MONTGOMERY COUNTY HISTORIC PRESERVATION COMMISSION
STAFF REPORT

Address:	101 Elm Ave., Takoma Park	**Meeting Date:**	12/20/2023
Resource:	Contributing Resource **Takoma Park Historic District**	**Report Date:**	12/13/2023
Applicant:	Jared Hughes Suntuity Solar, LLC, Agent	**Public Notice:**	12/6/2023
Review:	HAWP	**Tax Credit:**	no
Case Number:	1051115	**Staff:**	Dan Bruechert
Proposal:	Solar Panel Installation		

RECOMMENDATION

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

1) The drawings shall be revised to show the final height of the panels when they are installed on the racks. The height shall be no greater than 6".

PROPERTY DESCRIPTION

SIGNIFICANCE:	Contributing Resource to the Takoma Park Historic District
STYLE:	Craftsman
DATE:	c.1925

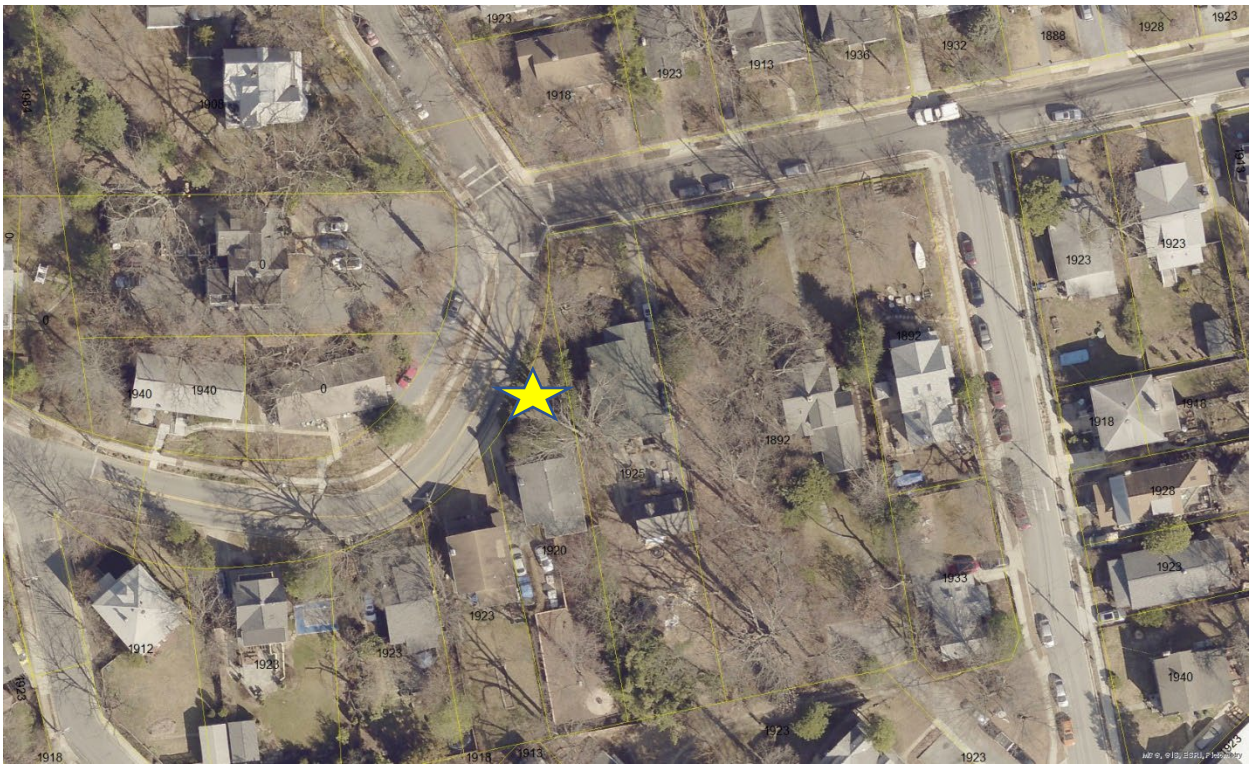

Figure 1: 101 Elm Ave. is located near the intersection of Pine Ave. and Elm Ave.

PROPOSAL

The applicant proposes to install 21 (twenty-one) roof-mounted solar 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 right-of-way which involve the replacement of or damage 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 at all 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;

(d) In the case of an application for work on an historic resource located within an historic district, the commission shall be lenient in its judgment of plans for structures of little historical or design significance or for plans involving new construction, unless such plans would seriously impair the historic or architectural value of surrounding historic resources or would impair the character of the historic district. (Ord. No. 9-4, § 1; Ord. No. 11-59.)

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 will be retained and preserved. The removal of distinctive materials or alteration of features, spaces and spatial relationships that characterize a property will 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).

A Historic Area Work Permit (HAWP) is required for all work referenced in this policy.

STAFF DISCUSSION

The subject property is a one-story Craftsman with a front gable roof with hip at the rear. The applicant proposes to install a total of 21 (twenty-one) solar panels on the roof, with seven on the east (left) roof slope, eight on the west (right) roof slope, and five on the non-historic rear addition (see below).

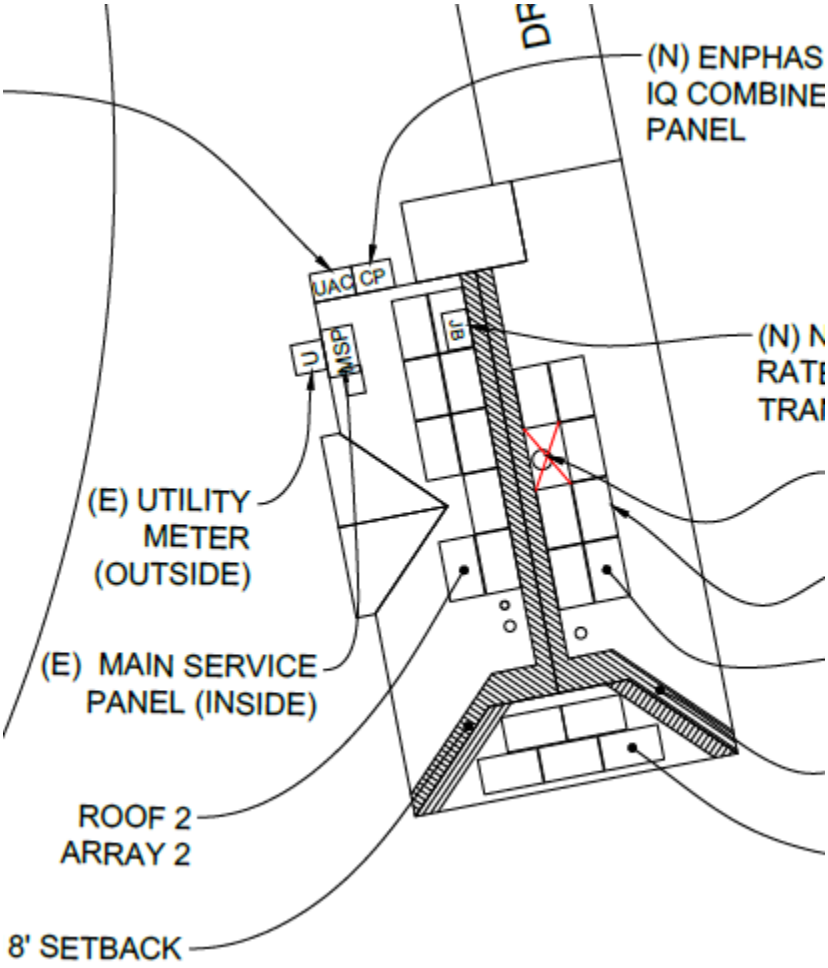

Figure 2: The proposed arrangement of the solar panels.

The HPC's adopted policy for roof-mounted solar panels directs Staff on how to evaluate proposed solar arrays. The first consideration is to consider the identified preferred locations which are, a free-standing array, detached accessory structure, rear elevation, and on non-historic additions. The subject property does not have enough open land to accommodate a free-standing array and the detached garage is too obscured by mature trees to receive adequate direct sunlight. There is a small rear hipped roof, and the applicant is utilizing it with five panels. Staff finds the applicant is utilizing the preferred locations to the greatest extent possible.

Second, Staff finds the roof neither architecturally nor materially significant. The front gable roof covered in three-tab shingles is common in the Takoma Park Historic District and, should the applicant wish, the roof could be returned to its historic configuration without impairing its integrity, per Standard 10.

An additional consideration is the number of Outstanding resources in the vicinity of the subject property and how their view will be impacted by the proposed solar installation. The map, shown below, identifies three Outstanding Resources adjacent to the subject property, including 99 Elm Ave., 111 Elm Ave., and 30 Pine Ave. While there are Outstanding Resources adjacent to the subject property, Staff does not find that the proposed array will have a substantial impact on the character of the surrounding block.

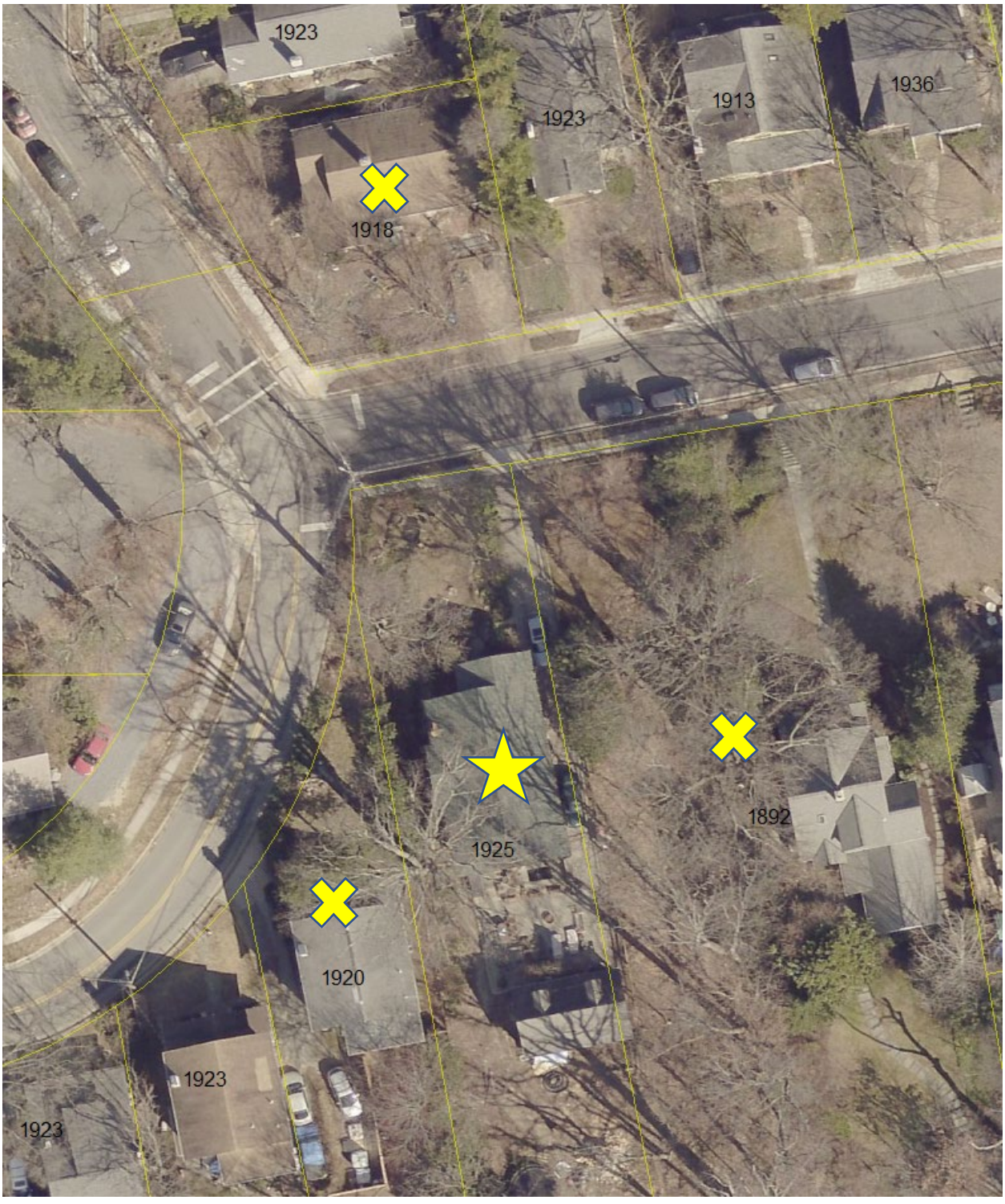

Figure 3: The subject property (shown with a star) and adjacent Outstanding resources (shown with a plus symbol).

STAFF RECOMMENDATION

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

1) The drawings shall be revised to show the final height of the panels when they are installed on the racks. The height shall be no greater than 6".

under the Criteria for Issuance in Chapter 24A-8(b)(1), (2), and (d), having found that the proposal 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 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 dan.bruechert@montgomeryplanning.org to schedule a follow-up site visit.

FOR STAFF ONLY:
HAWP# 1051115
DATE ASSIGNED_____

APPLICATION FOR HISTORIC AREA WORK PERMIT

HISTORIC PRESERVATION COMMISSION
301.563.3400

APPLICANT:

Name: Jared Hughes E-mail: jaredbhughes@gmail.com

Address: 101 Elm Ave. City: Takoma Park Zip: 20912

Daytime Phone: (301) 270-3012 Tax Account No.: 01065730

AGENT/CONTACT (if applicable):

Name: Suntuity Solar LLC E-mail: mdpermitting2@suntuity.com

Address: 4371 Nicole Dr. City: Lanham Zip: 20706

Daytime Phone: 732.353.1720 Contractor Registration No.: 116962

LOCATION OF BUILDING/PREMISE: MIHP # of Historic Property_____

Is the Property Located within an Historic District? ☑ Yes/District Name Montgomery Historic Commission
☐ 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: 101 Street: Elm Ave.

Town/City: Takoma Park Nearest Cross Street: Pine Ave.

Lot: 16 Block: 17 Subdivision: 0025 Parcel: _____

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.

Jesse Paxton 11/17/23

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
101 Elm Avenue, Takoma Park, Maryland 20912	4371 Nicole Dr. Lanham, MD 20706

Adjacent and confronting Property Owners mailing addresses

105 Elm Avenue, Takoma Park MD 20912 99 Elm Avenue, Takoma Park MD 20912	30 Pine Avenue, Takoma Park MD 20912 54 Elm Avenue, Takoma Park MD 20912
6716 Allegheny Avenue, Takoam Park MD 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:

Single Family Dwelling

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

Installation of roof mount solar pv system 21 modules

Work Item 1: Roof Mount Solar

Description of Current Condition:	Proposed Work:
Single Family Dwelling	Roof Mount Solar

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

MR & MRS JARED B HUGHES / JARED HUGHES

PHOTOVOLTAIC SYSTEM

101 ELM AVE

TAKOMA PARK, MD, 20912

PROPOSED SYSTEM SPECIFICATION	
SYSTEM SIZE DC	8.4 KWP
SYSTEM SIZE AC	300 VA PEAK POWER = 6.3 KWP
SYSTEM SIZE AC	290 VA MAX. CONT. POWER = 6.09 KWP
MODULES USED	(21) HYPERION HY-DH108P8 400B
INVERTER USED	(21) ENPHASE IQ8PLUS-72-2-US
BRANCH CIRCUIT	1 CIRCUIT OF 11 MODULES
	1 CIRCUIT OF 10 MODULES
RACKING	ECOFASTEN ROCKIT

ELECTRICAL SPECIFICATION	
SERVICE PANEL	200A MCB WITH 225A BUSBAR
INTERCONNECTION	PV BACKFEED BREAKER
PV OCPD	40A BREAKER

REFERENCE CODES	IBC 2018
ELECTRICAL CODE	NEC-2017
BUILDING USAGE	R - RESIDENTIAL
CONSTRUCTION	5-B UNPROTECTED

WIND EXPOSURE CATEGORY	B
WIND SPEED	115 MPH
SNOW LOAD	30 LB/SQ.FT.

TABLE OF CONTENT

SITE MAP

SCALE: NTS

VICINITY MAP

SCALE: NTS

Wyssling Consulting, PLLC
76 N. Meadowbrook Drive, Alpine UT
Maryland COA # 58509

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: 43466, EXPIRATION DATE: 4/11/2025.

Suntuity

2137 Route 35
Holmdel, NJ 07733
Tel:(732) 979-2400
Fax: (732) 979 -2401

PROJECT NAME & ADDRESS

MR & MRS JARED B HUGHES / JARED HUGHES
101 ELM AVE
TAKOMA PARK, MD, 20912
(Lat, Long: 38.973207, -77.008447)

Signature with Seal

REVISIONS	REV	DESCRIPTION	DATE	DRW BY	REV BY

DATE DRAWN	07-26-2023
DRAWN BY	FAISAL
REVIEWED BY	HARSH

SHEET NAME	COVER PAGE
SHEET NO.	A001

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

43466

Maryland PE License Number

Date 7/27/2023

Signature

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. 43466, expiration date:

STATE OF MARYLAND · SCOTT E. WYSSLING · No. 43466 · PROFESSIONAL ENGINEER

Wyssling Consulting, PLLC
76 N. Meadowbrook Drive, Alpine UT
Maryland COA # 58509

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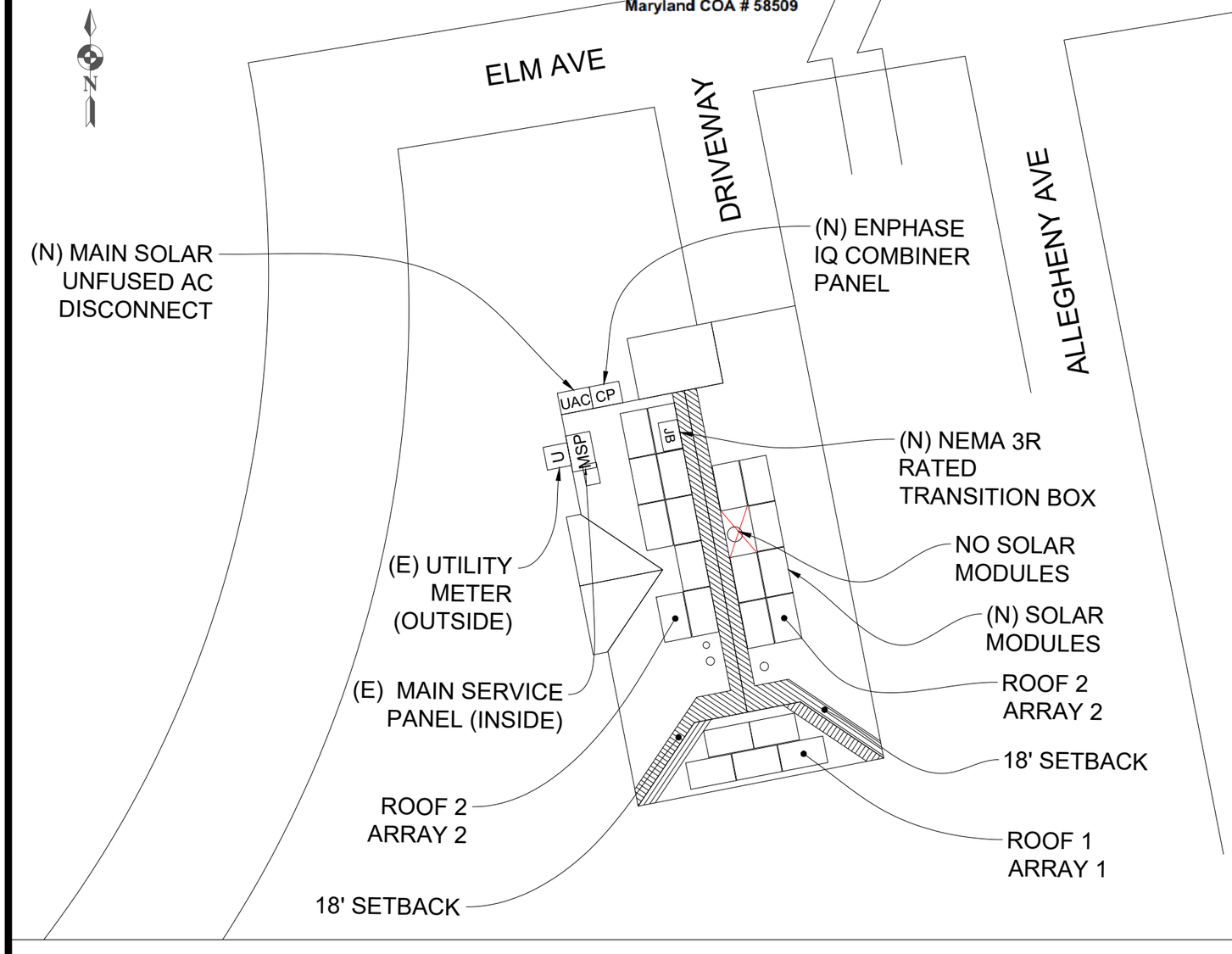


SITE PLAN

SCALE: NTS

PROPOSED SYSTEM SPECIFICATION	
SYSTEM SIZE DC	8.4 KWP
SYSTEM SIZE AC	300 VA PEAK POWER = 6.3 KWP
SYSTEM SIZE AC	290 VA MAX. CONT. POWER = 6.09 KWP
MODULES USED	(21) HYPERION HY-DH108P8 400B
INVERTER USED	(21) ENPHASE IQ8PLUS-72-2-US
BRANCH CIRCUIT	1 CIRCUIT OF 11 MODULES 1 CIRCUIT OF 10 MODULES
RACKING	ECOFASTEN ROCKIT + SMART SLIDE

ELECTRICAL SPECIFICATION	
SERVICE PANEL	200A MCB WITH 225A BUSBAR
INTERCONNECTION	PV BACKFEED BREAKER
PV OCPD	40A BREAKER

ROOF SPECIFICATION	
ROOF TYPE	COMPOSITE SHINGLE
ROOF CONDITION	GOOD
FRAMING	TRUSSES: 2"x 4" @ 24" O.C.
SHEATHING	WOODEN PLANKS

ARRAY SPECIFICATION			
ROOF NO.	TILT	AZIMUTH	QTY
1	27°	169°	5
2	27°	259°	9
3	27°	79°	7
TOTAL			21

ROOF COVERAGE AREA CALCULATION	
TOTAL AREA OF ROOF	1898.64 SQ. FT
TOTAL AREA OF ARRAY	441.4 SQ. FT
PERCENTAGE OF TOTAL ARRAY AREA OCCUPIED ON ROOF	23.25 %

NOTE : PROVIDING ARRAYS TAKE LESS THAN 33% OF TOTAL ROOF AREA, WHEN THE ARRAYS TAKE LESS THAN 33% WE CAN JUSTIFY 18" SETBACKS FROM RIDGE

SITE MAP

SCALE: NTS

Suntuity
2137 Route 35
Holmdel, NJ 07733
Tel:(732) 979-2400
Fax: (732) 979 -2401

PROJECT NAME & ADDRESS

MR & MRS JARED B HUGHES / JARED HUGHES

101 ELM AVE
TAKOMA PARK, MD, 20912
(Lat, Long: 38.973207, -77.008447)

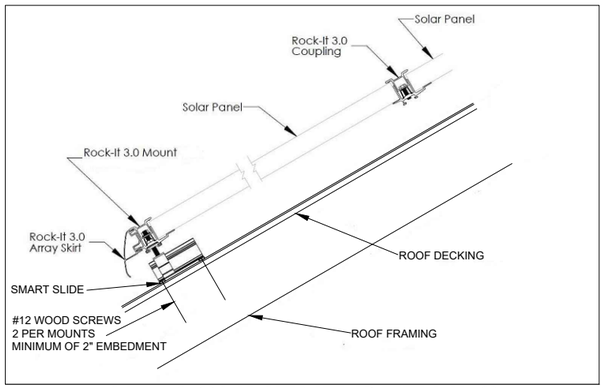
Signature with Seal

REVISIONS

REV	DESCRIPTION	DATE	DRW BY	REV BY

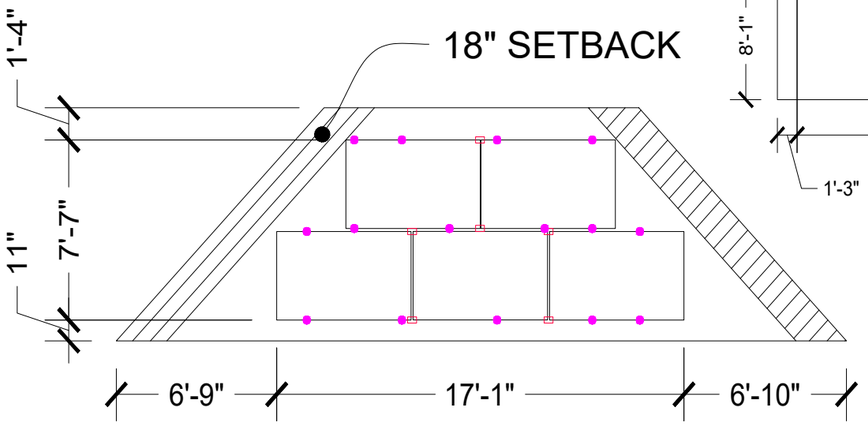
DATE DRAWN	07-26-2023
DRAWN BY	FAISAL
REVIEWED BY	HARSH

SHEET NAME	SITE PLAN
SHEET NO.	A002

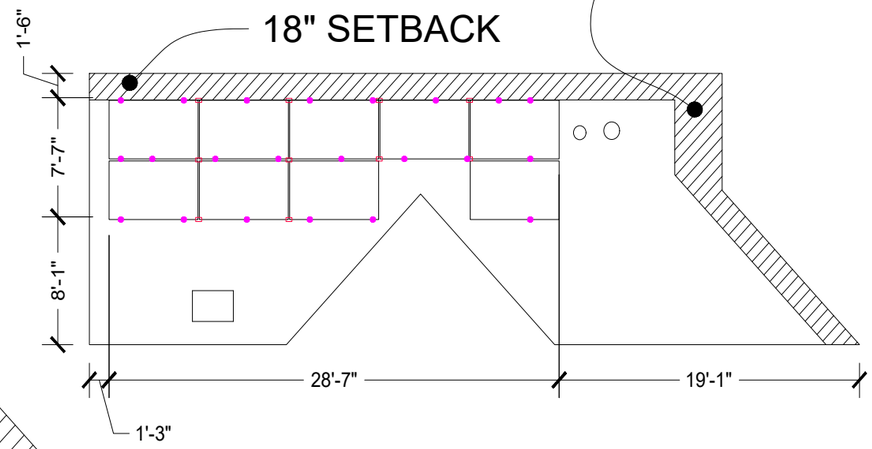


ATTACHMENT DETAILS

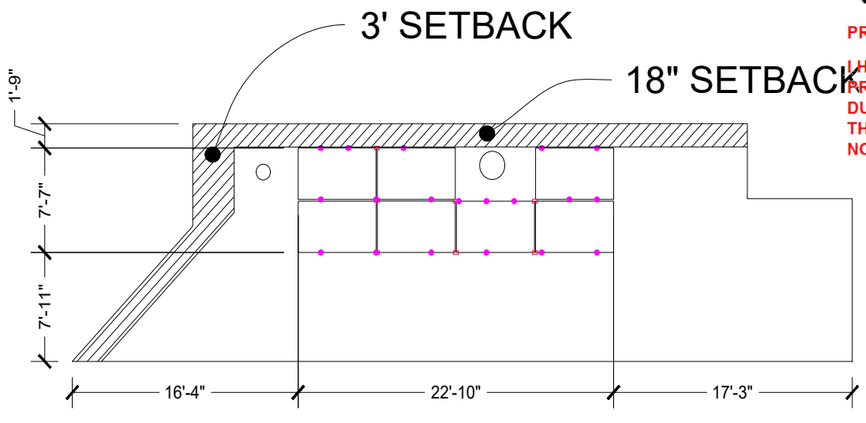
SCALE: NTS



ROOF - 1



ROOF - 2



ROOF - 3

ARRAY LAYOUT

SCALE: NTS

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

43466

Maryland PE License Number

Date 7/27/2023

Signature

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PROPOSED SYSTEM SPECIFICATION	
SYSTEM SIZE DC	8.4 KWP
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MODULES USED	(21) HYPERION HY-DH108P8 400B
INVERTER USED	(21) ENPHASE IQ8PLUS-72-2-US
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Professional Certification:

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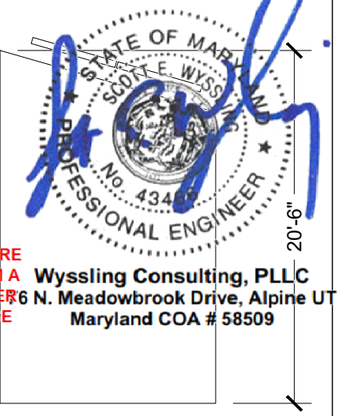


Wyssling Consulting, PLLC
176 N. Meadowbrook Drive, Alpine UT
Maryland COA # 58509

SIDE ELEVATION

SCALE: NTS

LEGEND

- VENT, ATTIC FAN (ROOF OBSTRUCTION)
- MOUNTS
- COUPLING
- ROOF SETBACK

Suntuity
2137 Route 35
Holmdel, NJ 07733
Tel:(732) 979-2400
Fax: (732) 979 -2401

PROJECT NAME & ADDRESS

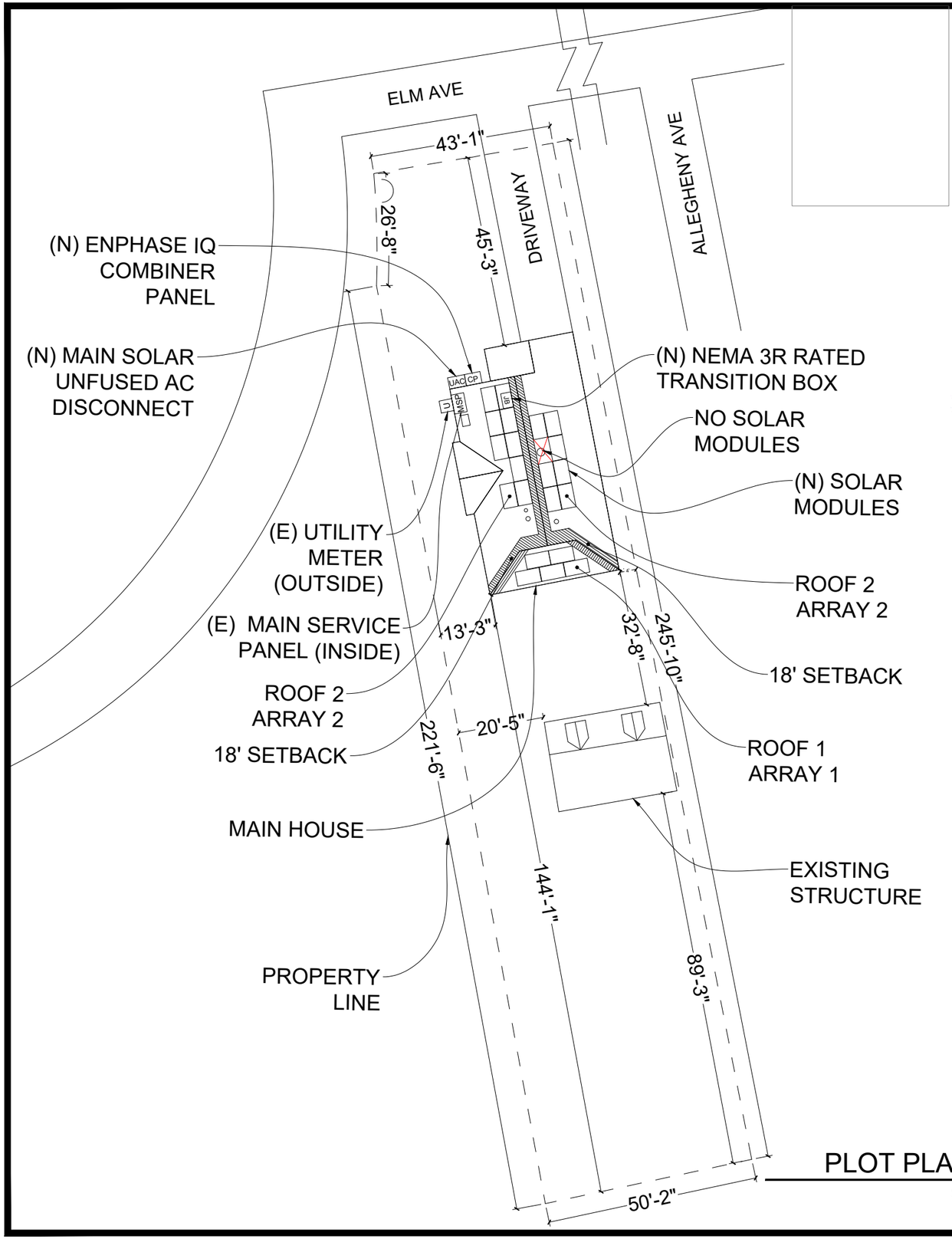
MR & MRS JARED B HUGHES / JARED HUGHES
101 ELM AVE
TAKOMA PARK, MD, 20912
(Lat, Long: 38.973207, -77.008447)

Signature with Seal

REVISIONS

REV	DESCRIPTION	DATE	DRW BY	REV BY

DATE DRAWN	07-26-2023
DRAWN BY	FAISAL
REVIEWED BY	HARSH
SHEET NAME	ARRAY LAYOUT
SHEET NO.	A003



PLOT PLAN

SCALE: 1"= 20'

N

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TOTAL			21

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

43466

Maryland PE License Number

Date 7/27/2023

Signature

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. 43466, expiration date:

STATE OF MARYLAND · SCOTT E. WYSSLING · No. 43466 · PROFESSIONAL ENGINEER

Wyssling Consulting, PLLC
76 N. Meadowbrook Drive, Alpine UT
Maryland COA # 58509

Suntuity
2137 Route 35
Holmdel, NJ 07733
Tel:(732) 979-2400
Fax: (732) 979 -2401

PROJECT NAME & ADDRESS

MR & MRS JARED B HUGHES / JARED HUGHES

101 ELM AVE
TAKOMA PARK, MD, 20912
(Lat, Long: 38.973207, -77.008447)

Signature with Seal

REVISIONS

REV	DESCRIPTION	DATE	DRW BY	REV BY

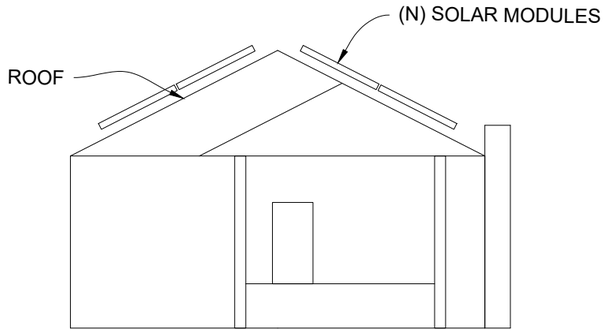
DATE DRAWN	07-26-2023
DRAWN BY	FAISAL
REVIEWED BY	HARSH
SHEET NAME	SITE PLAN
SHEET NO.	A004

PROPOSED SYSTEM SPECIFICATION	
SYSTEM SIZE DC	8.4 KWP
SYSTEM SIZE AC	300 VA PEAK POWER = 6.3 KWP
SYSTEM SIZE AC	290 VA MAX. CONT. POWER = 6.09 KWP
MODULES USED	(21) HYPERION HY-DH108P8 400B
INVERTER USED	(21) ENPHASE IQ8PLUS-72-2-US
BRANCH CIRCUIT	1 CIRCUIT OF 11 MODULES 1 CIRCUIT OF 10 MODULES
RACKING	ECOFASTEN ROCKIT + SMART SLIDE

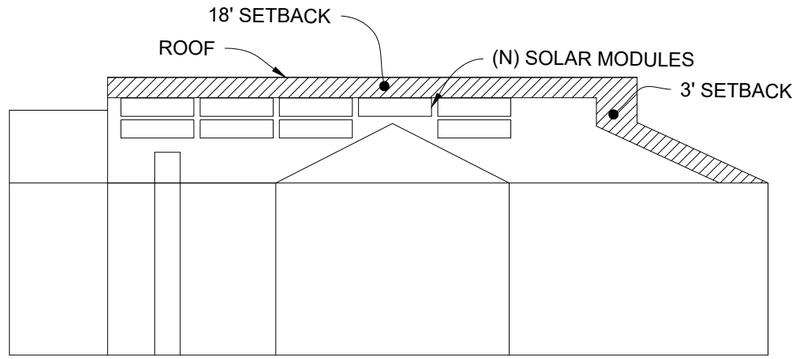
ELECTRICAL SPECIFICATION	
SERVICE PANEL	200A MCB WITH 225A BUSBAR
INTERCONNECTION	PV BACKFEED BREAKER
PV OCPD	40A BREAKER

ROOF SPECIFICATION	
ROOF TYPE	COMPOSITE SHINGLE
ROOF CONDITION	GOOD
FRAMING	TRUSSES: 2"x 4" @ 24" O.C.
SHEATHING	WOODEN PLANKS

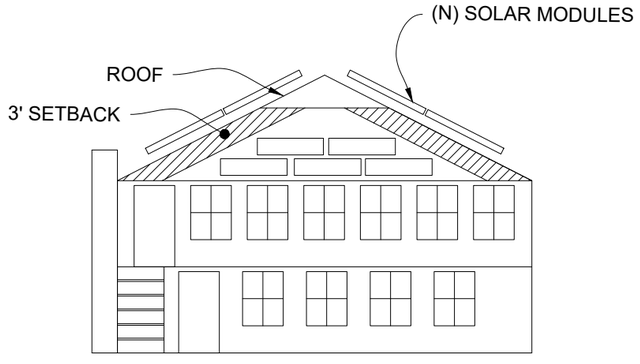
ARRAY SPECIFICATION			
ROOF NO.	TILT	AZIMUTH	QTY
1	27°	169°	5
2	27°	259°	9
3	27°	79°	7
TOTAL			21



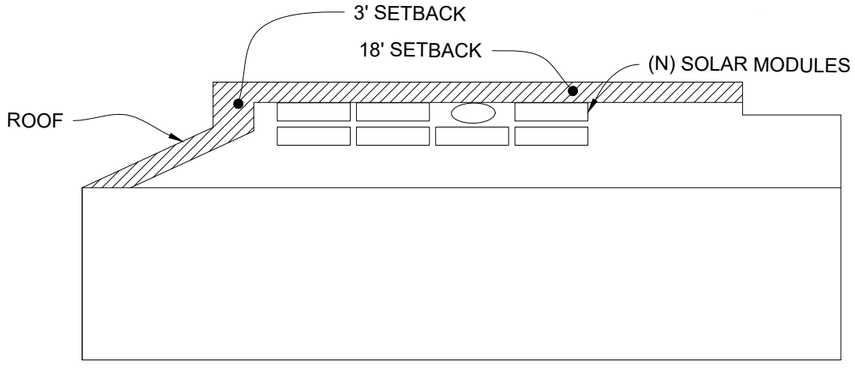
ELEVATION FROM FRONT OF THE HOUSE



ELEVATION LEFT SIDE OF THE HOUSE



ELEVATION FROM REAR OF THE HOUSE



ELEVATION RIGHT SIDE OF THE HOUSE

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43466
Maryland PE License Number

Date 7/27/2023

Signature

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Signature with Seal

REVISIONS			
REV	DESCRIPTION	DATE	DRW BY	REV BY

DATE DRAWN	07-26-2023
DRAWN BY	FAISAL
REVIEWED BY	HARSH

SHEET NAME	ELEVATION
SHEET NO.	A005

ELEVATION

SCALE: NTS

INVERTER DATASHEET: ENPHASE IQ8PLUS-72-2-US

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 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.

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-n-play MC4 connectors.

UL CERTIFIED SAFETY

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

IQ8SP-DS-0002-01-EN-US-2022-03-17

* Only when installed with IQ System Controller 2, meets UL 1741.
** IQ8 and IQ8Plus supports split phase, 240V installations only.

IQ8 and IQ8+ Microinverters

INPUT DATA (DC)		IQ8-60-2-US	IQ8PLUS-72-2-US
Commonly used module pairings[1]	W	235 – 350	235 – 440
Module compatibility		60-cell/120 half-cell	60-cell/120 half-cell, 66-cell/132 half-cell and 72-cell/144 half-cell
MPPT voltage range	V	27 – 37	29 – 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[2] [module Isc]	A	15	
Overvoltage 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**
Peak output power	VA	245	300
Max continuous output power	VA	240	290
Nominal (L-L) voltage/range[3]	V	240 / 211 – 264	
Max continuous output current	A	1.0	1.21
Nominal frequency	Hz	60	
Extended frequency range	Hz	50 – 68	
AC short circuit fault current over 3 cycles	Arms	2	
Max units per 20 A (L-L) branch circuit[4]		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	%	97.5	97.6
CEC weighted efficiency	%	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	
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. 107.1-01 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) No enforced DC/AC ratio. See the compatibility calculator at https://link.enphase.com/module-compatibility
(2) Maximum continuous input DC current is 10.6A (3) Nominal voltage range can be extended beyond nominal if required by the utility. (4) Limits may vary. Refer to local requirements to define the number of microinverters per branch in your area.

IQ8SP-DS-0002-01-EN-US-2022-03-17

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TAKOMA PARK, MD, 20912
(Lat, Long: 38.973207, -77.008447)

Signature with Seal

NAME : GREG MARTIN
LICENSE NO : 14168

REVISIONS								
REV								
DESCRIPTION								
DATE								
DRW BY								
REV BY								

DATE DRAWN	07-26-2023
DRAWN BY	FAISAL
REVIEWED BY	HARSH
SHEET NAME	DATASHEET
SHEET NO.	002

MODULE DATASHEET: HYPERION HY-DH108P8 400WP

395-415W

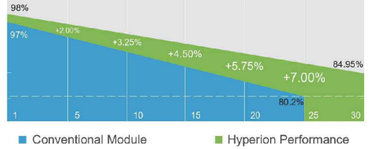
HY-DH108P8B
108 HALF-CELL BIFACIAL MODULE

High Conversion Efficiency
Module efficiency up to 21.3% through advanced cell technology and manufacturing process

Excellent Weak Light Performance
More power output in weak light condition, such as cloudy days, morning and sunset

Extended Mechanical Performance
Module certified to withstand extreme wind (2400 Pa) and snow loading (5400 Pa)

Quality Guarantee
High module quality ensures long-term reliability



12 Years warranty for materials and workmanship

30 Years warranty for extra linear power output

Intertek · TÜVRheinland · DVE · CE · Warranty partner Munich RE

IEC61215 / IEC61730 / UL61730
IEC61701 / IEC62716 / IEC60068
ISO9001

info@hyperion-usa.com
American Hyperion Solar LLC.
2880 Zanker Road, Suite 203, San Jose, CA 95134

SOLAR HYPERION

BLACK DH108P8B

HY-DH108P8B-395/415

Mechanical Parameters

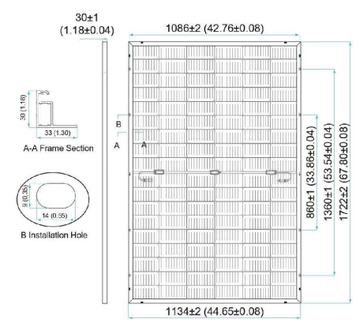
Solar Cell	Mono PERC 182mm
No. of Cells	108 (6 × 18)
Dimensions	1722 × 1134 × 30mm (67.80 × 44.65 × 1.18in.)
Weight	23.8kg (52.47lbs)
Junction Box	IP68 rated (3 bypass diodes)
Output Cables	4mm² (IEC),12 AWG(UL) (-/+)1200mm (47.24in.) or customized
Connector	QC4.10 or similar
Front Cover	2.0mm (0.079in.) semi-tempered AR glass
Back Cover	2.0mm (0.079in.) semi-tempered glass
Container	36 pcs/Pallet, 792 pcs/40' HC

Operating Parameters

Max. System Voltage	DC 1500V (IEC/UL)
Operating Temperature	-40°C ~ +85°C (-40°F ~ +185°F)
Max. Fuse Rating	30A
Frontside Max. Loading	5400Pa (112lb/ft²)
Backside Max. Loading	2400Pa (50lb/ft²)
Bifaciality	70%±10%
Fire Resistance	IEC Class A, UL Type 29

Engineering Drawing

Unit: mm (inch)



Electrical Characteristics - STC

Irradiance 1000 W/m², ambient temperature 25 °C, AM1.5.

Maximum Power at STC (Pmax/W)	415	410	405	400	395
Power Tolerance (W)	0 ~ +5				
Optimum Operating Voltage (Vmp/V)	31.61	31.45	31.21	31.01	30.84
Optimum Operating Current (Imp/A)	13.13	13.04	12.98	12.90	12.81
Open Circuit Voltage (Voc/V)	37.45	37.32	37.23	37.07	36.98
Short Circuit Current (Isc/A)	14.02	13.95	13.87	13.79	13.70
Module Efficiency	21.3%	21.0%	20.7%	20.5%	20.2%

Electrical Characteristics - NMOT

Irradiance 800 W/m², ambient temperature 20 °C, AM1.5, wind speed 1 m/s.

Maximum Power at NMOT (Pmax/W)	313.9	310.2	306.4	302.5	298.8
Optimum Operating Voltage (Vmp/V)	29.98	29.82	29.60	29.41	29.25
Optimum Operating Current (Imp/A)	10.47	10.40	10.35	10.29	10.22
Open Circuit Voltage (Voc/V)	35.51	35.39	35.31	35.15	35.07
Short Circuit Current (Isc/A)	11.31	11.25	11.19	11.13	11.05

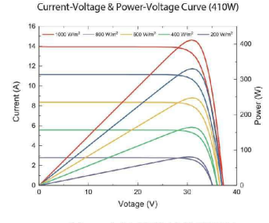
Rearside Power Gain (Reference to 415W Front)

Rearside Power Gain	5%	15%	25%
Maximum Power (Pmax/W)	436	477	519
Optimum Operating Voltage (Vmp/V)	31.61	31.71	31.71
Optimum Operating Current (Imp/A)	13.79	15.05	16.36
Open Circuit Voltage (Voc/V)	37.45	37.55	37.55
Short Circuit Current (Isc/A)	14.72	16.08	17.48
Module Efficiency	22.3%	24.4%	26.6%

Temperature Characteristics

Nominal Module Operating Temperature	42 ± 2 °C
Nominal Cell Operating Temperature	45 ± 2 °C
Temperature Coefficient of Pmax	-0.35%/°C
Temperature Coefficient of Voc	-0.27%/°C
Temperature Coefficient of Isc	0.05%/°C

Current-Voltage & Power-Voltage Curve (410W)



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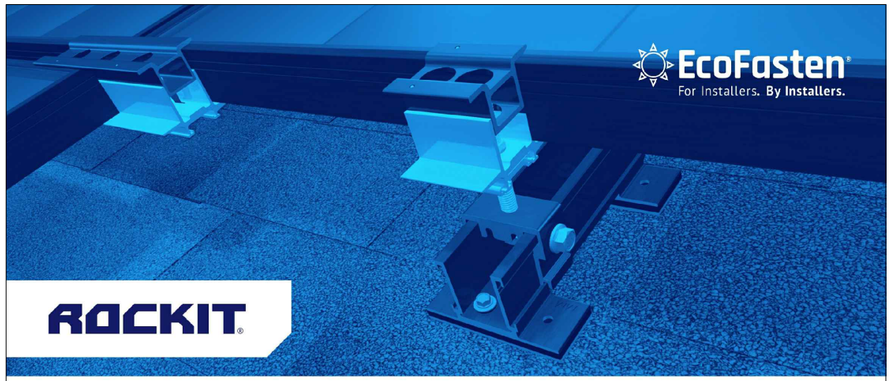
Signature with Seal

NAME : GREG MARTIN
LICENSE NO : 14168

REVISIONS								
REV	DESCRIPTION	DATE	DRW BY	REV BY				

DATE DRAWN	07-26-2023
DRAWN BY	FAISAL
REVIEWED BY	HARSH
SHEET NAME	DATASHEET
SHEET NO.	001

RACKING DATASHEET: ECOFASTEN ROCKIT-3.0 + SMART SLIDE



INTRODUCING ROCKIT SMART SLIDE!

Introducing EcoFasten's patent pending RockIt Smart Slide, our simple solution for quickly installing the popular RockIt rail-less racking system to composition shingle roofs.

Features & Benefits

- Eliminates the need to pry up shingle courses and install a metal flashing
- Multiple opportunities to find the rafter
- Eliminates the need to drill pilot holes
- No need for additional material when architectural shingles are not level
- Longer 6.75" slide avoids overlaps in shingle courses
- Integrated flashing utilizes UltraGrip Technology™ to create a watertight seal

ROCKIT SMART SLIDE

Required Components:

Part Number:	Description:
2011024	RI SMART SLIDE BLK 6.75"
2011025	RI SMART SCRW #12X3" W/BW

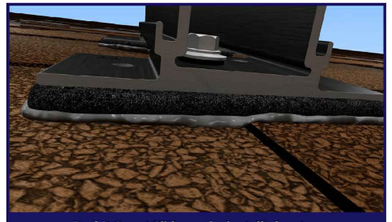
ECOFASTENSOLAR.COM

ROCKIT SMART SLIDE

Integrated UltraGrip Technology™

Pre-installed sealing pads are compatible with all composition shingle roofs and can be installed in ambient temperatures as low as 5 degrees. The compression achieved when fastened to the roof creates a super strong watertight seal. In most cases, Smart Slide can be installed to the roof without the need for sealant. A layer of flexible foam provides cushioning, which allows the super-sticky waterproofing sealant to embed deep into the granules of the shingle as well as to flexibly conform over the steps found on architectural-style shingles.

A layer of flexible foam pushes the sealant deep into the shingle granules and around shingle steps



RockIt Smart Slide can be installed on top of architectural shingles steps

Testing & Documentation

- UL441 Rain Report
- TAS 100 (A)-95 Wind and Wind Driven Rain Resistance
- Mechanical Load Test/Structural Capacity Certification
- Florida Product Approval
- RockIt Installation Manual
- RockIt CutSheets

VERSION 1.2

EcoFasten An Esdec Solar Group Company | 4141 W. VAN BUREN ST, SUITE 2, PHOENIX AZ 85009 | 1-877-859-3947 | INFO@ECOFASTENSOLAR.COM

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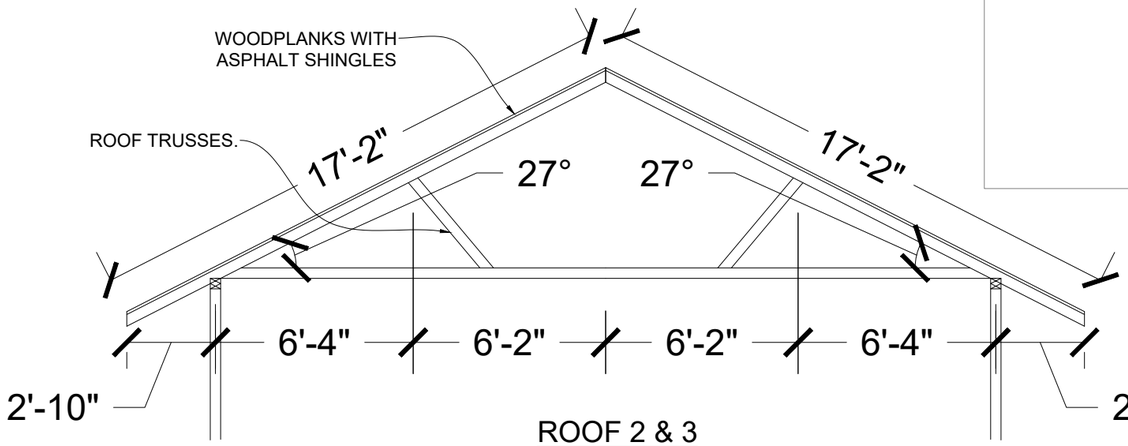
Signature with Seal

REVISIONS	REV	DESCRIPTION	DATE	DRW BY	REV BY

DATE DRAWN	07-26-2023
DRAWN BY	FAISAL
REVIEWED BY	HARSH

SHEET NAME	DATASHEET
SHEET NO.	003



ROOF 2 & 3

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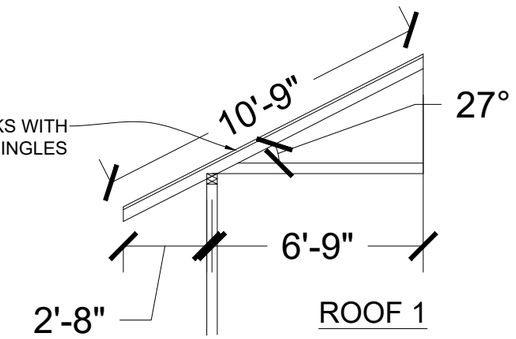
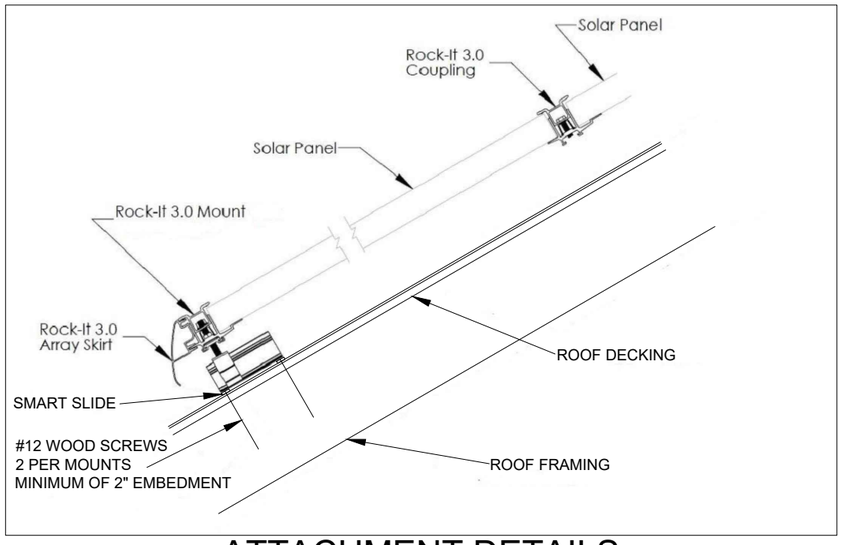


ROOF 1

ATTACHMENT DETAILS

SCALE: NTS



ATTACHMENT DETAILS

SCALE: NTS

KEY PLAN

SCALE: NTS

PROPOSED SYSTEM SPECIFICATION	
SYSTEM SIZE DC	8.4 KWP
SYSTEM SIZE AC	300 VA PEAK POWER = 6.3 KWP
SYSTEM SIZE AC	290 VA MAX. CONT. POWER = 6.09 KWP
MODULES USED	(21) HYPERION HY-DH108P8 400B
INVERTER USED	(21) ENPHASE IQ8PLUS-72-2-US
BRANCH CIRCUIT	1 CIRCUIT OF 11 MODULES 1 CIRCUIT OF 10 MODULES
RACKING	ECOFASTEN ROCKIT + SMART SLIDE

ROOF SPECIFICATION	
ROOF TYPE	COMPOSITE SHINGLE
ROOF CONDITION	GOOD
FRAMING	TRUSSES: 2"x 4" @ 24" O.C.
SHEATHING	WOODEN PLANKS

ARRAY SPECIFICATION			
ROOF NO.	TILT	AZIMUTH	QTY
1	27°	169°	5
2	27°	259°	9
3	27°	79°	7
TOTAL			21

RACKING SPECIFICATION	
MIN/MAX ROOF SLOPE	1/2:12 / 12:12
MAX ANCHOR SPACING (35MM/40MM) MAX ANCHOR SPACING (32MM)	48"
MAX MODULE SIZE	67.79" X 44.64" X 1.18"
MODULE CANTILEVER	MAXIMUM CANTILEVER IS 1/3 BRACKET SPACING

MODULE SPECIFICATION	
MODEL	HY-DH108P8 400B
FORMAT	67.79" ~ 44.64" ~ 1.18" (INCLUDING FRAME)
WEIGHT	52.48 LBS

GENERAL NOTES

1. SOLAR PANELS SHALL NOT EXCEED ANY PART OF ROOF EDGE OR PEAK.

PV MODULE
WEIGHT = 52.48 LBS.
AREA = 67.79" x 44.64" NOMINAL (21.015 SQ.FT.)

MODULE = 52.48 LBS. OVER 21.015 SQ.FT. = 2.497 LBS/SQ.FT.
FOOT SPACING IS 48" O.C. ACROSS PANEL WIDTH WITH 2 ROWS PER MODULE

TYPICAL LAYOUT PROVIDES AN AVERAGE OF 1.6 FEET PER MODULE.

MODULE WEIGHT DISTRIBUTED PER MOUNTING FOOT =
52.48 LBS./1.6 FEET = 32.8 LBS./MTG. FOOT.

MOUNTING LOAD CALCULATION

Suntuity
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Tel:(732) 979-2400
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PROJECT NAME & ADDRESS

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Signature with Seal

REVISIONS

REV	DESCRIPTION	DATE	DRW BY	REV BY

DATE DRAWN	07-26-2023
DRAWN BY	FAISAL
REVIEWED BY	HARSH
SHEET NAME	STRUCTURAL
SHEET NO.	S001

DEPARTMENT OF PERMITTING SERVICES

Marc Elrich
County Executive

Rabbiah Sabbakhan
Director

HISTORIC AREA WORK PERMIT APPLICATION

Application Date: 11/21/2023

Application No: 1051115
AP Type: HISTORIC
Customer No: EB224486

Affidavit Acknowledgement

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

Primary Applicant Information

Address	101 ELM AVE TAKOMA PARK, MD 20912
Othercontact	SUNTUITY ELECTRIC LLC (Primary)

Historic Area Work Permit Details

Work Type	ALTER
Scope of Work	Installation of roof mount solar pv system