



HISTORIC PRESERVATION COMMISSION

Marc Elrich
County Executive

Robert Sutton
Chairman

Date: September 20, 2024

MEMORANDUM

TO: Rabbiah Sabbakhan
Department of Permitting Services
FROM: Dan Bruechert
Historic Preservation Section
Maryland-National Capital Park & Planning Commission
SUBJECT: Historic Area Work Permit #1069117 - Solar Installation

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 June 26, 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: Sue Wheaton (Josh Bertaux, agent)
Address: 7211 Spruce Ave., Takoma Park

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 Dan Bruechert at 301.563.3408 or dan.bruechert@montgomeryplanning.org to schedule a follow-up site visit.





Freedom Forever
Planset Revision Letter

9/11/2024
REV #4

Attn. County of Montgomery (MD):

The changes outlined in Revision Details have been applied to the plans corresponding to the following customer:

SUE WHEATON
7211 SPRUCE AVE, TAKOMA PARK, MD 20912

Revision Details:

Layout updated to meet Historic Preservation Commission's solar policy
2 panels removed from front of the house. By removing the 2 panels on the front of the house no panels will be directly visible from the front side of the house. Furthermore there are no other locations to move panels on the house and the remaining front facing panels will not be at all visible from the right-of-way and not have an impact on the character of the house or surrounding district and should be approved as a matter of course. and removing these panels would lower the production thresholds under the allowable sold contract and are needed to achieve production

REV 4. Removed all panels from front of house to meet historic preservation commissions's solar policy.



REVIEWED

By Dan.Bruechert at 3:49 pm, Sep 20, 2024

All corresponding changes are notated on the plans by revision clouds.

Thank you for your time in reviewing these plans. Please reach out if you have any additional questions or concerns.

Construction Engineering



REVIEWED

By Dan.Bruechert at 3:49 pm, Sep 20, 2024

ROOF MOUNT PHOTOVOLTAIC SYSTEM	
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CODES:

THIS PROJECT COMPLIES WITH THE FOLLOWING:
2018 INTERNATIONAL ENERGY CONSERVATION CODE
2018 INTENATIONAL RESIDENTIAL CODE
2018 INTERNATIONAL FUEL AND GAS CODE
2018 INTERNATIONAL MECHANICAL CODE
2018 INTERNATIONAL SWIMMING POOL AND SPA CODE
2018 INTERNATIONAL BUILDING CODE
2017 NATIONAL ELECTRIC CODE
AS ADOPTED BY COUNTY OF MONTGOMERY

VICINITY MAP:



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PV-9	SAFETY PLAN
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APPENDIX	MANUFACTURER SPECIFICATION SHEETS

CONSTRUCTION NOTES:

CONDUIT AND CONDUCTOR SPECIFICATIONS ARE BASED ON MINIMUM CODE REQUIREMENTS AND ARE NOT MEANT TO LIMIT UP-SIZING AS REQUIRED BY FIELD CONDITIONS.

ALL SOLAR ENERGY SYSTEM EQUIPMENT SHALL BE SCREENED TO THE MAXIMUM EXTENT POSSIBLE AND SHALL BE PAINTED A COLOR SIMILAR TO THE SURFACE UPON WHICH THEY ARE MOUNTED.

MODULES SHALL BE TESTED , LISTED AND IDENTIFIED WITH FIRE CLASSIFICATION IN ACCORDANCE WITH UL 2703. SMOKE AND CARBON MONOXIDE ALARMS ARE REQUIRED PER SECTION R314 AND 315 TO BE VERIFIED AND INSPECTED BY INSPECTOR IN THE FIELD.

DIG ALERT (811) TO BE CONTACTED AND COMPLIANCE WITH EXCAVATION SAFETY PRIOR TO ANY EXCAVATION TAKING PLACE

PHOTOVOLTAIC SYSTEM GROUND WILL BE TIED INTO EXISTING GROUND AT MAIN SERVICE FROM DC DISCONNECT/INVERTER AS PER 2017 NEC SEC 250.166(A).

SOLAR PHOTOVOLTAIC SYSTEM EQUIPMENT WILL BE INSTALLED IN ACCORDANCE WITH REQUIREMENTS OF ART. 690 OF THE 2017 NEC

THE MAIN SERVICE PANEL WILL BE EQUIPPED WITH A GROUND ROD OR UFER

UTILITY COMPANY WILL BE NOTIFIED PRIOR TO ACTIVATION OF THE SOLAR PV SYSTEM

SOLAREGE OPTIMIZERS ARE LISTED TO IEC 62109-1 (CLASS II SAFETY) AND UL 1741 STANDARDS

INSTALL CREW TO VERIFY ROOF STRUCTURE PRIOR TO COMMENCING WORK. EMT CONDUIT ATTACHED TO THE ROOF USING CONDUIT MOUNT.

APPROVED

Montgomery County
Historic Preservation Commission

Historic Preservation Commission

Historical Preservation Commission

Randy Porter

REVIEWED
By Dan.Bruechert at 3:49 pm, Sep 20, 2024

By Dan.Bruechert at 3:49 pm, Sep 20, 2024



Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am duly licensed professional engineer under the laws of the State of Maryland.
License No. 33818, Expiration Date: 07-04-2025

David
Hoehman

Digitally signed by
David Hoehman
Date: 2024.09.12
07:36:56 -04'00'

CLIENT:
SUE WHEATON
7211 SPRUCE AVE, TAKOMA PARK, MD
20912
AHJ: COUNTY OF MONTGOMERY
UTILITY: PEPCO
METER: 1ND350446558
APN: 13-01081455
PHONE: (301) 270-9038
EMAIL: SUEKWHEATON@GMAIL.COM

SYSTEM:
SYSTEM SIZE (DC): 17 X 400 = 6.800 kW
SYSTEM SIZE (AC): 5.000 kW @ 240V
MODULES: 17 X FREEDOM FOREVER:
FF-MP-BBB-400
OPTIMIZERS: 17 X SOLAREDGE S440
INVERTER: SOLAREDGE SE5000H-USRGM
[SI1]

	REVISIONS	
NO.	REVISED BY	DATE
2	P.A.	5/3/2024
3	A.K.	8/20/2024
4	H.A.	9/11/2024



FREEDOM FOREVER LLC
5000 THAYER CENTER SUITE C, OAKLAND,
MD 21550
Tel: (800) 385-1075
GREG ALBRIGHT


CONTRACTOR LICENSE:
HOME IMPROVEMENT CONTRACTOR 120928
/140496; MASTER ELECTRICIAN 14190

PROJECT DETAILS

JOB NO: 417788	DATE: 9/11/2024	DESIGNED BY: H.A.	SHEET: PV-1
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LEGEND:

CHIMNEY

PIPE VENT

MODULES

CONDUIT

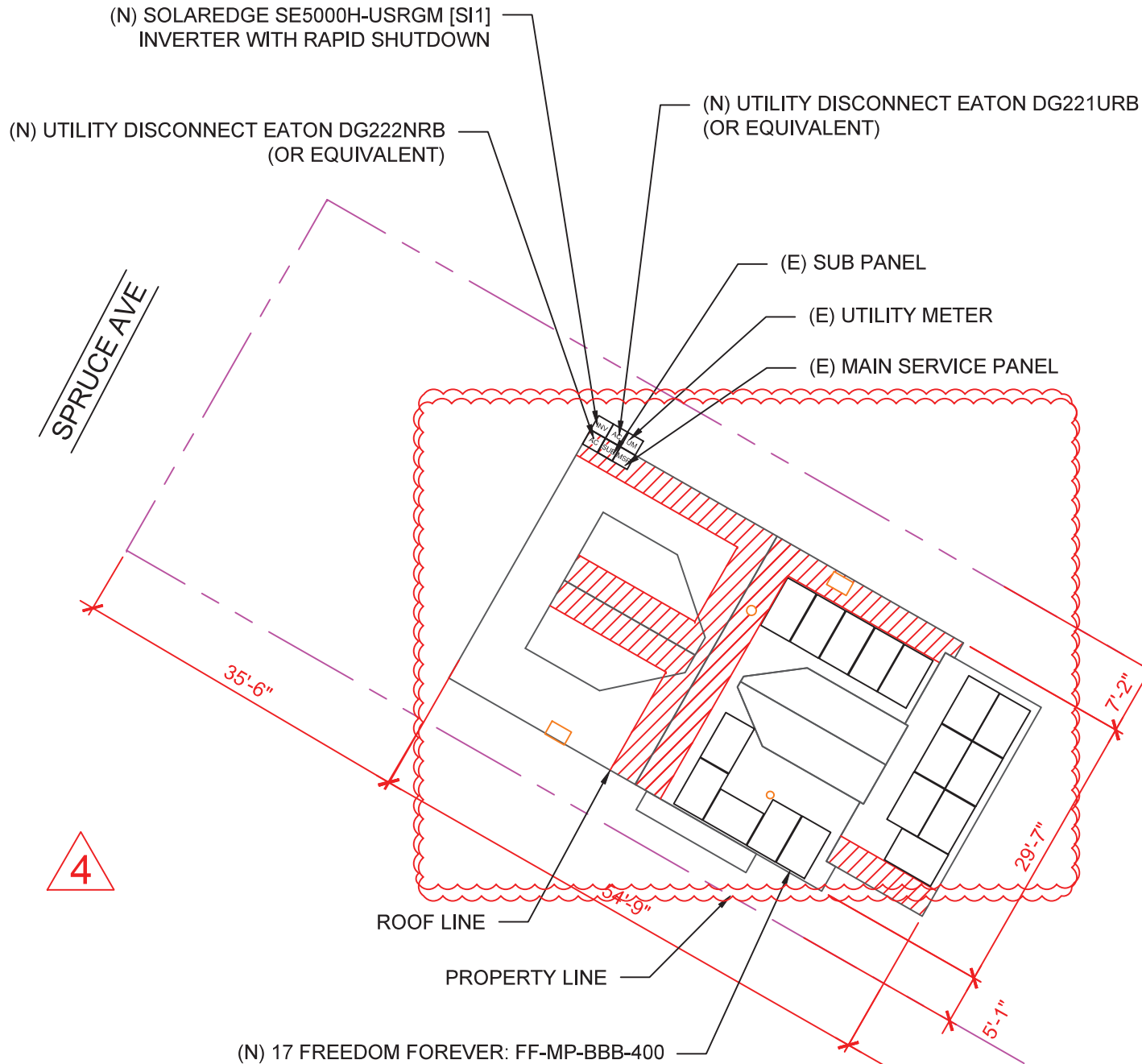
SETBACK

AC DISCONNECT

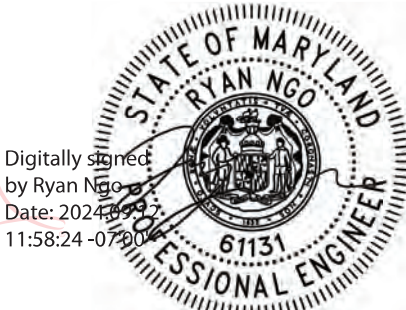
JUNCTION BOX

INVERTER

MAIN SERVICE PANEL



Ryan
Ngo



Professionally signed by Ryan Ngo
Date: 2024-09-20 11:58:24 -0700
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. 61131, Expiration Date: 05/21/2025

ROOF AREA: 2500 SQ FT

CLIENT:
SUE WHEATON
7211 SPRUCE AVE, TAKOMA PARK, MD 20912
AHJ: COUNTY OF MONTGOMERY
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APPROVED
Montgomery County
Historic Preservation Commission

[Signature]

REVIEWED

By Dan.Bruechert at 3:49 pm, Sep 20, 2024



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GREG ALBRIGHT

[Signature]

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/140496; MASTER ELECTRICIAN 14190

SITE PLAN

JOB NO:	DATE:	DESIGNED BY:	SHEET:
417788	9/11/2024	H.A.	PV-2



SITE PLAN
SCALE: 1/16" = 1'-0"

1

LEGEND:

CHIMNEY

PIPE VENT

MODULES

CONDUIT

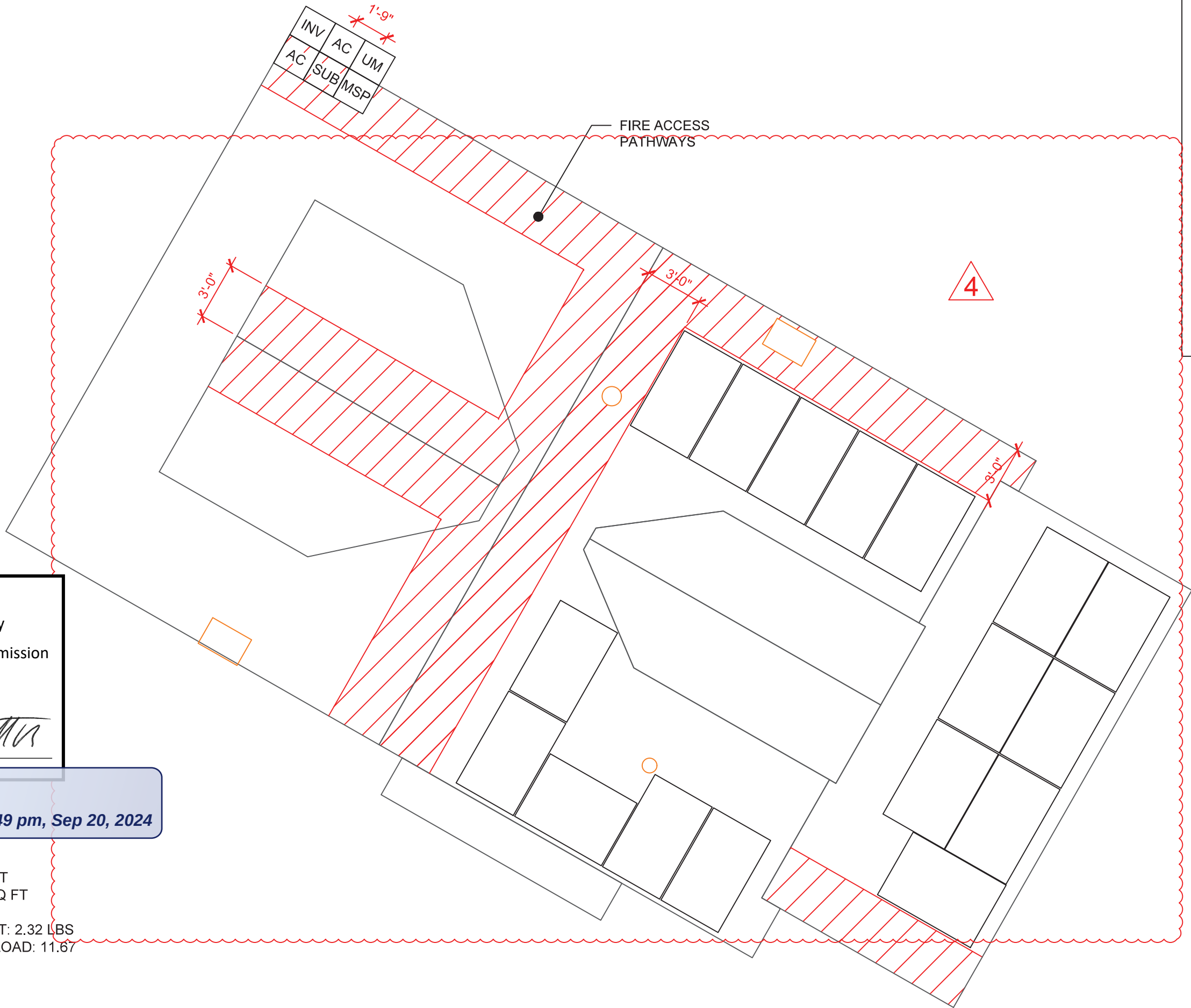
SETBACK

AC DISCONNECT

JUNCTION BOX

INVERTER

MAIN SERVICE PANEL



Ryan
Ngo

State of Maryland
Professional Engineer
61131
Ryan Ngo

Digitally signed
by Ryan Ngo
Date: 2024.09.
11:58:36 -0700

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GREG ALBRIGHT

Greg Albright

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/140496; MASTER ELECTRICIAN 14190

ROOF PLAN WITH MODULES LAYOUT

JOB NO: 417788	DATE: 9/11/2024	DESIGNED BY: H.A.	SHEET: PV-2A
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APPROVED
Montgomery County
Historic Preservation Commission

Randy H. [Signature]

REVIEWED
By Dan.Bruechert at 3:49 pm, Sep 20, 2024

TOTAL ROOF AREA: 2500 SQ FT
TOTAL ARRAY AREA: 357.33 SQ FT
ARRAY COVERAGE: 14.29%
SYSTEM DISTRIBUTED WEIGHT: 2.32 LBS
ROCKIT SMART SLIDE POINT-LOAD: 11.67 LBS



ROOF PLAN
SCALE: 3/16" = 1'-0"

1

- NOTES:
- EMT CONDUIT ATTACHED TO THE ROOF USING CONDUIT MOUNTS
 - ATTACHED CLAMPS AT 25% FROM THE EDGE AND 50% FROM THE CENTER OF THE MODULES
 - JUNCTION BOX IS MOUNTED TO THE RAIL.

ROOF DETAILS:

TOTAL ROOF AREA: 2500 SQ FT
TOTAL ARRAY AREA: 357.33 SQFT
ARRAY COVERAGE: 14.29%
SYSTEM DISTRIBUTED WEIGHT: 2.32 LBS
ROCKIT SMART SLIDE POINT-LOAD: 11.67 LBS

Ryan
Ngo



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ROOF AREA STATEMENT						
ROOF	MODULE QUANTITY	ROOF PITCH	ARRAY PITCH	AZIMUTH	ROOF AREA	ARRAY AREA
ROOF 1	10	24	24	120	540 SQ FT	210.19 SQ FT
ROOF 2	7	12	12	120	286 SQ FT	147.14 SQ FT
----	----	----	----	----	SQ FT	SQ FT
----	----	----	----	----	SQ FT	SQ FT
----	----	----	----	----	SQ FT	SQ FT
----	----	----	----	----	SQ FT	SQ FT
----	----	----	----	----	SQ FT	SQ FT
----	----	----	----	----	SQ FT	SQ FT
----	----	----	----	----	SQ FT	SQ FT
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APPROVED

Montgomery County

Historic Preservation Commission

REVIEWED

By Dan.Bruechert at 3:49 pm, Sep 20, 2024

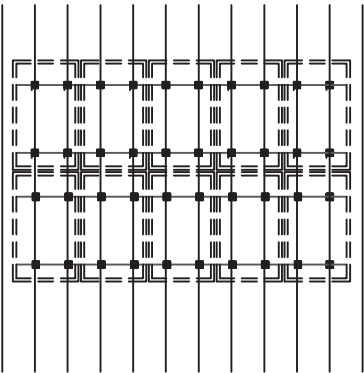
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GREG ALBRIGHT

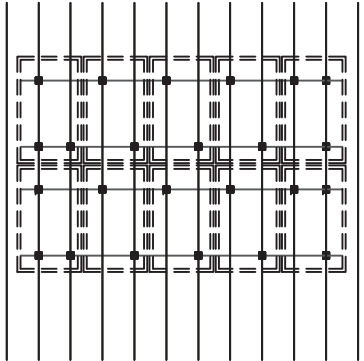
CONTRACTOR LICENSE:
HOME IMPROVEMENT CONTRACTOR 120928
/140496; MASTER ELECTRICIAN 14190

ARRAY DETAILS			
JOB NO: 417788	DATE: 9/11/2024	DESIGNED BY: H.A.	SHEET: PV-2B

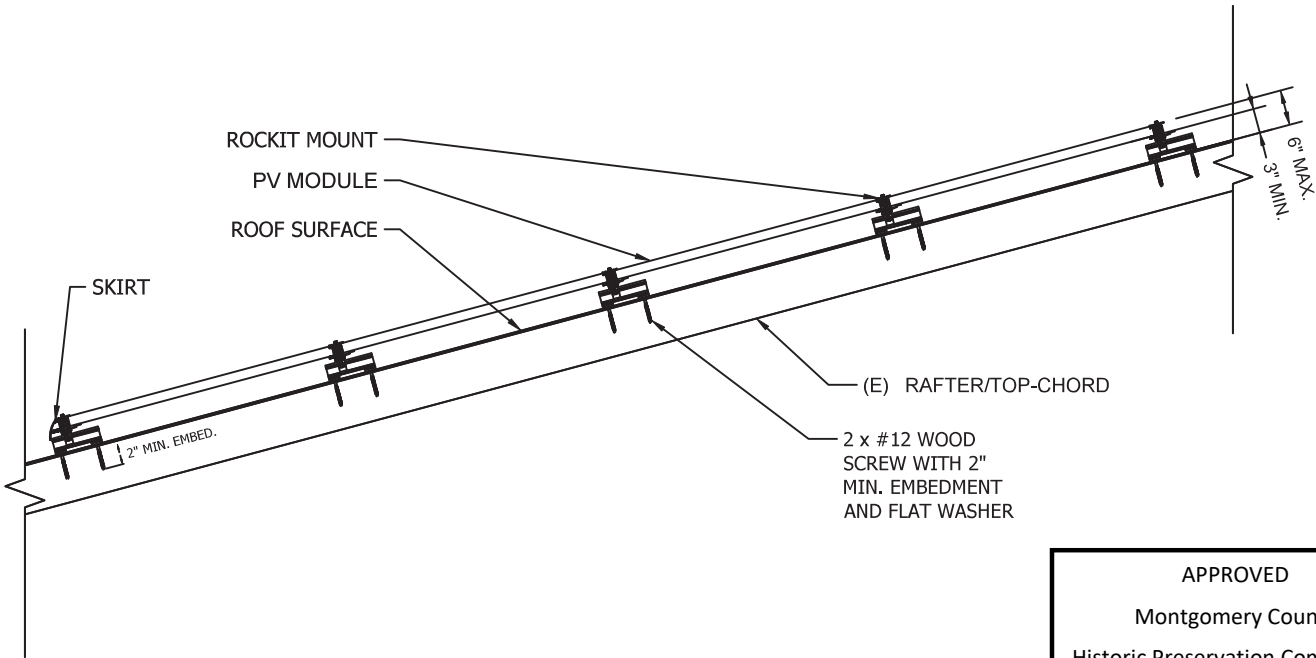
TABLE 1 – ARRAY INSTALLATION									
	ROOF PITCH	ROOFING TYPE	ATTACHMENT TYPE	FRAMING TYPE	MAX UNBRACED LENGTH(FT.)	STRUCTURAL ANALYSIS RESULT	PENETRATION PATTERN	MAX ATTACHMENT SPACING (IN.)	MAX RAIL OVERHANG(IN. N.)
ROOF 1	24	Comp Shingle	Ecofasten RockIt Smart Slide	2x6 @ 24" O.C.	7	PASS	STAGGERED	24	8
ROOF 2	12	Comp Shingle	Ecofasten RockIt Smart Slide	2x6 @ 24" O.C.	7	PASS	STAGGERED	48	16
1. CONTRACTOR TO VERIFY FRAMING TYPE AND MAX UNBRACED LENGTH PRIOR TO INSTALLATION. IF THE ABOVE INFORMATION DOES NOT MATCH FIELD CONDITIONS, NOTIFY ENGINEER OF RECORD IMMEDIATELY.									
2. WHERE COLLAR TIES OR RAFTER SUPPORTS EXIST, CONTRACTOR SHALL USE RAFTERS WITH COLLAR TIES AS ATTACHMENT POINTS.									
3. MAX RAIL OVERHANGS APPLICABLE FOR RAILED ATTACHMENT INSTALLATIONS									



STACKED DETAIL
For Illustration purposes only

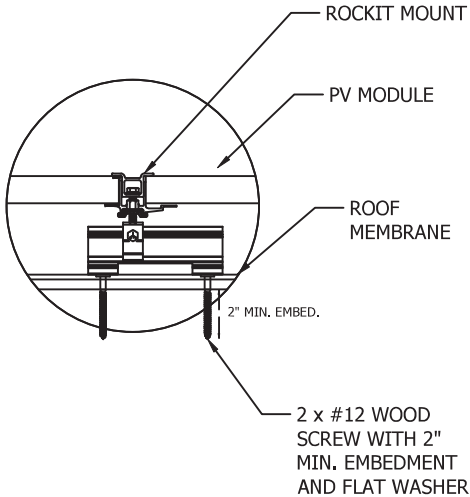
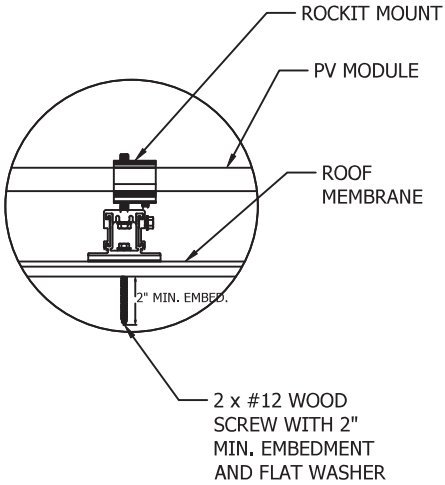


STAGGERED DETAIL
For Illustration purposes only



APPROVED
Montgomery County
Historic Preservation Commission

[Signature]



ATTACHMENT DETAIL
Scale: NTS

Ryan
Ngo



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SYSTEM SIZE (AC): 5,000 kW @ 240V
MODULES: 17 X FREEDOM FOREVER: FF-MP-BBB-400
OPTIMIZERS: 17 X SOLAREEDGE S440
INVERTER: SOLAREEDGE SE5000H-USRGM [SI1]

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SOLAR PV ARRAY SECTION VIEW
Scale: NTS

REVIEWED
By Dan.Bruechert at 3:49 pm, Sep 20, 2024

MOUNTING DETAILS			
JOB NO:	DATE:	DESIGNED BY:	SHEET:
417788	9/11/2024	H.A.	PV-3

BACKFEED FUSE SIZING						
MAX. CONTINUOUS OUTPUT 21.00A @ 240V						
21.00	X	1.25	=	26AMPS	30A FUSES - OK	

PV SYSTEM
6.800 kW-DC
5.000 kW-AC

"AC DISCONNECT IS VISIBLE, TAGGABLE, AND 24/7
UTILITY ACCESSIBLE"



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APPROVED
Montgomery County
Historic Preservation Commission

[Signature]

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By Dan.Bruechert at 3:49 pm, Sep 20, 2024

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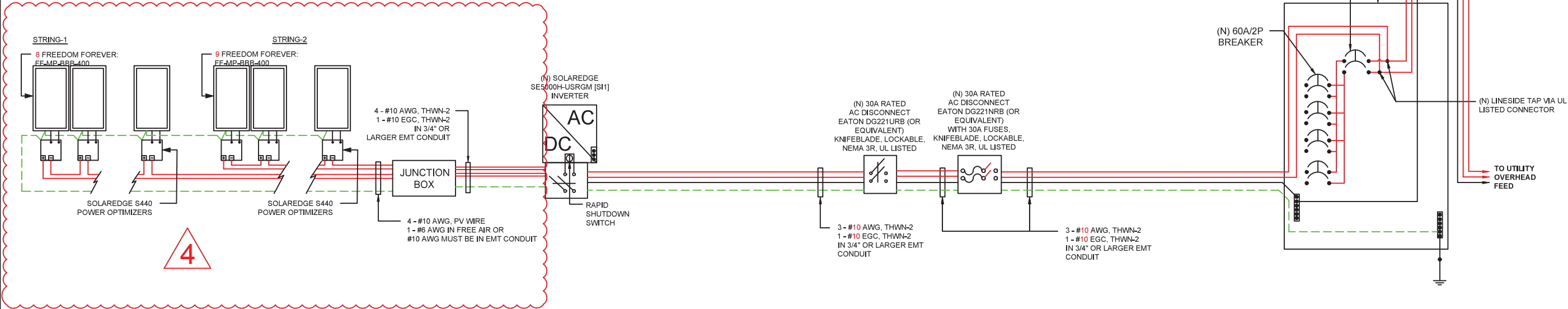


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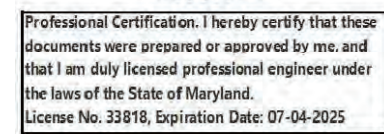
[Signature]
CONTRACTOR LICENSE:
HOME IMPROVEMENT CONTRACTOR 120928 /140496; MASTER ELECTRICIAN 14190

THREE LINE DIAGRAM

JOB NO:	DATE:	DESIGNED BY:	SHEET:
417788	9/11/2024	H.A.	PV-4



NOTE:
CONDUIT AND CONDUCTORS SPECIFICATIONS ARE BASED ON MINIMUM CODE REQUIREMENTS AND ARE NOT MEANT TO LIMIT UP-SIZING AS REQUIRED BY FIELD CONDITIONS



Randy Potter

By Dan.Bruechert at 3:50 pm, Sep 20, 2024

CONDUCTOR AMPACITY CALCULATIONS IN ACCORDANCE WITH NEC 690.8.

SYSTEM:
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FF-MP-BBB-400
OPTIMIZERS: 17 X SOLAREEDGE S440
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[S1]



freedom™
FOREVER

Guy Martin

CONDUCTOR CALCULATIONS

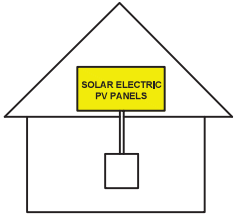
JOB NO: 417788	DATE: 9/11/2024	DESIGNED BY: H.A.	SHEET: PV-5
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WARNING:
POWER SOURCE OUTPUT
CONNECTION
DO NOT RELOCATE THIS
OVERCURRENT DEVICE.

705.12(B)(2)(3)(b)

**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



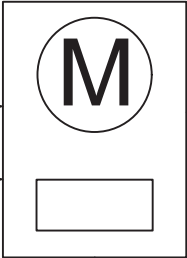
690.56(C)(1)(A)

PV METER

**RAPID SHUTDOWN SWITCH FOR
SOLAR PV SYSTEM**

690.56(C)(3)

MAXIMUM VOLTAGE 480 V
MAXIMUM CIRCUIT CURRENT 13.5 A
MAX DC-DC CONVERTER
OUTPUT CURRENT 15 A



"WARNING"
DUAL POWER SOURCES
SECOND SOURCE IS PHOTOVOLTAIC SYSTEM
RATED AC OUTPUT CURRENT - 21.00 AMPS
AC NORMAL OPERATING VOLTAGE - 240 VOLTS

690.54

PV SYSTEM AC DISCONNECT
RATED AC OUTPUT CURRENT - 21.00 AMPS
AC NORMAL OPERATING VOLTAGE - 240 VOLTS

690.15, 690.54

APPROVED
Montgomery County
Historic Preservation Commission

REVIEWED

By Dan.Bruechert at 3:50 pm, Sep 20, 2024

NOTES:

- NEC ARTICLES 690 AND 705 AND IRC SECTION R324 MARKINGS SHOWN HEREON.
- ALL MARKING SHALL CONSIST OF THE FOLLOWING:
 - UV RESISTANT SIGN MATERIAL WITH ENGRAVED OR MACHINE PRINTED LETTERS OR ELECTRO-PLATING.
 - RED BACKGROUND COLOR WHITE TEXT AND LINE WORK.
 - ARIAL FONT.
- ALL SIGNS SHALL BE SIZED APPROPRIATELY AND PLACED IN THE LOCATIONS SPECIFIED. SIGNAGE CANNOT BE HAND-WRITTEN.
- SIGNS SHALL BE ATTACHED TO THE SERVICE EQUIPMENT WITH POP-RIVETS OR SCREWS



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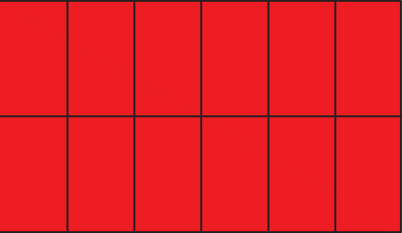
"WARNING"
ELECTRICAL SHOCK HAZARD.
TERMINALS ON BOTH LINE AND LOAD SIDES
MAY BE ENERGIZED IN THE OPEN POSITION.

690.13 (B)

PV SYSTEM DC DISCONNECT
MAXIMUM VOLTAGE: 480V
MAXIMUM CIRCUIT CURRENT: 13.5A
MAX RATED OUTPUT CURRENT OF
THE CONTROLLER OR DC-TO-DC
CONVERTER: 15A

690.53

ARRAY



NEC 690.31(G)(3) & (4)

"WARNING"
PHOTOVOLTAIC POWER SOURCE

EVERY 10' ON CONDUIT AND ENCLOSURES

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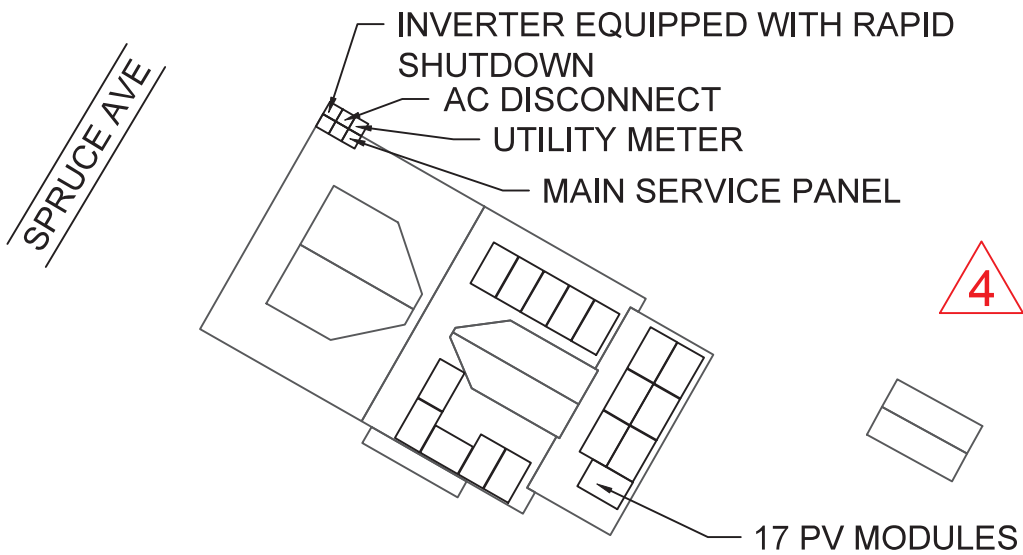
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LABELS			
JOB NO: 417788	DATE: 9/11/2024	DESIGNED BY: H.A.	SHEET: PV-7

CAUTION:

POWER TO THIS BUILDING IS
ALSO SUPPLIED FROM THE
FOLLOWING SOURCES WITH
DISCONNECTS AS SHOWN



WARNING

TURN OFF PHOTOVOLTAIC AC DISCONNECT
PRIOR TO WORKING INSIDE PANEL

NOTES:

1. NEC ARTICLES 690 AND 705 AND IRC SECTION R324 MARKINGS SHOWN HEREON.
2. ALL MARKING SHALL CONSIST OF THE FOLLOWING:
 - A. UV RESISTANT SIGN MATERIAL WITH ENGRAVED OR MACHINE PRINTED LETTERS OR ELECTRO-PLATING.
 - B. RED BACKGROUND COLOR WHITE TEXT AND LINE WORK.
 - C. AERIAL FONT.
3. ALL SIGNS SHALL BE SIZED APPROPRIATELY AND PLACED IN THE LOCATIONS SPECIFIED. SIGNAGE CANNOT BE HAND-WRITTEN.
4. SIGNS 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 duly licensed professional engineer under the laws of the State of Maryland.
License No. 33818, Expiration Date: 07-04-2025

CLIENT:
SUE WHEATON
7211 SPRUCE AVE, TAKOMA PARK, MD 20912
AHJ: COUNTY OF MONTGOMERY
UTILITY: PEPCO
METER: 1ND350446558
APN: 13-01081455
PHONE: (301) 270-9038
EMAIL: SUEKWHEATON@GMAIL.COM

SYSTEM:
SYSTEM SIZE (DC): 17 X 400 = 6,800 kW
SYSTEM SIZE (AC): 5,000 kW @ 240V
MODULES: 17 X FREEDOM FOREVER: FF-MP-BBB-400
OPTIMIZERS: 17 X SOLAREEDGE S440
INVERTER: SOLAREEDGE SE5000H-USRGM [SI1]

APPROVED
Montgomery County
Historic Preservation Commission

REVIEWED

By Dan.Bruechert at 3:50 pm, Sep 20, 2024

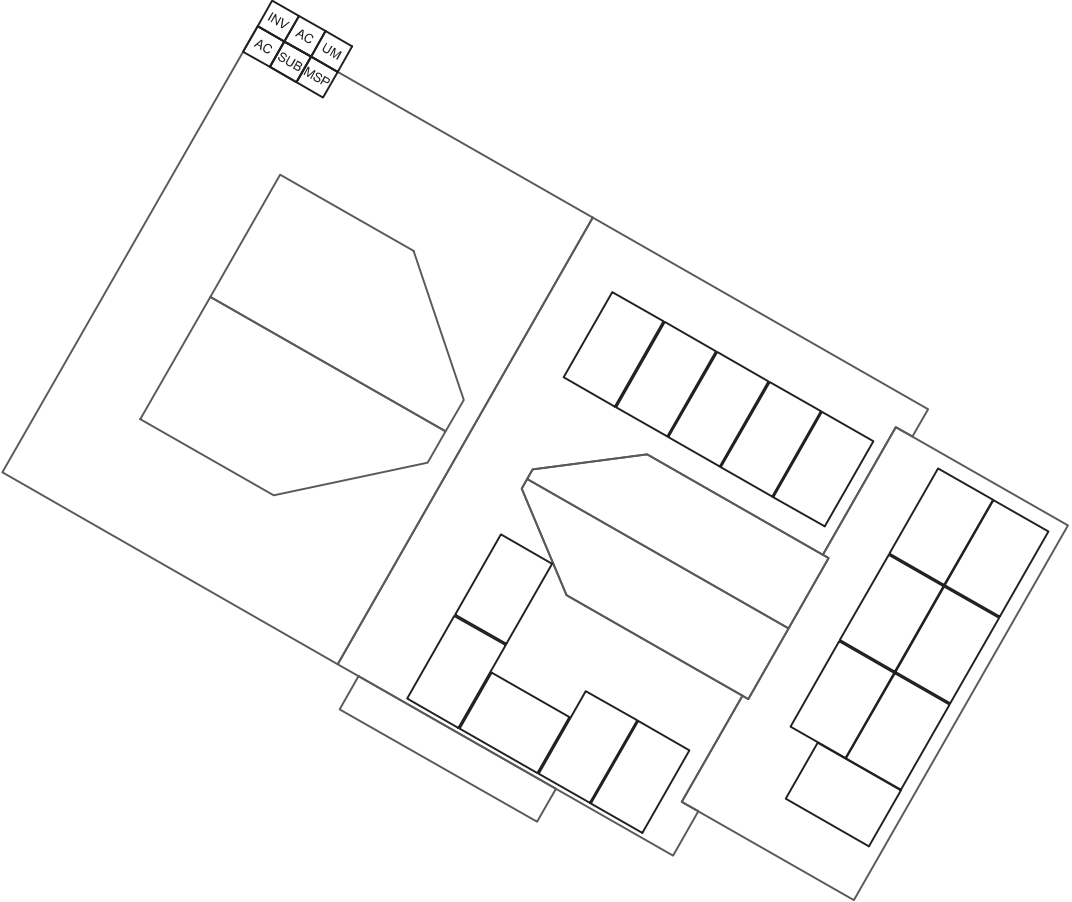
REVISIONS		
NO.	REVISED BY	DATE
2	P.A.	5/3/2024
3	A.K.	8/20/2024
4	H.A.	9/11/2024



FREEDOM FOREVER LLC
5000 THAYER CENTER SUITE C, OAKLAND, MD 21550
Tel: (800) 385-1075
GREG ALBRIGHT

CONTRACTOR LICENSE:
HOME IMPROVEMENT CONTRACTOR 120928 /140496; MASTER ELECTRICIAN 14190

SITE PLACARD			
JOB NO: 417788	DATE: 9/11/2024	DESIGNED BY: H.A.	SHEET: PV-7A

	1-10	11-20	21-30	31-40	41-50	51-60	SOLAREEDGE OPTIMIZER CHART						
1							INV AC UM AC SUB MSP  APPROVED Montgomery County Historic Preservation Commission  REVIEWED By Dan.Bruechert at 3:50 pm, Sep 20, 2024 						
2													
3													
4													
5													
6													
7													
8													
9													
10													

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20912

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FF-MP-BBB-400

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[SI1]

	REVISIONS		
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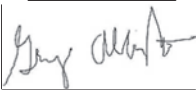
FREEDOM FOREVER LLC

5000 THAYER CENTER SUITE C, OAKLAND,

MD 21550

Tel: (800) 385-1075

GREG ALBRIGHT



CONTRACTOR LICENSE:

HOME IMPROVEMENT CONTRACTOR 120928

/140496; MASTER ELECTRICIAN 14190

OPTIMIZER CHART			
JOB NO:	DATE:	DESIGNED BY:	SHEET:
417788	9/11/2024	H.A.	PV-8

SAFETY PLAN

INSTRUCTIONS:

- 1. USE SYMBOLS IN KEY TO MARK UP THIS SHEET.
- 2. SAFETY PLAN MUST BE MARKED BEFORE JOB STARTS AS PART OF THE PRE-PLAN
- 3. DOCUMENT ALL ADDITIONAL HAZARDS ON THIS PAGE & MAKE NOTES ON THE JHA SHEET

INCIDENT REPORTING:

INJURIES - CALL INJURY HOTLINE

(855) 400-7233

*If injury is life threatening, call 911 first THEN the Injury Hotline

NON-INJURIES - USE MOBILE INCIDENT REPORTING
(Auto, Property Damage, Near Miss)



NEAREST OCCUPATIONAL/INDUSTRIAL CLINIC:

NAME: _____

ADDRESS: _____

NEAREST HOSPITAL:

NAME: _____

ADDRESS: _____

SAFETY COACH CONTACT INFORMATION:

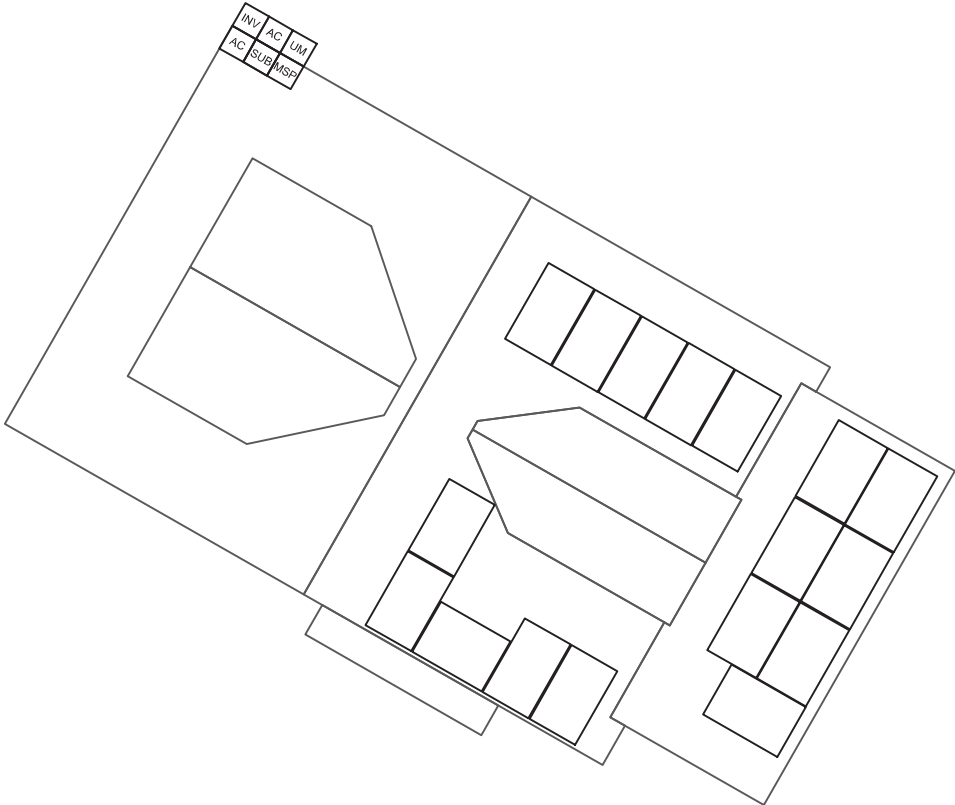
NAME: _____

PHONE NUMBER: _____

ALL EMPLOYEES ON SITE SHALL BE MADE AWARE OF THE SAFETY PLAN AND SIGN INDICATING THAT THEY ARE AWARE OF THE HAZARDS ON-SITE AND THE PLAN FOR WORKING SAFELY.

NAME	SIGNATURE
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

DATE: _____ TIME: _____



MARK UP KEY

- PERMANENT ANCHOR
- TEMPORARY ANCHOR
- INSTALLER LADDER
- JUNCTION / COMBINER BOX
- STUB-OUT
- SKYLIGHT
- NO LADDER ACCESS (STEEP GRADE OR GROUND LEVEL OBSTRUCTIONS)
- RESTRICTED ACCESS
- CONDUIT
- GAS SHUT OFF
- WATER SHUT OFF
- SERVICE DROP
- POWER LINES

POLICIES

INSTRUCTIONS:

- 1. SCAN QR LINK BELOW TO ACCESS ALL FREEDOM FOREVER SAFETY POLICIES AND PROGRAMS.



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HOME IMPROVEMENT CONTRACTOR 120928 /140496; MASTER ELECTRICIAN 14190

SAFETY PLAN

JOB NO:	DATE:	DESIGNED BY:	SHEET:
417788	9/11/2024	H.A.	PV-9

BREAK AND WATER LOG

THIS LOG IS TO BE FILLED OUT ANY TIME THE TEMP EXCEEDS 90 DEGREES. THE CREW LEAD AND ROOF LEAD ARE RESPONSIBLE FOR ENSURING THIS IS COMPLETED AND UPLOADED AT THE END OF EVERYDAY WHEN TEMPS EXCEED 90 DEGREES

NAME	0800HRS	0900HRS	1000HRS	1100HRS	1200HRS	1300HRS	1400HRS	1500HRS	1600HRS

REVIEWED
By Dan.Bruechert at 3:50 pm, Sep 20, 2024

APPROVED
Montgomery County
Historic Preservation Commission

JOB HAZARD ANALYSIS

Crew leader to fill out all sections below, hold a pre-job safety meeting with all personnel, and upload this completed document and the Safety Plan to Site Capture

Ladder Access

- Ladders must be inspected before each use.
 - Extension ladders must be set up on a firm and level surface at a 4-to-1 rise to run angle (or 75 degrees) and the top must be secured to the structure. Extension style ladders placed on uneven, loose or slippery surfaces must additionally have the base firmly anchored or lashed so the base will not slip out.
 - Extension ladders must be used with walk-through devices or the ladder must extend 36" above the stepping off point.
 - A-frame ladders must only be climbed with the ladder spreader bars locked in the open position; A-frame ladders shall not be climbed while in the closed position (ex, closed and used while leaned against a structure).
- Additional notes:

Mobile Equipment

- Only Qualified operators will operate equipment; operators must maintain a certification on their person for the equipment being operated.
- Type(s) of mobile equipment (Type/Make/Model):
- Qualified operator(s):

Material Handling and Storage

- Materials will be staged/stored in a way that does not present a hazard to client, personnel or public. Materials stored on the roof will be physically protect from failing or sliding off.

Fall Protection

- A site-specific plan for fall prevention and protection is required prior to starting work and must remain onsite at all times until work is complete; a fall rescue plan must be outlined and discussed among the crew prior to work start.
- First-person-Up (FPU) must install their anchor and connect before any other task, including installing other anchors. The Last-Person-Down (LPD) must be the only person on a roof uninstalling fall protection.

- FPCP (name and title):
- FPU and LPD (name and title):

Electrical Safety

- The Electrical Qualified Person (EQP) is required onsite to perform electrical work.
 - All electrical work will be performed with equipment in an electrically safe condition (de-energized) unless approval has been granted prior to work.
 - Service drops and overhead electrical hazards will be indentified and protected from contact, as neccessary.
- EQP (name and tile):

Public Protection

- The safety of the Client and Public must be maintained at all times.
- The Client and the Public shall be prevented from entering the work zone through the use of barriers and/or signage, as required.
- Company, Client and Public property shall be protected from falling objects.
- Pets (including dogs) shall be secured by their owners prior to work start.
- The Client should not leave pets, family members, or others in charge or care of Employees, Contractors, or Temporary Workers.

- Crew leader responsible for communication with the client:
- Client and public is excluded from work area by barricades (N/A, Yes, No):

Training and Pre-Job Safety Briefing

- All employees onsite shall be made aware of the specific hazards of this project and review this HJA during a pre-job briefing, and their signature indicates awareness of site conditions and the plan to eliminate any hazards identified prior to and during the project.
- Crew leader (name/title):
- Crew member (name/title):
- Crew member (name/title):
- Crew member (name/title):
- Crew member (name/title):
- Crew member (name/title):

Airborne Contaminants:

- Asbestos-containing (Transite) piping (ACP) - Do not disturb (move, drill, cut fracture, etc.)
- Asbestos-containing thermal insulation (ACI) and Asbestos-containing duct wrapping (ACW) - do not disturb, no attic or crawlspace access is allowed if work to be performed could cause exposure to personnel, client or public.

- If yes, list specific tasks and protection in place:

Weather and Environment

- The site supervisor shall forecast the weather conditions at the job site, prior to crew arrival, in order to mitigate any hazards associated with inclement weather (heat, cold, wind, rain, etc.)
 - The site supervisor will utilized a portable wind meter (anemometer) to verify actual onsite wind conditions, by checking at the ground and on any elevated work surface (ex, rooftop) prior to work start, at midday and prior to solar panel staging on a roof.
 - Elevated work involving the moving or maneuvering of solar panels shall cease at 25mph (sustained wind) until wind subsides.
- Forecasted weather maximum temp (degrees f):

Heat Related Illness Prevention

- Employees shall have access to potable drinking water that is fresh, pure, and suitably cool. The water shall be located as close as practicable to the areas where employees are working. Water shall be supplied in sufficient quantity at the beginning of the work shift to provide at least one quart per employee per hour for drinking for the entire shift. Employees may begin the shift with smaller quantities of water if they identify the location and have effective means for replenishment during the shift to allow employees to drink on quart or more per hour. The frequent drinking of water shall be encouraged.
- Shade shall be present when temperature exceeds 80 degrees Fahrenheit. When the outdoor temperature in the work exceeds 80 degrees Fahrenheit, employees shall have and maintain one or more areas with shade at all times.
- New employees must be acclimatized. New employees will be monitored by their Crew Leader (site supervisor) for the first two (2) weeks of employment or longer when necessary.
- Employees will be allowed and encouraged to implement scheduled breaks during each shift. Employees must take cool-down breaks in the shade any time they feel the need to do so to protect them from overheating. Supervisors are REQUIRED to allow employees any break period they need during high heat conditions.
- Cool Vests are encouraged for all employees at all times during periods of high heat.
- Identify the location of the closet Occupational/Industrial Clinic or Hospital in case a crew member becomes ill.

What is the specific plan to provide and replenish sufficient water for all employees on site?

- If offsite replenish is necessary, where will you go to replenish water (location/address):
- Who will replenish the drinking water (name):

Restroom facilities

- Employees shall have access to restroom facilities with hand-washing stations. Use of onsite restroom is at the client's discretion (location is annotated below). If client does not give permission, location of suitable restroom facilities with hand-washing stations offsite will be provided. The onsite supervisor will identify location and make arrangements to ensure all employees have access at any point.

- Restroom facilities will be (circle one): Onsite - Offsite
- If Offsite, add location name and address:

Incident Reporting Procedure

- Contact your Site Supervisor

Name:

Phone:

Contact your Manager

Name:

Phone:

Contact your Site Supervisor

Name:

Phone:

REVIEWED

By Dan.Bruechert at 3:50 pm, Sep 20, 2024

NOTE ADDITIONAL HAZARDS NOT ADDRESSED ABOVE
(add as many as necessary by using additional sheets)

Define the Hazard:	Method/steps to prevent incident:
Define the Hazard:	Method/steps to prevent incident:
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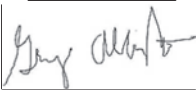
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CONTRACTOR LICENSE:
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SAFETY PLAN			
JOB NO: 417788	DATE: 9/11/2024	DESIGNED BY: H.A.	SHEET: PV-10

FOR INSTALLATION REFERENCE ONLY

SCAN QR CODE TO ACCESS REFERENCE LINK

FREEDOM REFERENCES



INSTALL HOTLINE

PV INSTALLATION REFERENCES



ENPHASE



SOLAREEDGE



TESLA

BATTERY INSTALLATION REFERENCES



Enphase Storage Systems



SOLAREEDGE Storage Systems



TESLA Storage Systems



NON-BACKUP Battery Systems



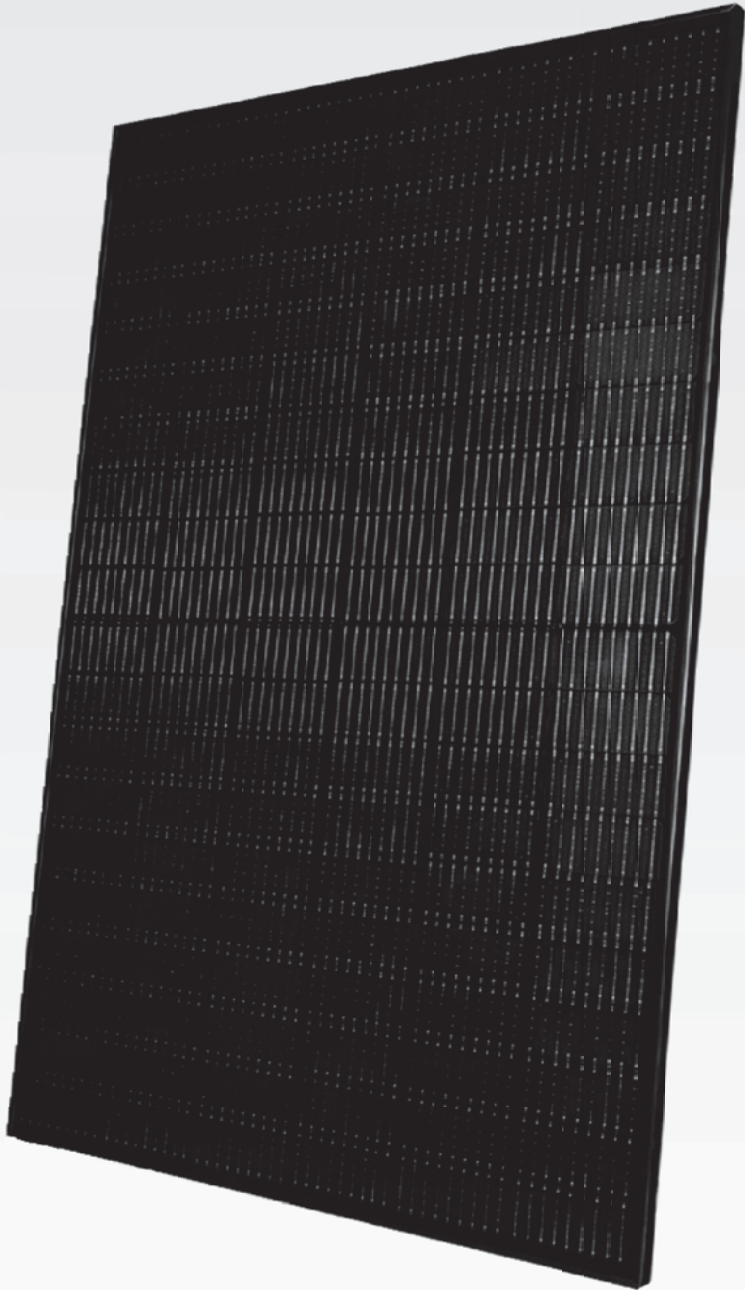
Misc. Quick Guide

REVIEWED
By Dan.Bruechert at 3:50 pm, Sep 20, 2024

APPROVED
Montgomery County
Historic Preservation Commission



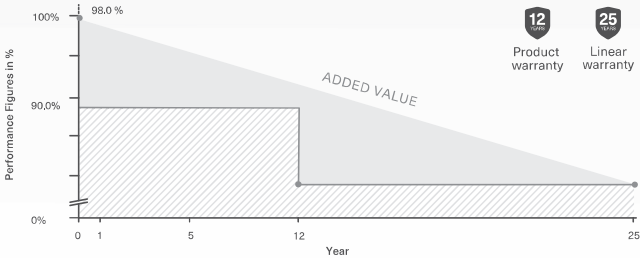

400W MODULE



APPROVED
Montgomery County
Historic Preservation Commission

[Signature]

REVIEWED
By Dan.Bruechert at 3:50 pm, Sep 20, 2024



MODULE SPECIFICATIONS

ELECTRICAL CHARACTERISTICS

Characteristics	FF-MP-BBB-400
Maximum Power (Pmax)	400W
Maximum Power Voltage (Vmp)	31.01V
Maximum Power Current (Imp)[A]	12.90A
Open Circuit Voltage (Voc)[V]	37.04V
Short Circuit Current (Isc)[A]	13.79A
Module Efficiency	20.48%
Power Tolerance	0/+5W
STC	Irradiance of 1000W/m², AM1.5, Cell Temperature 25°C

MECHANICAL CHARACTERISTICS

Cell Type	Mono perc, 182 mm-half cells, 108 (6x9+6x9)
Weight	22.1 kgs (48.7 lbs)
Dimension	1722 x 1134 x 35 mm (67.80 x 44.65 x 1.38 in)
Front Glass	3.2 mm (.13 in)
Junction Box	IP68 (3 Bypass Diodes)
Output Cables	1200 mm (47.24 in)
Connector	Staubli MC4
Frame & Installation	Anodized aluminum profile

OPERATIONS CHARACTERISTICS

Operational Temperature	-40°C~+85°
Max System Voltage	1500V
Max Series Fuse Rating	25A
Safety Class	Class II
Fire Rating	Type 1

MECHANICAL LOADING

Snow Load	5,400Pa (113lb/ft2)
Rear Side Design Load	2,400Pa (50lb/ft2)

PACKAGING INFORMATION

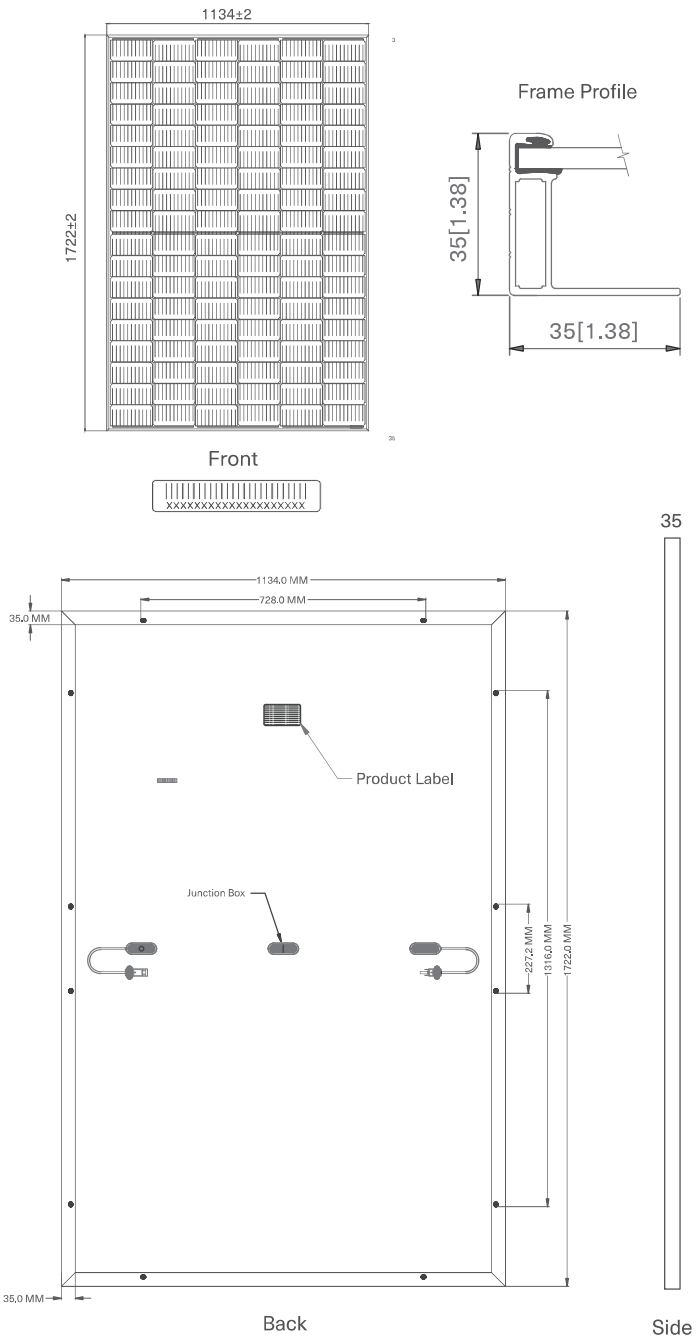
Container	20' GP	40' HC
Pallets per Container	6	26
Panels per Container	186	806
Panels per Pallet	31	31
Packaging Bon Weight	679 kg (1497 lbs)	
Panels per Pallet	1785 x 1130 x 1180 mm (70.28 x 44.49 x 46.46 in)	

TEMPERATURE RATINGS

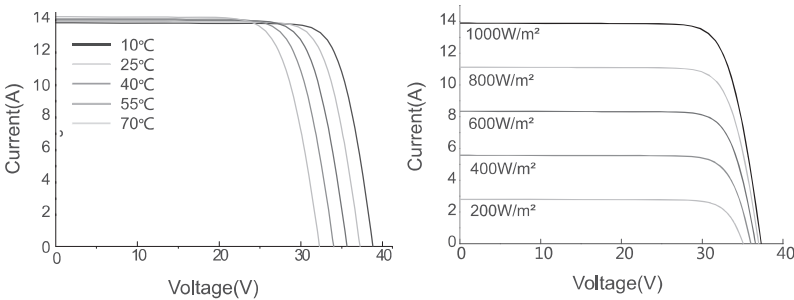
Temperature Coefficient of Pmax	-0.350%/°C
Temperature Coefficient of Voc	-0.275%/°C
Temperature Coefficient of Isc	+0.045%/°C
Nominal Operating cell Temperature (NOCT)	42°C±2°C



UL 61730 | UL 61215 | ISO 9001 | ISO 14001



CURRENT-VOLTAGE CURVE



CERTIFICATE OF COMPLIANCE



This certificate confirms the model(s) for the product listed are in compliance and authorized to bear the Certification Mark(s) shown below when made in accordance with the conditions set forth in the Certification Agreement and Listing Report. This document is for use with the Design Light Consortium or California Energy Commission application only.

Basic Listee:	PT IDN SOLAR TECH KOMPLEK KABIL INDONUSA ESTATE, BLOK A NOMOR 19B, BATU BESAR, Batam	Multiple Listee:	Freedom Forever Procurement LLC 43445 Business Park Drive, Suite 110, Temecula, CA 92590
Address:		Address:	
Country:	Indonesia	Country:	USA

Party Authorized to Apply Label: PT IDN SOLAR TECH
Report Issuing Office: Intertek Testing Services Shanghai Limited

Control Number: 5019087

Authorized by: *Jordan Holbert*
for L. Matthew Snyder, Certification Manager

VALID LISTING MARKS



This Certificate of Compliance is for the exclusive use of Intertek's Client and is provided pursuant to the Certification Agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the Agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the Agreement, for any loss, expense or damage occasioned by the use of this Certificate. Only the Client is authorized to permit copying or distribution of this Certificate and then only in its entirety. Use of Intertek's Certification mark is restricted to the conditions laid out in the Agreement and in this Certificate. Any further use of the Intertek name for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. Initial Factory Assessments and Follow up Services are for the purpose of assuring appropriate usage of the Certification mark in accordance with the Agreement, they are not for the purposes of production quality control and do not relieve the Client of their obligations in this respect.

Intertek Testing Services NA Inc.
545 East Algonquin Road, Arlington Heights, IL 60005
Telephone 800-345-3851 or 847-439-5667

Standard(s):	Photovoltaic (PV) Module Safety Qualification - Part 1: Requirements for Construction [UL 61730-1:2017 Ed.1+R:30Apr2020]
	Photovoltaic (PV) Module Safety Qualification - Part 1: Requirements for Construction [CSA C22.2#61730-1:2019 Ed.2]
	Photovoltaic (PV) Module Safety Qualification - Part 2: Requirements for Testing [UL 61730-2:2017 Ed.1+R:30Apr2020]

CERTIFICATE OF COMPLIANCE



	Photovoltaic (PV) Module Safety Qualification - Part 2: Requirements for Testing [CSA C22.2#61730-2:2019 Ed.2] Terrestrial Photovoltaic (Pv) Modules - Design Qualification And Type Approval - Part 1: Test Requirements [UL 61215-1:2017 Ed.1] Terrestrial Photovoltaic (PV) Modules - Design Qualification And Type Approval - Part 1-1: Special Requirements For Testing of Crystalline Silicon Photovoltaic (PV) Modules [UL 61215-1-1:2017 Ed.1] Terrestrial Photovoltaic (Pv) Modules - Design Qualification And Type Approval - Part 2: Test Procedures[UL 61215-2:2017 Ed.1]	
Product:	Crystalline Silicon Photovoltaic (PV) Modules	
Brand Name:	Freedom Forever	
Models:	MULTIPLE LISTEE 12 MODELS	BASIC LISTEE MODELS
	FF-MP-BBB- followed by 365, 370, 375 or 380.	NUSA120H- followed by 365, 370, 375 or 380; followed by MB.
	FF-MP-BBB- followed by 395, 400, 405 or 410.	NUSA108H- followed by 395, 400, 405 or 410; followed by MB.



REVIEWED
By Dan.Bruechert at 3:51 pm, Sep 20, 2024

SolarEdge Home Wave Inverter
For North America

SE3800H-US / SE5000H-US / SE6000H-US /
SE7600H-US / SE10000H-US / SE11400H-US



INVERTERS

Optimized installation with HD-Wave technology

- /

Specifically designed to work with power optimizers
- /

Record-breaking 99% weighted efficiency
- /

Quick and easy inverter commissioning directly from a smartphone using SolarEdge SetApp
- /

Fixed voltage inverter for longer strings
- /

Integrated arc fault protection and rapid shutdown for NEC 2014-2023 per articles 690.11 and 690.12
- /

UL1741 SA certified, for CPUC Rule 21 grid compliance
- /

Small, lightweight, and easy to install both outdoors or indoors
- /

Built-in module-level monitoring
- /

Optional: Faster installations with built-in consumption metering (1% accuracy) and production revenue grade metering (0.5% accuracy, ANSI C12.20)



/ SolarEdge Home Wave Inverter
For North America

SE3800H-US / SE5000H-US / SE6000H-US/
SE7600H-US / SE10000H-US / SE11400H-US

Applicable to inverters with part number	SEXXXXH-XXXXXBXX4					SE11400H-XXXXXBXX5	Units
	SE3800H-US	SE5000H-US	SE6000H-US	SE7600H-US	SE10000H-US	SE11400H-US	
OUTPUT							
Rated AC Power Output	3800 @ 240V 3300 @ 208V	5000	6000 @ 240V 5000 @ 208V	7600	10000	11400 @ 240V 10000 @ 208V	VA
Maximum AC Power Output	3800 @ 240V 3300 @ 208V	5000	6000 @ 240V 5000 @ 208V	7600	10000	11400 @ 240V 10000 @ 208V	VA
AC Output Voltage Min.-Nom.-Max. (211 - 240 - 264)	✓	✓	✓	✓	✓	✓	Vac
AC Output Voltage Min.-Nom.-Max. (183 - 208 - 229)	✓	-	✓	-	-	✓	Vac
AC Frequency (Nominal)	59.3 - 60 - 60.5 ⁽¹⁾						Hz
Maximum Continuous Output Current @240V	16	21	25	32	42	47.5	A
Maximum Continuous Output Current @208V	16	-	24	-	-	48.5	A
Power Factor	1, Adjustable - 0.85 to 0.85						
GFDI Threshold	1						A
Utility Monitoring, Islanding Protection, Country Configurable Thresholds	Yes						
INPUT							
Maximum DC Power @240V	5900	7750	9300	11800	15500	17650	W
Maximum DC Power @208V	5100	-	7750	-	-	15500	W
Transformer-less, Ungrounded	Yes						
Maximum Input Voltage	480						Vdc
Nominal DC Input Voltage	380						Vdc
Maximum Input Current @240V ⁽²⁾	10.5	13.5	16.5	20	27	30.5	Adc
Maximum Input Current @208V ⁽²⁾	9	-	13.5	-	-	27	Adc
Max. Input Short Circuit Current	45						Adc
Reverse-Polarity Protection	Yes						
Ground-Fault Isolation Detection	600k Sensitivity						
Maximum Inverter Efficiency	99.2						%
CEC Weighted Efficiency	99					99 @ 240V 98.5 @ 208V	%
Nighttime Power Consumption	< 2.5						W

(1) For other regional settings please contact SolarEdge support.
(2) A higher current source may be used; the inverter will limit its input current to the values stated.

APPROVED

Montgomery County
Historic Preservation Commission

REVIEWED

By Dan.Bruechert at 3:51 pm, Sep 20, 2024

/ SolarEdge Home Wave Inverter

For North America

SE3800H-US / SE5000H-US / SE6000H-US/

SE7600H-US / SE10000H-US / SE11400H-US

Applicable to inverters with part number	SEXXXXH-XXXXXBXX4					SE11400H-XXXXXBXX5	
	SE3800H-US	SE5000H-US	SE6000H-US	SE7600H-US	SE10000H-US	SE11400H-US	
ADDITIONAL FEATURES							
Supported Communication Interfaces	RS485, Ethernet, ZigBee (optional), wireless SolarEdge Home Network (optional) ⁽³⁾ , Wi-Fi (optional), Cellular (optional)						
Revenue Grade Metering, ANSI C12.20	Optional ⁽⁴⁾						
Consumption Metering							
Inverter Commissioning	With the SetApp mobile application using Built-in Wi-Fi Access Point for Local Connection						
Rapid Shutdown - NEC 2014-2023 per articles 690.11 and 690.12	Automatic Rapid Shutdown upon AC Grid Disconnect						
STANDARD COMPLIANCE							
Safety	UL1741, UL1741 SA, UL1741 SB, UL1699B, CSA C22.2, Canadian AFCI according to T.I.L. M-07						
Grid Connection Standards	IEEE1547-2018, Rule 21, Rule 14 (H1), CSA C22.3 No. 9						
Emissions	FCC Part 15 Class B						
INSTALLATION SPECIFICATIONS							
AC Output Conduit Size / AWG Range	1" Maximum / 14 – 6 AWG				1" Maximum / 14 – 4 AWG		
DC Input Conduit Size / # of Strings / AWG Range	1" Maximum / 1 – 2 strings / 14 – 6 AWG				1" Maximum / 1 – 3 strings / 14 – 6 AWG		
Dimensions with Safety Switch (H x W x D)	17.7 x 14.6 x 6.8 / 450 x 370 x 174				21.06 x 14.6 x 7.3 / 535 x 370 x 185	21.06 x 14.6 x 8.2 / 535 x 370 x 208 ⁽⁵⁾	in / mm
Weight with Safety Switch	22 / 10	25.1 / 11.4	26.2 / 11.9		38.8 / 17.6	44.9 / 20.4 ⁽⁵⁾	lb / kg
Noise	< 25			<50			dBA
Cooling	Natural Convection						
Operating Temperature Range	-40 to +140 / -40 to +60 ⁽⁶⁾						°F / °C
Protection Rating	NEMA 4X (Inverter with Safety Switch)						

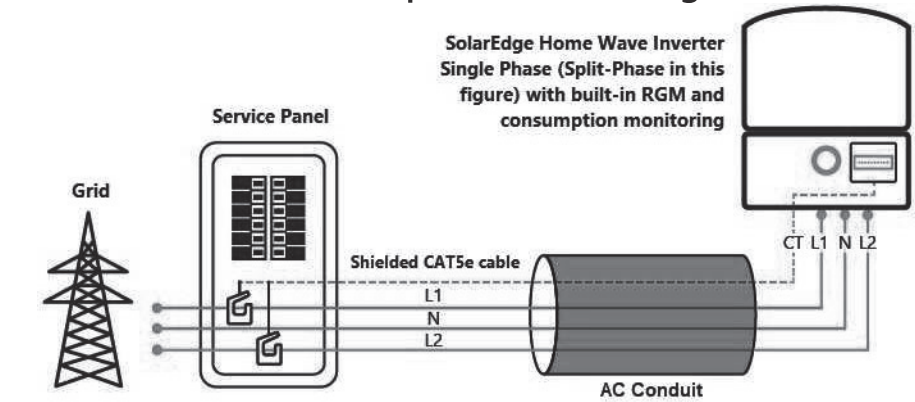
(3) For more information, refer to the [SolarEdge Home Network](#) datasheet

(4) Inverter with Revenue Grade Production and Consumption Meter P/N: SExxxxH-US000BEI4. For consumption metering, current transformers should be ordered separately: SEACT0750-200NA-20 or SEACT0750-400NA-20. 20 units per box.

(5) SE11400H-USxxxBxx5 is the updated PN, though SE11400H-USxxxBxx4 will still be available. All specifications are similar for both models, **EXCLUDING** the weight and dimensions [HxWxD]. The weight and dimensions of SE11400H-USxxxBxx4 are 17.6 [kg] and 21.06-14.6-7.3 / 535-370-185 [in/mm], accordingly.

(6) Full power up to at least 50°C / 122°F; for power de-rating information refer to the [Temperature De-rating Technical Note for North America](#).

How to Enable Consumption Monitoring



By simply wiring current transformers through the inverter's existing AC conduits and connecting them to the service panel, homeowners will gain full insight into their household energy usage helping them to avoid high electricity bills.

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Historic Preservation Commission

REVIEWED

By Dan.Bruechert at 3:51 pm, Sep 20, 2024

Power Optimizer

For North America

S440, S500



POWER OPTIMIZER

PV power optimization at the module level

- Specifically designed to work with SolarEdge residential inverters
- Faster installations with simplified cable management and easy assembly using a single bolt
- Detects abnormal PV connector behavior, preventing potential safety issues*
- Flexible system design for maximum space utilization
- Module-level voltage shutdown for installer and firefighter safety
- Compatible with bifacial PV modules
- Superior efficiency (99.5%)
- Meets NEC requirements for arc fault protection (AFCI) and Photovoltaic Rapid Shutdown System (PV-RSD)
- Mitigates all types of module mismatch loss, from manufacturing tolerance to partial shading

* Expected availability in 2022

[solaredge.com](https://www.solaredge.com)

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By Dan.Bruechert at 3:51 pm, Sep 20, 2024

solar



/ Power Optimizer

For North America

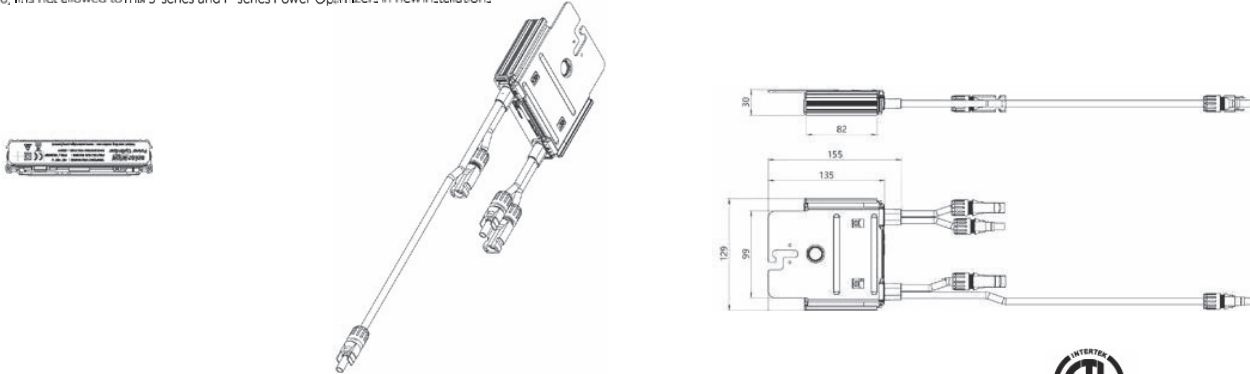
S440, S500

	S440	S500	Unit
INPUT			
Rated Input DC Power ⁽¹⁾	440	500	W
Absolute Maximum Input Voltage (V _{oc})	60		V _{dc}
MPPT Operating Range	8 - 60		V _{dc}
Maximum Short Circuit Current (I _{sc}) of Connected PV Module	14.5	15	A _{dc}
Maximum Efficiency	99.5		%
Weighted Efficiency	98.6		%
Overvoltage Category	II		
OUTPUT DURING OPERATION			
Maximum Output Current	15		A _{dc}
Maximum Output Voltage	60		V _{dc}
OUTPUT DURING STANDBY (POWER OPTIMIZER DISCONNECTED FROM INVERTER OR INVERTER OFF)			
Safety Output Voltage per Power Optimizer	1+/-0.1		V _{dc}
STANDARD COMPLIANCE			
Photovoltaic Rapid Shutdown System	NEC 2014, 2017 & 2020		
EMC	FCC Part 15 Class B, IEC61000-6-2, IEC61000-6-3		
Safety	IEC62109-1 (class II safety), IHL174 ⁽¹⁾		
Material	UL94 V-0, UV Resistant		
RoHS	Yes		
Fire Safety	VDE-AR-E 2100-712:2013-05		
INSTALLATION SPECIFICATIONS			
Maximum Allowed System Voltage	1000		V _{dc}
Dimensions (W x L x H)	129 x 153 x 30 / 5.07 x 6.02 x 1.18		mm / in
Weight (including cables)	655 / 1.5		gr / lb
Input Connector	MC4 ⁽²⁾		
Input Wire Length	0.1 / 0.32		m / ft
Output Connector	MC4		
Output Wire Length	(+) 2.3, (-) 0.10 / (+) 7.54, (-) 0.32		m / ft
Operating Temperature Range ⁽³⁾	-40 to +85		°C
Protection Rating	IP68 / Type6B		
Relative Humidity	0 - 100		%

(1) Rated power of the module at STC will not exceed the power optimizer Rated Input DC Power. Modules with up to +5% power tolerance are allowed.
(2) For other connector types please contact SolarEdge.
(3) For ambient temperature above +70°C / +158°F power de-rating is applied. Refer to Power Optimizers Temperature De-Rating Technical Note for more details.

PV System Design Using a SolarEdge Inverter	Single Phase HD-Wave	Three Phase for 208V grid	Three Phase for 277/480V grid	
Minimum String Length (Power Optimizers)	S440, S500	8	14	18
Maximum String Length (Power Optimizers)	25			50 ⁽⁴⁾
Maximum Nominal Power per String	5700 (6000 with SE7600-LIS-SE1400-LI)	6000	12750	W
Maximum Allowed Connected Power per String ⁽⁵⁾ (Permitted only when the difference in connected power between strings is 1,000W or less)	Refer to Footnote 5	One String 7200W Two strings or more 7800W	15,000W	
Parallel Strings of Different Lengths or Orientations	Y			

(4) A string with more than 30 optimizers does not meet NEC rapid shutdown requirements; safety voltage will be above the 30V requirement.
(5) If the inverters rated AC power < maximum nominal power per string, then the maximum power per string will be able to reach up to the inverters maximum input DC power. Refer to: <https://www.solaredge.com/sites/default/files/se-power-optimizer-single-string-design-application-note.pdf>
(6) It is not allowed to mix S-series and P-series Power Optimizers in new installations.



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Product specifications

Eaton DG221URB

Catalog Number: DG221URB

Eaton General duty non-fusible safety switch, single-throw, 30 A, 240 V, NEMA 3R, Rainproof, Painted galvanized steel, Two-pole, Two-wire

General specifications

Product Name	Catalog Number
Eaton general duty non-fusible safety switch	DG221URB
	UPC
	782113120232
Product Length/Depth	Product Height
6.88 in	10.81 in
Product Width	Product Weight
6.38 in	6 lb
Warranty	Certifications
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.	UL Listed
	Catalog Notes
	WARNING! Switch is not approved for service entrance unless a neutral kit is installed.

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[Signature]

REVIEWED

By Dan.Bruechert at 3:51 pm, Sep 20, 2024

Product specifications

Product Category
General duty safety switch

Enclosure material
Painted galvanized steel

Type
Non-fusible, single-throw

Fuse configuration
Non-fusible

Number of wires
2

Enclosure
NEMA 3R

Voltage rating
240V

Amperage Rating
30A

Number Of Poles
Two-pole

Resources

Catalogs
Eaton's Volume 2—Commercial Distribution

Multimedia
Double Up on Safety
Switching Devices Flex Center

Specifications and datasheets
Eaton Specification Sheet - DG221URB



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Dublin 4, Ireland
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Eaton.com/socialmedia

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	Catalog Number
Eaton general duty cartridge fuse safety switch	DG222NRB
	UPC
	782113144221
Product Length/Depth	Product Height
7.35 in	14.37 in
Product Width	Product Weight
8.4 in	10 lb
Warranty	Certifications
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.	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
Double Up on Safety
Switching Devices Flex Center
Specifications and datasheets
Eaton Specification Sheet - DG222NRB

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By Dan.Bruechert at 3:51 pm, Sep 20, 2024

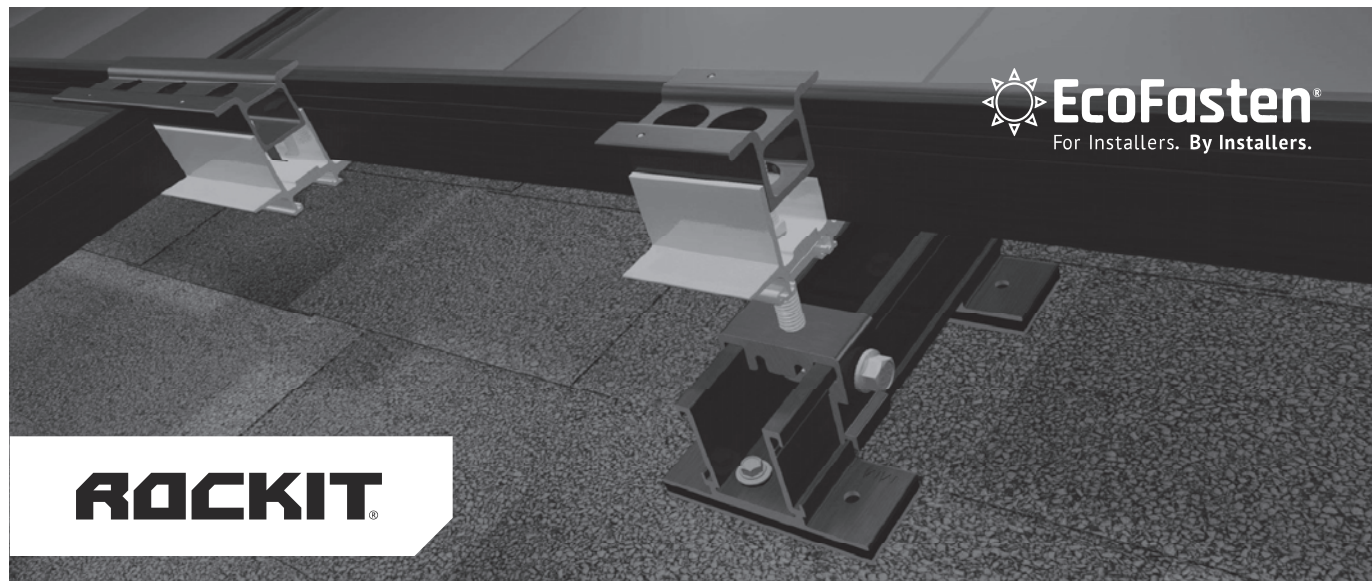


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Dublin 4, Ireland
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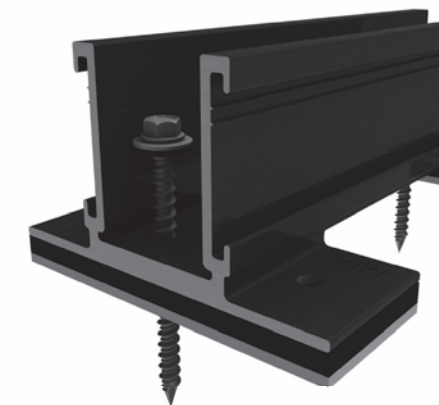
Eaton.com/socialmedia



ROCKIT SMART SLIDE

Integrated UltraGrip Technology™

Pre-installed sealing pads are compatible with all composition shingle roofs. The compression achieved when fastened to the roof creates a super strong watertight seal. In most cases, the slide can be mounted to the deck without the need for sealant. A layer of flexible foam provides cushioning, which allows the 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.

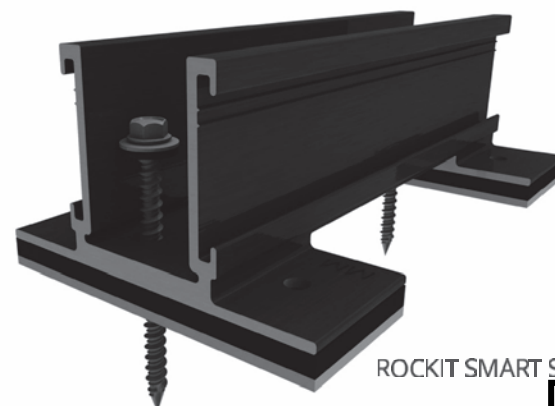
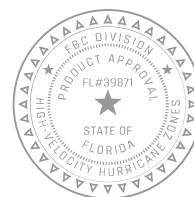


INTRODUCING ROCKIT SMART SLIDE!

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
- 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

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](#)



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Historic Preservation Commission

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REVIEWED

By Dan.Bruechert at 3:51 pm, Sep 20, 2024

ECOFASTENSOLAR.COM

EcoFasten®
An Esdec Solar Group Company

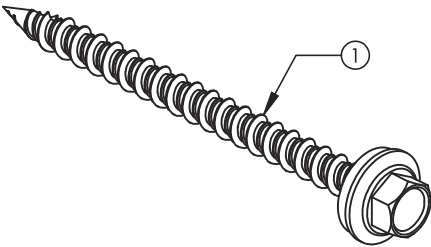
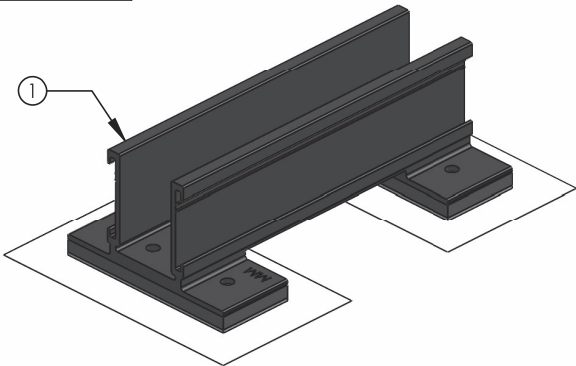
4141 W. VAN BUREN ST, SUITE 2, PHOENIX AZ 85009
1-877-859-3947 | INFO@ECOFASTENSOLAR.COM

RI SMART SLIDE BLK 6.75"

RI SMART SCREW #12X3" W/BW

PART NUMBER	DESCRIPTION
2011024	RI SMART SLIDE BLK 6.75"

PART NUMBER	DESCRIPTION
2011025	RI SMART SCREW #12X3" W/BW



ITEM NO.	DESCRIPTION
1	ROCKIT SMART SLIDE ASSEMBLY

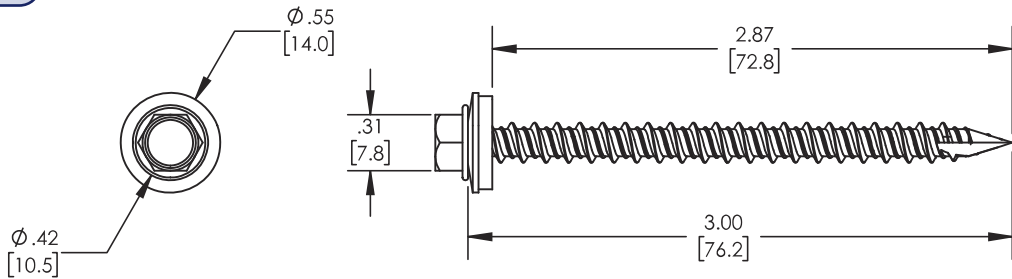
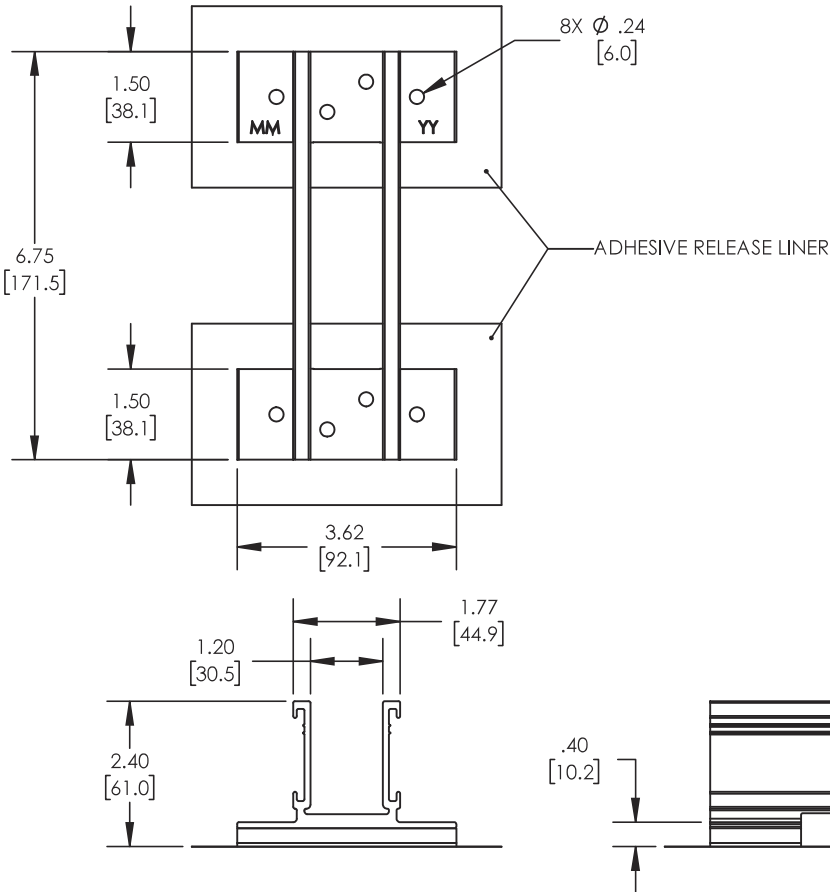
ITEM NO.	DESCRIPTION
1	SELF TAPPING SCREW #12 WITH SEALING WASHER ASSEMBLY

1) ROCKIT FLASHLESS SLIDE ASSEMBLY

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Montgomery County
Historic Preservation Commission



REVIEWED
By Dan.Bruechert at 3:51 pm, Sep 20, 2024



MATERIAL	ALUMINUM, EPDM, ADHESIVE, TREATED PAPER
FINISH	BLACK

MATERIAL	STAINLESS STEEL, EPDM RUBBER
FINISH	MILL, BLACK

Rev: CS-3

Rev: CS-2



ECOFASTEN SOLAR LLC
4141 W. VAN BUREN ST., SUITE 2
PHOENIX, AZ 85009

877-859-3947
INFO@ECOFASTENSOLAR.COM

June 6th, 2024

EcoFasten
4141 West Van Buren St.
Phoenix, AZ 85009

Attn.: EcoFasten Solar Engineering Department

Re: Report # 7.16-RockIt_CS-SS EcoFasten RockIt System, with Comp Slide or Smart Slide,
Certification for Gable and Hip roofs.

This letter certifies the loading criteria and design basis used for the structural analysis of the EcoFasten - RockIt System as shown in Report # 7.16-RockIt_CS-SS "Engineering Certification for the EcoFasten - RockIt System with Comp or Smart Slide for Gable and Hip Roofs". All information, data, and analysis therein are based on, and comply with, the following building codes and typical specifications. The Span Tables provided in the referenced report may be used when all assumptions listed therein are met.

Building Codes:

1. ASCE/SEI 7-16, Minimum Design Loads for Buildings and Other Structures, by American Society of Civil Engineers
2. 2021 International Building Code (IBC)
3. 2021 International Residential Code (IRC)
4. SEAOC (Structural Engineer Association of California) report PV2-2017 Wind Design for Solar Arrays
5. AC428, Acceptance Criteria for Modular Framing Systems Used to Support Photovoltaic (PV) Panels, November 1, 2012 by ICC-ES
6. Aluminum Design Manual 2020, by The Aluminum Association, Inc.
7. ANSI/AWC NDS-2018, National Design Specification for Wood Construction, by the American Wood Council

Please note our evaluation only applies to EcoFasten products and excludes the structural adequacy of the chosen roof attachments, PV modules, or underlying roof supporting members. It shall be the responsibility of the installer or system designer to verify the structural capacity and adequacy of the referenced system components with respect to the applied or resultant loads of the chosen array configuration.

Sincerely,



Nancy
Schubert

Digitally signed by
Nancy Schubert
Date: 2024.06.06
12:14:30 -04'00'

Nancy Schubert, P.E.

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. 60820, Expiration Date: 3/27/2025



REVIEWED

By Dan.Bruechert at 3:51 pm, Sep 20, 2024