HISTORIC PRESERVATION COMMISSION

Marc Elrich
County Executive

Robert K. Sutton
Chairman

Date: September 5, 2024

MEMORANDUM

TO: Rabbiah Sabbakhan, Director
Department of Permitting Services

FROM: Laura DiPasquale
Historic Preservation Section
Maryland-National Capital Park & Planning Commission

SUBJECT: Historic Area Work Permit # 1074417 - Roof-mounted solar panel installation

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The Montgomery County Historic Preservation Commission (HPC) has reviewed the attached application for a Historic Area Work Permit (HAWP). This application was **approved** at the September 4, 2024 HPC meeting.

The HPC staff has reviewed and stamped the attached construction drawings.

THE BUILDING PERMIT FOR THIS PROJECT SHALL BE ISSUED CONDITIONAL UPON ADHERENCE TO THE ABOVE APPROVED HAWP CONDITIONS AND MAY REQUIRE APPROVAL BY DPS OR ANOTHER LOCAL OFFICE BEFORE WORK CAN BEGIN.

Applicant: Lars Jeurling; Venture Solar (Agent)
Address: 3 Hesketh Street, Chevy Chase

This HAWP approval is subject to the general condition that the applicant will obtain all other applicable Montgomery County or local government agency permits. After the issuance of these permits, the applicant must contact this Historic Preservation Office if any changes to the approved plan are made. Once work is complete the applicant will contact Laura DiPasquale at 301-495-2167 or laura.dipasquale@montgomeryplanning.org to schedule a follow-up site visit.

FOR STAFF ONLY:
HAWP# 1074417
DATE ASSIGNED_____

APPLICATION FOR HISTORIC AREA WORK PERMIT

HISTORIC PRESERVATION COMMISSION
301.563.3400

APPLICANT:

Name: Lars Jeurling E-mail: lars.jeurling@gmail.com

Address: 3 Hesketh Street, City: Chevy Chase, Zip: 20815

Daytime Phone: (301) 542-2564 Tax Account No.: 00455177

AGENT/CONTACT (if applicable):

Name: Venture Solar E-mail: padepermitting@venturesolar.com

Address: 36 Brookside Dr. City: Wilmington Zip: 19804

Daytime Phone: 347-924-5527 Contractor Registration No.: 148024

LOCATION OF BUILDING/PREMISE: MIHP # of Historic Property 3 Hesketh Street, Chevy Chase, Maryland 20815

Is the Property Located within an Historic District? X Yes/District Name_____
__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.

REVIEWED
By Laura DiPasquale at 8:54 am, Sep 05,

APPROVED
Montgomery County
Historic Preservation Commission

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: 3 Street: Hesketh Street

Town/City: Chevy Chase Nearest Cross Street: _____

Lot: _____ Block: _____ Subdivision: _____ 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.

Signature of owner or authorized agent

06/13/2024
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
3 Hesketh Street, Chevy Chase, Maryland 20815	36 Brookside dr. Wilmington, Delaware 19804
Adjacent and confronting Property Owners mailing addresses	

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:

Installation of 7.225KW of 17 Roof mounted solar modules / Rip & Reroof

REVIEWED
By Laura DiPasquale at 8:55 am, Sep 05, 2024

APPROVED
Montgomery County
Historic Preservation Commission

Work Item 1: _____

Description of Current Condition:
Residential

Proposed Work:
Installation of 7.225KW of 17 Roof mounted solar modules and [redacted]

REVIEWED
By Laura DiPasquale at 8:55 am, Sep 05, 2024

APPROVED
Montgomery County
Historic Preservation Commission

Work Item 2: _____

Description of Current Condition:

Proposed Work:

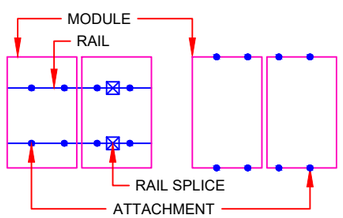
Work Item 3: _____

Description of Current Condition:

Proposed Work:

PLAN SET LEGENDS AND ABBREVIATION

(E)	EXISTING
(N)	NEW
A	AMPERE
AC	ALTERNATING CURRENT
DC	DIRECT CURRENT
ESS	ENERGY STORAGE SYSTEM
EXT	EXTERIOR
INT	INTERIOR
MPH	MILES PER HOUR
MSP	MAIN SERVICE PANEL
NTS	NOT TO SCALE
OC	ON CENTER
PSF	POUNDS PER SQUARE FOOT
PV	PHOTOVOLTAIC
SQ FT	SQUARE FOOT
V	VOLT
W	WATT
AC	AC DISCONNECT
BUI	BACKUP INTERFACE
BAT	BATTERY
BLP	BACKUP LOAD PANEL
CB	COMBINER BOX
DC	DC DISCONNECT
GW	GATEWAY
INV	INVERTER
PM	PRODUCTION METER
MSP	MAIN SERVICE PANEL
RSD	RAPID SHUTDOWN DEVICE
SC	SYSTEM CONTROLLER
SD	SERVICE DISCONNECT
SUB	SUB PANEL
TS	TRANSFER SWITCH
UM	UTILITY METER
	EXTERIOR EQUIPMENT
	INTERIOR EQUIPMENT
	DRIVEWAY
	ELECTRICAL EQUIPMENT
	FIRE SETBACK
	WORKING CLEARANCE
	CONDUIT RUN
	LOAD BEARING WALL
	PROPERTY LINE
	ROOF FRAMING
	ROOF OBSTRUCTIONS



SCOPE OF WORK

SYSTEM SIZE:		7.225 KW DC, 7.6 KW AC
MODULE:	17	HANWHA QCELLS: Q.TRON BLK M-G2+ 425
INVERTER:	1	TESLA: SOLAR INVERTER 7.6KW (240V)
RAIL:		SNAPNRACK: UR-40
ATTACHMENT:		SNAPNRACK: SPEEDSEAL FOOT
RAPID SHUTDOWN:	7	TESLA: MCI-1

GENERAL NOTES

- SOLAR PHOTOVOLTAIC SYSTEM TO BE INSTALLED ON RESIDENTIAL STRUCTURE.
- OBTAIN ALL NECESSARY PERMITS AND APPROVALS FROM LOCAL AUTHORITIES AND UTILITY COMPANIES BEFORE COMMENCING INSTALLATION.
- THIS SYSTEM WILL NOT BE INTERCONNECTED UNTIL APPROVAL FROM THE LOCAL JURISDICTION AND UTILITY IS OBTAINED.
- THE SOLAR PHOTOVOLTAIC INSTALLATION SHALL NOT OBSTRUCT ANY PLUMBING, MECHANICAL OR BUILDING ROOF VENTS.
- A LADDER SHALL BE IN PLACE FOR INSPECTION IN COMPLIANCE WITH OSHA REGULATIONS.
- PROPER ACCESS AND WORKING CLEARANCE WILL BE PROVIDED AS PER SECTION 110.26 NEC.
- ALL COMPONENTS AND INSTALLATIONS SHALL MEET THE REQUIREMENTS SET FORTH BY RELEVANT INDUSTRY STANDARDS, INCLUDING IEEE AND UL. CUSTOM MADE EQUIPMENT SHALL HAVE COMPLETE TEST DATA SUBMITTED BY THE MANUFACTURER ATTESTING TO ITS SAFETY.
- MOUNTING STRUCTURES SHALL BE DESIGNED AND INSTALLED TO WITHSTAND WIND, AND SNOW LOADS AS REQUIRED BY LOCAL BUILDING CODES.
- ALL SYSTEM COMPONENTS, INCLUDING PANELS, INVERTERS, DISCONNECTS, AND CONDUITS, SHALL BE CLEARLY LABELED AND MARKED FOR IDENTIFICATION AND SAFETY.
- ALL WIRING, CONDUIT, AND CONNECTORS SHALL BE SIZED AND INSTALLED PER NEC REQUIREMENTS TO ENSURE PROPER CURRENT
- CARRYING CAPACITY AND PROTECTION.
- CODE VIOLATIONS PRESENT IN INTERCONNECTION PANEL WILL BE CORRECTED UPON INSTALLATION.
- RAPID SHUTDOWN COMMENCES UPON LOSS OF UTILITY POWER.
- PROPERLY SIZED DISCONNECT SWITCHES AND OVERCURRENT PROTECTION DEVICES SHALL BE INSTALLED AT APPROPRIATE LOCATIONS TO ENSURE SAFE MAINTENANCE AND OPERATION.
- ALL METALLIC EQUIPMENT SHALL BE GROUNDED

SITE INFORMATION

AHJ:	MD - CHEVY CHASE TOWN
ELECTRIC UTILITY:	POTOMAC ELECTRIC POWER CO (PEPCO)
WIND SPEED:	113 MPH
GROUND SNOW LOAD:	25 PSF
AMBIENT TEMPERATURE:	33°C
EXTREME MINIMUM TEMPERATURE:	-11°C
NO. OF FLOORS:	2
OCCUPANCY TYPE:	R3
CONSTRUCTION TYPE:	V-B

SHEET INDEX

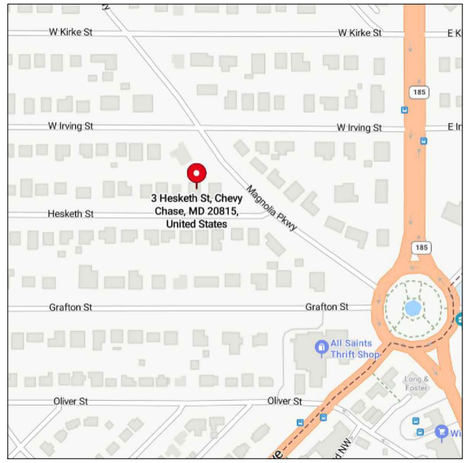
GOVERNING CODES

MARYLAND ELECTRICAL CODE 2020 (NEC 2020)

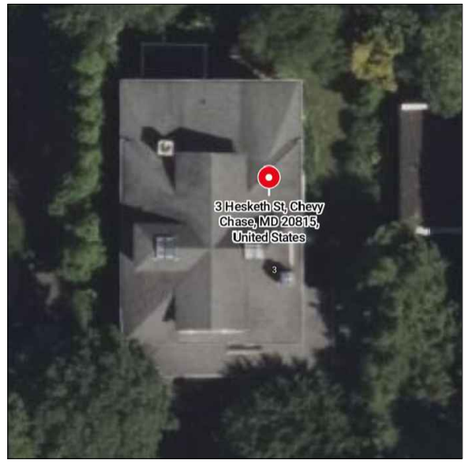
MARYLAND BUILDING PERFORMANCE STANDARD (IRC 2021, IBC 2021)

STATE OF MARYLAND FIRE PREVENTION CODE (IFC 2018)

VICINITY MAP (SCALE: NTS)



AERIAL VIEW (SCALE: NTS)



REVIEWED
By Laura DiPasquale at 8:56 am, Sep 05, 2024

APPROVED
Montgomery County
Historic Preservation Commission

STATE OF MARYLAND
PATRICK BUSSETT
58796
PROFESSIONAL ENGINEER

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 NUMBER: 58796 EXPIRATION DATE: 2026-01-30

venture solar
Venture Solar
67 West St, Brooklyn, NY 11222
www.venturehomesolar.com
(800) 203-4158

CONTRACTOR SIGNATURE

REVISION

REV	DESCRIPTION	DATE

CUSTOMER NAME:
LARS JEURLING

ADDRESS:
3 HESKETH STREET, CHEVY CHASE, MD, 20815

COORDINATES:
38.968772, -77.07985

APN:
#700455177

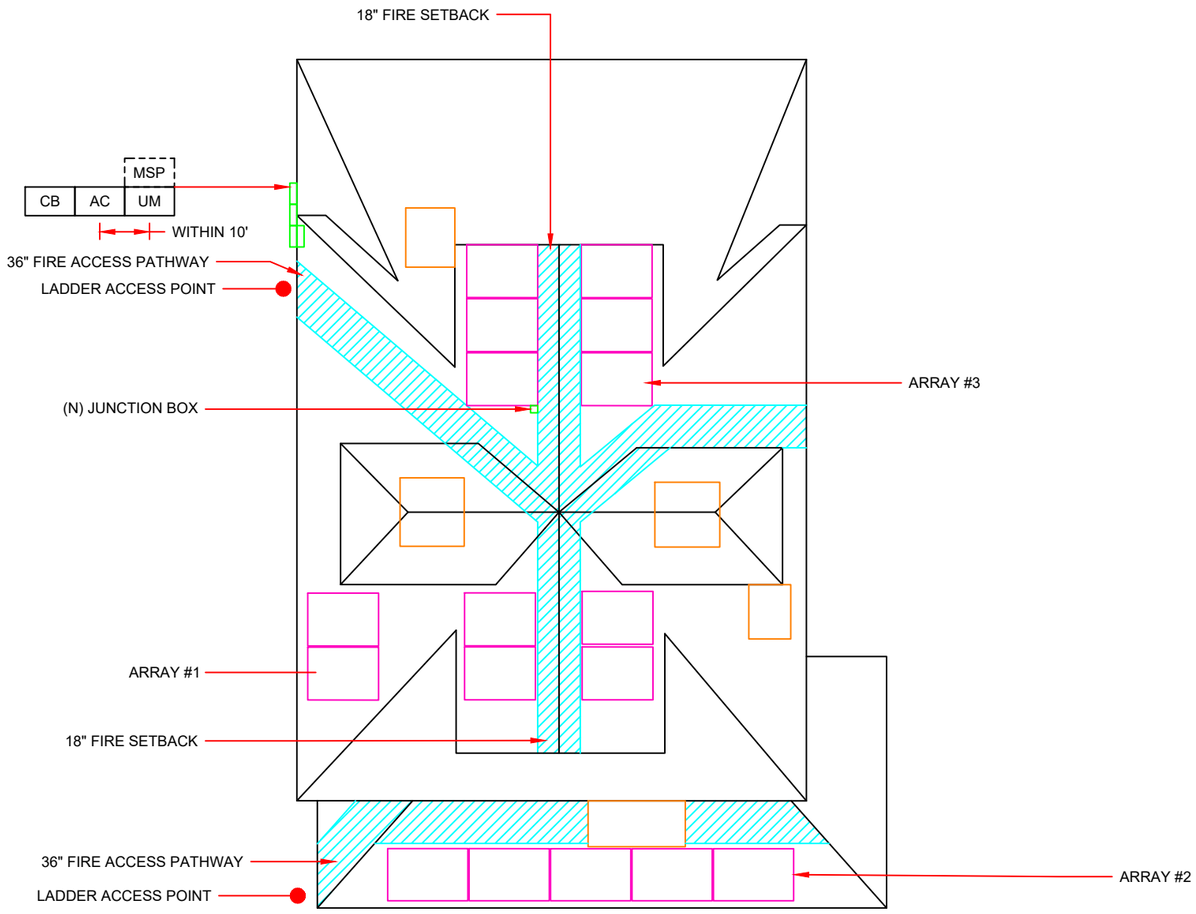
SnapNrack™ Solar Mounting Solutions

SHEET NAME
COVER SHEET

SHEET NUMBER
PV01

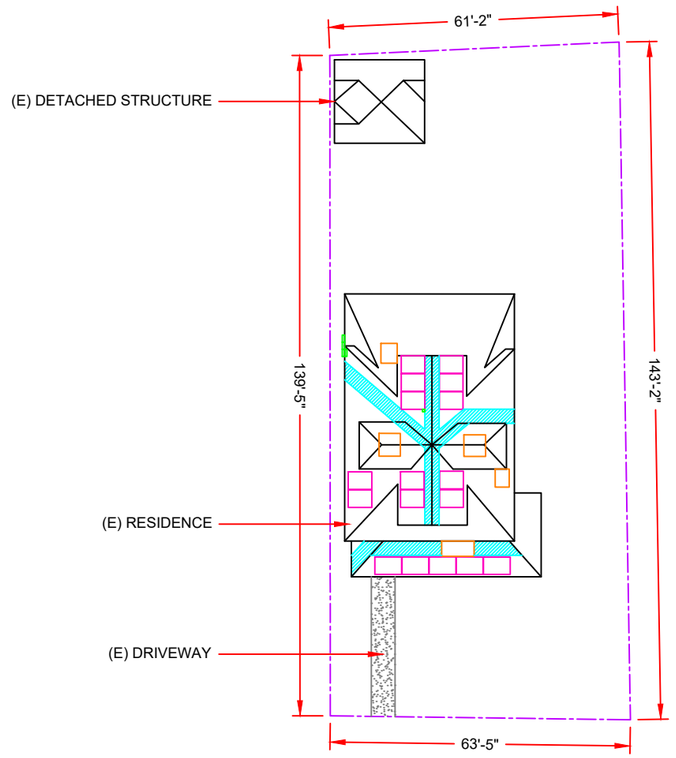
DESIGN DATE: 31-May-24

CLOSE UP VIEW - SCALE: 3/32" = 1'-0"



FRONT OF RESIDENCE
3 HESKETH STREET

SITE PLAN - SCALE: 1/32" = 1'-0"



FRONT OF RESIDENCE
3 HESKETH STREET

ARRAY DETAILS

ARRAY	MODULES	ARRAY HEIGHT	ROOF TILT	AZIMUTH	PV AREA COVERAGE
1	7	2-STORY	28°	270°	147.13 SQ. FT.
2	5	1-STORY	10°	180°	105.10 SQ. FT.
3	5	2-STORY	28°	90°	105.10 SQ. FT.

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APN:
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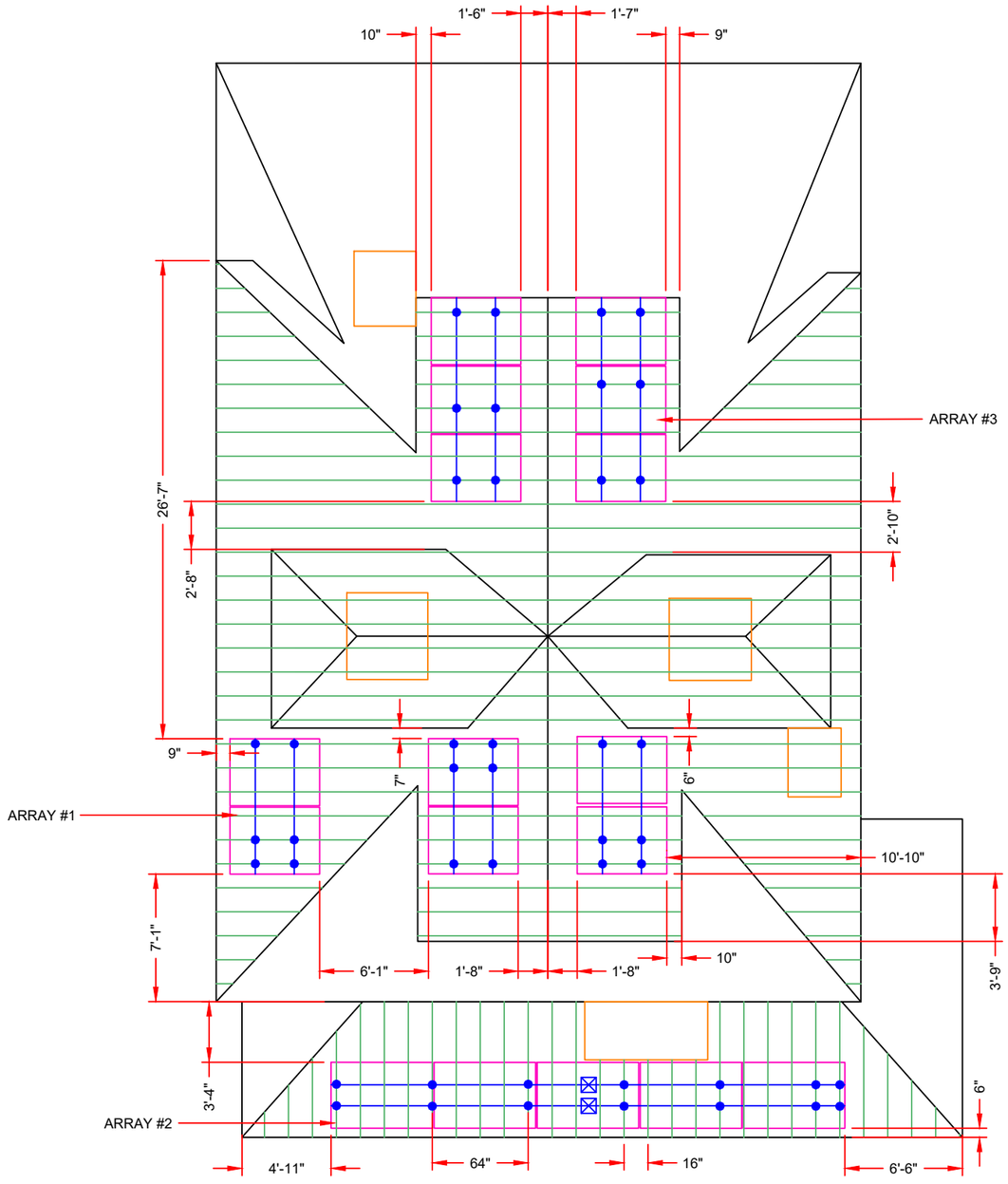
Solar Mounting Solutions

SHEET NAME
SITE PLAN

SHEET NUMBER
PV02

DESIGN DATE: 31-May-24

ROOF LAYOUT - SCALE: 1/8" = 1'-0"



RACKING EQUIPMENT SCHEDULE	QTY
SNAPNRACK: SPEEDSEAL FOOT	44
SNAPNRACK, SEALING WASHER LAG, 4-1/2IN, SS	44
SNAPNRACK, SMART CLIP II	34
SNAPNRACK, ULTRA RAIL END CLAMP, BLACK	24
SNAPNRACK, UR-40 END CAP	24
SNAPNRACK, ULTRA RAIL MID CLAMP, BLACK	22
SNAPNRACK: UR-40	14
SNAPNRACK, MLPE RAIL ATTACHMENT KIT	7
SNAPNRACK, GROUND LUG ASSEMBLY, 6-12 AWG	6
SNAPNRACK, UR-40 SPLICE, BLACK	2

SOLAR ARRAY AND LOADING CALCULATION	
	MAIN HOUSE
# OF MODULE	17
PV AREA	21.02 SQ FT
TOTAL ARRAY AREA	357.33 SQ FT
TOTAL ROOF AREA	2230.79 SQ FT
PV AREA COVERAGE	16.02%
MODULE WEIGHT	46.70 LBS
TOTAL ARRAY WEIGHT	793.90 LBS
# OF ATTACHMENT	44
POINT LOAD	8.12 LBS
DISTRIBUTED LOAD	2.22 PSF

STATE OF MARYLAND
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COORDINATES:
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APN:
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SnapNrack™
Solar Mounting Solutions

SHEET NAME
ROOF LAYOUT

SHEET NUMBER
PV03

DESIGN DATE: 31-May-24

REVIEWED
By Laura DiPasquale at 8:56 am, Sep 05, 2024

APPROVED
Montgomery County
Historic Preservation Commission

ARRAY DETAILS

ARRAY	MODULES	ARRAY HEIGHT	ROOF TILT	AZIMUTH	ROOF TYPE	ROOF FRAMING	RAFTER SIZE	RAFTER SPACING	RAIL	ATTACHMENT	ATTACHMENT SPACING	ATTACHMENT CONFIGURATION
1	7	2-STORY	28°	270°	COMP SHINGLE	TRADITIONAL/STICK FRAMING	2" x 8"	16"	SNAPNRACK: UR-40	SNAPNRACK: SPEEDSEAL FOOT	64"	STACKED
2	5	1-STORY	10°	180°	COMP SHINGLE	TRADITIONAL/STICK FRAMING	2" x 8"	16"	SNAPNRACK: UR-40	SNAPNRACK: SPEEDSEAL FOOT	64"	STACKED
3	5	2-STORY	28°	90°	COMP SHINGLE	TRADITIONAL/STICK FRAMING	2" x 8"	16"	SNAPNRACK: UR-40	SNAPNRACK: SPEEDSEAL FOOT	64"	STACKED

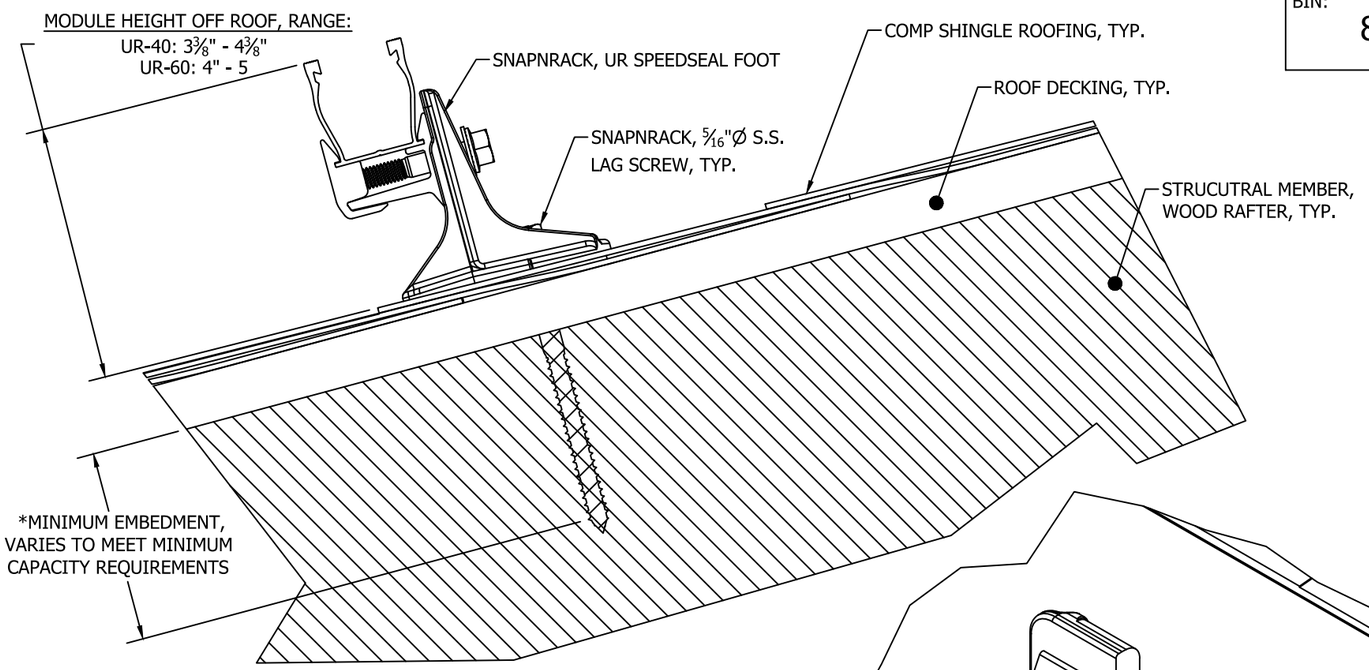
SNAPNRACK UR SPEEDSEAL FOOT FOR COMPOSTION ROOF MOUNTING

REFER TO SNAPNRACK ENGINEERING CHARTS FOR APPLICABLE RAIL SPANS.

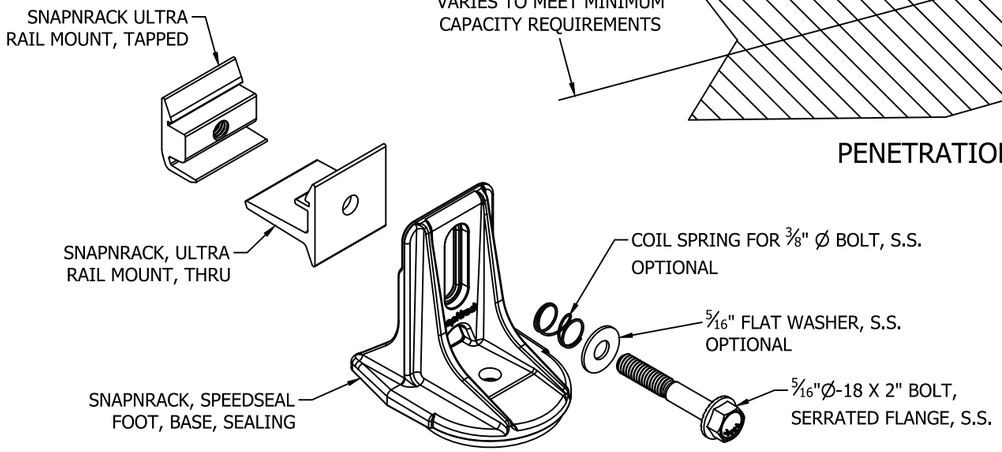
*ALTERNATE FASTENERS AND STRUCTURAL SUBSTRATES ARE PERMITTED. SNAPNRACK'S STANDARD ENGINEERING REQUIRES MINIMUM FASTENER ALLOWABLE CAPACITIES OF **532 LBS** WITHDRAWAL AND **270 LBS** SHEAR. CAPACITIES LOWER THAN THIS WILL REQUIRE SITE-SPECIFIC ENGINEERING

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

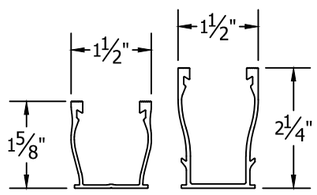
SNAPNRACK SPEEDSEAL FOOT CAN MOUNT IN ANY ORIENTATION ON THE ROOF



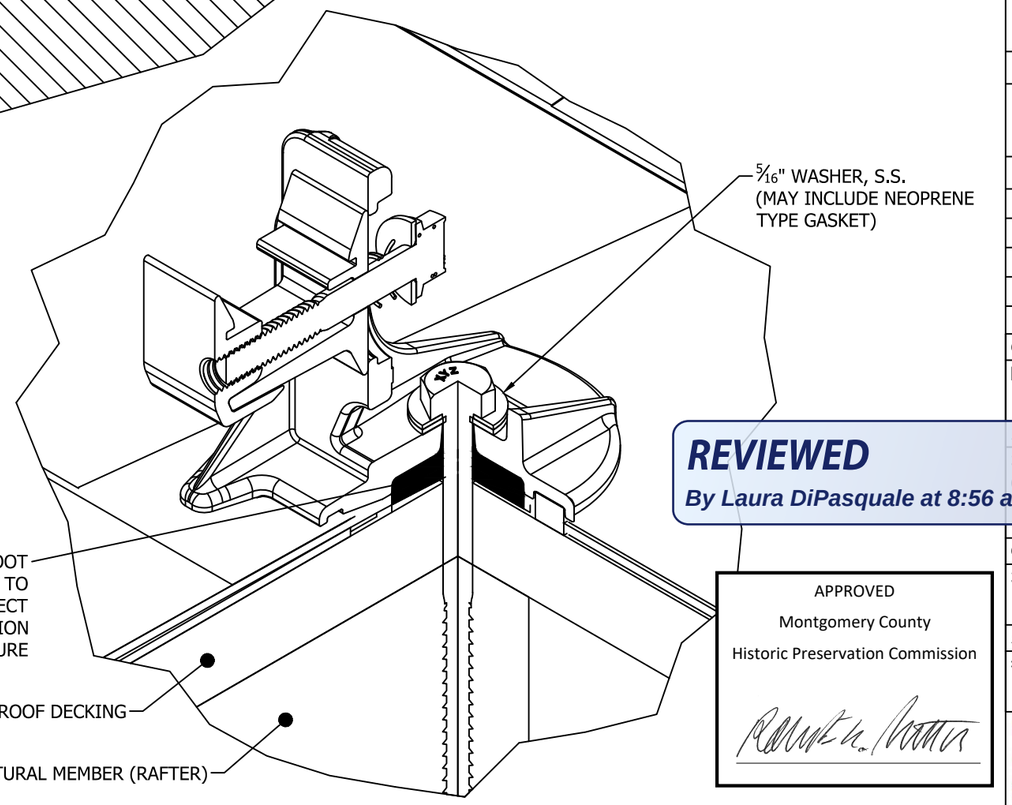
PENETRATION DETAIL



EXPLODED



UR-40 RAIL | UR-60 RAIL
FOR USE WITH SNAPNRACK ULTRA SERIES RAILS



BIN: 8

REVISION:

1	3/10/2020	NEW DETAIL	MJA
2	6/5/2020	DIE CAST	BDP
3	7/22/2020	NAME UPDATE	MJA
4	10/2/2020	MIAMI-DADE	MJA
B	8/2/2021	DC000595	MJA
C	3/29/2023	DC001948	MKW

STATE OF MARYLAND
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CONTRACTOR SIGNATURE

REVISION

REV	DESCRIPTION	DATE

CUSTOMER NAME:
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COORDINATES:
38.968772, -77.07985

APN:
#700455177

SnapNrack Solar Mounting Solutions

SHEET NAME
ATTACHMENT DETAIL

SHEET NUMBER
PV04

DESIGN DATE: 31-May-24

SnapNrack Solar Mounting Solutions

Sunrun South LLC
595 MARKET STREET, 29TH FLOOR • SAN FRANCISCO, CA 94105 USA
PHONE (415) 580-6900 • FAX (415) 580-6902

DESIGNER: M.AFFENTRANGER
DRAFTER: M.WATKINS
APPROVED BY: M.AFFENTRANGER

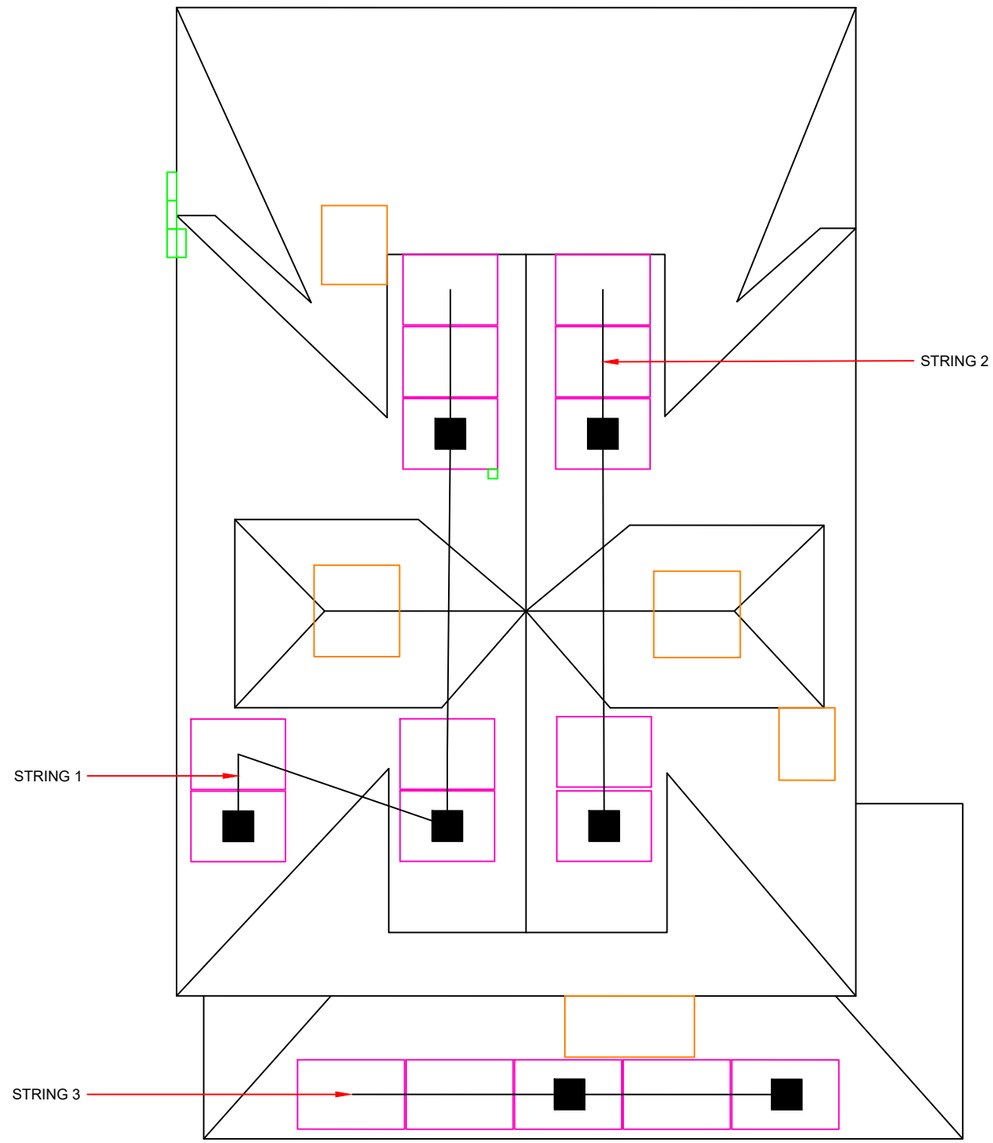
SCALE: DNS
DATE: 3/29/2023

DRAWING NUMBER: SNR-DC-00438

DESCRIPTION: ULTRA RAIL, ATTACHMENT DETAIL, UR SPEEDSEAL FOOT TO RAFTER

REV: C

STRING LAYOUT - SCALE: 1/8" = 1'-0"



STRING 1:
7 MODULE
3 RAPID SHUTDOWN

STRING 2:
5 MODULE
2 RAPID SHUTDOWN

STRING 3:
5 MODULES
2 RAPID SHUTDOWN

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COORDINATES:
38.968772, -77.07985

APN:
#700455177

SnapNrack™
Solar Mounting Solutions

SHEET NAME
STRING LAYOUT

SHEET NUMBER
PV05

DESIGN DATE: 31-May-24

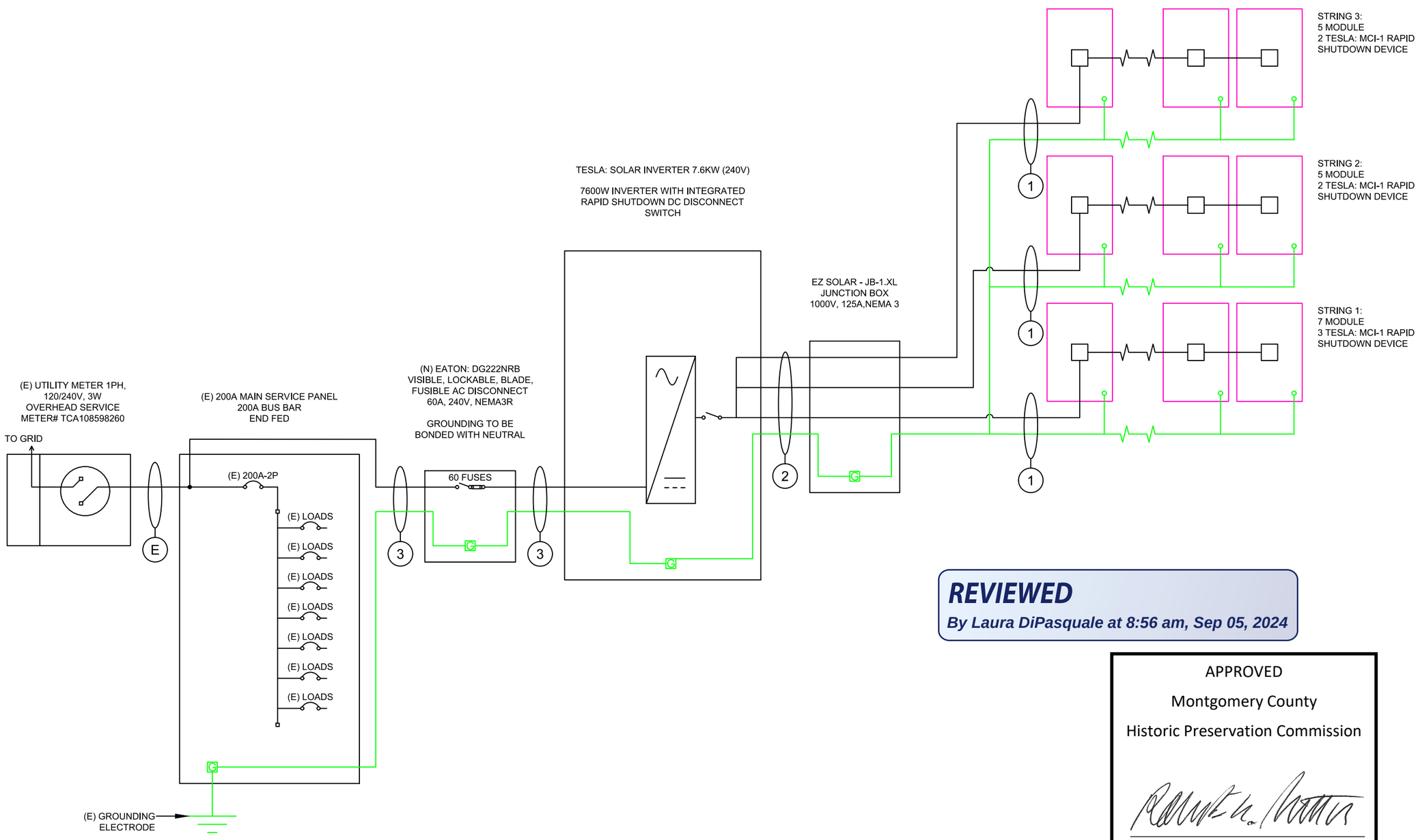
ELECTRICAL EQUIPMENT SCHEDULE	QTY	RATING
HANWHA QCELLS: Q.TRON BLK M-G2+ 425	17	425 W
TESLA: MCI-1	7	-
TESLA: SOLAR INVERTER 7.6KW (240V)	1	7,600 W
EATON: DG222NRB	1	60 A

INVERTER SPECIFICATION	
INVERTER:	TESLA: SOLAR INVERTER 7.6KW (240V)
NO. OF INVERTER:	1
MAX OUTPUT POWER:	7600.00 W
MAX INPUT VOLTAGE:	600.00 V
MAX INPUT CURRENT:	13.00 A
NOMINAL OUTPUT VOLTAGE:	240.00 V
MAX OUTPUT CURRENT:	32.00 A
TOTAL OUTPUT CURRENT:	32.00 A
TOTAL BACKFEED:	40.00 A
MINIMUM OCPD SIZE:	40 A

MODULE SPECIFICATION	
MODULE:	HANWHA QCELLS: Q.TRON BLK M-G2+ 425
NO. OF MODULE:	17
MAX POWER:	425.00 W
OPEN CIRCUIT VOLTAGE:	39.03 V
SHORT CIRCUIT CURRENT:	13.66 A
MAX POWER-POINT VOLTAGE:	32.74 V
MAX POWER-POINT CURRENT:	12.98 A
MAX FUSE RATING:	25 A

WIRE AND CONDUIT SCHEDULE

WIRE TAG	CONDUIT	CONDUCTOR	NEUTRAL	GROUND
1	FREE AIR	(2) 10 AWG PV WIRE, USE-2	NONE	(1) 6 AWG BARE COPPER
2	1" EMT	(6) 10 AWG THWN-2	NONE	(1) 10 AWG THWN-2
3	1" EMT	(2) 6 AWG THWN-2	(1) 6 AWG THWN-2	(1) 8 AWG THWN-2



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COORDINATES:
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APN:
#700455177

SnapNrack™ Solar Mounting Solutions

SHEET NAME
LINE DIAGRAM

SHEET NUMBER
PV06

DESIGN DATE: 31-May-24

WIRE AND CONDUIT SCHEDULE

WIRE TAG	CONDUIT	CONDUCTOR	NEUTRAL	GROUND	AMBIENT TEMPERATURE	TEMPERATURE RATING OF WIRE	WIRE AMPACITY	TEMPERATURE DERATE FACTOR	CONDUCTOR PER RACEWAY DERATE FACTOR	DERATED WIRE AMPACITY	OCPD	CONDUIT FILL
1	FREE AIR	(2) 10 AWG PV WIRE, USE-2	NONE	(1) 6 AWG BARE COPPER	33°C	90°C - COPPER	40 A	0.96	1	38.40 A	25 A	FREE AIR
2	1" EMT	(6) 10 AWG THWN-2	NONE	(1) 10 AWG THWN-2	33°C	90°C - COPPER	40 A	0.96	0.8	30.72 A	25 A	17.09%
3	1" EMT	(2) 6 AWG THWN-2	(1) 6 AWG THWN-2	(1) 8 AWG THWN-2	33°C	75°C - COPPER	65 A	0.94	1	61.10 A	60 A	21.84%

EQUIPMENT	QTY	OUTPUT CURRENT	TOTAL OUTPUT CURRENT	BACKFEED
TESLA: SOLAR INVERTER 7.6KW (240V)	1	32 A	32 A	40 A
		TOTAL:	32 A	40 A

STRING CALCULATIONS		
TESLA: SOLAR INVERTER 7.6KW (240V)	1	2
NO. OF MODULE	7	5
NOMINAL STRING VOLTAGE	296.820000 V	212.010000 V
ARRAY CURRENT	13.66 A	13.66 A
DC SYSTEM SIZE	7225 W	
AC SYSTEM SIZE	7600 W	
DC/AC RATIO	0.95	

MAIN SERVICE PANEL ALLOWABLE BACKFEED	
MAIN BREAKER RATING	200 A
PANEL RATING	200 A
BUS RATING	200 A
MAIN PANEL ALLOWABLE BACKFEED = MAIN BREAKER RATING 200A ≥ 40A BACKFEED	

REVIEWED
By Laura DiPasquale at 8:56 am, Sep 05, 2024

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ELECTRICAL NOTES

- PHOTOVOLTAIC MODULES AND INVERTERS USED IN THE SYSTEM SHALL BE LISTED AND LABELED FOR THEIR INTENDED USE AS PER NEC 690.4 AND 690.5, ENSURING COMPLIANCE WITH INDUSTRY STANDARDS AND SAFETY REGULATIONS.
- ALL EQUIPMENT SHALL MEET THE MINIMUM CLEARANCES AS REQUIRED BY NEC 110.26
- JUNCTION BOXES AND PULL BOXES ARE PERMITTED TO INSTALL UNDER PV MODULES PER NEC 690.34
- ALL COMPONENTS ARE LISTED FOR THEIR PURPOSE AND RATED FOR OUTDOOR USAGE WHEN APPROPRIATE
- WIRING METHODS SHALL FOLLOW NEC GUIDELINES, INCLUDING PROPER RACEWAY SELECTION, CONDUIT SIZING, AND SEPARATION FROM OTHER CIRCUITS TO PREVENT DAMAGE AND MAINTAIN CIRCUIT INTEGRITY. CONDUIT AND WIRE SPECIFICATIONS ARE BASED ON MINIMUM CODE REQUIREMENTS AND ARE NOT MEANT TO LIMIT UP-SIZING.
- VOLTAGE DROP IS LIMITED TO 2%
- DC WIRING LIMITED TO MODULE FOOTPRINT. MICORINVERTER WIRING SYSTEM SHALL BE LOCATED AND SECURED UNDER THE ARRAY WITH SUITABLE WIRING CLIPS
- GROUNDING AND BONDING OF PV SYSTEMS SHALL COMPLY WITH NEC REQUIREMENTS. THIS INCLUDES GROUNDING OF METAL COMPONENTS, GROUNDING ELECTRODES, AND PROPER BONDING TO MINIMIZE ELECTRICAL HAZARDS.
- DISCONNECTING SWITCHES SHALL BE WIRED SUCH THAT WHEN THE SWITCH IS OPENED THE CONDUCTORS REMAINING ENERGIZED ARE CONNECTED TO THE TERMINALS MARKED "LINE SIDE" (TYPICALLY UPPER TERMINALS)
- EMERGENCY DISCONNECTS SHALL BE INSTALLED IN READILY ACCESSIBLE LOCATIONS, ENSURING SAFE AND EFFICIENT SHUTDOWN IN CASE OF EMERGENCIES.
- RAPID SHUTDOWN REQUIREMENTS SHALL BE MET, ENSURING THAT THE PV SYSTEM CAN BE DE-ENERGIZED TO A SPECIFIED VOLTAGE WITHIN A CERTAIN TIME FRAME, FACILITATING FIREFIGHTER SAFETY DURING EMERGENCIES.
- PROPERLY SIZED OVERCURRENT PROTECTION DEVICES SHALL BE INSTALLED TO PROTECT CONDUCTORS AND COMPONENTS. COORDINATION WITH MODULE SHORT-CIRCUIT CURRENTS AND OVERCURRENT DEVICE RATINGS SHALL BE ENSURED.
- SOURCE AND OUTPUT CIRCUITS SHALL BE APPROPRIATELY SIZED AND PROTECTED, WITH PROPER INSULATION AND LABELING TO PREVENT ANY RISK OF ELECTRICAL HAZARDS.
- LOAD-SIDE INTERCONNECTION SHALL BE IN ACCORDANCE WITH NEC 705.12(B)
- SUPPLY SIDE TAP INTERCONNECTION ACCORDING TO NEC 705.12(A) WITH SERVICE ENTRANCE CONDUCTORS IN ACCORDANCE WITH NEC 230.42

venture solar
Venture Solar
67 West St, Brooklyn, NY 11222
www.venturehomesolar.com
(800) 203-4158

CONTRACTOR SIGNATURE

REVISION

REV	DESCRIPTION	DATE

CUSTOMER NAME:
LARS JEURLING

ADDRESS:
3 HESKETH STREET, CHEVY CHASE, MD, 20815

COORDINATES:
38.968772, -77.07985

APN:
#700455177

SnapNrack™
Solar Mounting Solutions

SHEET NAME
ELECTRICAL CALCULATION AND NOTES

SHEET NUMBER
PV07

DESIGN DATE: 31-May-24

⚠WARNING

ELECTRICAL SHOCK HAZARD

TERMINALS ON LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION

LABEL LOCATION:
INVERTER(S), AC/DC DISCONNECT(S), AC COMBINER PANEL (IF APPLICABLE).
PER CODE(S): NEC 2020: 690.13(B)

⚠WARNING

POWER SOURCE OUTPUT CONNECTION

DO NOT RELOCATE THIS OVERCURRENT DEVICE

LABEL LOCATION:
ADJACENT TO PV BREAKER, ESS OCPD (IF APPLICABLE).
PER CODE(S): NEC 2020: 705.12(B)(3)(2),

⚠WARNING

DUAL POWER SUPPLY

SOURCES: UTILITY GRID AND PV SOLAR ELECTRIC SYSTEM

LABEL LOCATION:
UTILITY SERVICE METER AND MAIN SERVICE PANEL.
PER CODE(S): NEC 2020: 705.12(C)

RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM

LABEL LOCATION:
UTILITY SERVICE ENTRANCE/METER, INVERTER/DC DISCONNECT (IF APPLICABLE). INSTALLED WITHIN 3' OF RAPID SHUT DOWN SWITCH
PER CODE(S): NEC 2020: 690.56(C)(2)

WARNING:
PHOTOVOLTAIC POWER SOURCE

LABEL LOCATION:
INTERIOR AND EXTERIOR DC CONDUIT EVERY 10 FT, AT EACH TURN, ABOVE AND BELOW PENETRATIONS, ON EVERY JB/PULL BOX CONTAINING DC CIRCUITS.
PER CODE(S): NEC 2020: 690.31(D)(2)

PV SYSTEM DISCONNECT

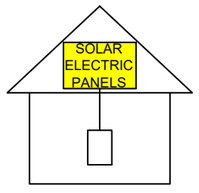
MAXIMUM AC OPERATING CURRENT: 32 AMPS

NOMINAL OPERATING AC VOLTAGE: 240 VAC

LABEL LOCATION:
AC DISCONNECT(S), PHOTOVOLTAIC SYSTEM POINT OF INTERCONNECTION.
PER CODE(S): NEC 2020: 690.54

SOLAR PV SYSTEM EQUIPPED WITH RAPID SHUTDOWN

TURN RAPID SHUTDOWN SWITCH TO THE "OFF" POSITION TO SHUT DOWN PV SYSTEM AND REDUCE SHOCK HAZARD IN THE ARRAY.



LABEL LOCATION:
ON OR NO MORE THAT 1 M (3 FT) FROM THE SERVICE DISCONNECTING MEANS TO WHICH THE PV SYSTEMS ARE CONNECTED.
PER CODE(S): NEC 2020: 690.56(C)

REVIEWED

By Laura DiPasquale at 8:57 am, Sep 05, 2024

PHOTOVOLTAIC DC DISCONNECT

MAXIMUM SYSTEM VOLTAGE: 600 VDC

LABEL LOCATION:
INVERTER(S), DC DISCONNECT(S).
PER CODE(S): NEC 2020: 690.53

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Historic Preservation Commission

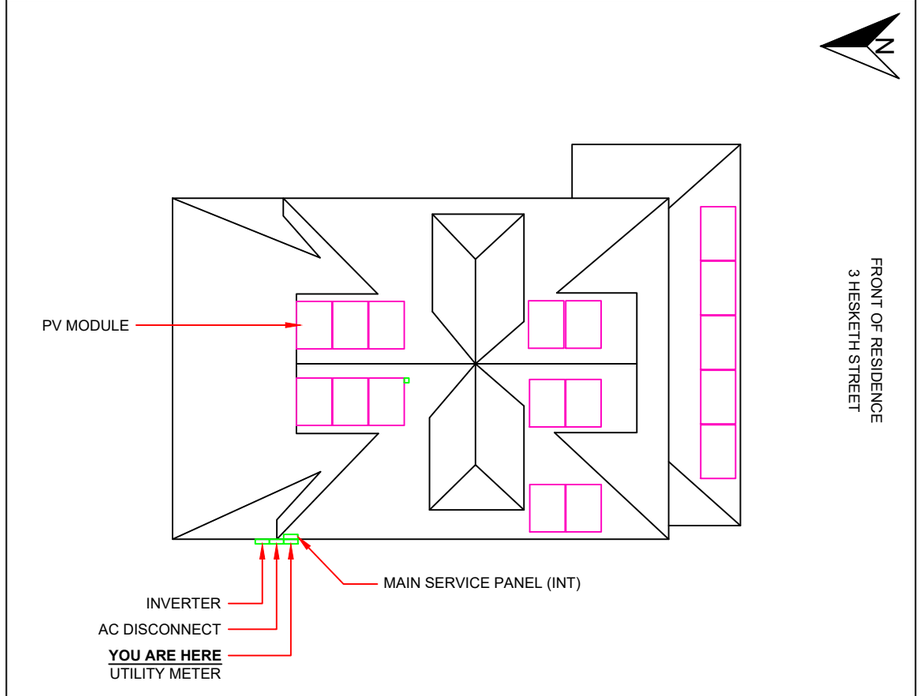
LABELING NOTES:

1. ENSURE LABELS ALIGN WITH COMMON CONFIGURATIONS, ALLOWING ELECTRICIANS TO ADJUST PER NEC AND LOCAL CODES.
2. ADHERE TO LABELING REQUIREMENTS BASED ON 2020 NEC, OSHA STANDARD 1910.145, AND ANSI Z535, FOLLOWING AHJ SPECIFICATIONS.
3. MATERIALS MUST MEET AHJ REQUIREMENTS FOR DURABILITY IN THE GIVEN ENVIRONMENT (NEC 110.21(B)(3)).
4. LABELS SHOULD HAVE A MINIMUM 3/8" LETTER HEIGHT, WHITE ON RED BACKGROUND, REFLECTIVE, AND PERMANENTLY AFFIXED (NEC 690.31(G)).
5. EFFECTIVELY COMMUNICATE HAZARDS THROUGH WORDS, COLORS, AND SYMBOLS ON LABELS, COMPLYING WITH NEC ARTICLE 110.21(B).
6. PERMANENTLY AFFIX LABELS WITHOUT COVERING EXISTING MANUFACTURER LABELS.

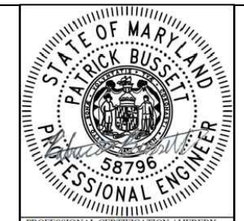
MIN.6"x6" PLACARD TO GO ON MAIN SERVICE PANEL

⚠ CAUTION

MULTIPLE SOURCES OF POWER



PLAQUE SHALL BE ATTACHED TO THE SERVICE EQUIPMENT WITH POP-RIVETS OR SCREWS.



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 NUMBER: 58796
EXPIRATION DATE: 2026-01-30

venture solar
Venture Solar
67 West St, Brooklyn, NY 11222
www.venturehomesolar.com
(800) 203-4158

CONTRACTOR SIGNATURE

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38.968772, -77.07985

APN:
#700455177

SnapNrack™ Solar Mounting Solutions

SHEET NAME

LABELS AND PLACARD

SHEET NUMBER

PV08

DESIGN DATE: 31-May-24

Q.TRON BLK M-G2+ SERIES

405 - 430 Wp | 108 Cells
22.0 % Maximum Module Efficiency

MODEL Q.TRON BLK M-G2+

High performance Qcells N-type solar cells

Q.ANTUM NEO Technology with optimized module layout boosts module efficiency up to 22.0 %.

A reliable investment

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

Enduring high performance

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

Extreme weather rating

High-tech aluminium alloy frame, certified for high snow (8100 Pa) and wind loads (3600 Pa).

Innovative all-weather technology

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

The most thorough testing programme in the industry

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

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

The ideal solution for:

Rooftop arrays on residential buildings

REVIEWED
By Laura DiPasquale at 8:58 am, Sep 05, 2024

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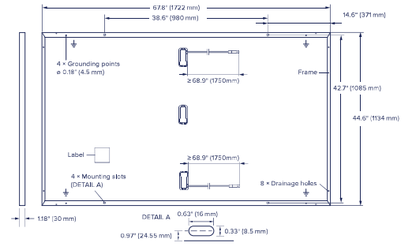
Q.TRON BLK M-G2+ SERIES

Mechanical Specification

Format	67.8 in × 44.6 in × 1.18 in (including frame) (1722 mm × 1134 mm × 30 mm)
Weight	46.7 lbs (21.2 kg)
Front Cover	0.13 in (3.2 mm) thermally pre-stressed glass with anti-reflection technology
Back Cover	Composite film
Frame	Black anodised aluminium
Cell	6 × 18 monocrystalline Q.ANTUM NEO solar half cells
Junction box	2.09-3.98 in × 1.26-2.36 in× 0.59-0.71 in (53-101 mm × 32-60 mm × 15-18 mm), Protection class IP67, with bypass diodes
Cable	4 mm² Solar cable; (+) ≥68.9 in (1750mm), (−) ≥68.9 in (1750mm)
Connector	Stäubli MC4; IP68

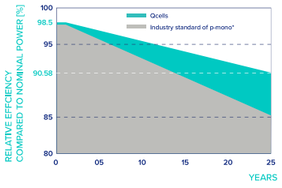


Electrical Characteristics

POWER CLASS				405	410	415	420	425	430
MINIMUM PERFORMANCE AT STANDARD TEST CONDITIONS, STC[1] (POWER TOLERANCE +5 W/−0 W)									
Minimum	Power at MPP[1]	P_{MPP}	[W]	405	410	415	420	425	430
	Short Circuit Current[1]	I_{SC}	[A]	13.33	13.41	13.49	13.58	13.66	13.74
	Open Circuit Voltage[1]	V_{OC}	[V]	37.91	38.19	38.47	38.75	39.03	39.32
	Current at MPP	I_{MPP}	[A]	12.69	12.76	12.83	12.91	12.98	13.05
	Voltage at MPP	V_{MPP}	[V]	31.93	32.13	32.34	32.54	32.74	32.94
	Efficiency[1]	η	[%]	≥20.7	≥21.0	≥21.3	≥21.5	≥21.8	≥22.0
MINIMUM PERFORMANCE AT NORMAL OPERATING CONDITIONS, NMOT[2]									
Minimum	Power at MPP	P_{MPP}	[W]	306.1	309.9	313.7	317.5	321.2	325.0
	Short Circuit Current	I_{SC}	[A]	10.74	10.81	10.87	10.94	11.00	11.07
	Open Circuit Voltage	V_{OC}	[V]	35.96	36.23	36.50	36.77	37.04	37.31
	Current at MPP	I_{MPP}	[A]	9.98	10.04	10.10	10.15	10.21	10.27
	Voltage at MPP	V_{MPP}	[V]	30.66	30.87	31.07	31.26	31.46	31.65

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

Qcells PERFORMANCE WARRANTY

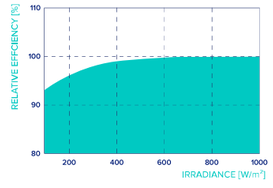


At least 98.5 % of nominal power during first year. Thereafter max. 0.33 % degradation per year. At least 95.53 % of nominal power up to 10 years. At least 90.58 % of nominal power up to 25 years.

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

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

PERFORMANCE AT LOW IRRADIANCE



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

TEMPERATURE COEFFICIENTS							
Temperature Coefficient of I_{SC}	α	[%/K]	+0.04	Temperature Coefficient of V_{OC}	β	[%/K]	−0.24
Temperature Coefficient of P_{MPP}	γ	[%/K]	−0.30	Nominal Module Operating Temperature	NMOT	[°F]	109 ± 5.4 (43 ± 3 °C)

Properties for System Design

Maximum System Voltage	V_{SYS}	[V]	1000 (IEC) / 1000 (UL)	PV module classification	Class II
Maximum Series Fuse Rating		[A DC]	25	Fire Rating based on ANSI / UL 61730	C / TYPE 2
Max. Design Load, Push / Pull[3]		[lbs / ft²]	113 (5400 Pa) / 50 (2400 Pa)	Permitted Module Temperature on Continuous Duty	−40 °F up to +185 °F (−40 °C up to +85 °C)
Max. Test Load, Push / Pull[3]		[lbs / ft²]	169 (8100 Pa) / 75 (3600 Pa)		

[3] See Installation Manual

Qualifications and Certificates

UL61730-1 & UL61730-2, CE-compliant, Quality Controlled PV - TÜV Rheinland, IEC 61215:2016, IEC 61730:2016, U.S. Patent No. 9,893,215 (solar cells).

*Contact your Qcells Sales Representative for details regarding the module's eligibility to be Buy American Act (BAA) compliant.

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

Note: Installation instructions must be followed. Contact our technical service for further information on approved installation of this product.
Hanwha Q CELLS America Inc. 400 Spectrum Center Drive, Suite 1400, Irvine, CA 92618, USA I TEL +1 949 748 59 96 I EMAIL hqc-inquiry@qcells.com I WEB www.qcells.com

REVIEWED
By Laura DiPasquale at 8:58 am, Sep 05, 2024

APPROVED
Montgomery County
Historic Preservation Commission

SOLAR INVERTER

3.8 kW | 7.6 kW

Tesla Solar Inverter completes the Tesla home solar system, converting DC power from solar to AC power for home consumption. Tesla's renowned expertise in power electronics has been combined with robust safety features and a simple installation process to produce an outstanding solar inverter that is compatible with both Solar Roof and traditional solar panels. Once installed, homeowners use the Tesla mobile app to manage their solar system and monitor energy consumption, resulting in a truly unique ecosystem experience.

KEY FEATURES

- Built on Powerwall 2 technology for exceptional efficiency and reliability
- Wi-Fi, Ethernet, and cellular connectivity with easy over-the-air updates
- Designed to integrate with Tesla Powerwall and Tesla App
- 3.8 kW and 7.6 kW models available

SOLAR INVERTER

Tesla Solar Inverter provides DC to AC conversion and integrates with the Tesla ecosystem, including Solar Panels, Solar Roof, Powerwall, and vehicle charging, to provide a seamless sustainable energy experience.

KEY FEATURES

- Integrated rapid shutdown, arc fault, and ground fault protection
- No neutral wire simplifies installation
- 2x the standard number of MPPTs for high production on complex roofs

ELECTRICAL SPECIFICATIONS

OUTPUT (AC)	3.8 kW	7.6 kW
Nominal Power	3,800 W	7,600 W
Maximum Apparent Power	3,328 VA at 208 V 3,840 VA at 240 V	6,656 VA at 208 V 7,680 VA at 240 V
Maximum Continuous Current	16 A	32 A
Breaker (Overcurrent Protection)	20 A	40 A
Nominal Power Factor	1 - 0.85 (leading / lagging)	
THD (at Nominal Power)	<5%	
INPUT (DC)		
MPPT	2	4
Input Connectors per MPPT	1-2	1-2-1-2
Maximum Input Voltage	600 VDC	
DC Input Voltage Range	60 - 550 VDC	
DC MPPT Voltage Range[1]	60 - 480 VDC	
Maximum Current per MPPT (I_{mp})	11 A	
Maximum Short Circuit Current per MPPT (I_{sc})	15 A	

PERFORMANCE SPECIFICATIONS

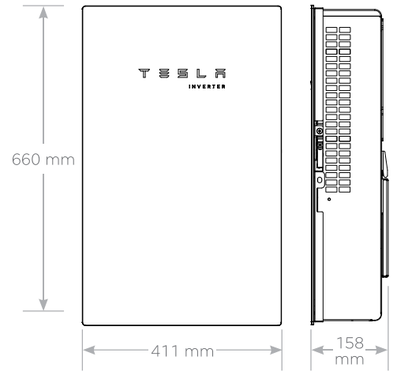
Peak Efficiency[2]	97.5%	98.0%
CEC Efficiency[2]	97.5%	
Allowable DC/AC Ratio	1.4	
Customer Interface	Tesla Mobile App	
Internet Connectivity	Wi-Fi (2.4 GHz, 802.11 b/g/n), Ethernet, Cellular (LTE/4G)[3]	
AC Remote Metering Support	Wi-Fi (2.4 GHz, 802.11 b/g/n), RS-485	
Protections	Integrated arc fault circuit interrupter (AFCI), Rapid Shutdown	
Supported Grid Types	60 Hz, 240 V Split Phase 60 Hz, 208 V Wye	
Required Number of Tesla Solar Shutdown Devices per Solar Module	See *Solar Shutdown Device Requirements per Module* on page 3	
Warranty	12.5 years	

[1] Maximum current.
[2] Expected efficiency pending final CEC listing.
[3] Cellular connectivity subject to network operator service coverage and signal strength.

MECHANICAL SPECIFICATIONS

Dimensions	660 mm x 411 mm x 158 mm (26 in x 16 in x 6 in)
Weight	52 lb[4]
Mounting options	Wall mount (bracket)

[4] Door and bracket can be removed for a mounting weight of 37 lb.



ENVIRONMENTAL SPECIFICATIONS

Operating Temperature[5]	-30°C to 45°C (-22°F to 113°F)
Operating Humidity (RH)	Up to 100%, condensing
Storage Temperature	-30°C to 70°C (-22°F to 158°F)
Maximum Elevation	3000 m (9843 ft)
Environment	Indoor and outdoor rated
Enclosure Rating	Type 3R
Ingress Rating	IP55 (Wiring compartment)
Pollution Rating	PD2 for power electronics and terminal wiring compartment, PD3 for all other components
Operating Noise @ 1 m	< 40 db(A) nominal, < 50 db(A) maximum

[5] For the 7.6 kW Solar Inverter, performance may be de-rated to 6.2 kW at 240 V or 5.37 kW at 208 V when operating at temperatures greater than 45°C.

COMPLIANCE INFORMATION

Grid Certifications	UL 1741, UL 1741 SA, IEEE 1547, IEEE 1547.1
Safety Certifications	UL 1699B, UL 1741, UL 1998 (US)
Emissions	EN 61000-6-3 (Residential), FCC 47CFR15.109 (a)

SOLAR SHUTDOWN DEVICE

The Tesla Solar Shutdown Device is part of the PV system rapid shutdown (RSD) function in accordance with Article 690 of the applicable NEC. When paired with the Tesla Solar Inverter, the PVRSS is initiated by any loss of AC power.

ELECTRICAL SPECIFICATIONS

Nominal Input DC Current Rating (I_{MP})	12 A
Maximum Input Short Circuit Current (I_{SC})	15 A
Maximum System Voltage	600 V DC

RSD MODULE PERFORMANCE

Maximum Number of Devices per String	5
Control	Power Line Excitation
Passive State	Normally open
Maximum Power Consumption	7 W
Warranty	25 years

COMPLIANCE INFORMATION

Certifications	UL 1741 PVRSS PVRSA (Photovoltaic Rapid Shutdown Array)

PVRSS

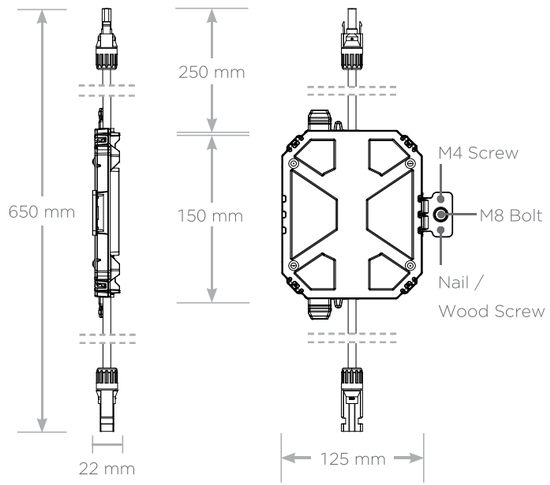
RSD Initiation Method	Loss of AC power
Compatible Equipment	Tesla Solar Inverter

ENVIRONMENTAL SPECIFICATIONS

Ambient Temperature	-40°C to 50°C (-40°F to 122°F)
Storage Temperature	–30°C to 70°C (–22°F to 158°F)
Enclosure Rating	NEMA 4 / IP65

MECHANICAL SPECIFICATIONS

Electrical Connections	MC4 Connector
Housing	Plastic
Dimensions	125 mm x 150 mm x 22 mm (5 in x 6 in x 1 in)
Weight	350 g (0.77 lb)
Mounting Options	ZEP Home Run Clip M4 Screw (#10) M8 Bolt (5/16") Nail / Wood screw



SOLAR SHUTDOWN DEVICE REQUIREMENTS PER MODULE

The following modules have been certified as part of a PV Rapid Shutdown Array (PVRSA) when installed together with the Tesla Solar Inverter and Tesla Solar Shutdown Devices. See the Tesla Solar Inverter Installation Manual for guidance on installing Tesla Solar Inverter and Solar Shutdown Devices with other modules.

Brand	Model	Required Solar Shutdown Devices
Tesla	Solar Roof V3	1 Solar Shutdown Device per 10 modules
Hanwha	Q.PEAK DUO BLK-G5	1 Solar Shutdown Device per 3 modules
Hanwha	Q.PEAK DUO BLK-G6+	1 Solar Shutdown Device per 3 modules

REVIEWED
By Laura DiPasquale at 8:58 am, Sep 05, 2024

APPROVED
Montgomery County
Historic Preservation Commission

Product specifications

Eaton DG222NRB

Catalog Number: DG222NRB

Eaton General duty cartridge fuse safety switch, 60 A, NEMA 3R, Painted galvanized steel, Class H fuses, Fusible with neutral, Two-pole, Three-wire, Category: general duty safety switch, 240 V

General specifications

Product Name
Eaton general duty cartridge fuse safety switch

Catalog Number
DG222NRB

UPC
782113144221

Product Length/Depth
7.35 in

Product Height
14.37 in

Product Width
8.4 in

Product Weight
10 lb

Warranty
Eaton Selling Policy 25-000, one (1) year from the date of installation of the Product or eighteen (18) months from the date of shipment of the Product, whichever occurs first.

Compliances
NEC 230.62 (C) Compliant Barrier

Certifications
UL Listed

Catalog Notes
Maximum hp ratings apply only when dual element fuses are used. 3-Phase hp rating shown is a grounded B phase rating, UL listed.

Physical Attributes

Enclosure
NEMA 3R

Enclosure material
Painted galvanized steel

Fuse configuration
Fusible with neutral

Number Of Poles
Two-pole

Number of wires
3

Type
General duty, cartridge fused

Performance Ratings

Amperage Rating
60A

Fuse class provision
Class H fuses

Voltage rating
240V

Miscellaneous

Product Category
General duty safety switch

Resources

Catalogs
Eaton's Volume 2—Commercial Distribution

Multimedia
Switching Devices Flex Center

Double Up on Safety

Specifications and datasheets
Eaton Specification Sheet - DG222NRB

REVIEWED
By Laura DiPasquale at 8:58 am, Sep 05, 2024

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Historic Preservation Commission

EZ⚡SOLAR
making solar simple.

JB-1.XL

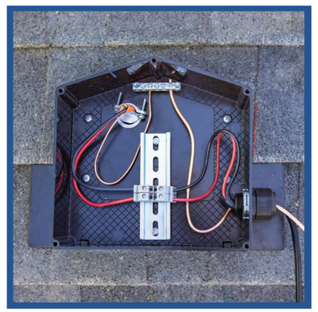
XL

THE ULTIMATE ROOFTOP JUNCTION BOX

JUST GOT BIGGER... AND BETTER! INTRODUCING JB-1.XL

COST EFFECTIVE

- We believe that EVERYONE should have access to affordable renewable energy
- Larger box at a lower cost



MORE SPACE

- Made from advanced durable polycarbonate + superior components, UL1741, Nema 3R, CSA C22.2 No. 290
- 3 patented layers of water protection
- 2 Weep Holes for breathability

FAST INSTALL

- Enter through 3 Side Walls
- Minimal Shingle Cutting
- Din Rail pre-installed

MADE IN USA

Intertek 5019942

ezsolarproducts.com | info@ezsolarproducts.com | 385.202.4150

making solar simple.

EZ⚡SOLAR
making solar simple.

JB-1.2, JB-1.XL
Specification Sheet
PV Junction Box for Composition/Asphalt Shingle Roofs

A. System Specifications and Ratings

- Maximum Voltage: 1,000 Volts
- Maximum Current: **JB-1.2:** 80 Amps; **JB-1.XL:** 120 Amps
- Allowable Wire: 14 AWG – 6 AWG
- Spacing: Please maintain a spacing of at least ½" between uninsulated live parts and fittings for conduit, armored cable, and uninsulated live parts of opposite polarity.
- Enclosure Rating: Type 3R
- Roof Slope Range: 2.5 – 12:12
- Max Side Wall Fitting Size: 1"
- Max Floor Pass-Through Fitting Size: 1"
- Ambient Operating Conditions: (-35°C) - (+75°C)
- Compliance:
  - **JB-1.2:** UL1741, CSA C22.2 No. 290; **JB-1.XL:** UL1741, CSA C22.2 No. 290
  - Approved wire connectors: must conform to UL1741, CSA C22.2 No. 290
- System Marking: **Interek Symbol and File #5019942**
- Periodic Re-inspections: If re-inspections yield loose components, loose fasteners, or any corrosion between components, components that are found to be affected are to be replaced immediately.

Intertek 5019942

Table 1: Typical Wire Size, Torque Loads and Ratings

	1 Conductor	2 Conductor	Torque				
			Type	NM	Inch Lbs	Voltage	Current
ABB ZS6 terminal block	10-24 awg	16-24 awg	Sol/Str	0.5-0.7	6.2-8.85	600V	30 amp
ABB ZS10 terminal block	6-24 awg	12-20 awg	Sol/Str	1.0-1.6	8.85-14.16	600V	40 amp
ABB ZS16 terminal block	4-24 awg	10-20 awg	Sol/Str	1.6-2.4	14.6-21.24	600V	60 amp
ABB M6/8 terminal block	8-22 awg		Sol/Str	.08-1	8.85	600V	50 amp
Ideal 452 Red WING-NUT Wire Connector	8-18 awg		Sol/Str	Self-Torque	Self-Torque	600V	
Ideal 451 Yellow WING-NUT Wire Connector	10-18 awg		Sol/Str	Self-Torque	Self-Torque	600V	
Ideal, In-Sure Push-In Connector Part #39	10-14 awg		Sol/Str	Self-Torque	Self-Torque	600V	
WAGO, 2204-1201	10-20 awg	16-24 awg	Sol/Str	Self-Torque	Self-Torque	600V	30 amp
WAGO, 221-612	10-20 awg	10-24 awg	Sol/Str	Self-Torque	Self-Torque	600V	30 amp
Dottie DRC75	6-12 awg		Sol/Str	Snap-In	Snap-In		
ESP NG-53	4-6 awg		Sol/Str		45	2000V	
	10-14 awg		Sol/Str		35		
ESP NG-717	4-6 awg		Sol/Str		45	2000V	
	10-14 awg		Sol/Str		35		
Brumall 4-5,3	4-6 awg		Sol/Str		45	2000V	
	10-14 awg		Sol/Str		35		

Table 2: Minimum wire-bending space for conductors through a wall opposite terminals in mm (inches)

Wire size, AWG or kcmil (mm2)	Wires per terminal (pole)							
	1		2		3		4 or More	
	mm	(inch)	mm	(inch)	mm	(inch)	mm	(inch)
14-10 (2.1-5.3)	Not Specified		-		-		-	
8 (8.4)	38.1	(1-1/2)	-		-		-	
6 (13.3)	50.8	(2)	-		-		-	

SnapNrack
Solar Mounting Solutions

snapnrack.com

SnapNrack SpeedSeal™ Foot

Patent Pending Lag Driven Sealant Solution for Ultra Rail

A New Generation of Roof Attachments

- Innovative design incorporates flashing reliability into a single roof attachment
- 100% waterproof solution
- Sealing cavity with compressible barrier secures sealant in place & fills voids

Maintain the Integrity of the Roof by Eliminating Disruption

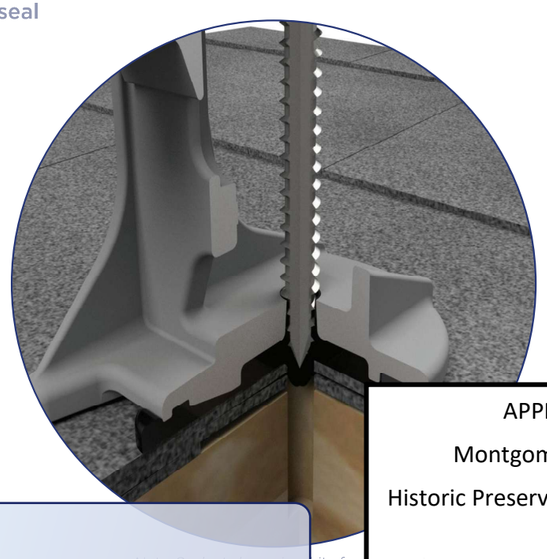
- Zero prying of shingles
- Zero removal of nails leaving holes in the roof
- Roof remains installed the way manufacturer meant it to be

Lag Driven Sealant Waterproofing

- Time Tested Roof Sealant provides lasting seal
- Sealant is compressed into cavity and lag hole as attachment is secured to rafter
- Active sealant solidifies bond if ever touched by liquid
- Technology passes UL 2582 Wind Driven Rain Test and ASTM E2140 Water Column Testing standards. Patent Pending.

Single Tool Installation

- SnapNrack was the first in the industry to develop a complete system that only requires a single tool. That tradition is continued as a ½" socket is still the only tool necessary to secure the mount as well as all other parts of the system.



Note: Sealant shown in white for

REVIEWED
By Laura DiPasquale at 8:58 am, Sep 05, 2024

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snapnrack.com

SnapNrack SpeedSeal™ Foot

Fastest Roof Attachment in Solar

- Lag straight to a structural member, no in-between components such as flashings or bases.
- Simply locate rafter, fill sealant cavity & secure to roof. *It's that simple!*

Integrated Flashings. No Questions.

- Sealant fills around lag screw keeping roof and structure sealed and intact
- No added holes from ripping up nails, staples and screws holding shingles on roof

Less Time. Less Parts. Less Tools.

- No more need for a pry bar to rip up shingles
- No more proprietary lag screws
- Single Tool installation with ½" socket

Total System Solution
One Tool. One Warranty.

- SnapNrack Ultra Rail is a straightforward intuitive install experience on the roof without compromising quality, aesthetics & safety, all supported by a 25 year warranty.
- Built-in Wire Management & Aesthetically pleasing features designed for Ultra Rail result in a long-lasting quality install that installers and homeowners love.

Certifications

SnapNrack Ultra Rail System has been evaluated by Underwriters Laboratories (UL) and Listed to UL/ANSI Standard 2703 for Mechanical Loading and Fire. Additionally it is listed to UL 2582 for wind-driven rain and ASTM 2140.

SnapNrack
Solar Mounting Solutions

877-732-2860 www.snapnrack.com contact@snapnrack.com

SnapNrack®

UR-40
UR-60

Ultra Rail

The Ultimate Value in Rooftop Solar

- Industry leading Wire Management Solutions
- Mounts available for all roof types
- Single Tool Installation
- All SnapNrack Module Clamps & Accessories are compatible with both rail profiles

Start Installing Ultra Rail Today

RESOURCES snapnrack.com/resources
DESIGN snapnrack.com/configurator
WHERE TO BUY snapnrack.com/where-to-buy

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By Laura DiPasquale at 8:58 am, Sep 05, 2024

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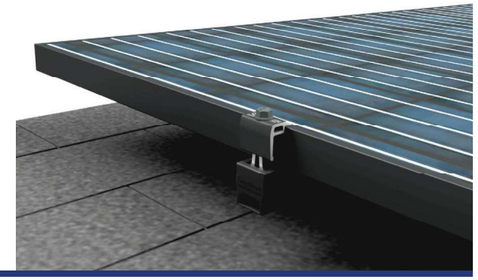
SnapNrack Ultra Rail System

A sleek, straightforward rail solution for mounting solar modules on all roof types. Ultra Rail features two rail profiles; UR-40 is a lightweight rail profile that is suitable for most geographic regions and maintains all the great features of SnapNrack rail, while UR-60 is a heavier duty rail profile that provides a larger rail channel and increased span capabilities. Both are compatible with all existing mounts, module clamps, and accessories for ease of install.

The Entire System is a Snap to Install

- New Ultra Rail Mounts include snap-in brackets for attaching rail
- Compatible with **new** Ultra Rail Mid Clamps & End Clamps that are one-size-fits-all universal clamping height
- Universal End Clamps & snap-in End Caps provide a clean look to the array edge



Unparalleled Wire Management

- Open rail channel provides room for running wires resulting in a long-lasting quality install
- **New** module clamps eliminate bolt interference in the rail channel creating more space for wire management
- Industry best wire management offering includes Junction Boxes, Universal Wire Clamps, MLPE Attachment Kits & Conduit Clamps
- System is fully bonded & listed to UL 2703 Standard

Heavy Duty UR-60 Rail

- UR-60 rail profile provides increased span capabilities for high wind speeds and snow loads
- Taller, stronger rail profile includes profile-specific rail splice and end cap
- All existing mounts, module clamps, and accessories are retained for the same great install experience

Quality. Innovative. Superior.

SnapNrack Solar Mounting Solutions are engineered to optimize material use and labor resources and improve overall installation quality and safety.

877-732-2860 **www.snapnrack.com** **contact@snapnrack.com**

venture solar

07/17/2024

To Whom it may concern,

- Justification of panels on the front of the house and Heat map

The front panels are essential for the solar energy project at 3 Hesketh Street, Chevy Chase, Maryland 20815. According to the Shade Report, these panels are necessary to produce sufficient electricity to meet the home's needs and ensure the project's financial viability.

Without these front panels, the generated electricity would be insufficient for the household's energy requirements, affecting the cost-effectiveness of the project.

Please see attached Shade report

Rimi, Unes
Regional Operations Manager

REVIEWED
By Laura DiPasquale at 8:58 am, Sep 05, 2024

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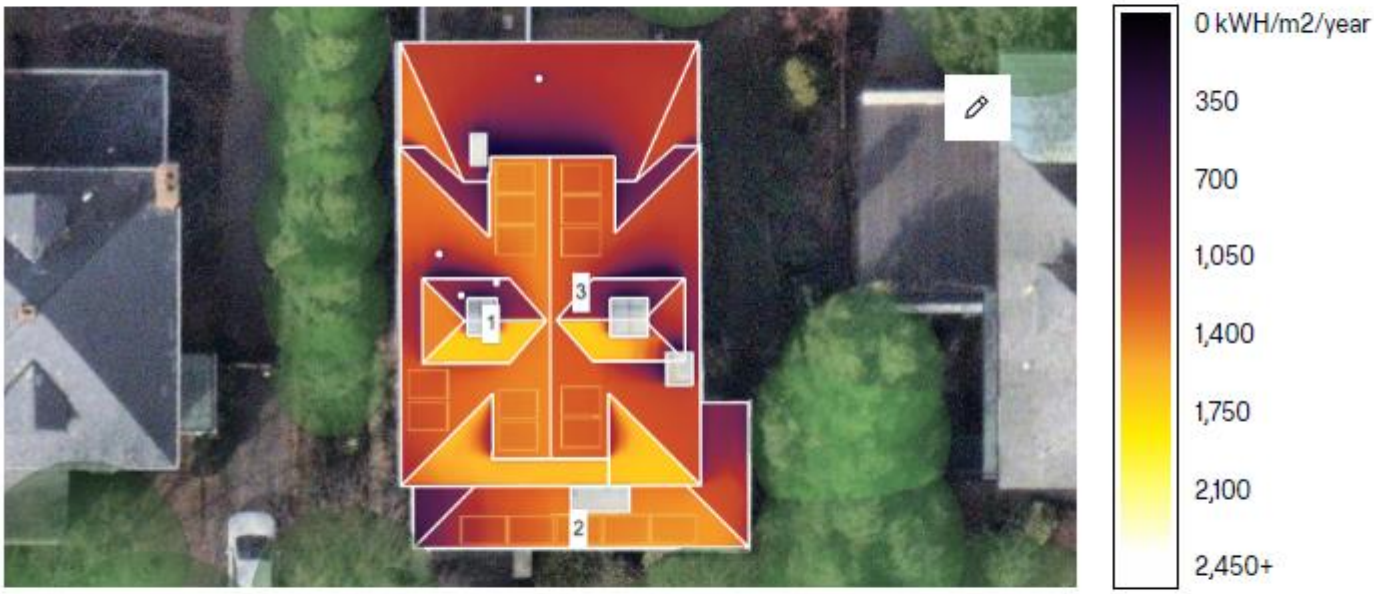
FINAL DESIGN

Shade Report - 3 Hesketh Street Chevy Chase, MD 20815,USA

Customer	Designer	Organization
Lars Jeurling	Vipul Pradhan	Venture Solar LLC
Address	**Coordinates**	**Date**
3 Hesketh Street Chevy Chase, MD 20815	38.968734, -77.079887	4/25/2024

Annual irradiance



Summary

Array ID	Panel count	Azimuth	Pitch	Annual TOF	Annual solar access	Annual TSRF
1	7	270°	30°	80%	90%	72%
2	5	180°	16°	95%	75%	72%
3	5	90°	30°	80%	84%	68%
			Weighted average by panel count:		83.8%	70.8%

DocuSigned by:
Lars Jeurling
5F72611ACA314D2...
Lars Jeurling

REVIEWED
By Laura DiPasquale at 8:58 am, Sep 05, 2024

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venture solar®

05/23/2024

Lars Jeurling
3 Hesketh Street
Chevy Chase, Maryland 20815

Re: Solar Panel Installation

Dear Mr./Ms. Jeurling,

At your request, Patrick Bussett of Venture Solar LLC (MD license #58796), has carefully reviewed the existing roof framing and the connection of the panels to the roof for the building referenced above.

The following building codes were used in conjunction with the Maryland Building Performance Standards (MBPS) and local amendments to generate pertinent design criteria:

ASCE 7-16 – Minimum Design Loads for Buildings and Other Structures
International Residential Code 2018 Edition (IRC)
National Design Specification for Wood Construction 2018 Edition (NDS)

Design Criteria:
Design Gravity Load: Snow/Live Load = 30 lbs/ft^2, Dead Load = 12 psf
Design Wind Load: V_{ult} = 115 mph; Exposure B, Risk Category II
*Wind loads exceed seismic loads and therefore govern the design

Field observations identified the following conditions:

The new solar panels will impose an additional dead load of approximately 3 psf. The roof consists of asphalt shingles over plywood sheathing supported by 2x8 rafters at 16" o.c. The rafters are sloped at a 28° pitch and have a maximum projected horizontal span of 17'-0"±. The framing is assumed to be Douglas-Fir #2 graded or better.

The calculations determined that the existing framing has adequate capacity to support the PV panels as shown in our PV panel layout plan with no structural upgrades required. I therefore certify that this installation complies with the applicable codes and is acceptable for approval. Please feel free to contact me if you have any questions or concerns.

Best,

Patrick Bussett, PE
Email: patrick.bussett@venturesolar.com

REVIEWED
By Laura DiPasquale at 8:59 am, Sep 05, 2024

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Municipality Letter for
Proposed Construction Project

Subject Property:	3 Hesketh Street, Chevy Chase, MD 20815
Property Owner:	Mr. and Mrs. Jeurling
Project Manager/Contractor:	Patrick Bussett/Venture Solar
Proposed Work:	Solar Panel Installation

6/13/2024

Rabbiah Sabbakhan, Director
Department of Permitting Services of Montgomery County
255 Rockville Pike, 2nd floor
Rockville, MD 20850

Dear Mr. Sabbakhan,

This letter is to inform your department that the above homeowner/contractor has notified Chevy Chase Village that he or she plans to apply for both county and municipal permits for the above summarized construction project. Chevy Chase Village will not issue any municipal building permit(s) for this proposed project until Montgomery County has issued all necessary county permits and the applicant has provided Chevy Chase Village with copies of county-approved and stamped plans. We have advised the homeowner/contractor that a permit from Montgomery County does not guarantee a permit from this municipality unless the project complies with all our municipal rules and regulations.

If this homeowner/contractor later applies for an amended county permit, please do not approve that application until you have received a Municipality Letter from us indicating that the homeowner/contractor has notified us of that proposed amendment to the permit.

If you have any questions about this proposed project and the municipal regulation of it by Chevy Chase Village, do not hesitate to have your staff contact my office. The Village Permitting Coordinator can be reached by phone at 301-654-7300 or by e-mail at ccvpermitting@montgomerycountymd.gov.

Sincerely,

Shana R. Davis-Cook
Chevy Chase Village Manager

CHEVY CHASE VILLAGE
5906 Connecticut Avenue
Chevy Chase, Maryland 20815
Phone (301) 654-7300
Fax (301) 907-9721
ccv@montgomerycountymd.gov
www.chevychasevillagemd.gov