at 1:56 pm, Jul 29, 2024

APPROVED
Montgomery County
Historic Preservation Commission

IQ8 and IQ8+ Microinverters

INPUT DATA (DC)	UNITS	IQ8-60-2-US	IQ8PLUS-72-2-US
Commonly used module pairings[1]	W	235–350	235–440
Module compatibility	–	To meet compatibility, PV modules must be within maximum input DC voltage and maximum module I_{sc} listed below. Module compatibility can be checked at https://enphase.com/installers/microinverters/calculator.	
MPPT voltage range	V	27–37	27–45
Operating range	V	16–48	16–58
Minimum/Maximum start voltage	V	22/48	22/58
Maximum input DC voltage	V	50	60
Maximum continuous input DC current	A	10	12
Maximum input DC short-circuit current	A	25	
Maximum 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 maximum 20 A per branch circuit.	

OUTPUT DATA (AC)	UNITS	IQ8-60-2-US	IQ8PLUS-72-2-US
Peak output power	VA	245	300
Maximum continuous output power	VA	240	290
Nominal grid voltage (L-L)	V	240, split-phase (L-L), 180°	
Minimum and Maximum grid voltage[2]	V	211–264	
Maximum continuous output current	A	1.0	1.21
Nominal frequency	Hz	60	
Extended frequency range	Hz	47–68	
AC short-circuit fault current over three cycles	Arms	2	
Maximum units per 20 A (L-L) branch circuit[3]	–	16	13
Total harmonic distortion	%	<5	
Overvoltage class AC port	–	III	
AC port backfeed current	mA	30	
Power factor setting	–	1.0	
Grid-tied power factor (adjustable)	–	0.85 leading ... 0.85 lagging	
Peak efficiency	%	97.7	
CEC weighted efficiency	%	97	
Nighttime power consumption	mW	23	25

MECHANICAL DATA	
Ambient temperature range	-40°C to 60°C (-40°F to 140°F)
Relative humidity range	4% to 100% (condensing)
DC connector type	MC4
Dimensions (H × W × D)	212 mm (8.3 in) × 175 mm (6.9 in) × 30.2 mm (1.2 in)
Weight	1.08 kg (2.38 lbs)
Cooling	Natural convection–no fans
Approved for wet locations	Yes
Pollution degree	PD3
Enclosure	Class II double-insulated, corrosion-resistant polymeric enclosure
Environmental category/UV exposure rating	NEMA Type 6/Outdoor

(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.

COMPLIANCE	
Certifications	CA Rule 21 (UL 1741-SA), UL 62109-1, IEEE 1547:2018 (UL 1741-SB), FCC Part 15 Class B, ICES-0003 Class B, CAN/CSA-C22.2 NO. 107.1-01. This product is UL Listed as PV rapid shutdown equipment and conforms with NEC 2014, NEC 2017, NEC 2020, and NEC 2023 section 690.12 and C22.1-2018 Rule 64-218 rapid shutdown of PV Systems, for AC and DC conductors, when installed according to the manufacturer's instructions.

Revision history

REVISION	DATE	DESCRIPTION
DSH-00207-3.0	February 2024	Updated the information about IEEE 1547 interconnection standard requirements.
DSH-00207-2.0	October 2023	Included NEC 2023 specification in the “Compliance” section.
DSH-00207-1.0	September 2023	Updated module compatibility specification.

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REVIEWED
By Laura DiPasquale at 1:56 pm, Jul 29, 2024

APPROVED
Montgomery County
Historic Preservation Commission

DAVID C. HERNANDEZ, PE

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

DATE: July 23, 2024

RE: 7100 Sycamore Ave, 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 clamped to rails which are attached to the roof with 8" 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 IBC 2018, IRC 2018, 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	= 9.3 psf

Overall, the roof area is structurally adequate to support the PV alteration with no modifications or reinforcements as required. The roof framing was found to be made up of 2X4 @ 24" O/C manufactured trusses topped with board sheathing and single-layered rolled composition. The condition of the roof was found to be in good condition.

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 Digitally signed by David C. Hernandez
Date: 2024.07.23 11:30:32 -04:00

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 10/06/2024.
Sgd.07/23/24

REVIEWED
By Laura DiPasquale at 1:56 pm, Jul 29, 2024

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Montgomery County
Historic Preservation Commission

	COMPANY	PROJECT
WoodWorks® SOFTWARE FOR WOOD DESIGN		
	July 23, 2024 03:56	Max Unsupported Span.wwb

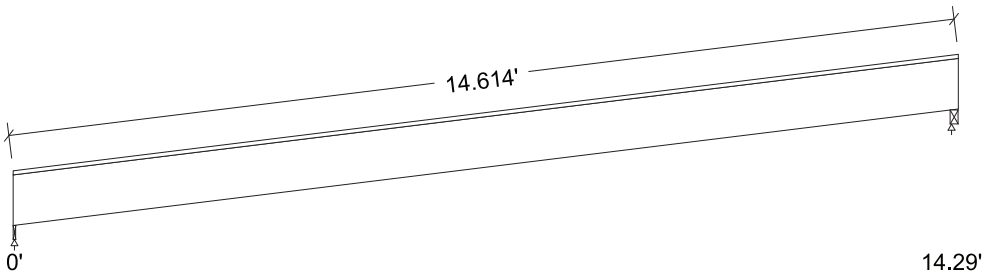
Design Check Calculation Sheet

WoodWorks Sizer 2019 (Update 4)

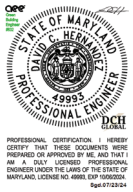
Loads:

Load	Type	Distribution	Pat-tern	Location [ft] Start	End	Magnitude Start	End	Unit
D-ROOF	Dead	Full Area				9.00(16.0")		psf
L1	Roof live	Partial Area		12.82	14.41	20.00(16.0")		psf
D-PV	Dead	Partial Area		0.02	12.82	9.30(16.0")		psf
S1	Snow	Full Area				23.10(16.0")		psf

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



Unfactored:			
Dead	176		160
Snow	221		223
Roof Live	2		40
Factored:			
Total	397		384
Bearing:			
F'theta	635		635
Capacity			
Joist	476		1429
Support	398		1195
Des ratio			
Joist	0.83		0.27
Support	1.00		0.32
Load comb	#3		#3
Length	0.50*		1.50
Min req'd	0.50*		0.50*
Cb	1.00		1.00
Cb min	1.00		1.00
Cb support	1.25		1.25
Fcp sup	425		425



*Minimum bearing length setting used: 1/2" for end supports

Lumber-soft, D.Fir-L, No.2, 2x10 (1-1/2"x9-1/4")

Supports: All - Lumber-soft Beam, S-P-F No.1/No.2

Roof joist spaced at 16.0" c/c; Total length: 14.75'; Clear span(horz): 14.25'; Volume = 1.4 cu.ft.; Pitch: 2/12

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 = 38	Fv' = 207	psi	fv/Fv' = 0.18
Bending(+)	fb = 791	Fb' = 1309	psi	fb/Fb' = 0.60
Live Defl'n	0.19 = L/926	0.97 = L/180	in	0.19
Total Defl'n	0.41 = L/423	1.45 = L/120	in	0.28

REVIEWED
By Laura DiPasquale at 1:57 pm, Jul 29, 2024

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Additional Data:

FACTORS:	F/E(psi)	CD	CM	Ct	CL	CF	Cfu	Cr	Cfrt	Ci	LC#
Fv'	180	1.15	1.00	1.00	-	-	-	-	1.00	1.00	3
Fb'+	900	1.15	1.00	1.00	1.000	1.100	-	1.15	1.00	1.00	3
Fcp'	625	-	1.00	1.00	-	-	-	-	1.00	1.00	-
E'	1.6 million		1.00	1.00	-	-	-	-	1.00	1.00	3
Emin'	0.58 million		1.00	1.00	-	-	-	-	1.00	1.00	3

CRITICAL LOAD COMBINATIONS:
Shear : 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
D=dead S=snow Lr=roof live
All LC's are listed in the Analysis output
Load combinations: ASD Basic from ASCE 7-16 2.4 / IBC 2018 1605.3.1

CALCULATIONS:
V max = 390, V design = 348 lbs; M(+) = 1411 lbs-ft
EIy = 158.29 lb-in^2
"Live" deflection is due to all non-dead loads (live, wind, snow…)
Total deflection = 1.5 dead + "live"
Bearing: Allowable bearing at an angle F'theta calculated for each support as per NDS 3.10.3

Design Notes:

1. Analysis and design are in accordance with the ICC International Building Code (IBC 2018) 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. Sawn lumber bending members shall be laterally supported according to the provisions of NDS Clause 4.4.1.
4. SLOPED BEAMS: level bearing is required for all sloped beams.

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 10/09/2024.
Sept 07/23/24

REVIEWED
By Laura DiPasquale at 1:57 pm, Jul 29, 2024

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Montgomery County
Historic Preservation Commission

ASCE 7 - 16 WIND CALCULATION FOR: Roof 1

Project Address: 7100 Sycamore Ave, Takoma Park, MD 20912

DESIGN CRITERIA

Ultimate Wind Speed: 115 mph

Exposure Category: B

a: 3.037 ft

Velocity Pressure Exposure Coefficient, *Kz*: 0.57

Topographic Factor, *Kzt*: 1

Wind Directionality Factor, *Kd*: 0.85

Ground Elevation Factor, *Ke*: 1

Solar Array Pressure Equalization Factor, *ya*: 0.71 / 0.71

Array Edge Factor, γE: 1

Solar Array Dead Load: 3 psf

Mean Roof Height: 15 ft

Roof Pitch: 10°

Roof Type: Gable

Module Name, Dimensions, Area: HANWHA Q.PEAK DUO BLK ML-G10+-410W., 41.1in X 74in, 3041.4 sqin

CALCULATION

Velocity Pressure Due to Wind: $q_h = 0.00256(Kz)(Kzt)(Kd)(I)(V^2)$ $(Ch\ 26.Eq\ 26.10-1)$

Actual Uplift Pressure: $p = 0.6D + 0.6W$ $(Ch\ 2.4.1\ LC\ \#7/a)$

Wind Uplift Pressure: $p = qh\ (GCp)(yE\ )(ya\ )$ $(Ch\ 29.Eq\ 29.4-7)$

Portrait Panels

Roof Zone	1	2e	2n	2r	3e	3r
Mount Spacing	41.1”	41.1”	41.1”	41.1”	41.1”	41.1”
External Pressure Coefficient (GCp)	-2 psf	-2 psf	-2.97 psf	-2.97 psf	-2.97 psf	-3.56 psf
Actual Uplift Pressure (p)	-12.27 psf	-12.27 psf	-19.05 psf	-19.05 psf	-19.05 psf	-20.21 psf
Tributary Area (AT)	10.56 sqft	10.56 sqft	10.56 sqft	10.56 sqft	10.56 sqft	10.56 sqft
Uplift Force (P)	-129.53 lbs	-129.53 lbs	-201.15 lbs	-201.15 lbs	-201.15 lbs	-213.44 lbs

Uplift Capacity

Attachment Type = ICP POLYSET AH-160 foam adhesive - 8" Solar Stack pedestal

Hardware Pullout Capacity = 240.27 lbs (per manufacturer’s testing report)

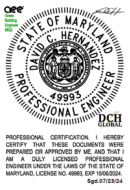
Safety Factor = 3

Duration Factor = 1.6

Maximum Uplift Force = 213.44 lbs

Allowable Pullout Capacity = 240.27 lbs

Allowable Pullout Capacity = 240.27 lbs > Uplift Force per Bolt = 213.44 lbs, Therefore OK. (Portrait)



EXACTUS ENERGY
NEW AGE ENGINEERING

REVIEWED
By Laura DiPasquale at 1:57 pm, Jul 29, 2024

APPROVED
Montgomery County
Historic Preservation Commission

Solar Energy World
Because Tomorrow Matters

Project Property Owner Marc Pfeuffer & Evelyn Thornton

Address 7100 Sycamore Ave, Takoma Park, MD 20912, USA

☑ I reviewed the design of the photovoltaic (PV) system, as designed by the manufacturer, and the design criteria utilized for the mounting equipment and panel mounting assembly (rack system) for the installation of (21) 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) and International Existing Building Code (IEBC) adopted by Montgomery County in COMCOR08.00.02.

☑ 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 and IEBC 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 and IEBC, adopted by Montgomery County in COMCOR 08.00.02, necessary to support the PV system.

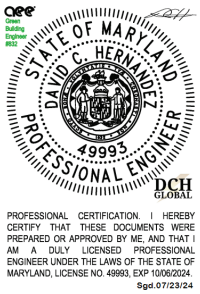
□ I evaluated the existing roof structure of the building at the above address and analyzed its capacity to support the additional loads imposed by the PV system. Structural modifications of the existing roof structure are required. Icertify that the roof structure, as modified on the drawings for this 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 and IEBC, adopted by Montgomery County in COMCOR 08.00.02.

☑ I prepared or approved the construction documents for the mounting equipment, rack system, roof structure forthis project.

49993
Maryland PE License Number

Date July 23, 2024

Seal



Signature David C. Hernandez Digitally signed by David C. Hernandez Date: 2024.07.23 11:30:32 -04:00

Must be submitted with plans

SolarEnergyWorld
Because Tomorrow Matters

Property Owners Name: _____

Property Owners Address: _____

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 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.

15732

State Master Electrician License Number

Date: 07/23/2024

Signature: Matt Kuss

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

July 23, 2024

REVIEWED
By Laura DiPasquale at 1:57 pm, Jul 29, 2024

APPROVED
Montgomery County
Historic Preservation Commission

To: Marc Pfeuffer & Evelyn Thornton
7100 Sycamore Avenue, Takoma Park, MD 20912
Evelynaa.thornton@gmail.com (571) 438-3770

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: Solar Energy World-Tina Crouse tcrouse@solarenergyworld.com 410-579-2009
Location of Project: 7100 Sycamore Avenue
Proposed Scope of Work: Install (21) roof mounted solar panels, 8.61 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 owner to proceed with the project. The City retains the right to review and comment on project plans during the Montgomery County review process.

REVIEWED
By Laura DiPasquale at 1:57 pm, Jul 29, 2024

City Of Takoma Park

APPROVED
Montgomery County
Historic Preservation Commission

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 SeamlessDocs.com
Tina Crouse
Key: 38bf2056622713c0bf979ea7ee94776a

Tina Crouse 07-23-2024

eSigned via SeamlessDocs.com
Takoma Park Planning Division
Key: 19fe84f123e68a3ff4576219059d5fbe

07-23-2024