

MONTGOMERY COUNTY HISTORIC PRESERVATION COMMISSION
STAFF REPORT

Address:	7 Philadelphia Avenue, Takoma Park	Meeting Date:	6/14/2023
Resource:	Contributing Resource Takoma Park Historic District	Report Date:	6/7/2023
Applicant:	Brendan Casey (Alexis Hawkins, Agent)	Public Notice:	5/31/2023
Review:	HAWP	Tax Credit:	N/A
Permit Number:	1029926	Staff:	John Liebertz

PROPOSAL: Solar panel installation.

STAFF RECOMMENDATION

Staff recommends that the Historic Preservation Commission (HPC) **approve with one (1) condition** the HAWP application with final review and approval delegated to staff.

1. The applicant shall submit an amended drawing that illustrates the setback of the panels from the rake of the one-story addition.

ARCHITECTURAL DESCRIPTION

SIGNIFICANCE: Contributing Resource within the Takoma Park Historic District
STYLE: Prairie-styled American Four-Square
DATE: c. 1915

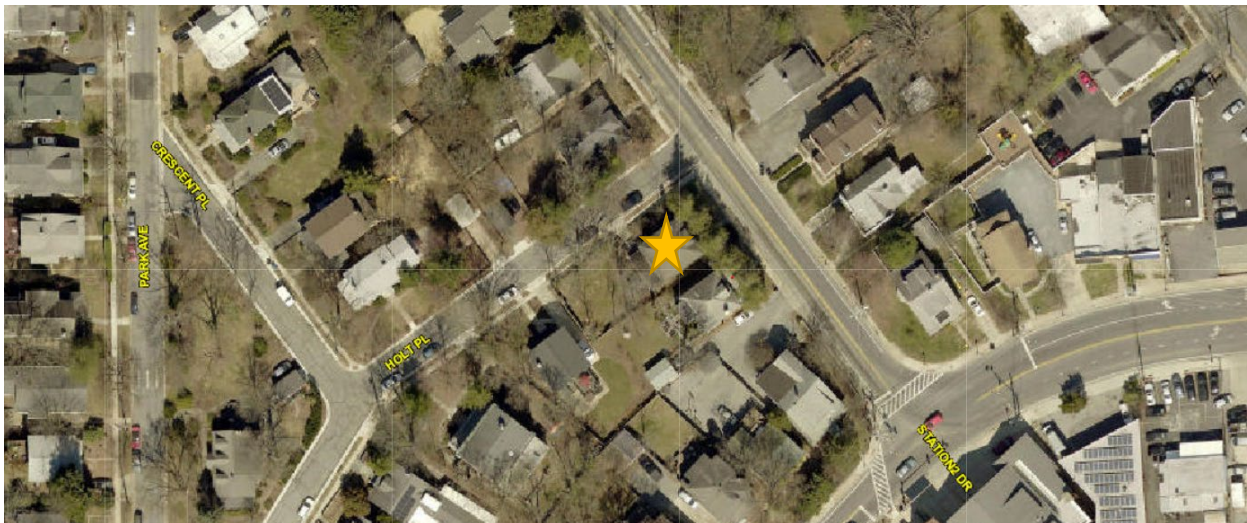


Figure 1: The subject property (noted with the yellow star) at 7 Philadelphia Avenue is located at the southwest corner of the intersection of Philadelphia Avenue and Holt Place.

PROPOSAL

The applicant proposes to install seventeen (17) roof-mounted solar panels in four arrays. Three of the arrays are located on the hipped roof of the two-story historic house and a single array is located on the one-story, non-historic addition. On the historic house, the arrays on the northern (side) and southern (side) roof slopes consists of five (5) panels per array, for a total of ten (10). The array on the western (rear) roof slope consists of four (4) panels. The fourth array on the western slope of the one-story, non-historic addition consists of three (3) panels.

APPLICABLE GUIDELINES

The Historic Preservation Office and Historic Preservation Commission (HPC) consult several documents when reviewing alterations and new construction within the Takoma Park Historic District. These documents include the historic preservation review guidelines in the approved and adopted amendment for the *Takoma Park Historic District (Guidelines)*, *Montgomery County Code Chapter 24A (Chapter 24A)*, and the *Secretary of the Interior's Standards for Rehabilitation (Standards)*, and the HPC's *Policy No. 20-01 ADDRESSING EMERGENCY CLIMATE MOBILIZATION THROUGH THE INSTALLATION OF ROOF-MOUNTED SOLAR PANELS*. The pertinent information in these four documents is outlined below.

Takoma Park Historic District Guidelines

There are two broad planning and design concepts which apply to all categories. These are:

- The design review emphasis will be restricted to changes that are all visible from the public right-of-way, irrespective of landscaping or vegetation (it is expected that the majority of new additions will be reviewed for their impact on the overall district), and
- The importance of assuring that additions and other changes to existing structures act to reinforce and continue existing streetscape, landscape, and building patterns rather than to impair the character of the historic district.

A majority of the buildings in the Takoma Park Historic District have been assessed as being "Contributing Resources." While these buildings may not have the same level of architectural or historical significance as Outstanding Resources or may have lost some degree of integrity, collectively, they are the basic building blocks of the Takoma Park district. They are important to the overall character of the district and the streetscape due to their size, scale, and architectural qualities, rather than for their particular architectural features.

Contributing Resources should receive a more lenient level of design review than those structures that have been classified as Outstanding. This design review should emphasize the importance of the resource to the overall streetscape and its compatibility with existing patterns rather than focusing on a close scrutiny of architectural detailing. In general, however, changes to Contributing Resources should respect the predominant architectural style of the resource.

The following guidance which pertains to this project are as follows:

- All exterior alterations, including those to architectural features and details, should be generally consistent with the predominant architectural style and period of the resource and should preserve the predominant architectural features of the resource; exact replication of existing details and features is, however, not required.

- Minor alterations to areas that do not directly front on a public right-of-way such as vents, metal stovepipes, air conditioners, fences, skylights, etc. – should be allowed as a matter of course; alterations to areas that do not directly front on a public way-of-way which involve the replacement of or damaged to original ornamental or architectural features are discouraged, but may be considered and approved on a case-by-case basis.
- Alterations to features that are not visible from the public right-of-way should be allowed as a matter of course.
- All changes and additions should respect existing environmental settings, landscaping, and patterns of open space.

Montgomery County Code, Chapter 24A-8

The following guidance which pertains to this project are as follows:

- (b) The commission shall instruct the director to issue a permit, or issue a permit subject to such conditions as are found to be necessary to ensure conformity with the purposes and requirements of this chapter, if it finds that:
 - (1) The proposal will not substantially alter the exterior features of an historic site or historic resource within an historic district; or
 - (2) The proposal is compatible in character and nature with the historical, archeological, architectural or cultural features of the historic site or the historic district in which an historic resource is located and would not be detrimental thereto or to the achievement of the purposes of this chapter;

Secretary of the Interior’s Standards for Rehabilitation

The Secretary of the Interior defines rehabilitation as “the act or process of making possible a compatible use for a property through repair, alterations, and additions while preserving those portions or features, which convey its historical, cultural, or architectural values.” The applicable *Standards* are as follows:

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

Historic Preservation Commission Policy No. 20-01: Addressing Emergency Climate Mobilization Through The Installation of Roof-Mounted Solar Panels

Now, THEREFORE:

WHEREAS, Historic Area Work Permit decisions are guided by the criteria in Section 24A, The Secretary of the Interior’s Standards for Rehabilitation, and pertinent guidance from applicable master plan amendments and/or site or district-specific studies;

WHEREAS, The Secretary of the Interior’s Standards for Rehabilitation as interpreted by the National Park Service limit the placement of rooftop solar panels under Standards 2, 9, and 10 to less conspicuous locations;

WHEREAS, the County Council has established a Climate Emergency;

WHEREAS, the Historic Preservation is a body established by the County Executive and County Council;

WHEREAS, Section 24-8(b)(6) states, “In balancing the interest of the public in preserving the historic site or historic resource located within an historic district, with the interests of the public from the use and benefit of the alternative proposal, the general public welfare is better served by granting the permit;”

WHEREAS, the widespread use of solar panels, both for hot water and for electricity production, will reduce greenhouse gases in the county, in accordance with the aims of the Emergency Climate Mobilization resolution (Resolution No.: 18-974), it shall be the policy of the Historic Preservation Commission that:

1. The preferred locations for solar panel installation(s) on a designated historic site or an historic resource located within an historic district is a) on the rear of the property, b) on non-historic building additions, c) on accessory structures, or d) in ground-mounted arrays;
2. If it is not feasible to install solar panels in one of the identified preferred locations due to resource orientation or other site limitations; and,
3. The roof is determined to be neither architecturally significant, nor a character-defining feature of the resource, nor is it a slate or tile roof, that unless it can be demonstrated that the solar array will be installed without damaging the historic character of the resource or historic fabric; then
4. The public welfare is better served by approving a Historic Area Work Permit for solar panels on all visible side or front roof slopes under Section 24A-8(b)(6).
5. A Historic Area Work Permit (HAWP) is required for all work referenced in this policy.

STAFF DISCUSSION

The subject property is a Contributing Resource to the Takoma Park Historic District and features a two-story, Prairie-styled American Four-Square constructed ca. 1915. The house has undergone minor alterations since its construction. In the late twentieth century, the property owners constructed the one-story, hipped roof, rear addition. In December 2022, Historic Preservation staff approved HAWP #1015781 that permitted the replacement of the roof and relocation of vent pipes.

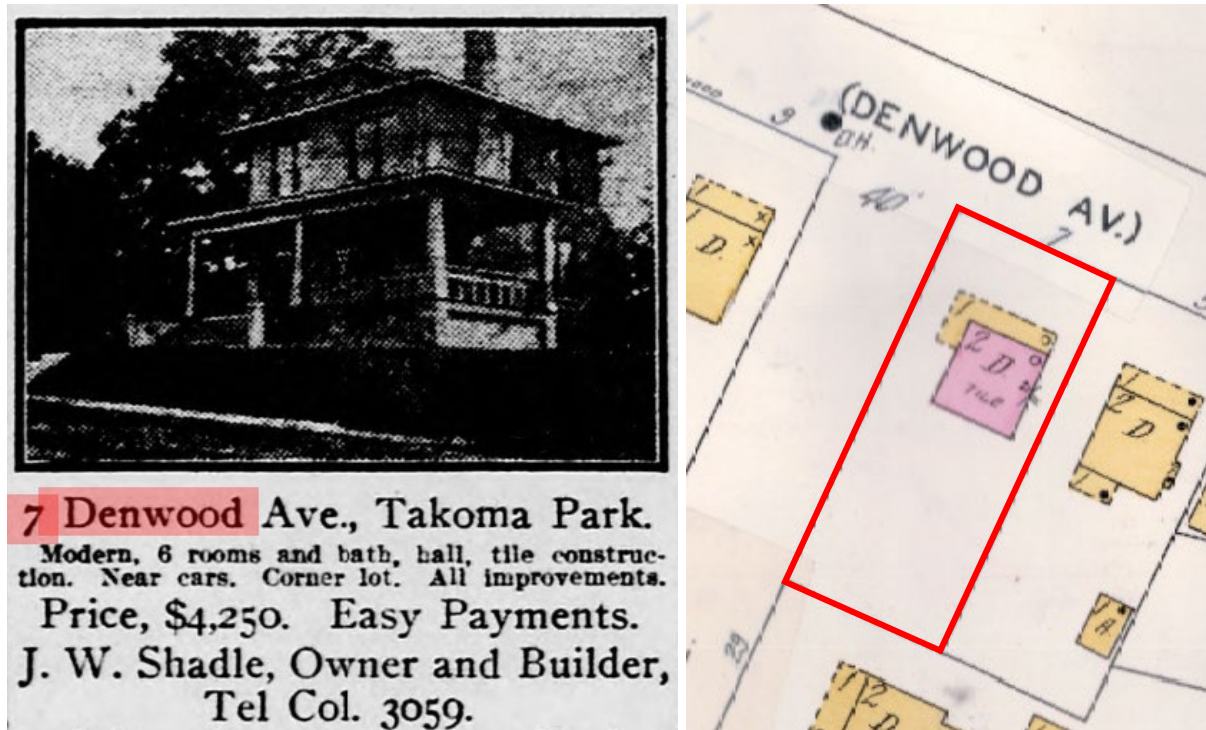


Figure 2: View of the subject house at 7 Philadelphia Avenue (previously Denwood Avenue) in 1915 (left) and 1927-1963 Sanborn Fire Insurance Map (right).

Source: *Chronicling America* (left) and *Sanborn Fire Insurance Co.* (right).



Figure 3: Aerial view, 2022. The red arrow points to the locations of the proposed arrays. Please note that a recently approved HAWP moved the roof vents after this aerial photograph.

Source: *ConnectExplorer*.

The applicant proposes to install seventeen (17) roof-mounted solar panels in four arrays. Three of the arrays are located on the hipped roof of the two-story historic house and a single array is located on the one-story, non-historic addition. On the historic house, the arrays on the northern (side) and southern (side) roof slopes consists of five (5) panels per array for a total of ten (10). The array on the western (rear) roof slope consists of four (4) panels. The fourth array on the western slope of the one-story, non-historic addition consists of three (3) panels. The utility disconnect, combiner panel, and other similar equipment would be installed near the northwest corner of the house adjacent to the wraparound porch at the location of an existing meter.

Staff finds that the solar installation meets the applicable guidelines and recommends approval. The HPC and staff utilize *Policy Guidance #20-01: Solar Technology (2021)* as the baseline for their review and to articulate their findings in the review of solar technology. The policy outlines the most to least preferred locations for solar arrays. The most preferred location for solar systems is a freestanding array in the rear yard, but this location is not feasible at the subject property due to the size of the lot and existing tree canopy. The second preferred location is a roof-mounted array on an accessory or non-historic building. There are no secondary buildings located on this property.

The third preferred location is a roof-mounted array on a non-historic addition of the main house. The applicant proposed three (3) panels to be placed on the non-historic, one-story rear addition. This location would not be able to accommodate any additional panels due to its limited size. These solar panels may be partially visible from the public rights-of-way as the property is located on a corner lot. The slope of the roof and topography of the street, however, diminish potential adverse effects to the streetscape. Therefore, staff recommends approval of this array as it complies with *Policy Guidance #20-01: Solar Technology (2021)*.

The least preferred location is a roof-mounted array on the historic house. The applicant proposes to install fourteen (14) panels on the northern (side), southern (side), and western (rear) slopes of the original two-story, hipped roof house. The northern and southern roof slopes are evident from Philadelphia Avenue, but are not character defining features of the streetscape. In addition, obfuscation of the asphalt shingles would not diminish the integrity of the resource. Similar to the array on the one-story rear addition, the topography of Holt Place and the slope of the roof limits views of the panels on the western (rear) slope.

Staff finds that the proposal meets the general guidelines outlined in *Policy Guidance #20-01: Solar Technology (2021)* for traditional roof-mounted solar panels and recommends approval with a condition. The guidance states that roof-mounted panels should: 1) have a low-profile and be mounted less than or equal to six inches above the surface of the roof (to the face of the panel); 2) be consistent with the existing slope of the supporting roof; 3) be setback from the edges and ridge of the roof; and 4) be arranged in an organized configuration and avoid disjointed or multi-roof solutions. The proposed arrays have a low-profile and the face of the panel would be less than or equal to 6-inches above the roof. The panels would be setback 36-inches from the ridge of the roof, 12-inches from the rake of the roof on the side elevations, and 8-inches from the rake of the roof on the rear elevation of the original house. This would allow the hipped roof to continue to express its form. The submitted drawings show, but do not clearly label, that the panels would be setback approximately 12-inch from the rake of the roof on the one-story rear addition. Staff recommends the applicant amend the drawing to confirm this setback. (Figure 4)

The face of the panels will need to be "equal to or less than 6 inches from the roof

THE MODULES FOLLOW THE SLOPE OF THE ROOF

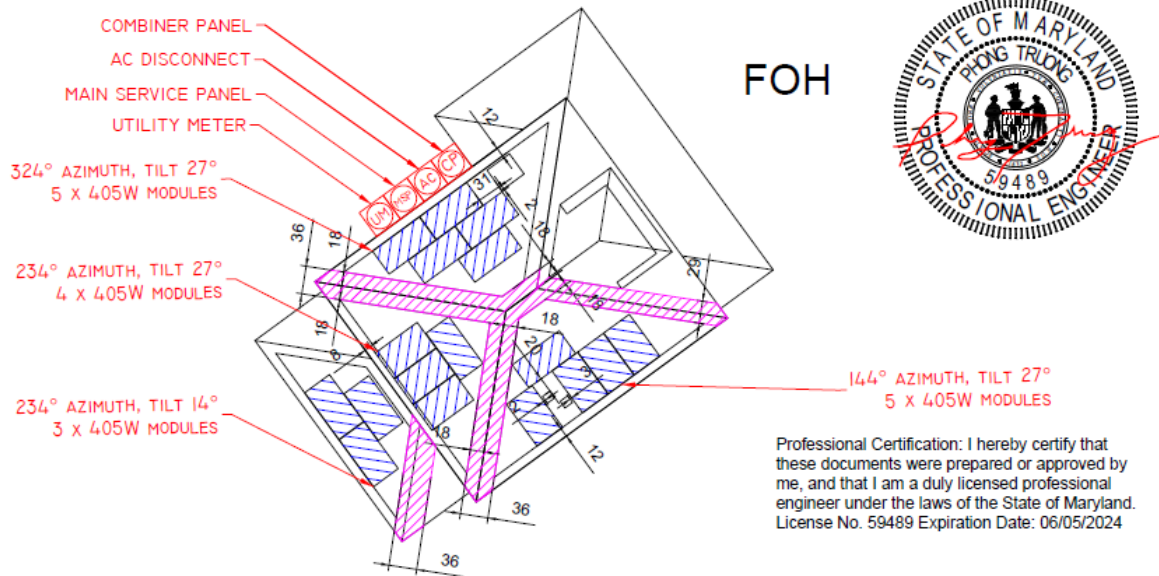


Figure 4: Solar panel layout submitted by the applicant. Source: IPSUN Solar

While there are three Outstanding Resources with views of the subject property, there would be limited visibility of the solar arrays (Figure 5). The houses at 8 and 6 Philadelphia Avenue are located across the street and face the façade of the subject house (absent of any solar panels). The house at 9 Philadelphia Avenue is separated from the subject house by Holt Place. Staff finds that the panels will not adversely affect the streetscape

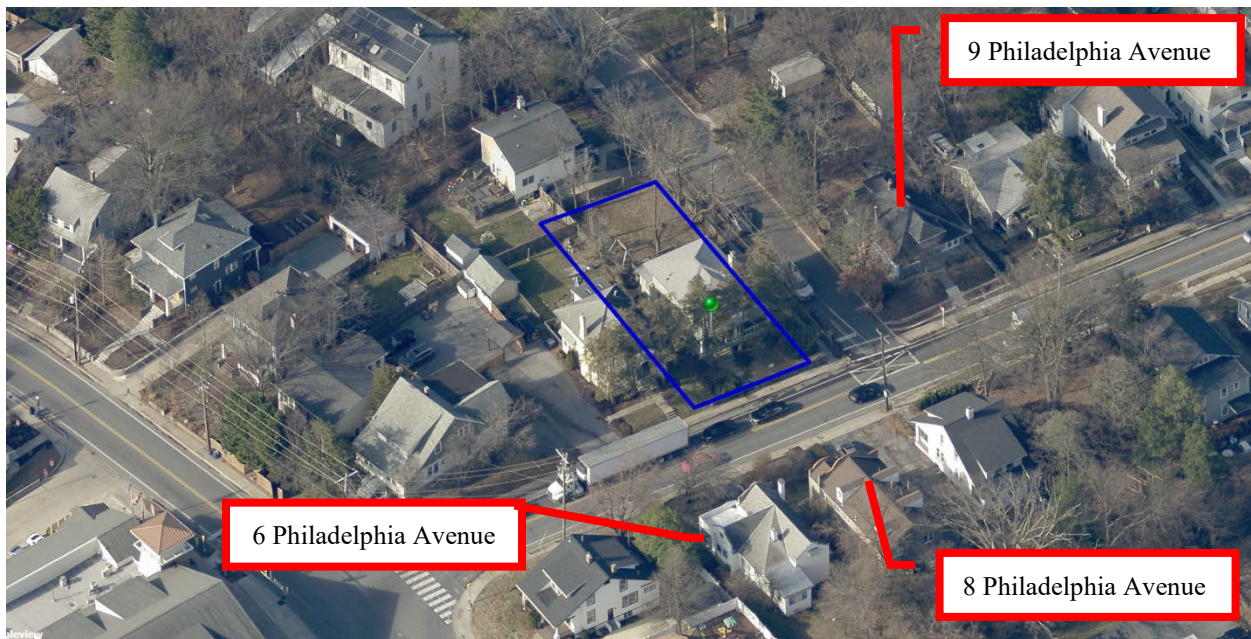


Figure 5: Three Outstanding Resources (called out in red) in proximity to the subject property (noted in blue). Source: Montgomery Planning.

Staff finds that all conduits are located within the attic or on secondary elevations. The utility disconnect, combiner panel, and other similar equipment would be installed near the northwest corner of the house adjacent to the wraparound porch at the location of an existing meter. The equipment would not further diminish the integrity of the resource.

The property owner (current or future) could remove the proposed solar panels and all associated equipment at a later date without impairing the integrity of the historic house or district.

After full and fair consideration of the applicant's submission, staff finds the proposal, as modified by the condition, consistent with the Criteria for Issuance in Chapter 24A-8(b), (1), (2), and (d), having found the proposal is consistent with the *Secretary of the Interior's Standards for Rehabilitation* #2, #9, and #10, and *Takoma Park Historic District Guidelines*, and the HPC's Policy No. 20-01 as outlined above.

STAFF RECOMMENDATION

Staff recommends that the Commission **approve with one (1) condition** the HAWP application with final approval delegated to staff:

2. The applicant shall submit an amended drawing that illustrates the setback of the panels from the rake of the one-story addition.

under the Criteria for Issuance in Chapter 24A-8(b), (1), (2), and (d), having found that the proposal, as modified by the condition, is consistent with the *Takoma Park Historic District Guidelines*, and therefore will not substantially alter the exterior features of the historic resource and is compatible in character with the district and the purposes of Chapter 24A;

and in conformance with HPC *Policy No.20-01*;

and with the *Secretary of the Interior's Standards for Rehabilitation* #2, #9, and #10.

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

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

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



**APPLICATION FOR
HISTORIC AREA WORK PERMIT**
HISTORIC PRESERVATION COMMISSION
301.563.3400

FOR STAFF ONLY:
HAWP# _____
DATE ASSIGNED _____

APPLICANT:

Name: Brendan Casey
Address: 7 Philadelphia Ave
Daytime Phone: 9083997895

E-mail: brendancasey1+ipsun@gmail.com
City: Takoma Park Zip: 20912
Tax Account No.: 01060008

AGENT/CONTACT (if applicable):

Name: Alexis Hawkins
Address: 9504 Poplar Leaf Ct.
Daytime Phone: 866-484-7786

E-mail: permits@ipsunsolar.com
City: Fairfax Zip: 22031
Contractor Registration No.: 14411

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

Is the Property Located within an Historic District? Yes/District Name 13
 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: _____ Street: 7 Philadelphia Ave, Takoma Park, MD 20912

Town/City: Takoma Park Nearest Cross Street: _____

Lot: 17 Block: 2 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:

- | | | |
|---|--|--|
| <input type="checkbox"/> New Construction | <input type="checkbox"/> Deck/Porch | <input type="checkbox"/> Shed/Garage/Accessory Structure |
| <input type="checkbox"/> Addition | <input type="checkbox"/> Fence | <input checked="" type="checkbox"/> Solar |
| <input type="checkbox"/> Demolition | <input type="checkbox"/> Hardscape/Landscape | <input type="checkbox"/> Tree removal/planting |
| <input type="checkbox"/> Grading/Excavation | <input type="checkbox"/> Roof | <input type="checkbox"/> Window/Door |
| | | <input type="checkbox"/> 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.

Alexis Hawkins _____ 5/2/23 _____
Signature of owner or authorized agent Date

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

Owner's mailing address 7 Philadelphia Ave, Takoma Park, MD 20912	Owner's Agent's mailing address 9504 Poplar Leaf Ct. Fairfax, VA 22031
Adjacent and confronting Property Owners mailing addresses	
9 Philadelphia Ave, Takoma Park, MD 20912	5 Philadelphia Ave, Takoma Park, MD 20912
29 Holt Place, Takoma Park 20912	6 Philadelphia Avenue, Takoma Park 20912
8 Philadelphia Avenue, Takoma Park 20912	10 Philadelphia Avenue, Takoma Park 20912

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

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

This is a 6.885 kW DC rooftop PV solar system installation.

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:

**HISTORIC AREA WORK PERMIT
CHECKLIST OF
APPLICATION REQUIREMENTS**

	Required Attachments						
Proposed Work	I. 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	*	*	*	*	*		*

BRENDAN CASEY PROPERTY : 7 PHILADELPHIA AVE, TAKOMA PARK MD 20912

SOLAR PHOTOVOLTAIC SYSTEM: 6.885 KW

EQUIPMENT SUMMARY:

SOLAR MODULES: 17 x Q CELLS 405 Q.PEAK DUO BLK ML-G10+ - 405W MODULES

INVERTER(S): 17 x - ENPHASE - IQ8M-72-2-US MICROINVERTERS

RACKING: SnapNrack Deckfoot

SHEET INDEX:

G001 COVER SHEET

G002 GENERAL NOTES

Z001 PROPERTY LAYOUT

Z002 PV LAYOUT

Z003 STRING LAYOUT

Z004 ATTACHMENT LAYOUT

S001 ATTACHMENT DETAILS

E001 ELECTRICAL THREE LINE DIAGRAM

E002 BOQ & SYSTEM DETAILS

E003 SYSTEM LABELING DETAILS

G003 BILL OF MATERIALS

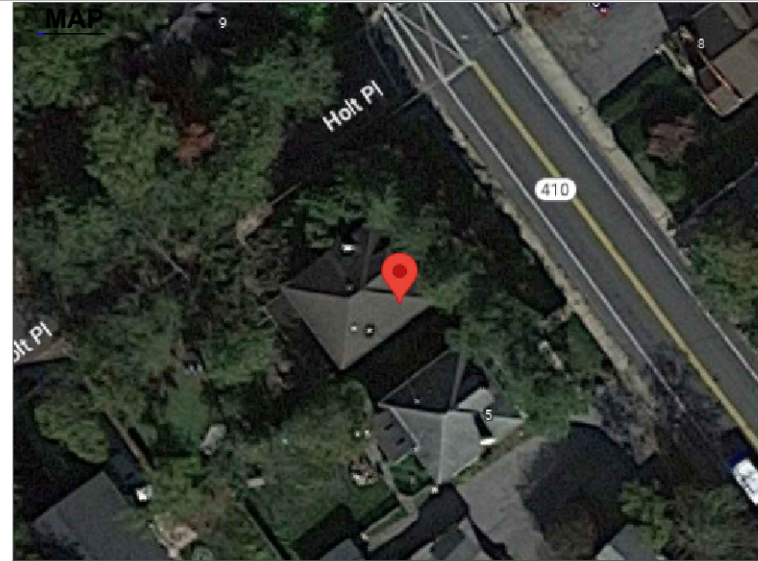
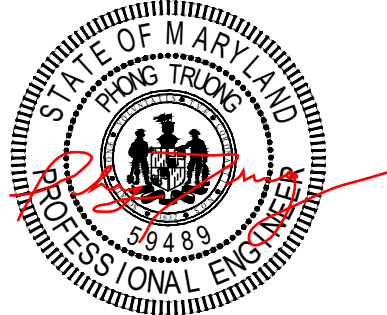
APPLICABLE CODES AND STANDARDS:

BUILDING: IBC 2018, 12-2013, ASCE 7-16, NDS2018, IRC 2018

ELECTRICAL: NEC 2017

FIRE: NFPA 2018

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. 59489 Expiration Date: 06/05/2024



ANSI Z535.4-2011 Product Safety Signs and Labels, provides guidelines for suitable font sizes, words, colors, symbols, and location requirements for labels. NEC 110.21(B)(1)



3/3/2023
G001

DATE	SHEET	PAGE
1	JM	JM

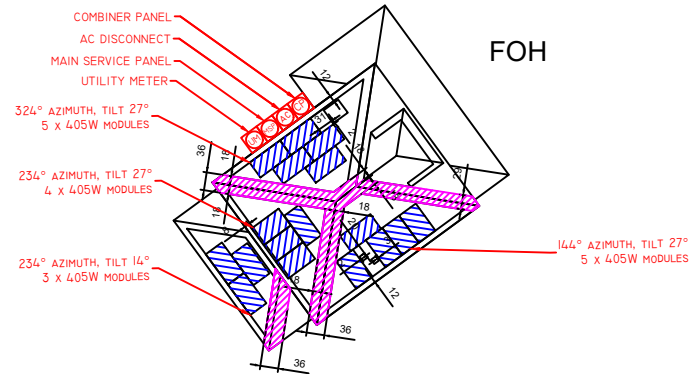
REVIEW BY
DRAWING BY
CHECKED BY

INSTALLER:
IPSUN POWER, INC DBA IPSUN SOLAR
2817 Dorr Ave Suite D
Fairfax, VA 22031
PHONE: +1 (866) 484-7786
EMAIL: support@ipsunsolar.com

PV ARRAY

The face of the panels will need to be "equal to or less than 6 inches from the roof"

THE MODULES FOLLOW THE SLOPE OF THE ROOF



FOH

Final Production Estimate: 6229kWh

This is your final solar production estimate. Please compare this number to your proposal and present any questions to your sales representative.

ADDRESS

OWNER:
IP20230201MD
BRENDAN CASEY
7 PHILADELPHIA AVE, TAKOMA PARK MD
20912

INSTALLER:
IPSUN POWER, INC DBA IPSUN SOLAR
2817 Dorr Ave Suite D
Fairfax, VA 22031
PHONE: +1 (866) 484-7786
EMAIL: support@ipsunsolar.com



OWNER:
IP20230201MD
BRENDAN CASEY
7 PHILADELPHIA AVE, TAKOMA PARK MD 20912

GENERAL NOTES

ELECTRICAL CONSTRUCTION GENERAL NOTES:

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE NEC (NATIONAL ELECTRIC CODE), NFPA (NATIONAL FIRE PROTECTION ASSOCIATION), AND ALL APPLICABLE LOCAL, STATE AND FEDERAL CODES, LAWS AND REGULATIONS. ALL WORK SHALL CONFORM TO APPLICABLE STATE AND FEDERAL SAFETY CODES INCLUDING OSHA.
2. WORK UNDER THIS CONTRACT SHALL INCLUDE, BUT NOT BE LIMITED TO, FURNISHING, INSTALLING AND CONNECTION OF ALL ELECTRICAL EQUIPMENT AND TESTING OF ALL SYSTEMS AND SUB-SYSTEMS WITHIN THE SCOPE OF THIS CONTRACT. ANY ERRORS, OMISSION, OR UNCERTAINTY SHALL BE BROUGHT TO THE ATTENTION OF THE PRIME CONTRACTOR AND OR OWNER PRIOR TO CONSTRUCTION.
3. CONTRACTOR SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY AND SECURITY OF THE WORKSITE. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS.
4. NOTIFY THE PRIME CONTRACTOR OR OWNER IMMEDIATELY AFTER DISCOVERING ANY HAZARDOUS MATERIAL LIKE ASBESTOS.
5. DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF SYSTEMS AND WORK INCLUDED. VERIFY THE EXACT LOCATIONS AND CONDITIONS OF ALL EQUIPMENT REQUIRING ELECTRICAL CONNECTIONS PRIOR TO ANY WORK. LOCATIONS FOR EQUIPMENT SHALL BE TAKEN FROM THE OTHER SHEETS WHERE THEY OCCUR. EXTEND WIRING FROM ALL JUNCTION BOXES, CONTROL PANELS, PUMPS, RECEPTACLES, SWITCHES, ETC. AND MAKE ALL FINAL CONNECTIONS TO EQUIPMENT AS REQUIRED.
6. THE INTENT OF THESE DRAWINGS IS FOR A COMPLETE ELECTRICAL SYSTEM. ANY ERRORS OR UNCERTAINTY SHALL BE BROUGHT TO THE ATTENTION OF THE PRIME CONTRACTOR AND ENGINEER AS SOON AS FOUND.
7. THE COMPLETE ELECTRICAL INSTALLATION SHALL BE TESTED AS A COMPLETE WORKING SYSTEM.
8. WE WILL RESTORE ALL DAMAGES RESULTING FROM WORK AND LEAVE PREMISES IN CLEAN CONDITION WHEN FINISHED WITH WORK.
9. ALL ITEMS ARE NEW (NEW) UNLESS NOTED AS EXISTING (EXIST) AS MARK IN THE TABLE.
10. ALL CONDUITS SHALL BE EMT, INTERMEDIATE METAL CONDUIT, OR RIGID STEEL OR PVC. MINIMUM SIZE SHALL BE 1/2". ALL CONDUIT, BOXES AND ELECTRICAL FITTINGS SHALL BE STEEL OR PVC.
11. ALL EXTERIOR EQUIPMENT SHALL BE IN WEATHERPROOF (NEMA 3R) ENCLOSURES. ALL NEW WIRING SHALL BE IN CONDUIT, SUITABLE FOR SUN EXPOSURE AND WET LOCATIONS. FIELD APPLIED COATING ARE NOT ACCEPTABLE.
12. INVERTERS MUST COMPLY WITH UL 1741 TO PREVENT ISLANDING ON POWER FAILURE. THE INVERTER SHALL PUT NOT POWER ON TO THE GRID IF THE GRID IS OFF-LINE. ALL SYSTEM COMPONENTS (MODULES AND INVERTERS ETC) SHALL BE UL LISTED.
13. MOUNT TO ROOF USING UL APPROVED MOUNTING HARDWARE. FOLLOWING MANUFACTURERS DIRECTIONS. MOUNTING HARDWARE EVERY 4' ON CENTER UNLESS OTHERWISE NOTED.
14. OBTAIN THE BEST INFORMATION ON UNDERGROUND UTILITIES IN AREAS BEING TRENCHED. USE 'DIG ALERT' OR OTHER LOCATING SERVICE BEFORE DIGGING.

GROUNDING NOTES

1. ALL EQUIPMENT SHALL BE PROPERLY GROUNDED PER THE REQUIREMENTS OF NEC ARTICLES 250 & 690.
2. PV MODULES SHALL BE GROUNDED TO MOUNTING RAILS USING MODULE LUGS OR RACKING INTEGRATED GROUING CLAMPS AS ALLOWED BY LOCAL JURISDICTION. ALL OTHER EXPOSED METAL PARTS SHALL BE GROUNDED USING UL-LISTED LAY-IN LUGS.
3. IF THE EXISTING MAIN SERVICE PANELS DOES NOT HAVE A VERIFIABLE GROUNDED ELECTRODE, IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSTALL A SUPPLEMENTAL GROUNDED ELECTRODE.
4. EQUIPMENT GROUNDED CONDUCTORS SHALL BE SIZED ACCORDING TO NEC ARTICLE 690.45, AND BE A MINIMUM OF #10AWG WHEN NOT EXPOSED TO DAMAGE, AND #8AWG SHALL BE USED WHEN EXPOSED TO DAMAGE.

ADDERS

Squirrel Guard	X
New Construction	
Skirt	
Trenching	
0	
Breaker Box upgrade	
Supply Side Connection	
Lumin	
Solar on Deatched Garage (No Trenching)	
Battery Storage	
Consumption meter	X
Ipsun Platinum protection	X
Custom Enphase Combiner Box Location	
Energy storage in a Basement or Townhouse	

CLIENT NOTES

SELLER INFO

NAME	Josh Butler
PHONE	703 826 4786
EMAIL	josh.butler@ipsunsolar.com



3/3/2023
G002

DATE SHEET PAGE

1 JM JM

REVIEW DRAWING BY CHECKED BY

INSTALLER:
IPSUN POWER, INC. DBA IPSUN SOLAR
2817 Dorr Ave Suite D
Fairfax, VA 22031
PHONE: +1 (866) 484-7786
EMAIL: support@ipsunsolar.com

OWNER:
IP210230201MD
BRENDAN CASEY
7 PHILADELPHIA AVE, TAKOMA PARK MD 20912

BILL OF MATERIALS

SIGNATURES:
Warehouse (print):

Fiel Coordinator:

Electrician:

Zilla Flashing		Breaker Box upgrade	
Trenching		Consumption meter	X
EV charger			

Part Number	Qty	Description
X-IQ-AM1-240-3-ES	1	AC Combiner Box with IQ Envoy PCB, 80A, Single-Phase Software.
QO230	1	Breaker, 30A, 2P, 120/240V, Type QO SQUARE D QO
DG221URB	1	Safety Switch, 30A, 2P, 240V, Type DG, Non-Fusible, NEMA 3R
BR220	2	Breaker, 20A, 2P, 120/240V, Type BR, 10 Kaic
CT-200-SPLIT	2	ENP CT-200-SPLIT CURRENT TRANSFORMER

NOTES:



3/3/2023
G003

REVIEW	DATE	DRAWING BY	CHECKED BY
1		JM	JM

INSTALLER:
IPSUN POWER, INC DBA IPSUN SOLAR
2817 Dorr Ave Suite D
Fairfax, VA 22031
PHONE: +1 (866) 484-7786
EMAIL: support@ipsunsolar.com

OWNER:
IP20230201MD
BRENDAN CASEY
7 PHILADELPHIA AVE, TAKOMA PARK MD 20912

BRENDAN CASEY PROPERTY : 7 PHILADELPHIA AVE, TAKOMA PARK MD 20912

SOLAR PHOTOVOLTAIC SYSTEM: 6.885 KW

ELECTRICAL THREE LINE DIAGRAM

MICROINVERTERS SYSTEM

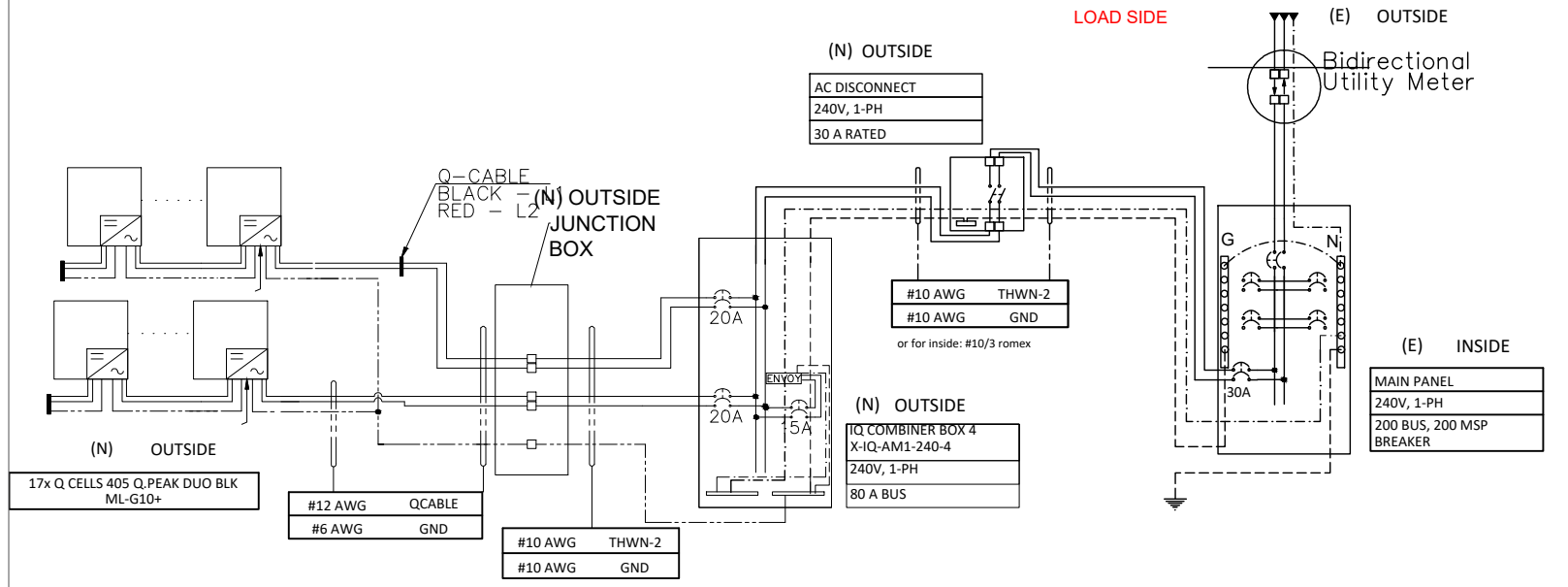
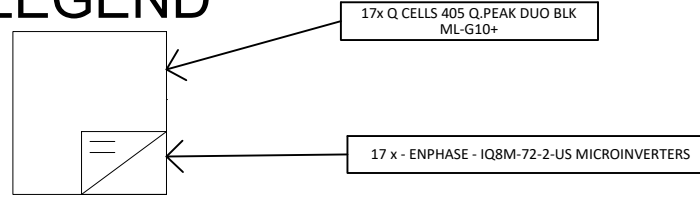
17 x - ENPHASE - IQ8M-72-2-US MICROINVERTERS

LOAD SIDE

SYSTEM CONFIGURATION

NUMBER OF STRINGS	2	
NUMBER OF MODULES	17	
MAX PV ON 1 STRING	11	
NUMBER OF INVERTERS	17	
MODULE MODEL	Q CELLS 405 Q.PEAK DUO BLK ML-G10+	
INVERTER MODEL	ENPHASE IQ8M-72-2-US	
MAX AC OUTPUT CURRENT	23.02	A
OPERATING AC VOLTAGE	240	V

LEGEND



3/3/2023
E001
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1 JM JM

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BRENDAN CASEY PROPERTY : 7 PHILADELPHIA AVE, TAKOMA PARK MD 20912

SOLAR PHOTOVOLTAIC SYSTEM: 6.885 KW

ELECTRICAL SYSTEM DETAILS

DESCRIPTION	EQUIPMENT RATING (A)	WIRE SIZE
Q CELLS 405		#12 AWG
FROM PV TO JUNCTION BOX	20	#12 AWG
FROM THE JUNCTION BOX TO IQ COMBINER BOX	20	#12 AWG
FROM COMBINER BOX TO AC DISCONNECT	30	#10 AWG
FROM AC DISCONNECT TO THE MAIN SERVICE PANEL	30	#10 AWG



DESCRIPTION	EQUIPMENT RATING (A)	WIRE SIZE

MICROINVERTERS SYSTEM	
17 x - ENPHASE - IQ8M-72-2-US MICROINVERTERS	

MODULE RATING SPECS			
Q CELLS 405			
Q.PEAK DUO BLK ML-G10+			
Pmax	405	Wp	
Vmp	37.39	V	
Imp	10.83	A	
Voc	45.34	V	
Isc	11.17	A	
SYSTEM CONFIGURATION			
NUMBER OF STRINGS	2		
NUMBER OF MODULES	17		
MAX PV ON 1 STRING	11		
NUMBER OF INVERTERS	17		
MODULE MODEL	Q CELLS 405 Q.PEAK DUO BLK ML-G10+		
INVERTER MODEL	ENPHASE IQ8M-72-2-US		
PV SERVICE DISCONNECT	A		
DC WATTS STC	6,885.00	W	
MAX AC OUTPUT CURRENT	23.02	A	
OPERATING AC VOLTAGE	240	V	

1ST INVERTER RATING SPECS			
ENPHASE IQ8M-72-2-US			
NOMINAL INPUT		A DC	
MAX SHORT CIRCUIT	15	A DC	
OUTPUT VOLTAGE	240	V AC	
I _{max}	1.354	A AC	
I _{max}	1.693	A (@125%)	
OUTDOOR	NEMA 6	ENCLOSURE	
UL 1741 / IEEE 1547			
2ND INVERTER RATING SPECS			

BILL OF MATERIAL											
REF. DES.	QTY.	MANUFACTURER	MODEL NUMBER	DESCRIPTION							
1	17	Q CELLS 405	Q.PEAK DUO BLK ML-G10+	SOLAR PANEL	405	W	1000	V (UL)			
4	1	SOLADEX	0799-58	ARRAY JUNCTION BOX	600	V					
4	17	ENPHASE	IQ8M-72-2-US	INVERTERS	0.325	kw		NEMA 6	240	V AC	
6	1	TBD	TBD	AC DISCONNECT	30	A		NON-FUSED			
5	1		120/240	V	unfinished	AMPS					
7	1	TBD	TBD	MAIN SERVICE PANEL	200	A		LOAD SIDE	240	V AC	
8	1			Enphase Envoy							

PV SYSTEM DC DISCONNECT			
OPERATING CURRENT	x		A DC
OPERATING VOLTAGE			V DC
MAX. SYSTEM VOLTAGE			V DC
SHORT CIRCUIT CURRENT	x		A DC

WIRING AND CONDUIT SCHEDULE

DC SCHEDULE																										
ITEM	DESCRIPTION	ID	QTY	Voc (v)	V _{mp} (V) STC	I _{mp} (A) STC	ISC (A) STC	Max Circuit current (A)	Nominal Power	Minimum Ampacity (A)	Adjusted Ampacity (A)	OCPD rating (A)	Multiple conductor Derate	Temperature Derate	IPSUN SELECTION	WIRE TYPE	EDG	WIRE TYPE	K	D (ft)	Min VD	Cmil	DV (%)	TEMP MAX	TOTAL NO OF CONDUCTORS	NO. OF CURRENT CARRYING CONDUCTORS
1	MODULE		17	45.34	37.39	10.83	11.17	13.9625	405	17.5	22.9		1	0.76	#12 AWG	PV		COPPER	12.9					52°C	2	2
Total nominal power									6885																	
AC SCHEDULE																										
ITEM	DESCRIPTION	ID	QTY	VOLTAGE (V)	Max Circuit current (A)	Power	Minimum Ampacity (A)	Adjusted Ampacity (A)	EQUIPMENT rating (A)	Multiple conductor Derate	Temperature Derate	IPSUN SELECTION	WIRE TYPE	EDG	WIRE TYPE	K	D (ft)	Min VD	Cmil	DV (%)	TEMP MAX	TOTAL NO OF CONDUCTORS	NO. OF CURRENT CARRYING CONDUCTORS			
4	FROM PV TO JUNCTION BOX	G	2	240	14.9	5525	18.7	24.2	20	0.8	0.96	#12 AWG	QCABLE	#6 AWG	COPPER						40°C	5	4			
5	FROM THE JUNCTION BOX TO IQ COMBINER BOX	H	2	240	14.9	5525	18.7	24.2	20	0.8	0.96	#12 AWG	THWN-2	#10 AWG	THWN-2	12.9	70	7.2	6530	1.72%	40°C	5	4			
6	FROM COMBINER BOX TO AC DISCONNECT	I	1	240	23.0	5525	28.8	28.8	30	1	1	#10 AWG	THWN-2	#10 AWG	THWN-2	12.9	10	7.2	10380	0.24%	40°C	4	2			
7	FROM AC DISCONNECT TO THE MAIN SERVICE PANEL	J	1	240	23.0	5525	28.8	28.8	30	1	1	#10 AWG	THWN-2	#10 AWG	THWN-2	12.9	10	7.2	10380	0.24%	40°C	4	2			
Total nominal power						5525																				

3/3/2023
E002

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1 J/M J/M

REVIEW DRAWING BY CHECKED BY

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OWNER:
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BRENDAN CASEY
7 PHILADELPHIA AVE, TAKOMA PARK MD 20912

SYSTEM LABELING DETAIL:

Alternate Power Source Placard shall be metallic or plastic with engraved or machine printed letters in a contrasting color to the plaque, include the location of meter, disconnects, inverter, the array and a footprint of the entire building and site. This plaque will be attached by pop rivets, screws or other approved fasteners. If exposed to sunlight, it shall be UV resistant. Photovoltaic DC conductors entering the building shall be installed in a raceway and shall be identified every 10 feet -- and within 1 foot of turns or bends and within 1 foot above and below penetrations of roof/ceiling assemblies, walls, or barriers labeled.

LABEL FONT REQUIREMENTS :

Red back ground. White lettering. ("WARNING"-3/8" LETTERS). All capital letters. Arial or similar font. Weather-resistant material UL 969. 110.21(B) Field-Applied Hazard Markings. Where caution, warning, or danger signs or labels are required by this Code, the labels shall meet the following requirements. (1)The marking shall adequately warn of the hazard using effective words and/or colors and/or symbols. Informational Note: ANSI Z535.4-2011, Product Safety Signs and Labels, provides guidelines for suitable font sizes, words, colors, symbols, and location requirements for labels. (2)The label shall be permanently affixed to the equipment or wiring method and shall not be hand written. Exception to (2): Portions of labels or markings that are variable, or that could be subject to changes, shall be permitted to be hand written and shall be legible. (3)The label shall be of sufficient durability to withstand the environment involved

<p>DC DISCONNECT WARNING</p> <p>PHOTOVOLTAIC SYSTEM DC DISCONNECT</p> <table border="1"> <tr> <td>OPERATING VOLTAGE</td> <td>V DC</td> </tr> <tr> <td>OPERATING CURRENT</td> <td>A DC</td> </tr> <tr> <td>MAX SYSTEM VOLTAGE</td> <td>V DC</td> </tr> <tr> <td>SHORT CIRCUIT CURRENT</td> <td>A DC</td> </tr> </table>	OPERATING VOLTAGE	V DC	OPERATING CURRENT	A DC	MAX SYSTEM VOLTAGE	V DC	SHORT CIRCUIT CURRENT	A DC	<p>AC DISCONNECT WARNING</p> <p>PHOTOVOLTAIC SYSTEM AC DISCONNECT</p> <table border="1"> <tr> <td>OPERATING VOLTAGE</td> <td>240</td> <td>V AC</td> </tr> <tr> <td>OPERATING CURRENT</td> <td>23</td> <td>Amps</td> </tr> </table>	OPERATING VOLTAGE	240	V AC	OPERATING CURRENT	23	Amps	<p>The face of the panels will need to be "equal to or less than 6 inches from the roof"</p> <p>THE MODULES FOLLOW THE SLOPE OF THE ROOF</p> <p>FOH</p>	<p>WARNING: PHOTOVOLTAIC POWER SOURCE</p> <p>INVERTER OUTPUT CONNECTION</p> <p>SOURCES: UTILITY GRID AND PV SOLAR ELECTRIC SYSTEM</p> <p>"Dual Power Supply" label NEC 690.64, 705.12(4) point of connection</p>
OPERATING VOLTAGE	V DC																
OPERATING CURRENT	A DC																
MAX SYSTEM VOLTAGE	V DC																
SHORT CIRCUIT CURRENT	A DC																
OPERATING VOLTAGE	240	V AC															
OPERATING CURRENT	23	Amps															
<p>WARNING: PHOTOVOLTAIC POWER SOURCE</p> <p>ELECTRIC SHOCK HAZARD</p> <p>DO NOT TOUCH TERMINALS; TERMINALS ON BOTH THE LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION</p> <p>PER NEC 690.14 (c-)(2), 690.17(4), 690.54</p> <p>Per NEC 690.53 operating voltage, operating current, max system voltage, short circuit current, and maximum output current of the charge controller if one is installed</p> <p>PLACE ON: Main Solar Disconnect</p> <p>PHOTOVOLTAIC SYSTEM DISCONNECT</p> <p>"PV System Disconnect" label NEC 690.14(c-)(2) Required Disconnect Markings</p>	<p>WARNING: PHOTOVOLTAIC POWER SOURCE</p> <p>ELECTRIC SHOCK HAZARD</p> <p>DO NOT TOUCH TERMINALS; TERMINALS ON BOTH THE LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION</p> <p>PER NEC 690.14 (c-)(2), 690.17(4), 690.54</p> <p>Per NEC 690.54 operating voltage, operating current</p> <p>PLACE ON: Inverter Breaker Panel if sum of breaker exceeds panel rating</p> <p>WARNING: PHOTOVOLTAIC POWER SOURCE</p> <p>INVERTER OUTPUT CONNECTION</p> <p>DO NOT RELOCATE THIS OVER CURRENT DEVICE</p> <p>Inverter output connection "label NEC 705.12(7) Point of Connection</p>	<p>WARNING: PHOTOVOLTAIC POWER SOURCE</p> <p>ELECTRIC SHOCK HAZARD</p> <p>DO NOT TOUCH TERMINALS; TERMINALS ON BOTH THE LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION</p> <p>"Do Not Touch terminals" labels NEC 690.17(4) Switch or Circuit Breaker</p> <p>THIS ELECTRIC SYSTEM IS ALSO SERVED BY A PHOTOVOLTAIC SYSTEM</p> <p>CAUTION: SOLAR ELECTRIC SYSTEM CONNECTED</p>															
<p>DC LABELS</p> <p>PLACE ON 1.DC Junction Boxes 2. DC Combiner Boxes</p> <p>WARNING: PHOTOVOLTAIC POWER SOURCE</p> <p>ELECTRIC SHOCK HAZARD</p> <p>THE DC CONDUCTORS OF THIS PHOTOVOLTAIC SYSTEM ARE UNGROUNDED AND MAY BE ENERGIZED</p> <p>"Electric shock hazard" label NEC 690.35(F) ungrounded PV system</p> <p>PLACE ON 1.DC Junction Boxes 2. DC Combiner Boxes</p>	<p>CAUTION SOLAR CIRCUIT</p> <p>PLACE ON: All DC Source Markings and System Output Conductor Raceways</p>	<p>OTHERS</p> <p>PLACE ON: Next to Inverter Interconnection Breaker, Load center, & Service Panel</p> <p>PV SOLAR BREAKER</p> <p>DO NOT RELOCATE THIS OVER CURRENT DEVICE</p>	<p>PLACE ON: inverter</p> <p>PHOTOVOLTAIC SYSTEM EQUIPPED WITH RAPID SHUTDOWN</p>	<p>PLACE ON: Next GFI Reset</p> <p>WARNING: PHOTOVOLTAIC POWER SOURCE</p> <p>ELECTRIC SHOCK HAZARD</p> <p>IF GROUND FAULT IS INDICATED, ALL NORMALLY GROUNDED CONDUCTORS MAY BE UNGROUNDED AND ENERGIZED</p>													

SYSTEM LABELING DETAILS



3/3/2023
E003

DATE	SHEET	PAGE
1	JM	JM
REVIEW	DRAWING BY	CHECKED BY

INSTALLER:
IPSUN POWER, INC DBA IPSUN SOLAR
2817 Dorr Ave Suite D
Fairfax, VA 22031
PHONE: +1 (866) 484-7786
EMAIL: support@ipsunsolar.com

OWNER:
IP210230201MD
BRENDAN CASEY
7 PHILADELPHIA AVE, TAKOMA PARK MD 20912

STRING LAYOUT AS-BUILT

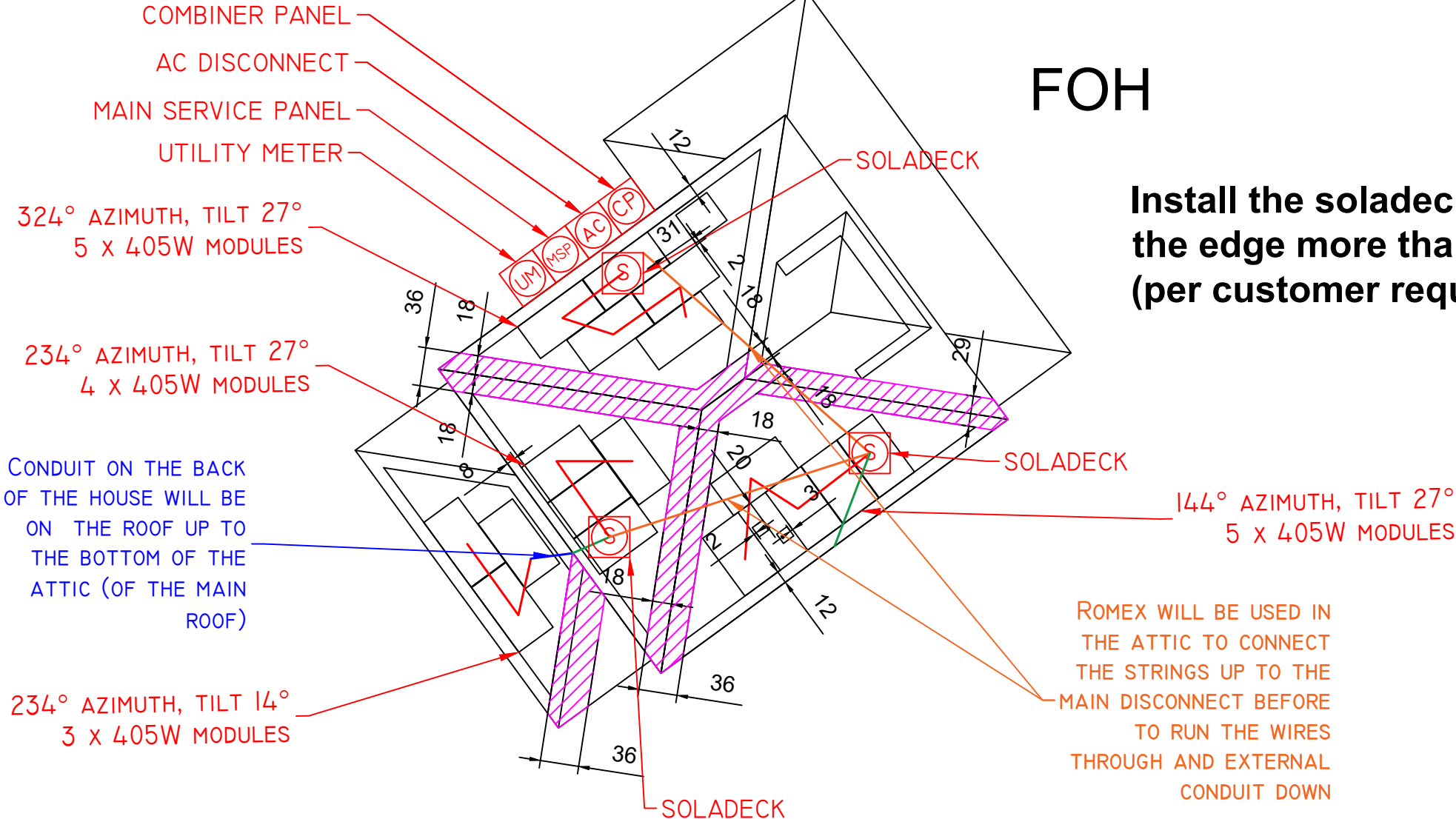
1.5FT SETBACK FROM THE RIDGE + 3FT FROM THE BOTTOM TO THE TOP OF THE ROOF (1SIDE)

THE MODULES FOLLOW THE SLOPE OF THE ROOF

FOH

LEGEND:

- : string
- △ : (fe)male
- : flex
- : romex
- : emt



3/3/2023
CREW1

REVIEW	DATE	SHEET	PAGE
1	JM	JM	JM

INSTALLER:
IP SUN POWER, INC DBA IP SUN SOLAR
2817 Dorr Ave Suite D
Fairfax, VA 22031
PHONE: +1 (866) 484-7786
EMAIL: support@ipsunsolar.com

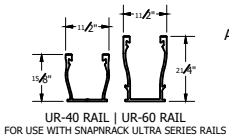
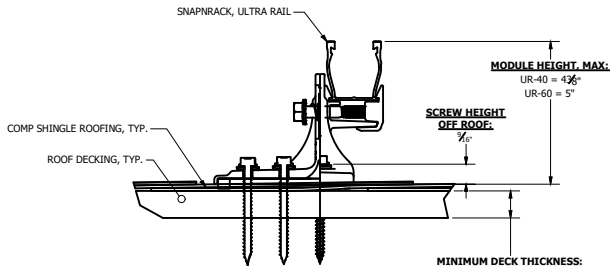
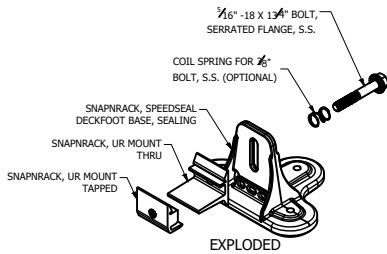
OWNER:
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BRENDAN CASEY
7 PHILADELPHIA AVE, TAKOMA PARK MD 20912

SNAPNRACK

SNAPNRACK UR SPEEDSEAL DECKFOOT FOR COMPOSTION ROOF MOUNTING ONTO WOOD DECKING

REFER TO SNAPNRACK ENGINEERING CHARTS FOR APPLICABLE RAIL SPANS. "BIN" NUMBER ON CHART SHOULD MATCH "BIN" NUMBER ON THIS DRAWING

(X4) #14 FULLY THREADED WOOD SCREWS, S.S. MUST EMBED FULLY INTO WOOD DECK



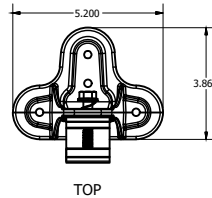
THE MODULES FOLLOW THE SLOPE OF THE ROOF

The face of the panels will need to be "equal to or less than 6 inches from the roof"

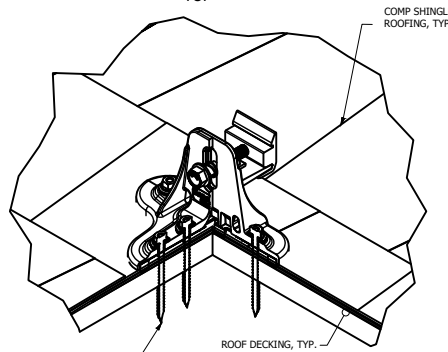
REFER TO SNAPNRACK INSTALLATION MANUAL FOR 5/16" HARDWARE TORQUE SPECIFICATIONS

RAIL CAN MOUNT ON EITHER SIDE OF SPEEDSEAL DECKFOOT. SPEEDSEAL DECKFOOT CAN MOUNT UP, DOWN, OR ACROSS THE SLOPE OF THE ROOF

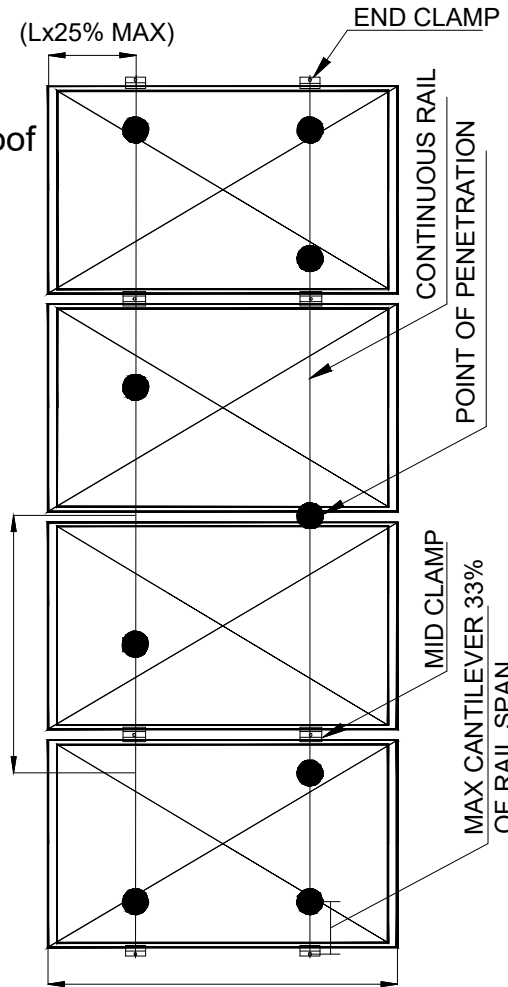
FOR ADDITIONAL LEVELING DETAILS, REFER TO SNAPNRACK DETAIL DRAWING "SNR-DC-00447 ULTRA RAIL, COMPONENT DETAIL, ULTRA RAIL LEVELING SPACER"



TOP

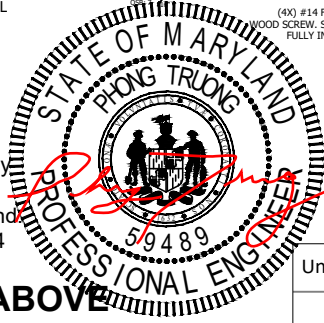


INSTALLATION OVERVIEW



ATTACHMENT DETAILS

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. 59489 Expiration Date: 06/05/2024



MODULE SURFACE 4" ABOVE AND 4' BELOW ROOF SURFACE

SYSTEME WEIGHT	2.0	PSF
----------------	-----	-----

Unstaggered attachment @	48	inches
Max Cantilever	16	inches
Max distance of rails from the frame	18	inches
Rafter span	16	inches

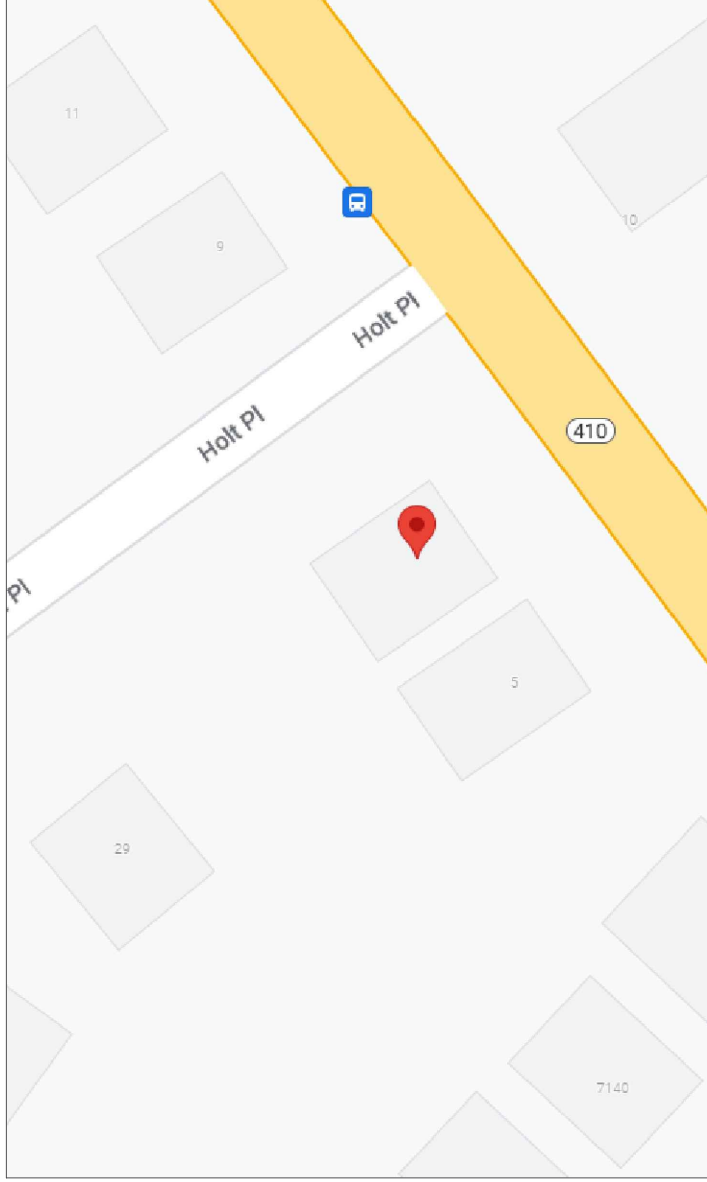
ROOF	
ROOF ATTACHMENT	FLUSH
ROOF TYPE	ASPHALT SHINGLES
RAFTER SIZE	2x6 @ 16"
ROOF AREA	1890 sq.ft.
ARRAY AREA	359 sq.ft.
PV % AREA	19%
LAG EMBEDMENT	2.5 inches



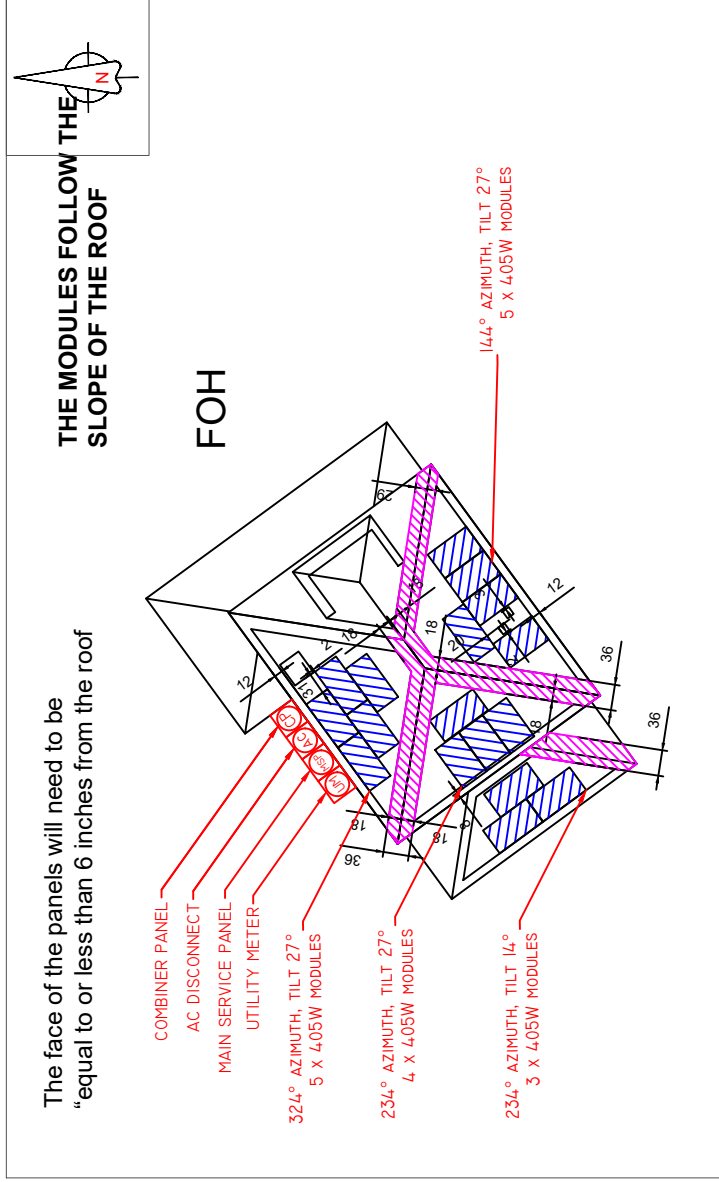
3/3/2023	DATE	3/3/2023
1	SHEET	1
JM	DRAWING BY	JM
JM	CHECKED BY	JM
S001	PAGE	1

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PROPERTY LAYOUT



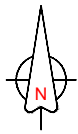
ROOF MAP

OWNER:
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1	JM	3/3/2023
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CHECKED BY	JM	PAGE
		Z001





ROOF SIZE		
RAFTER LENGTH	15.5	ft
PITCH	27	°
RUN	13.8	ft
TOTAL WIDTH	27.6	ft

WEATHER	
SNOW	30psf
RISK CATEGORY	II
WIND EXPOSURE CATEGORY	B
WIND SPEED	115MPH

ROOF		
ROOF ATTACHMENT	FLUSH	
ROOF TYPE	ASPHALT SHINGLES	
RAFTER SIZE	2x6 @ 16"	
ROOF AREA	1890	sq. ft.
ARRAY AREA	359	sq. ft.
PV % AREA	19%	
LAG EMBEDMENT	2.5	inches

PV LAYOUT

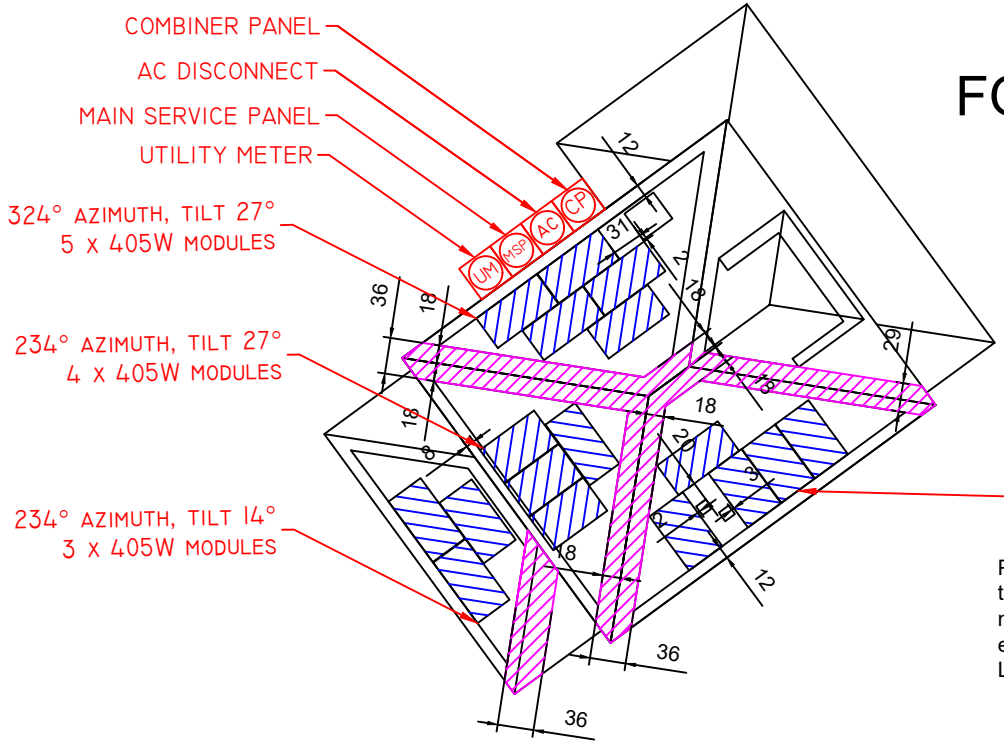
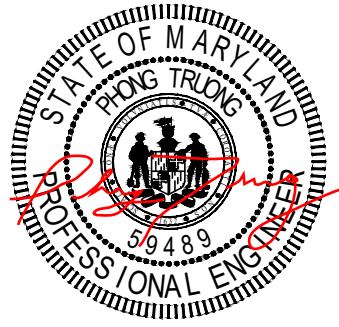
1.5FT SETBACK FROM THE RIDGE + 3FT FROM THE BOTTOM TO THE TOP OF THE ROOF (1SIDE)

SCALE: $\frac{1}{16}'' = 1'-0''$

The face of the panels will need to be "equal to or less than 6 inches from the roof"

THE MODULES FOLLOW THE SLOPE OF THE ROOF

FOH

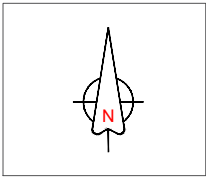


144° AZIMUTH, TILT 27°
5 x 4.05W MODULES

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. 59489 Expiration Date: 06/05/2024

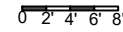
IPSUN SOLAR

OWNER: IP20230201MD BRENDAN CASEY 7 PHILADELPHIA AVE, TAKOMA PARK MD 20912	INSTALLER: IPSUN POWER, INC DBA IPSUN SOLAR 2817 Dorr Ave Suite D Fairfax, VA 22031 PHONE: +1 (866) 484-7786 EMAIL: support@ipsunsolar.com	REVIEW BY JIM	DRAWING BY JIM	CHECKED BY JIM	DATE 3/3/2023	SHEET 2002	PAGE 1
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THE MAXIMUM CAPACITY OF MODULES ON 1 STRING	
ENPHASE	
ENPHASE IQ8M	
11 MODULES	

SCALE: $\frac{1}{16}'' = 1'-0''$



STRING LAYOUT

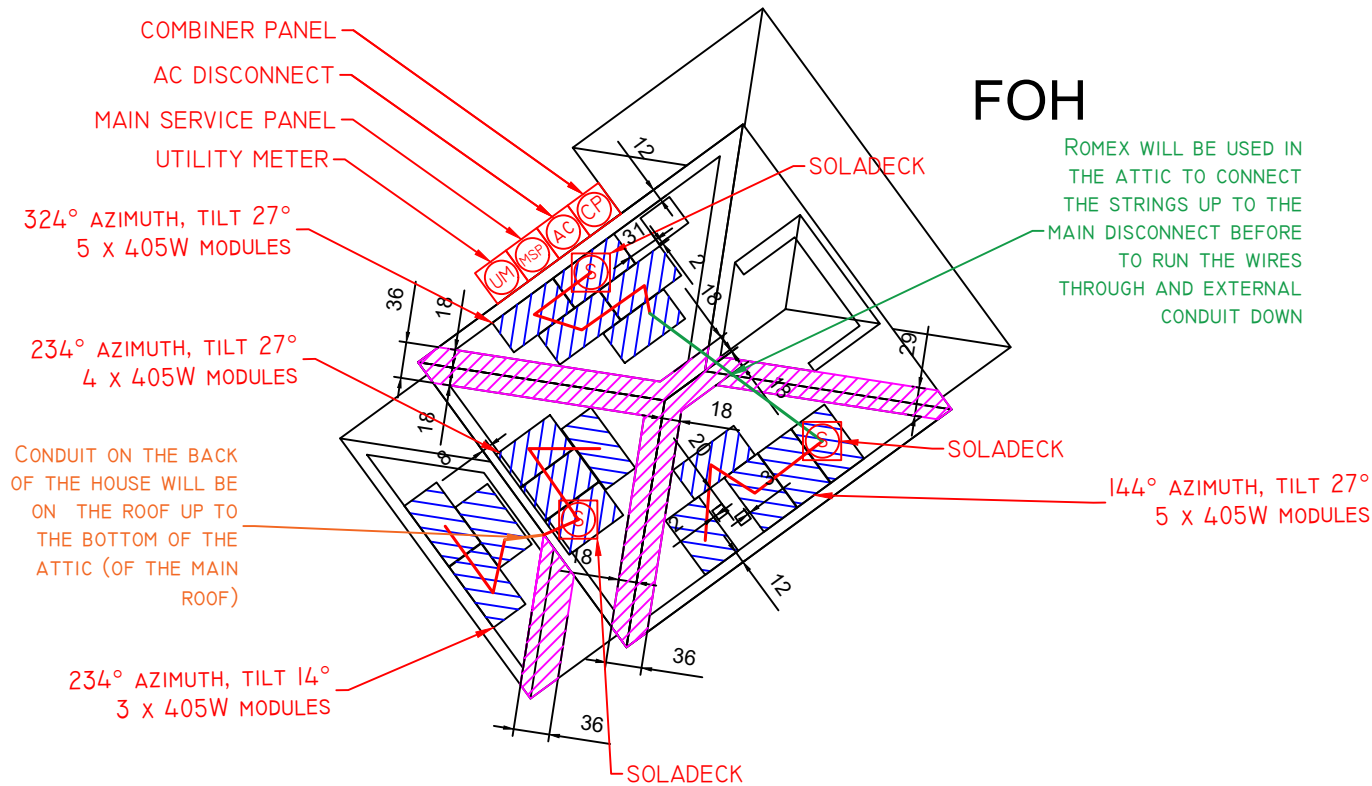
The face of the panels will need to be "equal to or less than 6 inches from the roof"

THE MODULES FOLLOW THE SLOPE OF THE ROOF

LEGEND:
— : string

FOH

ROMEX WILL BE USED IN THE ATTIC TO CONNECT THE STRINGS UP TO THE MAIN DISCONNECT BEFORE TO RUN THE WIRES THROUGH AN EXTERNAL CONDUIT DOWN

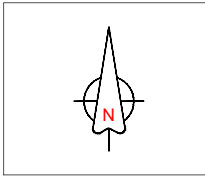


3/3/2023
Z003

REVIEW	DATE	SHEET	PAGE
1	JM	JM	JM

INSTALLER:
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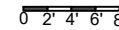
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BRENDAN CASEY
7 PHILADELPHIA AVE, TAKOMA PARK MD 20912



ATTACHMENT LAYOUT

DETAILS ON S001

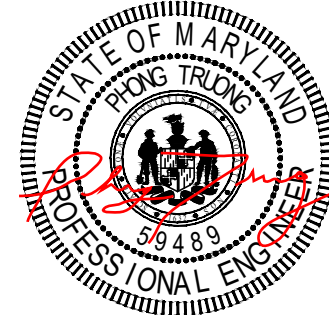
SCALE: $\frac{1}{16}''=1'-0''$



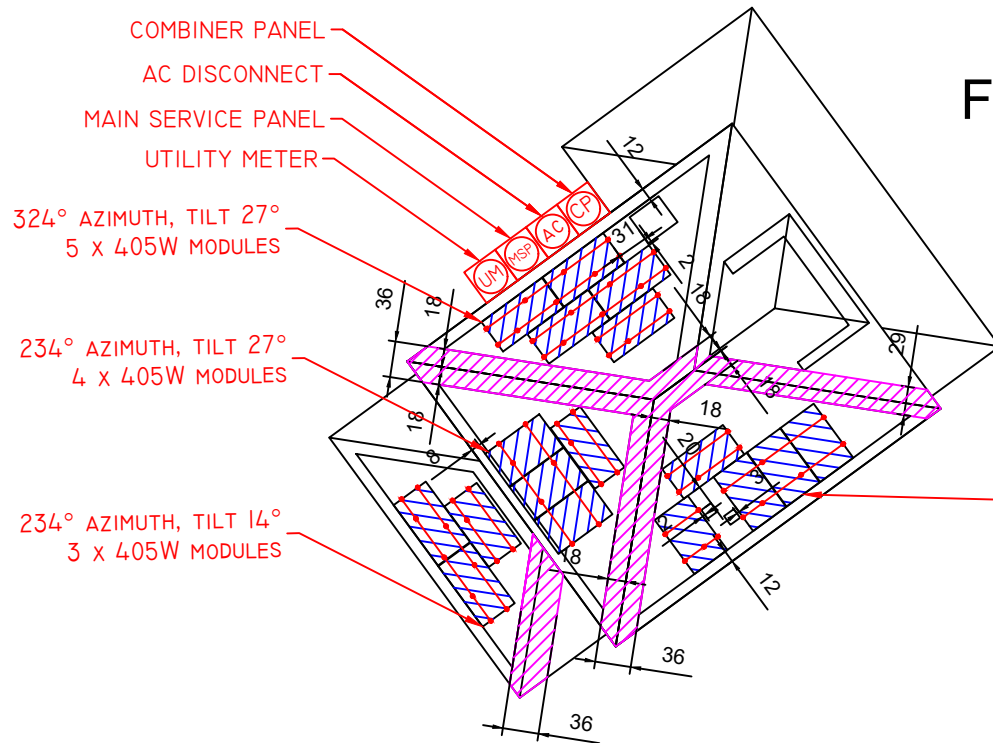
The face of the panels will need to be
"equal to or less than 6 inches from the roof

THE MODULES FOLLOW THE
SLOPE OF THE ROOF

FOH



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. 59489 Expiration Date: 06/05/2024



REVIEW	DATE	SHEET	PAGE
1	3/3/2023	JM	Z004
DRAWING BY		JM	
CHECKED BY		JM	

INSTALLER:
IPSUN POWER, INC. DBA IPSUN SOLAR
2817 Dott Ave Suite D
Fairfax, VA 22031
PHONE: +1 (866) 484-7786
EMAIL: support@ipsunsolar.com

OWNER:
IP20230201MD
BRENDAN CASEY
7 PHILADELPHIA AVE, TAKOMA PARK MD 20912

CUSTOMER LAYOUT APPROVAL

Final Production Estimate: 6229kWh

This is your final solar production estimate. Please compare this number to your proposal and present any questions to your sales representative.

SELLER INFO	
NAME	Josh Butler
PHONE	703 826 4786
EMAIL	josh.butler@ipsunsolar.com



3/3/2023
G003

REVIEW	DATE	SHEET	PAGE
1	JM	JM	

EMT CONDUIT

EMT CONDUIT

Install the soladeck closer to the edge more than higher (per customer request)

SOLAR BREAKER

COMBINER BOX

AC NON-FUSED DISCONNECT

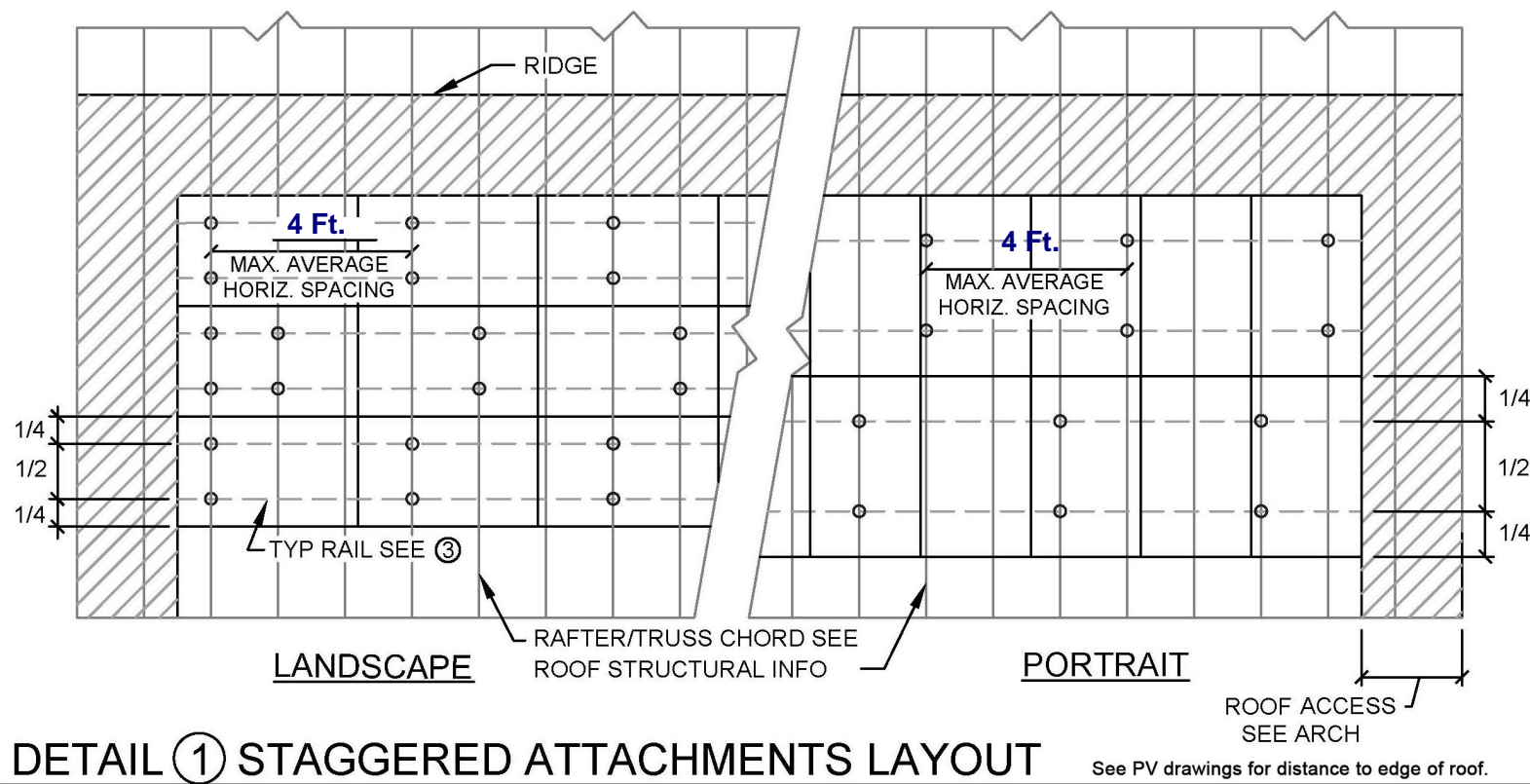
EMT CONDUIT

3/4" CONDUIT INSTALLED BY THE CUSTOMER BEFORE THE INSTALL AND LEAVE THE DRYWALL OPEN ON BOTH END (NEAR OF THE EDGE) TO ALLOW THE PUNCH IN.

Month	Energy Production [kWh]
Jan	243
Feb	323
Mar	523
Apr	690
May	678
Jun	789
Jul	778
Aug	707
Sep	550
Oct	471
Nov	255
Dec	222

OWNER:
IP20230201MD
BRENDAN CASEY
7 PHILADELPHIA AVE., TAKOMA PARK MD 20912

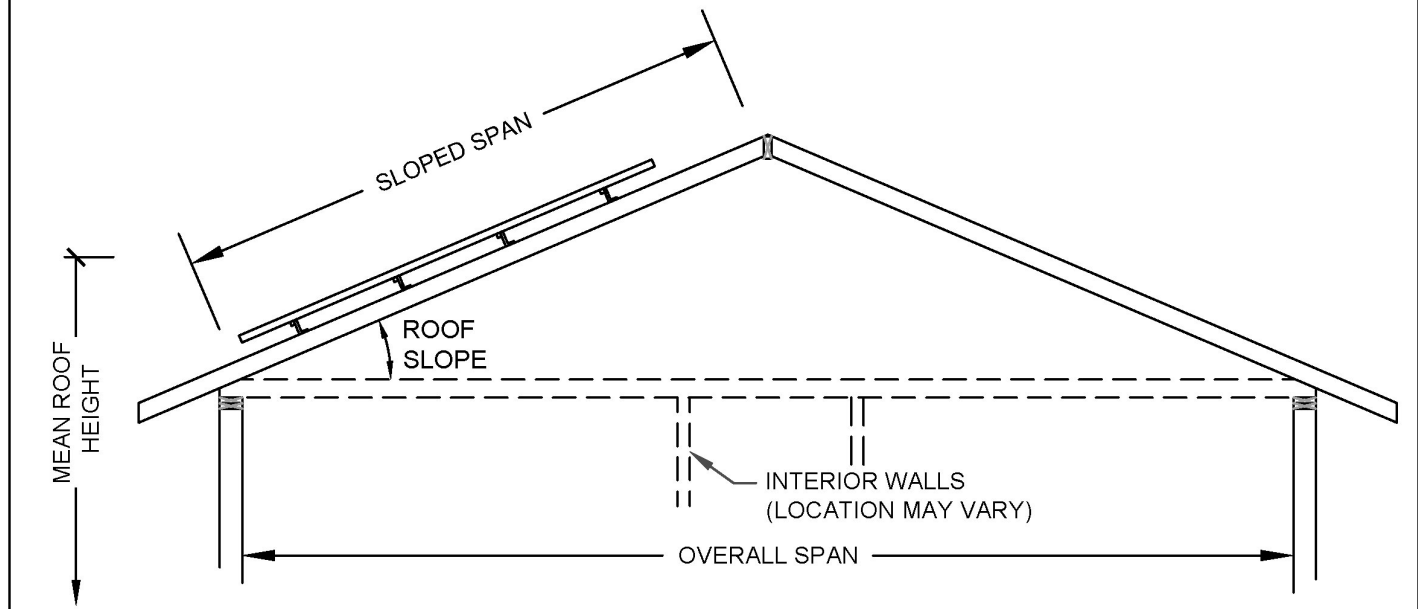
INSTALLER:
IPSUN POWER, INC DBA IPSUN SOLAR
2817 Dorr Ave Suite D
Fairfax, VA 22031
PHONE: +1 (866) 484-7786
EMAIL: support@ipsunsolar.com



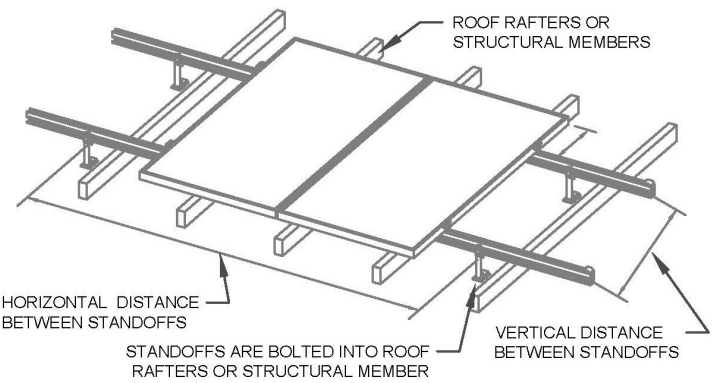
DETAIL ① STAGGERED ATTACHMENTS LAYOUT

See PV drawings for distance to edge of roof.

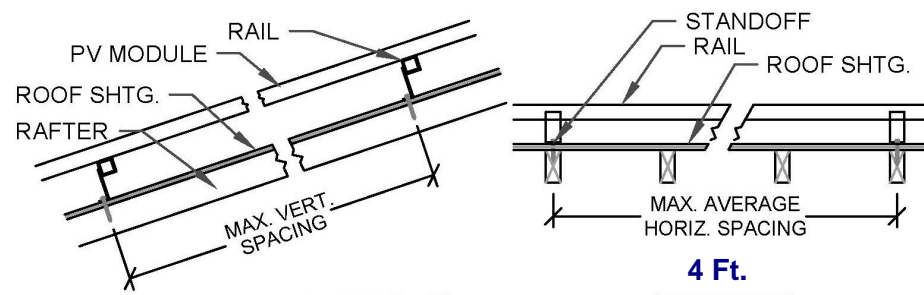
1. Installers to verify rafter size, spacing and sloped spans, and notify the E.O.R of any discrepancies before proceeding.
2. Any rotted or damaged rafters shall be replaced prior to proceeding.
3. As a precaution, old or wet snow should be removed from the roof, if the snow builds up to 18" or more.



DETAIL ② ROOF TYPE - SINGLE SPAN RAFTERS

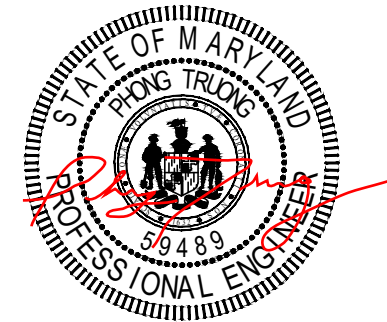


TYPICAL 2-RAIL SYSTEM



DETAIL ③ FLUSHMOUNT

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. 59489 Expiration Date: 06/05/2024



④ STRUCTURAL INFORMATION

SRC Job Id:	38678
Ceiling Type:	1/2 gyp. Bd.
Collar Tie Space:	0
Coverage %:	19
Frame Size:	2x6@16
Ground Snow (psf):	30
Sloped Roof Snow Load (psf):	26.73
Lag Screw Diameter (in):	5/16
Lag Screw Embedment (in):	1.5
Overall Span (ft):	27
PV Orientation:	Both
PV Weight (psf):	2
Rafter Sloped Span (ft):	13.5
Rail System:	2Rail
Roofing Type:	Asphalt Shingles
Roof Mean Height (ft):	25
Roof Slope (degrees):	27
Roof Type:	SingleSpanRafters
Sloped Ceiling?:	Yes
Standoff Max. Horz. Space (ft):	4
Standoff Max. Vert. Space (ft):	3.083
Standoff Staggered?:	Yes
Wind Exposure:	C
Wind Speed (mph):	110

This sheet not to be used without permission from SOLAR-ROOF-CHECK.COM

Ipsun Power, Inc
9504 Poplar Leaf Court
Fairfax, VA 22031 USA

DESIGNER: SRC
DRAFTER: SRC

PROJECT NUMBER:
IP20230201MD

PROJECT NAME & ADDRESS: **Brendan Casey**
7 Philadelphia Avenue
Takoma Park, MD 20912

STRUCTURAL
DETAILS

SHEET:
S-1

DATE:
03-03-2023

Enphase IQ Combiner 4/4C

X-IQ-AM1-240-4
X-IQ-AM1-240-4C



The **Enphase IQ Combiner 4/4C** with Enphase IQ Gateway and integrated LTE-M1 cell modem (included only with IQ Combiner 4C) consolidates interconnection equipment into a single enclosure and streamlines IQ microinverters and storage installations by providing a consistent, pre-wired solution for residential applications. It offers up to four 2-pole input circuits and Eaton BR series busbar assembly.

Smart

- Includes IQ Gateway for communication and control
- Includes Enphase Mobile Connect cellular modem (CELLMODEM-M1-06-SP-05), included only with IQ Combiner 4C
- Includes solar shield to match Enphase IQ Battery aesthetics and deflect heat
- Flexible networking supports Wi-Fi, Ethernet, or cellular
- Optional AC receptacle available for PLC bridge
- Provides production metering and consumption monitoring

Simple

- Centered mounting brackets support single stud mounting
- Supports bottom, back and side conduit entry
- Up to four 2-pole branch circuits for 240 VAC plug-in breakers (not included)
- 80A total PV or storage branch circuits

Reliable

- Durable NRTL-certified NEMA type 3R enclosure
- Five-year limited warranty
- Two years labor reimbursement program coverage included for both the IQ Combiner SKU's
- UL listed



To learn more about Enphase offerings, visit enphase.com



Enphase IQ Combiner 4/4C

MODEL NUMBER

IQ Combiner 4 (X-IQ-AM1-240-4)	IQ Combiner 4 with Enphase IQ Gateway printed circuit board for integrated revenue grade PV production metering (ANSI C12.20 +/- 0.5%) and consumption monitoring (+/- 2.5%). Includes a silver solar shield to match the IQ Battery system and IQ System Controller 2 and to deflect heat.
IQ Combiner 4C (X-IQ-AM1-240-4C)	IQ Combiner 4C with Enphase IQ Gateway printed circuit board for integrated revenue grade PV production metering (ANSI C12.20 +/- 0.5%) and consumption monitoring (+/- 2.5%). Includes Enphase Mobile Connect cellular modem (CELLMODEM-M1-06-SP-05), a plug-and-play industrial-grade cell modem for systems up to 60 microinverters. (Available in the US, Canada, Mexico, Puerto Rico, and the US Virgin Islands, where there is adequate cellular service in the installation area.) Includes a silver solar shield to match the IQ Battery and IQ System Controller and to deflect heat.

ACCESSORIES AND REPLACEMENT PARTS (not included, order separately)

Ensemble Communications Kit COMMS-CELLMODEM-M1-06 CELLMODEM-M1-06-SP-05 CELLMODEM-M1-06-AT-05	- Includes COMMS-KIT-01 and CELLMODEM-M1-06-SP-05 with 5-year Sprint data plan for Ensemble sites - 4G based LTE-M1 cellular modem with 5-year Sprint data plan - 4G based LTE-M1 cellular modem with 5-year AT&T data plan
Circuit Breakers BRK-10A-2-240V BRK-15A-2-240V BRK-20A-2P-240V BRK-15A-2P-240V-B BRK-20A-2P-240V-B	Supports Eaton BR210, BR215, BR220, BR230, BR240, BR250, and BR260 circuit breakers. Circuit breaker, 2 pole, 10A, Eaton BR210 Circuit breaker, 2 pole, 15A, Eaton BR215 Circuit breaker, 2 pole, 20A, Eaton BR220 Circuit breaker, 2 pole, 15A, Eaton BR215B with hold down kit support Circuit breaker, 2 pole, 20A, Eaton BR220B with hold down kit support
EPLC-01	Power line carrier (communication bridge pair), quantity - one pair
XA-SOLARSHIELD-ES	Replacement solar shield for IQ Combiner 4/4C
XA-PLUG-120-3	Accessory receptacle for Power Line Carrier in IQ Combiner 4/4C (required for EPLC-01)
XA-ENV-PCBA-3	Replacement IQ Gateway printed circuit board (PCB) for Combiner 4/4C
X-IQ-NA-HD-125A	Hold down kit for Eaton circuit breaker with screws.

ELECTRICAL SPECIFICATIONS

Rating	Continuous duty
System voltage	120/240 VAC, 60 Hz
Eaton BR series busbar rating	125 A
Max. continuous current rating	65 A
Max. continuous current rating (input from PV/storage)	64 A
Max. fuse/circuit rating (output)	90 A
Branch circuits (solar and/or storage)	Up to four 2-pole Eaton BR series Distributed Generation (DG) breakers only (not included)
Max. total branch circuit breaker rating (input)	80A of distributed generation / 95A with IQ Gateway breaker included
Production metering CT	200 A solid core pre-installed and wired to IQ Gateway
Consumption monitoring CT (CT-200-SPLIT)	A pair of 200 A split core current transformers

MECHANICAL DATA

Dimensions (WxHxD)	37.5 x 49.5 x 16.8 cm (14.75" x 19.5" x 6.63"). Height is 21.06" (53.5 cm) with mounting brackets.
Weight	7.5 kg (16.5 lbs)
Ambient temperature range	-40° C to +46° C (-40° to 115° F)
Cooling	Natural convection, plus heat shield
Enclosure environmental rating	Outdoor, NRTL-certified, NEMA type 3R, polycarbonate construction
Wire sizes	<ul style="list-style-type: none"> • 20 A to 50 A breaker inputs: 14 to 4 AWG copper conductors • 60 A breaker branch input: 4 to 1/0 AWG copper conductors • Main lug combined output: 10 to 2/0 AWG copper conductors • Neutral and ground: 14 to 1/0 copper conductors Always follow local code requirements for conductor sizing.
Altitude	To 2000 meters (6,560 feet)

INTERNET CONNECTION OPTIONS

Integrated Wi-Fi	802.11b/g/n
Cellular	CELLMODEM-M1-06-SP-05, CELLMODEM-M1-06-AT-05 (4G based LTE-M1 cellular modem). Note that an Enphase Mobile Connect cellular modem is required for all Ensemble installations.
Ethernet	Optional, 802.3, Cat5E (or Cat 6) UTP Ethernet cable (not included)

COMPLIANCE

Compliance, IQ Combiner	UL 1741, CAN/CSA C22.2 No. 107.1, 47 CFR, Part 15, Class B, ICES 003 Production metering: ANSI C12.20 accuracy class 0.5 (PV production) Consumption metering: accuracy class 2.5
Compliance, IQ Gateway	UL 60601-1/CANCSA 22.2 No. 61010-1

To learn more about Enphase offerings, visit enphase.com

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IQ8 Series 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 in advanced 55nm technology with high speed digital logic and has super-fast 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 Enphase IQ Battery, Enphase 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 IQ8 Series Microinverters using the included Q-DCC-2 adapter cable with plug-n-play MC4 connectors.



IQ8 Series Microinverters are UL Listed as PV Rapid Shut Down Equipment and conform with various regulations, when installed according to manufacturer's instructions.

Easy to install

- Lightweight and compact with plug-n-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

- 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) requirements

IQ8 Series Microinverters

INPUT DATA (DC)		IQ8-60-2-US	IQ8PLUS-72-2-US	IQ8M-72-2-US	IQ8A-72-2-US	IQ8H-240-72-2-US	IQ8H-208-72-2-US ⁽¹⁾	
Commonly used module pairings ²	W	235 – 350	235 – 440	280 – 460	295 – 500	320 – 540+	295 – 500+	
Module compatibility		60-cell/120 half-cell		60-cell/120 half-cell and 72-cell/144 half-cell				
MPPT voltage range	V	27 – 37	29 – 45	33 – 45	36 – 45	38 – 45	38 – 45	
Operating range	V	25 – 48		25 – 58				
Min/max start voltage	V	30 / 48		30 / 58				
Max Input DC voltage	V	50		60				
Max DC current ³ (module Isc)	A					15		
Oversvoltage class DC port						II		
DC port backfeed current	mA					0		
PV array configuration		1x1 Ungrounded array; No additional DC side protection required; AC side protection requires max 20A per branch circuit						
OUTPUT DATA (AC)		IQ8-60-2-US	IQ8PLUS-72-2-US	IQ8M-72-2-US	IQ8A-72-2-US	IQ8H-240-72-2-US	IQ8H-208-72-2-US	
Peak output power	VA	245	300	330	366	384	366	
Max continuous output power	VA	240	290	325	349	380	380	
Nominal (L-L) voltage/range ⁴	V	240 / 211 – 264					208 / 183 – 250	
Max continuous output current	A	1.0	1.21	1.35	1.45	1.58	1.73	
Nominal frequency	Hz	60						
Extended frequency range	Hz	50 – 68						
Max units per 20 A (L-L) branch circuit ⁵		16	13	11	11	10	9	
Total harmonic distortion		<5%						
Oversvoltage 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	%	97.5	97.6	97.6	97.6	97.6	97.4	
CEC weighted efficiency	%	97	97	97	97.5	97	97	
Night-time power consumption	mW	60						
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 (HxWxD)		212 mm (8.3") x 175 mm (6.9") x 30.2 mm (1.2")						
Weight		1.08 kg (2.38 lbs)						
Cooling		Natural convection – no fans						
Approved for wet locations		Yes						
Acoustic noise at 1 m		<60 dBA						
Pollution degree		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, UL1741/IEEE1547, FCC Part 15 Class B, ICES-0003 Class B, CAN/CSA-C22.2 NO. 1071-01 This product is UL Listed as PV Rapid Shut Down Equipment and conforms with NEC 2014, NEC 2017, and NEC 2020 section 690.12 and C22.1-2018 Rule 64-218 Rapid Shutdown of PV Systems, for AC and DC conductors, when installed according to manufacturer's Instructions.						

(1) The IQ8H-208 variant will be operating in grid-tied mode only at 208V AC. (2) No enforced DC/AC ratio. See the compatibility calculator at <https://link.enphase.com/module-compatibility> (3) Maximum continuous input DC current is 10.6A (4) Nominal voltage range can be extended beyond nominal if required by the utility. (5) Limits may vary. Refer to local requirements to define the number of microinverters per branch in your area.

powered by
Q.ANTUM DUO Z

Q.PEAK DUO BLK ML-G10+

385-405

ENDURING HIGH
PERFORMANCE



BREAKING THE 20% EFFICIENCY BARRIER

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



THE MOST THOROUGH TESTING PROGRAMME IN THE INDUSTRY

Q CELLS 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.



INNOVATIVE ALL-WEATHER TECHNOLOGY

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



ENDURING HIGH PERFORMANCE

Long-term yield security with Anti LID Technology, Anti PID Technology¹, Hot-Spot Protect and Traceable Quality Tra.Q™.



EXTREME WEATHER RATING

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



A RELIABLE INVESTMENT

Inclusive 25-year product warranty and 25-year linear performance warranty².

¹ APT (ast) conditions according to IEC/TS 62804-1:2015, method A (-1500V, 96h)

² See data sheet on site for further information.



THE IDEAL SOLUTION FOR:



Roof-top arrays on
residential buildings

Engineered in Germany

Q CELLS

SNAPNRACK

SNAPNRACK UR SPEEDSEAL DECKFOOT FOR COMPOSTION ROOF MOUNTING ONTO WOOD DECKING

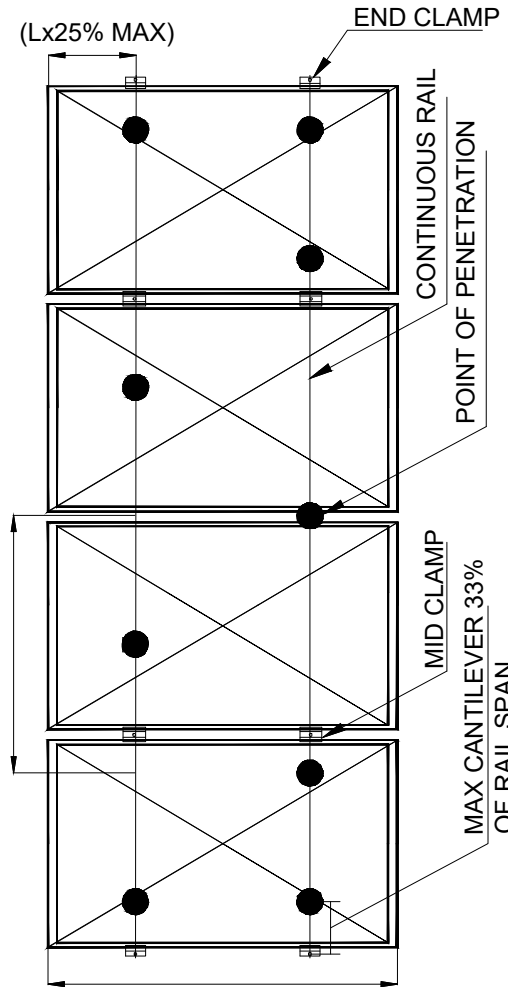
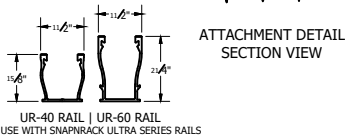
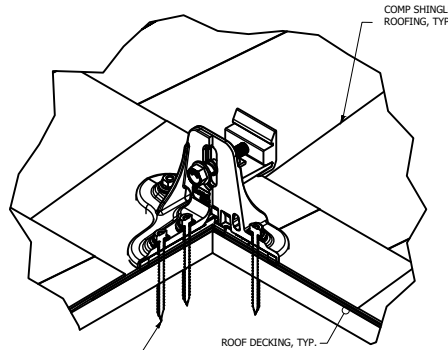
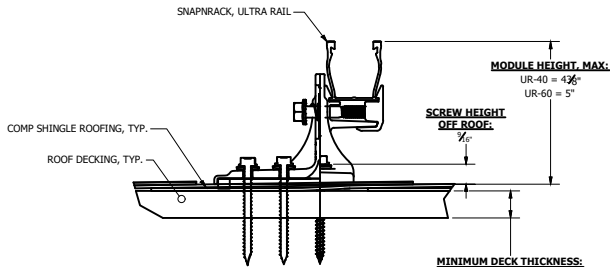
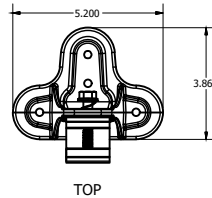
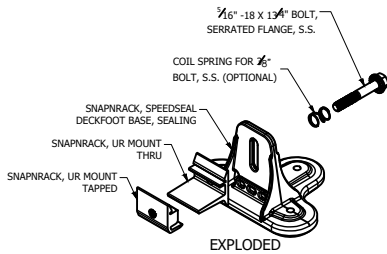
REFER TO SNAPNRACK ENGINEERING CHARTS FOR APPLICABLE RAIL SPANS. "BIN" NUMBER ON CHART SHOULD MATCH "BIN" NUMBER ON THIS DRAWING

(X4) #14 FULLY THREADED WOOD SCREWS, S.S. MUST EMBED FULLY INTO WOOD DECK

REFER TO SNAPNRACK INSTALLATION MANUAL FOR 5/16" HARDWARE TORQUE SPECIFICATIONS

RAIL CAN MOUNT ON EITHER SIDE OF SPEEDSEAL DECKFOOT. SPEEDSEAL DECKFOOT CAN MOUNT UP, DOWN, OR ACROSS THE SLOPE OF THE ROOF

FOR ADDITIONAL LEVELING DETAILS, REFER TO SNAPNRACK DETAIL DRAWING "SNR-DC-00447 ULTRA RAIL, COMPONENT DETAIL, ULTRA RAIL LEVELING SPACER"



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. 59489 Expiration Date: 06/05/2024

MODULE SURFACE 4" ABOVE AND 4' BELOW ROOF SURFACE

SYSTEME WEIGHT	2.0	PSF
----------------	-----	-----

Unstaggered attachment @	48	inches
Max Cantilever	16	inches
Max distance of rails from the frame	18	inches
Rafter span	16	inches

ROOF	
ROOF ATTACHMENT	FLUSH
ROOF TYPE	ASPHALT SHINGLES
RAFTER SIZE	2x6 @ 16"
ROOF AREA	1890 sq.ft.
ARRAY AREA	359 sq.ft.
PV % AREA	19%
LAG EMBEDMENT	2.5 inches

ATTACHMENT DETAILS



3/3/2023	DATE	3/3/2023
1	SHEET	1
JM	DRAWING BY	JM
JM	CHECKED BY	JM
S001	PAGE	1

INSTALLER:
 IPSUN POWER, INC. DBA IPSUN SOLAR
 2817 Dorr Ave Suite D
 Fairfax, VA 22031
 PHONE: +1 (866) 484-7786
 EMAIL: support@ipsunsolar.com

OWNER:
 IP20230201MD
 BRENDAN CASEY
 7 PHILADELPHIA AVE, TAKOMA PARK MD 20912

SpeedSeal™ DeckFoot Training Guide – Standard Composition

Overview

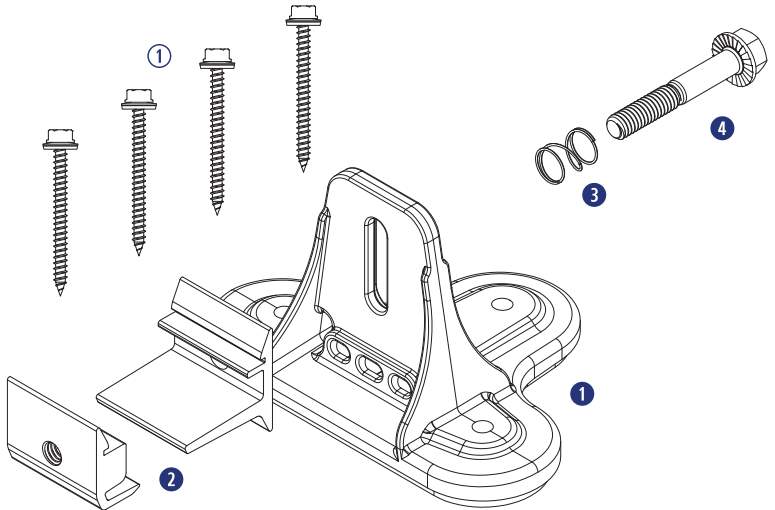
- This training guide outlines best practices for installing the SpeedSeal™ DeckFoot attachment with integrated chemical flashing on composition shingle roofs. This Guide is meant to supplement the Ultra Rail Installation Manual and provide detailed instructions on installation practices that produce high quality systems and maintain construction efficiency. The target audience of this guide is experienced rooftop solar installers with a strong understanding of solar construction best practices, and a basic understanding of the Ultra Rail mounting system.

Required Tools

- Caulking Gun
- Drill Driver or Impact Driver
- Hex Socket

Materials Included

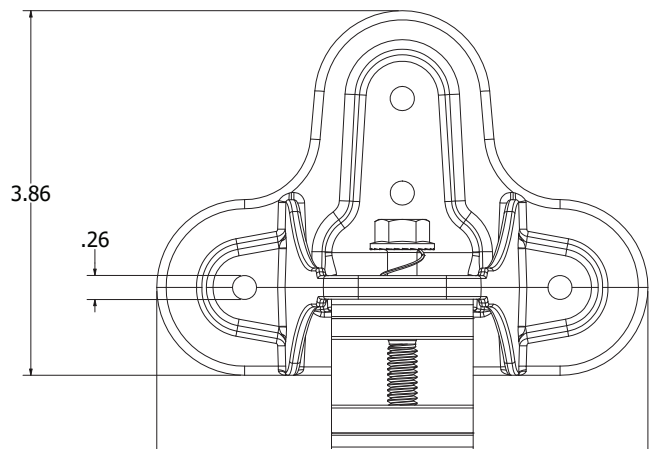
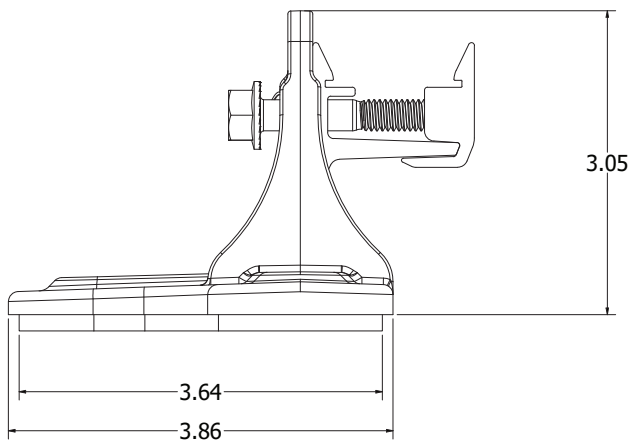
- ① (1) SnapNrack SpeedSeal™ DeckFoot
- ② (1) SnapNrack Ultra Rail Mount
- ③ (1) SnapNrack Ultra Mount Spring
- ④ (1) 5/16"-18 X 2-1/2" SS Flange Bolt



Other Materials Required

- ① (4) SnapNrack 1/4" ,or #14 Stainless Steel Lag, or Self-Drilling Screw with EPDM-Backed Washer
- ② Roof Sealant: SnapNrack recommends Chem Link sealants:
 - M-1® Universal Adhesive & Sealant
 - DuraLink® 35 Multi-Purpose Sealant
 - DuraLink® 50 Super Adhesion Sealant

Application Note:
Install on composition shingle roofs.



Dimensioned SpeedSeal™ DeckFoot

SpeedSeal™ DeckFoot Installation

- 1 Using roof attachment locations drawn during system layout, check positioning of SpeedSeal™ DeckFoot for proper alignment on one shingle course only.

Best Practice: SpeedSeal™ DeckFoot should never be installed across two shingle courses.

Install Note: Fill any seam in shingles within 4" of a deck screw with sealant prior to installing SpeedSeal™ DeckFoot.



- 2 Fill all four cavities on bottom of SpeedSeal™ DeckFoot created by sealant ring with roof sealant to ensure a water tight seal.

Installation Note: Do not prep out attachments with sealant. Add sealant as mounts are installed to avoid sealant drying before installation.



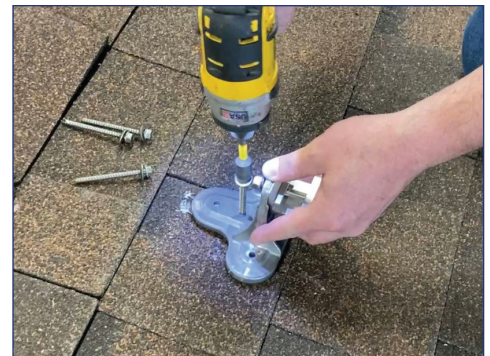
- 3 Fill any seam between composition shingles within 4" of deck screws with sealant before attaching the DeckFoot. Typically, there are seams every 36" along a course of composition shingle

Install Note: Another option is to attach the DeckFoot so the screws are more than 4" from the seam. This may require additional mounts



- 4 Insert first screw through SpeedSeal™ DeckFoot mounting hole and drive into roof.

Best Practice: Remove any dirt or debris from roof surface before SpeedSeal™ DeckFoot is installed.



SpeedSeal™ DeckFoot Installation

- 5** Tighten the screw until the rubber sealing washer is slightly squished out around the metal washer.

Best Practice: To avoid over tightening the screws a drill driver can be used with the clutch set to provide just enough torque to squish the rubber gasket.



- 6** Repeat Steps 3 and 4 for the remaining three screws.

Install Note: Roof sealant should seep out from all three sealant vents located underneath the Ultra Rail Mount, which ensures that a sufficient amount of roof sealant has been applied. If sealant is not seen from all three vents, remove SpeedSeal™ DeckFoot and add more sealant before reinstalling. A drill driver can be used with the clutch set to provide just enough torque to squish the rubber gasket.



- 7** **Optional rafter attachment step:** After locating and marking rafters on the roof use four (4) 1/4" x 2 3/4" SS screws and washers to attach the DeckFoot to rafters and decking by following steps 1-5 above. The two screws in the center of the DeckFoot must be embedded into the rafter.



STRUCTURAL CALCULATIONS FOR PV INSTALLATION

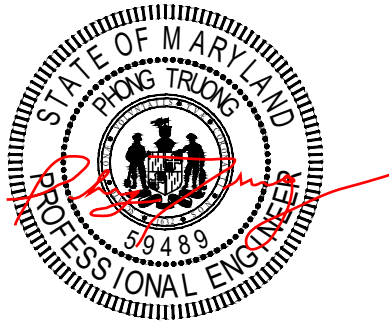
Prepared for



SOLAR-ROOF-CHECK

Ipsun Power, Inc
9504 Poplar Leaf Court
Fairfax VA, 22031
USA
866-484-7786

USER:	JulienMeyfroidt
COMPANY NAME:	Ipsun Power, Inc
SRC JOB ID:	38678
JOB REPORT DATE:	2023-03-03/Rev C
JOB NUMBER:	IP20230201MD
JOB NAME:	Brendan Casey
JOB ADDRESS:	7 Philadelphia Avenue Takoma Park, MD 20912



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. 59489 Expiration Date: 06/05/2024

Program Version: 2020-05-08:7

Contact: Support@Solar-Roof-Check.com

Phone: 844-783-5483

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

April 12, 2023

To: Brendan Casey
7 Philadelphia Ave, Takoma Park, MD 20912
brendancasey1+ipsun@gmail.com 9083997895

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: Shannon Killebrew permits@ipsunsolar.com 8664847786
Location of Project: 7 Philadelphia Ave, Takoma Park, MD 20912
Proposed Scope of Work: Installation of 6.88 kW roof mounted PV solar system.

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.

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 on 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
Shannon Killebrew
Key: 38bf2056e22713c0b979ea7ee94776a

Shannon Killebrew

04-11-2023

eSigned via SeamlessDocs.com
Takoma Park Planning Division
Key: 19fe64f123e96a3ff4576219059d5fbc

04-12-2023