GENERAL NOTES

1.1.1 PROJECT NOTES:

1.1.2 THIS PHOTOVOLTAIC (PV) SYSTEM SHALL COMPLY WITH THE NATIONAL ELECTRIC CODE (NEC) ARTICLE 690, ALL MANUFACTURERS'S LISTING AND INSTALLATION INSTRUCTIONS, AND THE RELEVANT CODES AS SPECIFIED BY THE AUTHORITY HAVING JURISDICTION'S (AHJ) APPLICABLE CODES.

1.1.3 THE UTILITY INTERCONNECTION APPLICATION MUST BE APPROVED AND PV SYSTEM INSPECTED PRIOR TO PARALLEL OPERATION

1.1.4 GROUND FAULT DETECTION AND INTERRUPTION (GFDI) DEVICE IS INTEGRATED WITH THE MICROINVERTER IN ACCORDANCE WITH NEC 690.41(B)

1.1.5 ALL PV SYSTEM COMPONENTS; MODULES, UTILITY-INTERACTIVE INVERTERS, AND SOURCE CIRCUIT COMBINER BOXES ARE IDENTIFIED AND LISTED FOR USE IN PHOTOVOLTAIC SYSTEMS AS REQUIRED BY NEC 690.4:
PV MODULES: UL1703, IEC61730, AND IEC61215, AND NFPA 70 CLASS C FIRE
INVERTERS: UL 1741 CERTIFIED, IEEE 1547, 929, 519
COMBINER BOX(ES): UL 1703 OR UL 1741 ACCESSORY

1.1.6 MAX DC VOLTAGE CALCULATED USING MANUFACTURER PROVIDED TEMP COEFFICIENT FOR VOC. IF UNAVAILABLE, MAX DC VOLTAGE CALCULATED ACCORDING TO NEC 690.7.

1.1.7 ALL INVERTERS, PHOTOVOLTAIC MODULES, PHOTOVOLTAIC PANELS, AND SOURCE CIRCUIT COMBINERS INTENDED FOR USE IN A PHOTOVOLTAIC POWER SYSTEM WILL BE IDENTIFIED AND LISTED FOR THE APPLICATION PER 690.4 (D). SHALL BE INSTALLED ACCORDING TO ANY INSTRUCTIONS FROM LISTING OR LABELING [NEC 110.3].

1.1.8 ALL SIGNAGE TO BE PLACED IN ACCORDANCE WITH LOCAL BUILDING CODE. IF EXPOSED TO SUNLIGHT, IT SHALL BE UV RESISTANT. ALL PLAQUES AND SIGNAGE WILL BE INSTALLED AS REQUIRED BY THE NEC AND AHJ.

1.2.1 SCOPE OF WORK:

1.2.2 PRIME CONTRACTOR IS RESPONSIBLE FOR THE DESIGN AND SPECIFICATIONS OF THE GRID-TIED PHOTOVOLTAIC SYSTEM RETROFIT. PRIME CONTRACTOR WILL BE RESPONSIBLE FOR COLLECTING EXISTING ONSITE REQUIREMENTS TO DESIGN, SPECIFY, AND INSTALL THE EXTERIOR ROOF-MOUNTED PORTION OF THE PHOTOVOLTAIC SYSTEMS DETAILED IN THIS DOCUMENT.

1.3.1 WORK INCLUDES:

1.3.2 PV ROOF ATTACHMENTS - S!5 PROTEA BRACKET

1.3.3 PV RACKING SYSTEM INSTALLATION - IRONRIDGE XR-100

1.3.4 PV MODULE AND INVERTER INSTALLATION - EMMVEE E440H-CM120B / APTOS SOLAR TECHNOLOGY MAC 800R (240V)

1.3.5 PV EQUIPMENT GROUNDING

1.3.6 PV SYSTEM WIRING TO A ROOF-MOUNTED JUNCTION BOX

1.3.7 PV LOAD CENTERS (IF INCLUDED)

1.3.8 PV METERING/MONITORING (IF INCLUDED)

1.3.9 PV DISCONNECTS

1.3.10 PV GROUNDING ELECTRODE & BONDING TO (E) GEC

1.3.11 PV FINAL COMMISSIONING

1.3.12 (E) ELECTRICAL EQUIPMENT RETROFIT FOR PV

1.3.13 SIGNAGE PLACED IN ACCORDANCE WITH LOCAL BUILDING CODE

SCOPE OF WORK

SYSTEM SIZE:

STC: 36 X 440W = 15.840kW
PTC: 36 X 414.5W = 14.922kW
(36) EMMVEE E440H-CM120B
(18) APTOS SOLAR TECHNOLOGY MAC 800R (240V)

ATTACHMENT TYPE: S!5 CORRU BRACKET

MSP UPGRADE: NO

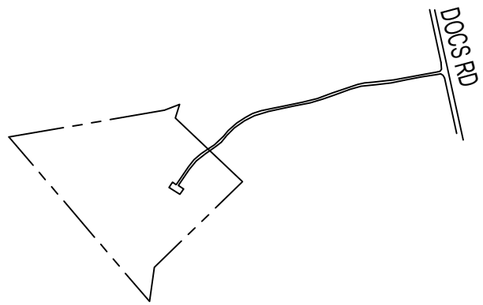
NEW PV SYSTEM:
15.840 kWp DC / 13.788 kWp AC
POTTER RESIDENCE

254 DOCS RD,
LILLINGTON, NC 27546
ASSESSOR'S #: 030507004001

3/21/2023

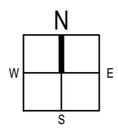
01 AERIAL PHOTO

NOT TO SCALE



02 PLAT MAP

NOT TO SCALE



SHEET LIST

SHEET NUMBER	SHEET TITLE
T-001	COVER PAGE
G-001	NOTES
A-101	SITE PLAN
A-102	SETBACKS/PATHWAYS PLAN
A-103	SOLAR ATTACHMENT PLAN
E-601	LINE DIAGRAM
E-602	DESIGN TABLES
E-603	PLACARDS
S-501	ASSEMBLY DETAILS
S-502	ASSEMBLY DETAILS
R-001	RESOURCE DOCUMENT
R-002	RESOURCE DOCUMENT
R-003	RESOURCE DOCUMENT
R-004	RESOURCE DOCUMENT

PROJECT INFORMATION

OWNER
NAME: KATY POTTER

PROJECT MANAGER
NAME:
PHONE:

CONTRACTOR
NAME: SOLAR TYME
PHONE:

AUTHORITIES HAVING JURISDICTION
BUILDING: HARNETT COUNTY
ZONING: HARNETT COUNTY
UTILITY: DUKE ENERGY

DESIGN SPECIFICATIONS
OCCUPANCY: II
CONSTRUCTION: SINGLE-FAMILY
ZONING: RESIDENTIAL GRID-TIED
GROUND SNOW LOAD: 10 PSF
WIND EXPOSURE: C
WIND SPEED: 117 MPH

APPLICABLE CODES & STANDARDS
BUILDING: NCSBC 2018, NCSRC 2018
ELECTRICAL: NEC 2020
FIRE: NCSFC 2018

SolarTyme

CONTRACTOR

SOLAR TYME

PHONE:
ADDRESS: 6710 JEFFERSON DAVIS HWY
RICHMOND VA, 23237

LIC. NO.: 2705036452
HIC. NO.:
ELE. NO.:

NEW PV SYSTEM:
15.840 kWp DC / 13.788 kWp AC

POTTER RESIDENCE

254 DOCS RD,
LILLINGTON, NC 27546
APN: 030507004001

ENGINEER OF RECORD

PAPER SIZE: 11" x 17" (ANSI B)

COVER PAGE

DATE: 03.20.2023
DESIGN BY: M.H.
CHECKED BY: V.G.

REVISIONS

T-001.00
(SHEET 1)

2.1.1 SITE NOTES:

2.1.2 A LADDER WILL BE IN PLACE FOR INSPECTION IN COMPLIANCE WITH OSHA REGULATIONS.

2.1.3 THE PV MODULES ARE CONSIDERED NON-COMBUSTIBLE AND THIS SYSTEM IS A UTILITY INTERACTIVE SYSTEM WITH NO STORAGE BATTERIES.

2.1.4 THE SOLAR PV INSTALLATION WILL NOT OBSTRUCT ANY PLUMBING, MECHANICAL, OR BUILDING ROOF VENTS.

2.1.5 PROPER ACCESS AND WORKING CLEARANCE AROUND EXISTING AND PROPOSED ELECTRICAL EQUIPMENT WILL BE PROVIDED AS PER SECTION NEC 110.26.

2.1.6 ROOF COVERINGS SHALL BE DESIGNED, INSTALLED, AND MAINTAINED IN ACCORDANCE WITH THIS CODE AND THE APPROVED MANUFACTURER'S INSTRUCTIONS SUCH THAT THE ROOF COVERING SERVES TO PROTECT THE BUILDING OR STRUCTURE.

2.2.1 EQUIPMENT LOCATIONS:

2.2.2 ALL EQUIPMENT SHALL MEET MINIMUM SETBACKS AS REQUIRED BY NEC 110.26.

2.2.3 WIRING SYSTEMS INSTALLED IN DIRECT SUNLIGHT MUST BE RATED FOR EXPECTED OPERATING TEMPERATURE AS SPECIFIED BY NEC 690.31 (A),(C) AND NEC TABLE 310.15 (B)(1).

2.2.4 JUNCTION AND PULL BOXES PERMITTED INSTALLED UNDER PV MODULES ACCORDING TO NEC 690.34.

2.2.5 ADDITIONAL AC DISCONNECT(S) SHALL BE PROVIDED WHERE THE INVERTER IS NOT WITHIN SIGHT OF THE AC SERVICING DISCONNECT.

2.2.6 ALL EQUIPMENT SHALL BE INSTALLED ACCESSIBLE TO QUALIFIED PERSONNEL ACCORDING TO NEC APPLICABLE CODES.

2.2.7 ALL COMPONENTS ARE LISTED FOR THEIR PURPOSE AND RATED FOR OUTDOOR USAGE WHEN APPROPRIATE.

2.3.1 STRUCTURAL NOTES:

2.3.2 RACKING SYSTEM & PV ARRAY WILL BE INSTALLED ACCORDING TO CODE-COMPLIANT INSTALLATION MANUAL. TOP CLAMPS REQUIRE A DESIGNATED SPACE BETWEEN MODULES, AND RAILS MUST ALSO EXTEND A MINIMUM DISTANCE BEYOND EITHER EDGE OF THE ARRAY/SUBARRAY, ACCORDING TO RAIL MANUFACTURER'S INSTRUCTIONS.

2.3.3 JUNCTION BOX WILL BE INSTALLED PER MANUFACTURERS' SPECIFICATIONS. IF ROOF-PENETRATING TYPE, IT SHALL BE FLASHED & SEALED PER LOCAL REQUIREMENTS.

2.3.4 ROOFTOP PENETRATIONS FOR PV RACEWAY WILL BE COMPLETED AND SEALED W/ APPROVED CHEMICAL SEALANT PER CODE BY A LICENSED CONTRACTOR.

2.3.5 ALL PV RELATED ROOF ATTACHMENTS TO BE SPACED NO GREATER THAN THE SPAN DISTANCE SPECIFIED BY THE RACKING MANUFACTURER.

2.3.6 WHEN POSSIBLE, ALL PV RELATED RACKING ATTACHMENTS WILL BE STAGGERED AMONGST THE ROOF FRAMING MEMBERS.

2.4.1 WIRING & CONDUIT NOTES:

2.4.2 ALL CONDUIT AND WIRE WILL BE LISTED AND APPROVED FOR THEIR PURPOSE. CONDUIT AND WIRE SPECIFICATIONS ARE BASED ON MINIMUM CODE REQUIREMENTS AND ARE NOT MEANT TO LIMIT UP-SIZING.

2.4.3 CONDUCTORS SIZED ACCORDING TO NEC 690.8, NEC 690.7.

2.4.4 VOLTAGE DROP LIMITED TO 1.5%.

2.4.5 DC WIRING LIMITED TO MODULE FOOTPRINT. MICROINVERTER WIRING SYSTEMS SHALL BE LOCATED AND SECURED UNDER THE ARRAY W/ SUITABLE WIRING CLIPS.

2.4.6 AC CONDUCTORS COLORED OR MARKED AS FOLLOWS:

PHASE A OR L1- BLACK
PHASE B OR L2- RED, OR OTHER CONVENTION IF THREE PHASE
PHASE C OR L3- BLUE, YELLOW, ORANGE**, OR OTHER CONVENTION
NEUTRAL- WHITE OR GRAY

IN 4-WIRE DELTA CONNECTED SYSTEMS THE PHASE WITH HIGHER VOLTAGE TO BE MARKED ORANGE [NEC 110.15].

2.5.1 GROUNDING NOTES:

2.5.2 GROUNDING SYSTEM COMPONENTS SHALL BE LISTED FOR THEIR PURPOSE, AND GROUNDING DEVICES EXPOSED TO THE ELEMENTS SHALL BE RATED FOR SUCH USE.

2.5.3 PV EQUIPMENT SHALL BE GROUNDED ACCORDING TO NEC 690.43 AND MINIMUM NEC TABLE 250.122.

2.5.4 METAL PARTS OF MODULE FRAMES, MODULE RACKING, AND ENCLOSURES CONSIDERED GROUNDED IN ACCORD WITH 250.134 AND 250.136(A).

2.5.5 EQUIPMENT GROUNDING CONDUCTORS SHALL BE SIZED ACCORDING TO NEC 690.45 AND MICROINVERTER MANUFACTURERS' INSTRUCTIONS.

2.5.6 EACH MODULE WILL BE GROUNDED USING WEEB GROUNDING CLIPS AS SHOWN IN MANUFACTURER DOCUMENTATION AND APPROVED BY THE AHJ. IF WEEBS ARE NOT USED, MODULE GROUNDING LUGS MUST BE INSTALLED AT THE SPECIFIED GROUNDING LUG HOLES PER THE MANUFACTURERS' INSTALLATION REQUIREMENTS.

2.5.7 THE GROUNDING CONNECTION TO A MODULE SHALL BE ARRANGED SUCH THAT THE REMOVAL OF A MODULE DOES NOT INTERRUPT A GROUNDING CONDUCTOR TO ANOTHER MODULE.

2.5.8 GROUNDING AND BONDING CONDUCTORS, IF INSULATED, SHALL BE COLORED GREEN OR MARKED GREEN IF #4 AWG OR LARGER [NEC 250.119]

2.5.9 THE GROUNDING ELECTRODE SYSTEM COMPLIES WITH NEC 690.47 AND NEC 250.50 THROUGH 250.106. IF EXISTING SYSTEM IS INACCESSIBLE, OR INADEQUATE, A GROUNDING ELECTRODE SYSTEM PROVIDED ACCORDING TO NEC 250, NEC 690.47 AND AHJ.

2.5.10 GROUND-FAULT DETECTION SHALL COMPLY WITH NEC 690.41(B)(1) THROUGH (3) TO REDUCE FIRE HAZARDS

2.6.1 DISCONNECTION AND OVER-CURRENT PROTECTION NOTES:

2.6.2 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 THE UPPER TERMINALS).

2.6.3 DISCONNECTS TO BE ACCESSIBLE TO QUALIFIED UTILITY PERSONNEL, BE LOCKABLE, AND BE A VISIBLE-BREAK SWITCH

2.6.4 PV SYSTEM CIRCUITS INSTALLED ON OR IN BUILDINGS SHALL INCLUDE A RAPID SHUTDOWN FUNCTION TO REDUCE SHOCK HAZARD FOR EMERGENCY RESPONDERS IN ACCORDANCE WITH 690.12(A) THROUGH (D).

2.6.5 ALL OCPD RATINGS AND TYPES SPECIFIED ACCORDING TO NEC 690.8, 690.9, AND 240.

2.6.6 MICROINVERTER BRANCHES CONNECTED TO A SINGLE BREAKER OR GROUPED FUSES IN ACCORDANCE WITH NEC 110.3(B).

2.6.7 IF REQUIRED BY AHJ, SYSTEM WILL INCLUDE ARC-FAULT CIRCUIT PROTECTION ACCORDING TO NEC 690.11 AND UL1699B.

2.7.1 INTERCONNECTION NOTES:

2.7.2 LOAD-SIDE INTERCONNECTION SHALL BE IN ACCORDANCE WITH NEC 705.12

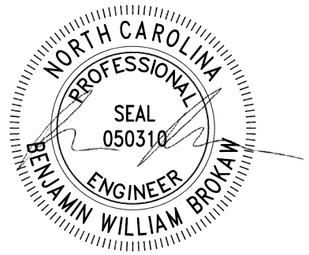
2.7.3 THE SUM OF 125 PERCENT OF THE POWER SOURCE(S) OUTPUT CIRCUIT CURRENT AND THE RATING OF THE OVERCURRENT DEVICE PROTECTING THE BUSBAR SHALL NOT EXCEED 120 PERCENT OF THE AMPACITY OF THE BUSBAR, PV DEDICATED BACKFEED BREAKERS MUST BE LOCATED OPPOSITE END OF THE BUS FROM THE UTILITY SOURCE OCPD [NEC 705.12(B)(3)(2)].

2.7.4 AT MULTIPLE ELECTRIC POWER SOURCES OUTPUT COMBINER PANEL, TOTAL RATING OF ALL OVERCURRENT DEVICES SHALL NOT EXCEED AMPACITY OF BUSBAR. HOWEVER, THE COMBINED OVERCURRENT DEVICE MAY BE EXCLUDED ACCORDING TO NEC 705.12 (B)(3)(3).

2.7.5 FEEDER TAP INTERCONNECTION (LOAD SIDE) ACCORDING TO NEC 705.12 (B)(1) AND (2)

2.7.6 SUPPLY SIDE TAP INTERCONNECTION ACCORDING TO NEC 705.11 WITH SERVICE ENTRANCE CONDUCTORS IN ACCORDANCE WITH NEC 230.42

2.7.7 BACKFEEDING BREAKER FOR ELECTRIC POWER SOURCES OUTPUT IS EXEMPT FROM ADDITIONAL FASTENING [NEC 705.12 (E)].



3/21/2023

SolarTyme

CONTRACTOR

SOLAR TYME

PHONE:

ADDRESS: 6710 JEFFERSON DAVIS HWY
RICHMOND VA, 23237

LIC. NO.: 2705036452
HIC. NO.:
ELE. NO.:

NEW PV SYSTEM:
15.840 kWp DC / 13.788 kWp AC

POTTER RESIDENCE

254 DOCS RD,
LILLINGTON, NC 27546
APN: 030507004001

ENGINEER OF RECORD

PAPER SIZE: 11" x 17" (ANSI B)

NOTES

DATE: 03.20.2023
DESIGN BY: M.H.
CHECKED BY: V.G.

REVISIONS

G-001.00
(SHEET 2)

GENERAL NOTES

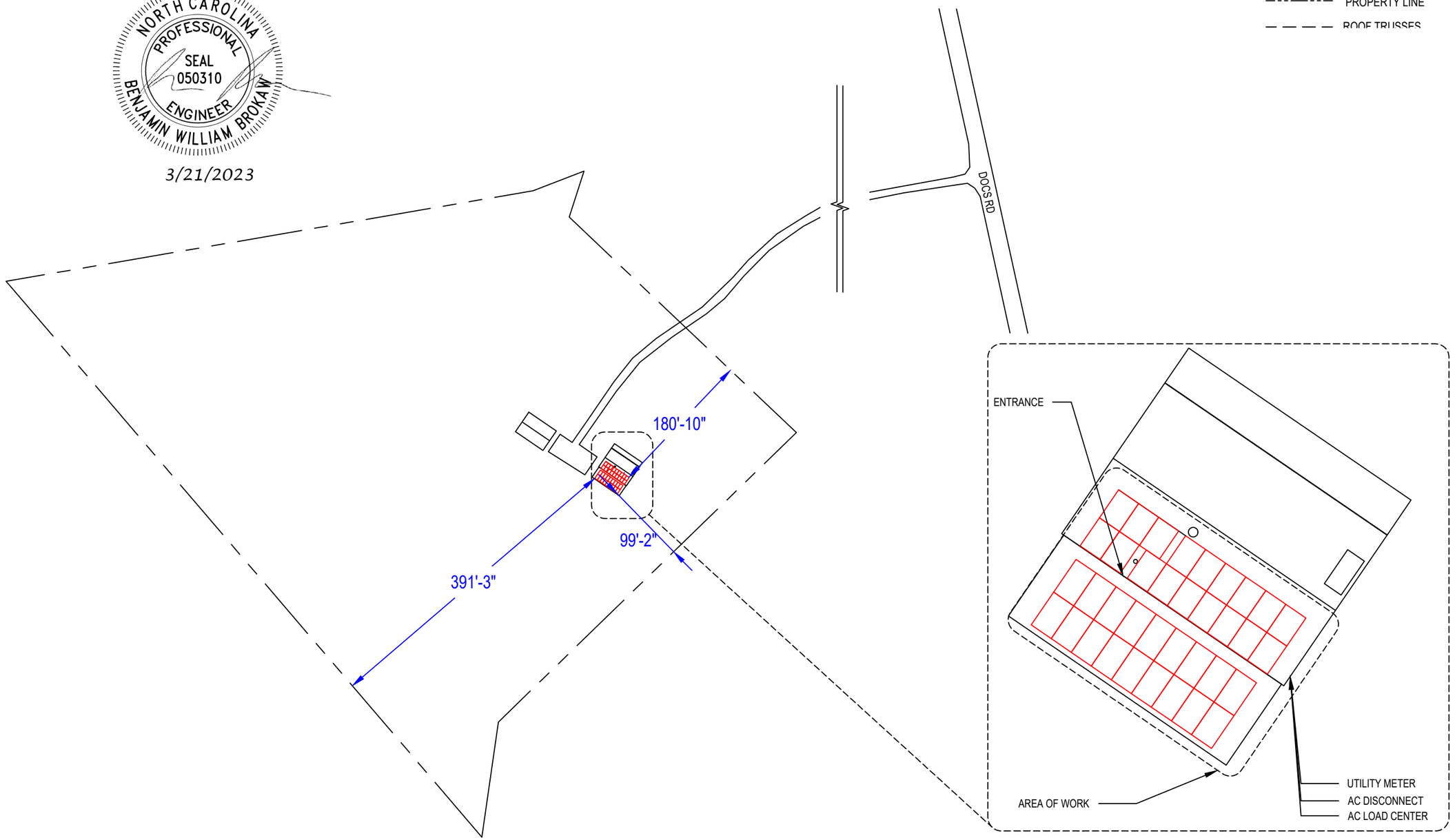
1. FIELD VERIFY ALL MEASUREMENTS
2. ITEMS BELOW MAY NOT BE ON THIS PAGE

PROPERTY LINE

ROOF TRUSSES

NORTH CAROLINA PROFESSIONAL SEAL 050310 ENGINEER BENJAMIN WILLIAM BROKAW

3/21/2023



01 SITE PLAN

1/128" = 1'-0"

0 64' 128'

N W E S

02 SITE PLAN

1/16"=1'-0"

0 8' 16'

N W E S

SolarTyme

CONTRACTOR

SOLAR TYME

PHONE:

ADDRESS: 6710 JEFFERSON DAVIS HWY
RICHMOND VA, 23237

LIC. NO.: 2705036452
HIC. NO.:
ELE. NO.:

NEW PV SYSTEM:
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POTTER RESIDENCE

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LILLINGTON, NC 27546
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ENGINEER OF RECORD

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SITE PLAN

DATE: 03.20.2023
DESIGN BY: M.H.
CHECKED BY: V.G.

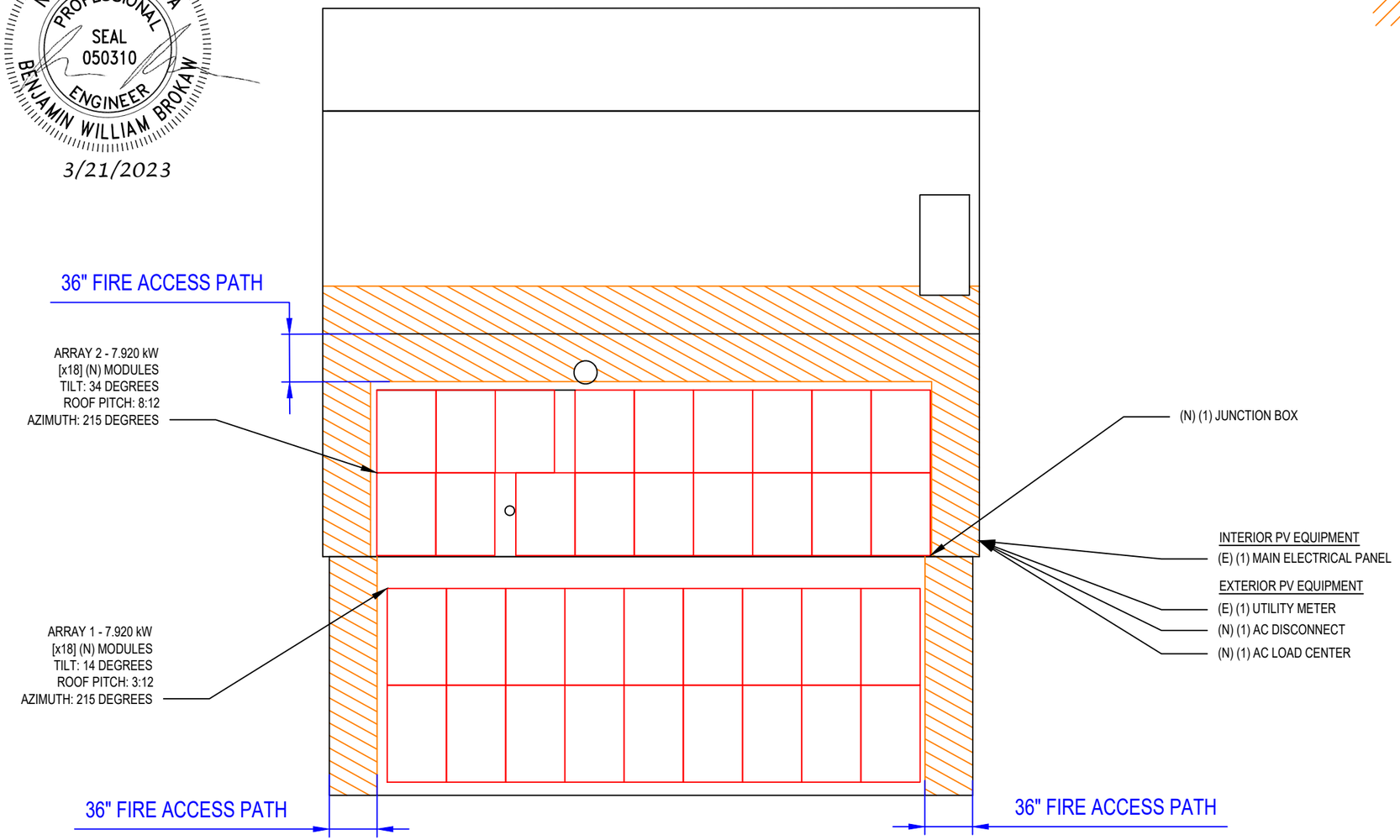
REVISIONS

A-101.00
(SHEET 3)

SQUARE FOOTAGE OF ROOF: 1884 SQ. FT.
SQUARE FOOTAGE OF ARRAY: 772 SQ. FT.
PERCENTAGE OF ROOF COVERED BY THE ARRAYS: 41%

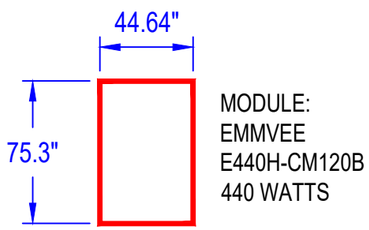
NORTH CAROLINA PROFESSIONAL SEAL 050310 ENGINEER BENJAMIN WILLIAM BROKAW

3/21/2023



01 PV SYSTEM LAYOUT
1/8" = 1'
0 4' 8'

N E S W



MODULE:
EMMVEE
E440H-CM120B
440 WATTS

GENERAL NOTES

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FIRE CLEARANCE

SolarTyme

CONTRACTOR

SOLAR TYME

PHONE:
ADDRESS: 6710 JEFFERSON DAVIS HWY
RICHMOND VA, 23237

LIC. NO.: 2705036452
HIC. NO.:
ELE. NO.:

NEW PV SYSTEM:
15.840 kWp DC / 13.788 kWp AC

POTTER RESIDENCE

254 DOCS RD,
LILLINGTON, NC 27546
APN: 030507004001

ENGINEER OF RECORD

PAPER SIZE: 11" x 17" (ANSI B)

PV SYSTEM LAYOUT

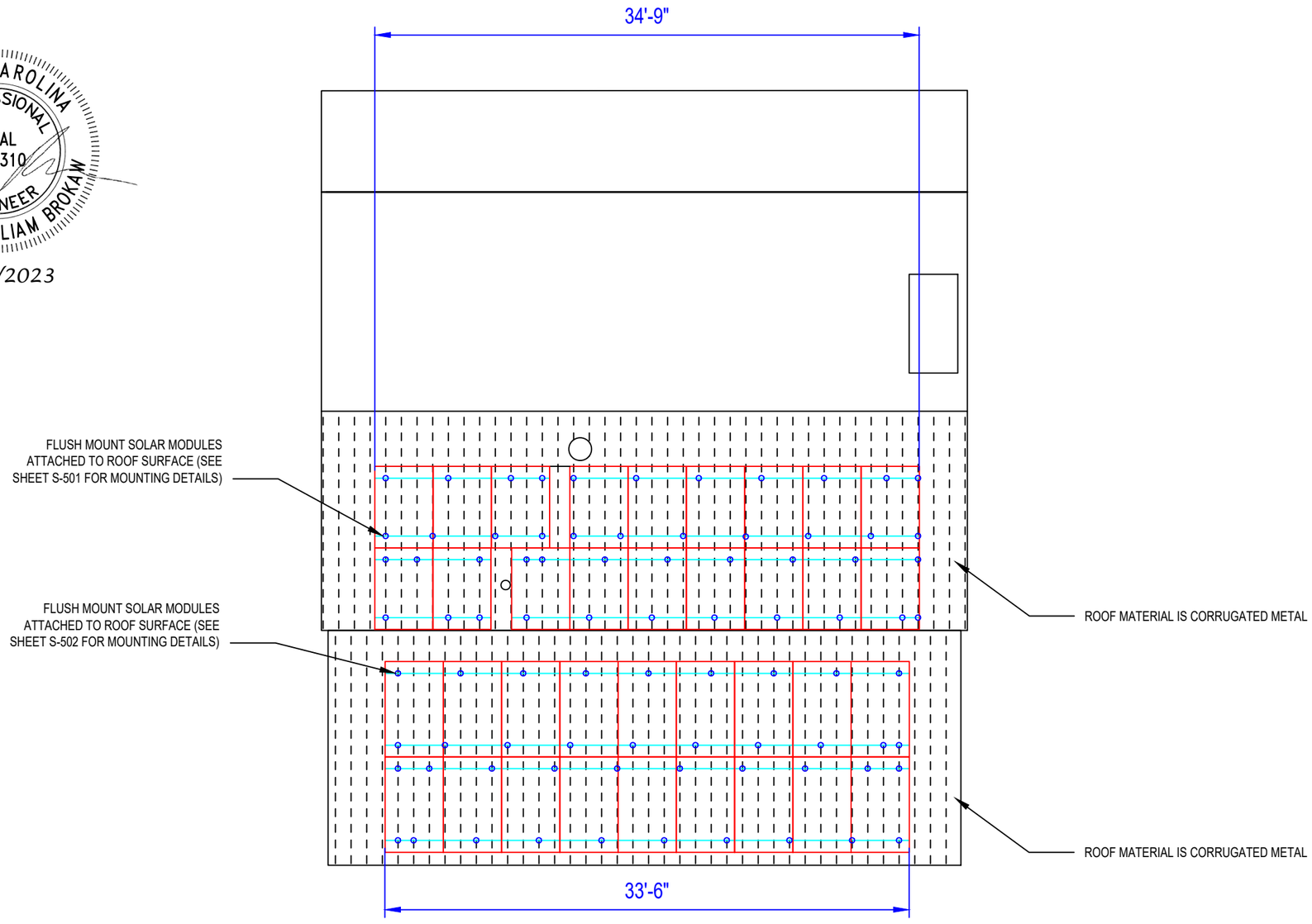
DATE: 03.20.2023
DESIGN BY: M.H.
CHECKED BY: V.G.

REVISIONS

A-102.00
(SHEET 4)

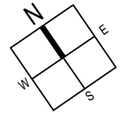
NORTH CAROLINA PROFESSIONAL SEAL 050310 ENGINEER BENJAMIN WILLIAM BROKAW

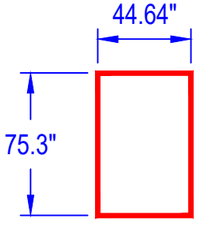
3/21/2023



01 SOLAR ATTACHMENT PLAN

1/8" = 1' 0 4' 8'





MODULE:
EMMVEE
E440H-CM120B
440 WATTS

GENERAL NOTES

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— — — — ROOF TRUSSES

— — — — ROOF RAFTERS

SolarTyme

CONTRACTOR

SOLAR TYME

PHONE:

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LIC. NO.: 2705036452
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NEW PV SYSTEM:
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POTTER RESIDENCE

254 DOCS RD,
LILLINGTON, NC 27546
APN: 030507004001

ENGINEER OF RECORD

PAPER SIZE: 11" x 17" (ANSI B)

SOLAR ATTACHMENT PLAN

DATE: 03.20.2023

DESIGN BY: M.H.

CHECKED BY: V.G.

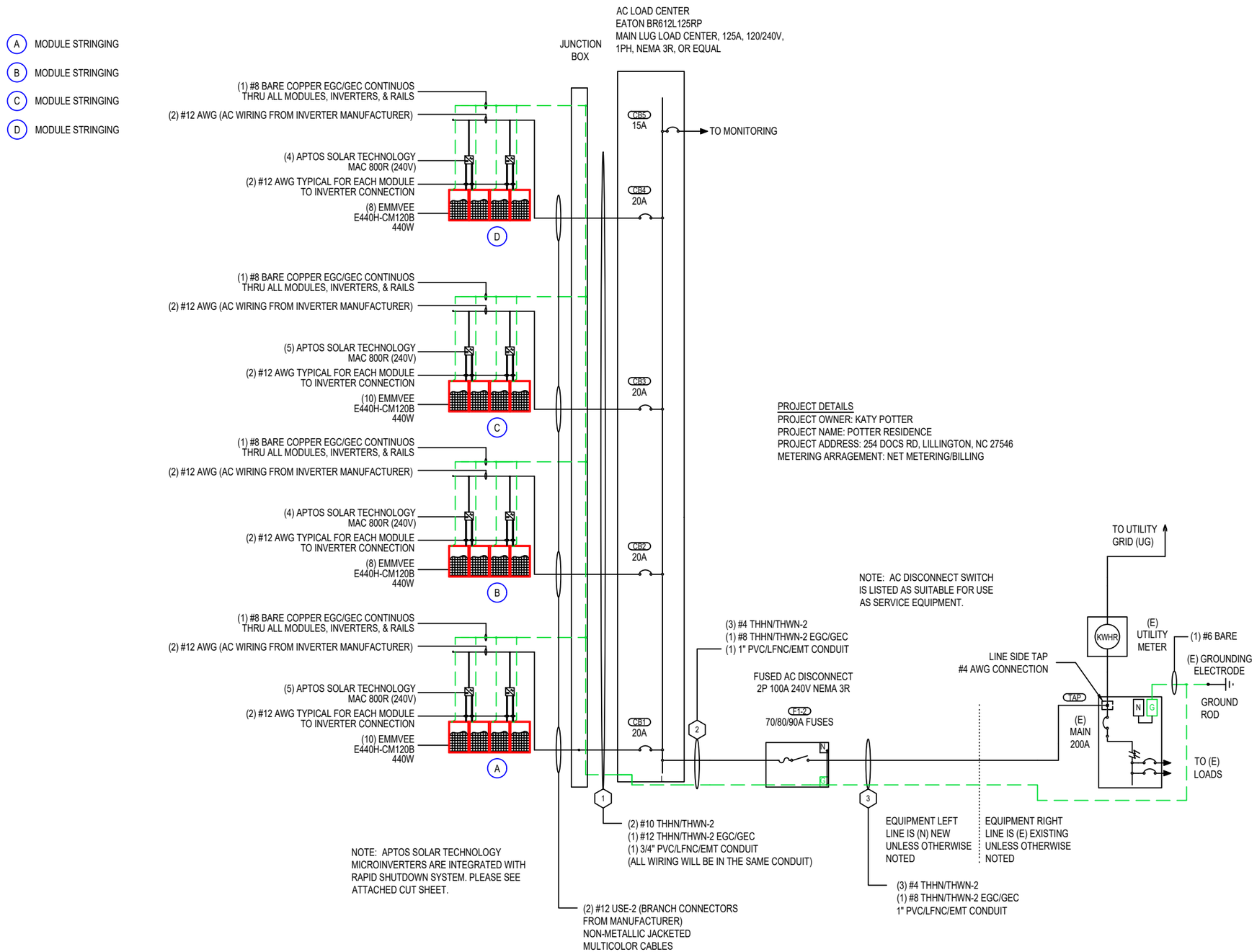
REVISIONS

A-103.00

(SHEET 5)

CONDUCTOR AND CONDUIT SCHEDULE W/ELECTRICAL CALCULATIONS

ID	TYPICAL	CONDUCTOR	NEUTRAL CONDUCTOR	CONDUIT	CURRENT-CARRYING CONDUCTORS IN CONDUIT	OCPD	EGC	TEMP. CORR. FACTOR	CONDUIT FILL FACTOR	CONT. CURRENT	MAX. CURRENT (125%)	BASE AMP.	DERATED AMP.	TERM. TEMP. RATING	AMP. @ TERMINAL
1	1	10 AWG THHN/THWN-2, COPPER	-	0.75" DIA PVC/LFNC/EMT	8	20A	12 AWG THHN/THWN-2 EGC/GEC, COPPER	0.91 (37.1 °C)	0.7	15.95A	19.94A	40A	25.48A	75°C	35A
2	1	4 AWG THHN/THWN-2, COPPER	4 AWG THHN/THWN-2, COPPER	1" DIA PVC/LFNC/EMT	2	70A/80A/90A	8 AWG THHN/THWN-2 EGC/GEC, COPPER	0.91 (37.1 °C)	1	57.42A	71.78A	95A	86.45A	75°C	85A
3	1	4 AWG THHN/THWN-2, COPPER	4 AWG THHN/THWN-2, COPPER	1" DIA PVC/LFNC/EMT	2	N/A	8 AWG THHN/THWN-2 EGC/GEC, COPPER	0.91 (37.1 °C)	1	57.42A	71.78A	95A	86.45A	75°C	85A



PROJECT DETAILS
PROJECT OWNER: KATY POTTER
PROJECT NAME: POTTER RESIDENCE
PROJECT ADDRESS: 254 DOCS RD, LILLINGTON, NC 27546
METERING ARRAGEMENT: NET METERING/BILLING

SolarTyme

CONTRACTOR

SOLAR TYME

PHONE:
ADDRESS: 6710 JEFFERSON DAVIS HWY
RICHMOND VA, 23237

LIC. NO.: 2705036452
HIC. NO.:
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NEW PV SYSTEM:
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POTTER RESIDENCE

254 DOCS RD,
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APN: 030507004001

ENGINEER OF RECORD

PAPER SIZE: 11" x 17" (ANSI B)

LINE DIAGRAM

DATE: 03.20.2023
DESIGN BY: M.H.
CHECKED BY: V.G.

REVISIONS

E-601.00
(SHEET 6)

SYSTEM SUMMARY				
	BRANCH #1	BRANCH #2	BRANCH #3	BRANCH #4
INVERTERS PER BRANCH	5	4	5	4
MAX AC CURRENT	15.95A	12.76A	15.95A	12.76A
MAX AC OUTPUT POWER	3,830W	3,064W	3,830W	3,064W
ARRAY STC POWER	15,840W			
ARRAY PTC POWER	14,933W			
MAX AC CURRENT	57.42A			
MAX AC POWER	13,788W			
DERATED (CEC) AC POWER	13,788W			

DC POWER	36 PANEL QTY. x 440W=15,840W
	18 INVERTER QTY. x 766W=13,788W
TOTAL AC POWER	13,788W

MODULES										
REF.	QTY.	MAKE AND MODEL	PMAX	PTC	ISC	IMP	VOC	VMP	TEMP. COEFF. OF VOC	FUSE RATING
PM1-36	36	EMMVEE E440H-CM120B	440W	414.8W	13.55A	12.87A	41.44V	34.21V	-0.12V/°C (-0.29%/°C)	25A

INVERTERS										
REF.	QTY.	MAKE AND MODEL	AC VOLTAGE	GROUND	OCPD RATING	RATED POWER	MAX OUTPUT CURRENT	MAX INPUT CURRENT	MAX INPUT VOLTAGE	CEC WEIGHTED EFFICIENCY
I1-18	18	APTOS SOLAR TECHNOLOGY MAC 800R (240V)	240V	FLOATING	20A	766W	3.19A	2x12.5A	60V	96.5%

DISCONNECTS				
REF.	QTY.	MAKE AND MODEL	RATED CURRENT	MAX RATED VOLTAGE
SW1	1	EATON DG223NRB OR EQUIV.	100A	240VAC

OCPDS			
REF.	QTY.	RATED CURRENT	MAX VOLTAGE
CB1-4	4	20A	240VAC
CB5	1	15A	240VAC
F1-2	2	70A/80A/90A	240VAC

ASHRAE EXTREME LOW	-11.1°C (12.0°F), SOURCE: HARTNETT COUNTY (35.38°; -78.73°)
ASHRAE 2% HIGH	37.1°C (98.8°F), SOURCE: HARTNETT COUNTY (35.38°; -78.73°)

SolarTyme

CONTRACTOR

SOLAR TYME

PHONE:

ADDRESS: 6710 JEFFERSON DAVIS HWY
RICHMOND VA, 23237

LIC. NO.: 2705036452
HIC. NO.:
ELE. NO.:

NEW PV SYSTEM:
15.840 kWp DC / 13.788 kWp AC

POTTER RESIDENCE

254 DOCS RD,
LILLINGTON, NC 27546
APN: 030507004001

ENGINEER OF RECORD

PAPER SIZE: 11" x 17" (ANSI B)

DESIGN TABLES

DATE: 03.20.2023

DESIGN BY: M.H.

CHECKED BY: V.G.

REVISIONS

E-602.00

(SHEET 7)

LABELING NOTES
1.1 LABELING REQUIREMENTS BASED ON THE 2020 NATIONAL ELECTRICAL CODE, INTERNATIONAL FIRE CODE 605.11, OSHA STANDARD 1910.145, ANSI Z535
1.2 MATERIAL BASED ON THE REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION.
1.3 LABELS TO BE OF SUFFICIENT DURABILITY TO WITHSTAND THE ENVIRONMENT INVOLVED.
1.4 LABELS TO BE A MINIMUM LETTER HEIGHT OF 3/8" AND PERMANENTLY AFFIXED.
1.5 ALERTING WORDS TO BE COLOR CODED. "DANGER" WILL HAVE RED BACKGROUND; "WARNING" WILL HAVE ORANGE BACKGROUND; "CAUTION" WILL HAVE YELLOW BACKGROUND. [ANSI Z535]

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

LABEL 1
AT EACH DISCONNECTING MEANS FOR PHOTOVOLTAIC EQUIPMENT (2" X 4").
[NEC 690.13].

WARNING
POWER SOURCE OUTPUT CONNECTION DO NOT RELOCATE THIS OVERCURRENT DEVICE

LABEL 2
AT POINT OF INTERCONNECTION OVERCURRENT DEVICE (2" X 4").
[NEC 705.12(B)(2)(3)(B)].

AC DISCONNECT
PHOTOVOLTAIC SYSTEM POWER SOURCE
RATED AC OUTPUT CURRENT 57.42 AMPS
NOMINAL OPERATING AC VOLTAGE 240 VOLTS

LABEL 3
AT POINT OF INTERCONNECTION, MARKED AT DISCONNECTING MEANS (4" X 3").
[NEC 690.54]

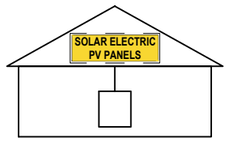
PHOTOVOLTAIC SYSTEM DISCONNECT

LABEL 4
AT EACH AC DISCONNECTING MEANS (4" X 1").
[NEC 690.13(B)].

RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM

LABEL 5
AT RAPID SHUTDOWN DISCONNECT SWITCH (5 1/4" X 2").
[NEC 690.56(C)(3)].

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 ARRAY

LABEL 6
AT RAPID SHUTDOWN SYSTEM (3 3/4" X 5 1/4"). [NEC 690.56(C)(1)(A)].

WARNING
DUAL POWER SUPPLY
SOURCES: UTILITY GRID AND PV SOLAR ELECTRIC SYSTEM

LABEL 7
AT POINT OF INTERCONNECTION (2 3/4" X 1 5/8").
[NEC 705.12(B)(3)]

WARNING
SOLAR ELECTRIC CIRCUIT BREAKER IS BACKFED

LABEL 8
AT POINT OF INTERCONNECTION (2" X 1").
[NEC 705.12(B)(3)]

INTERACTIVE PHOTOVOLTAIC SYSTEM CONNECTED
PHOTOVOLTAIC SYSTEM DISCONNECT LOCATED SE SIDE OF THE HOUSE

DIRECTORY
PERMANENT PLAQUE OR DIRECTORY PROVIDING THE LOCATION OF THE SERVICE DISCONNECTING MEANS AND THE PHOTOVOLTAIC SYSTEM DISCONNECTING MEANS IF NOT IN THE SAME LOCATION (5 3/4" X 1 1/8").
[NEC 690.56(B)]

WHERE THE PV SYSTEMS ARE REMOTELY LOCATED FROM EACH OTHER, A DIRECTORY IN ACCORDANCE WITH 705.10 SHALL BE PROVIDED AT EACH PV SYSTEM DISCONNECTING MEANS.
PV SYSTEM EQUIPMENT AND DISCONNECTING MEANS SHALL NOT BE INSTALLED IN BATHROOMS
[NEC 690.4(D),(E)]

WARNING: PHOTOVOLTAIC POWER SOURCE

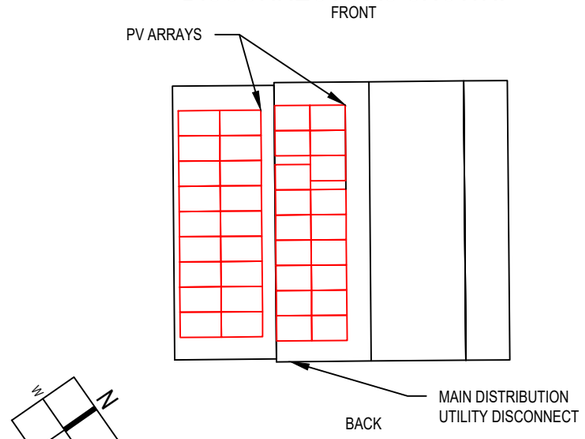
LABEL 9
AT EXPOSED RACEWAYS, CABLE TRAYS, AND OTHER WIRING METHODS; SPACED AT MAXIMUM 10 FT SECTION OR WHERE SEPARATED BY ENCLOSURES, WALLS, PARTITIONS, CEILINGS, OR FLOORS (5 3/4" X 1 1/8").
[NEC 690.31(G)]
LETTERS AT LEAST 3/8 INCH; WHITE ON RED BACKGROUND; REFLECTIVE
[IFC 605.11.1.1]

CAUTION
SOLAR ELECTRIC SYSTEM CONNECTED

LABEL 10
AT UTILITY METER (5 3/4" X 1 1/8")
[NEC 690.56(B)]

!CAUTION!

POWER TO THIS BUILDING IS ALSO SUPPLIED FROM ROOF MOUNTED SOLAR ARRAYS WITH SAFETY DISCONNECTS AS SHOWN:



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CONTRACTOR

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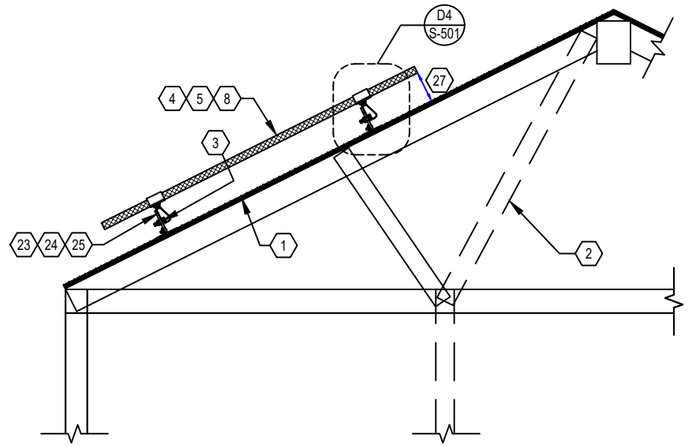
PLACARDS

DATE: 03.20.2023
DESIGN BY: M.H.
CHECKED BY: V.G.

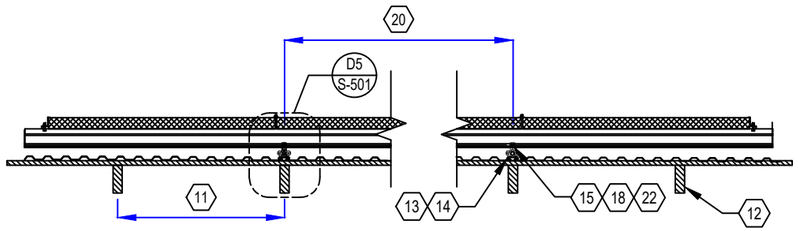
REVISIONS

E-603.00
(SHEET 8)



D1 RACKING DETAIL (TRANSVERSE)

NOT TO SCALE



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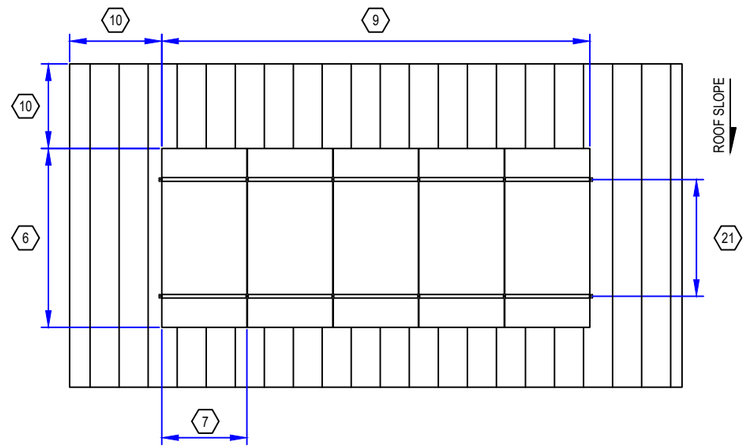
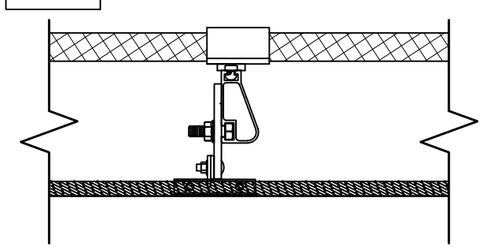
NOT TO SCALE



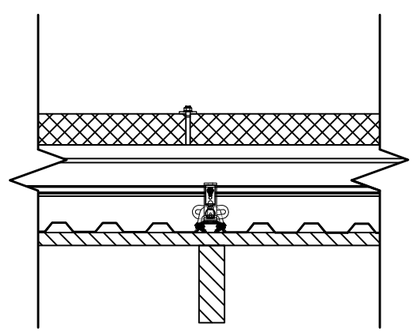
D3 RACKING DETAIL (TOP)

NOT TO SCALE



D4 DETAIL (TRANSVERSE)

NOT TO SCALE



D5 DETAIL (LONGITUDINAL)

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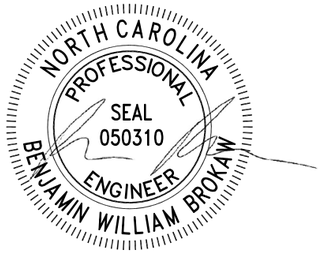

3/21/2023

GENERAL NOTES

1. FIELD VERIFY ALL MEASUREMENTS

SHEET KEYNOTES

1. ROOF MATERIAL: CORRUGATED METAL
2. ROOF STRUCTURE: TRUSS
3. ATTACHMENT TYPE: S!5 CORRUBRACKET
4. MODULE MANUFACTURER: EMMVEE
5. MODULE MODEL: E440H-CM120B
6. MODULE LENGTH: 75.3"
7. MODULE WIDTH: 44.64"
8. MODULE WEIGHT: 52.91 LBS.
9. SEE SHEET A-103 FOR DIMENSION(S)
10. MIN. FIRE OFFSET: 36" FROM RIDGE, 36" FROM EDGE
11. TRUSS SPACING: 24 IN. O.C.
12. TRUSS SIZE: 2X4 IN. NOMINAL
13. LAG BOLT DIAMETER: 5/16"
14. LAG BOLT EMBEDMENT: 3-1/2"
15. TOTAL # OF ATTACHMENTS: 44
16. TOTAL AREA: 420.17 SQ. FT.
17. TOTAL WEIGHT: 1102.94 LBS.
18. WEIGHT PER ATTACHMENT: 25.07 LBS.
19. DISTRIBUTED LOAD: 2.62 PSF
20. MAX. HORIZONTAL STANDOFF: 48 IN.
21. MAX. VERTICAL STANDOFF: IN ACCORDANCE WITH MODULE MANUFACTURER'S INSTRUCTIONS.
22. STANDOFF STAGGERING: YES
23. RAIL MANUFACTURER (OR EQUIV.): IRONRIDGE
24. RAIL MODEL (OR EQUIVALENT): XR-100
25. RAIL WEIGHT: 0.68 PLF.
26. MAX. TRUSS SPAN: N/A
27. MODULE CLEARANCE: 3 IN. MIN., 6 IN. MAX.

SolarTyme

CONTRACTOR

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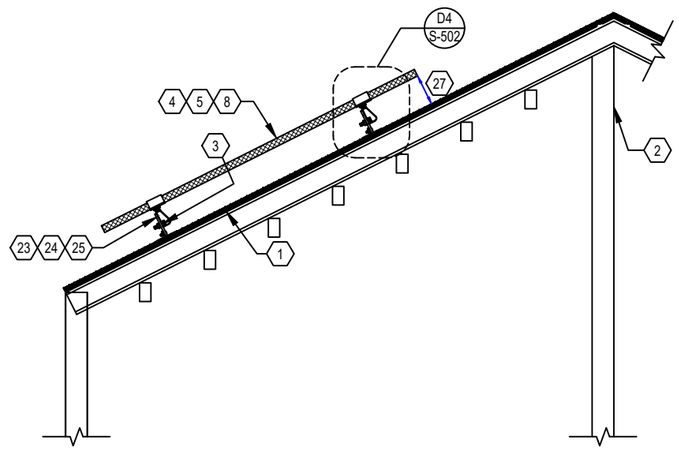
REVISIONS

S-501.00
(SHEET 9)



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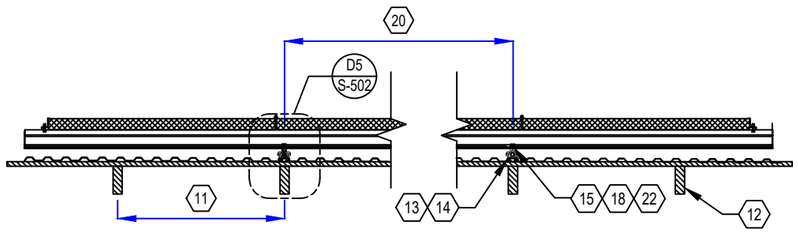

D2 RACKING DETAIL (LONGITUDINAL)

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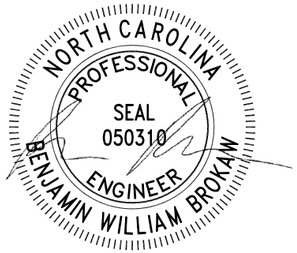

3/21/2023

GENERAL NOTES

1. FIELD VERIFY ALL MEASUREMENTS

SHEET KEYNOTES

1. ROOF MATERIAL: CORRUGATED METAL
2. ROOF STRUCTURE: WOOD BEAM SUPPORTED
3. ATTACHMENT TYPE: S!5 CORRUBRACKET
4. MODULE MANUFACTURER: EMMVEE
5. MODULE MODEL: E440H-CM120B
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7. MODULE WIDTH: 44.64"
8. MODULE WEIGHT: 52.91 LBS.
9. SEE SHEET A-103 FOR DIMENSION(S)
10. MIN. FIRE OFFSET: 36" FROM RIDGE, 36" FROM EDGE
11. RAFTER SPACING: 24 IN. O.C.
12. RAFTER SIZE: 4X6 IN. NOMINAL
13. LAG BOLT DIAMETER: 5/16"
14. LAG BOLT EMBEDMENT: 3-1/2"
15. TOTAL # OF ATTACHMENTS: 39
16. TOTAL AREA: 420.17 SQ. FT.
17. TOTAL WEIGHT: 1102.94 LBS.
18. WEIGHT PER ATTACHMENT: 28.28 LBS.
19. DISTRIBUTED LOAD: 2.62 PSF
20. MAX. HORIZONTAL STANDOFF: 48 IN.
21. MAX. VERTICAL STANDOFF: IN ACCORDANCE WITH MODULE MANUFACTURER'S INSTRUCTIONS.
22. STANDOFF STAGGERING: YES
23. RAIL MANUFACTURER (OR EQUIV.): IRONRIDGE
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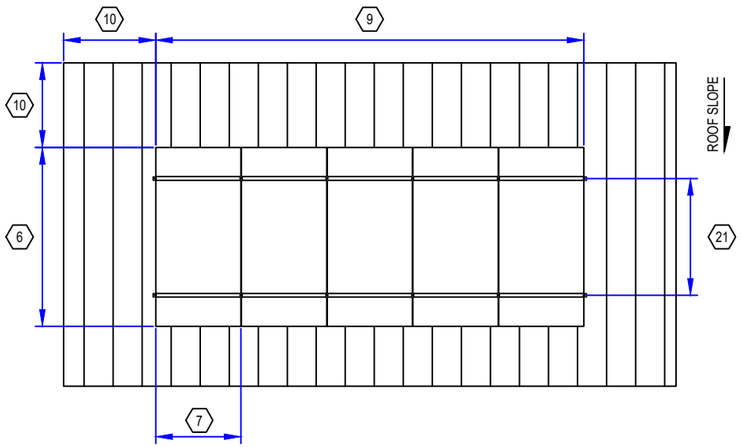

D3 RACKING DETAIL (TOP)

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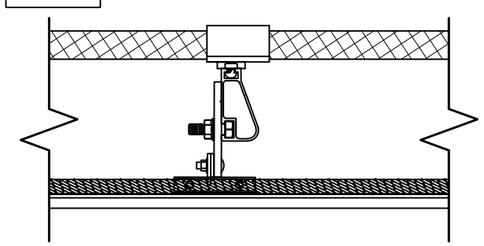
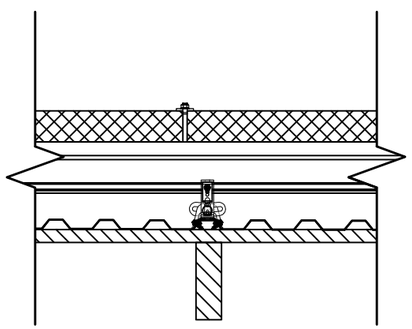


D4 DETAIL (TRANSVERSE)

NOT TO SCALE



D5 DETAIL (LONGITUDINAL)

NOT TO SCALE

SolarTyme

CONTRACTOR

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ASSEMBLY DETAILS

DATE: 03.20.2023
DESIGN BY: M.H.
CHECKED BY: V.G.

REVISIONS

S-502.00
(SHEET 10)

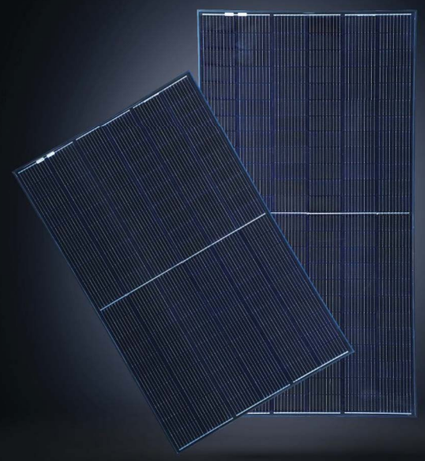
EMMVEE

YOUR RELIABLE PARTNER FOR SOLAR ENERGY SINCE 1992

30 YEARS. POWER FOR GOOD.

GRAPHITE | A POWER-PACKED SOLAR SOLUTION

DESIGNED TO DELIVER MAXIMUM POWER OUTPUT



BENEFITS

- LOW LCOE, FASTER PAYBACK PERIOD
- BEST IN CLASS EFFICIENCY UPTO 21.5%
- MULTI-BUS BAR TECHNOLOGY FOR BETTER CURRENT COLLECTION
- LOWEST GUARANTEED FIRST YEAR AND ANNUAL DEGRADATION
- WELL-COMPOSED COMPONENTS STRESS TO REDUCE MICRO CRACKS

EMMVEE IS INDIA'S FIRST INTEGRATED SOLAR SOLUTIONS COMPANY, WITH 30 YEARS OF EXPERTISE IN DEVISING HIGHLY INNOVATIVE AND EFFICIENT SOLAR POWER SOLUTIONS, FROM SOLAR WATER HEATING SYSTEMS TO PHOTOVOLTAIC MODULES AND SOLAR WATER PUMPS.

Since our inception in 1992, we have dedicated ourselves to developing smart and innovative solar energy solutions using cutting edge technology. As always, our promise is to maintain enviable standards of excellent quality, timely delivery and reliable support to our customers as they explore and adopt environmentally friendly solar power solutions.

Today, we are proud of our robust presence in some of the most pioneering green energy projects across India and Europe. Our path-breaking photovoltaic modules have provided valuable and sustainable alternative power solutions in the field for over 15 years, and we continue to innovate with our new range of higher WP modules that combine exceptional quality and unbeatable efficiency.

Our goal is simple: to provide clean and reliable energy that saves our natural resources and reduces our carbon footprint, while ensuring that our diverse range of domestic and commercial solar power-related products and services always keep the needs of our customers at the forefront.

FEATURES

- AR COATED HIGH TRANSMISSION GLASS
- MC4 COMPATIBLE CONNECTORS
- PID RESISTANCE
- ANODISED ALUMINIUM FRAME
- MECHANICAL LOAD OF 5400 Pa

TECHNICAL SPECIFICATION

120 CUT CELL BLACK BACK SHEET MODULE

Electrical data at 1000W/m², 25°C and A.M 1.5(STC in accordance with IEC 60904-3)

MODEL NAME	E440HCM120-B	E445HCM120-B	E450HCM120-B
RATED POWER AT STC	440	445	450
POWER TOLERANCE	+5W	+5W	+5W
MODULE EFFICIENCE AT STC	20.28%	20.51%	20.74%
OPEN CIRCUIT VOLTAGE - VOC(VOLTS) (±10%)	41.44	41.46	41.56
SHORT CIRCUIT CURRENT - ISC (AMPS) (± 10%)	13.55	13.75	13.81
MAX POWER VOLTAGE - VPM (VOLTS)	34.21	34.28	34.31
MAX POWER CURRENT - IPM (AMPS)	12.87	12.99	13.12
AT LOW IRRADIANCE (200W/M², 25°C AND AM1.5) THE MODULE YIELDS AT LEAST 95% OF THE STC EFFICIENCY.			

Test uncertainty for Pmax ±3%

Thermal data

TEMPERATURE COEFFICIENT OPEN-CIRCUIT VOLTAGE	-0.29%/°C
TEMPERATURE COEFFICIENT SHORT CIRRCUIT CURRENT	0.05%/°C
TEMPERATURE COEFFICIENT RATED POWER	-0.39%/°C
NOCT (NORMAL OPERATING CELL TEMPERATURE)	45°C ± 2°C

Mechanical data

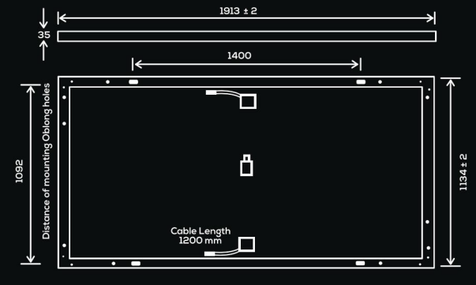
NUMBER OF CELLS AND CELL TYPE	120 MONO PERC SOLAR CELLS (182mm X 91mm)
DIMENSIONS: (L X W X H)	1913 mm X 1134 mm X 35 mm
WEIGHT	24 Kg
FRONT GLASS	3.2 mm HIGH TRANSMISSION, SOLAR GLASS
EMBEDDING	EVA
BACK SHEET	BLACK BACK SHEET
JUNCTION BOX	3 SPLIT JUNCTION BOX IP68
NUMBER OF BYPASS DIODES	3
CABLES	4mm² SOLAR CABLES, LENGTH 1200±10mm
CONNECTORS	MC4 COMPATIBLE

Permissible operating conditions

OPERATING TEMPERATURE RANGE	-40°C TO 85°C
MAX.SYSTEM VOLTAGE	1500V DC
MAXIMUM SNOW LOAD CAPACITY	5400PA
RESISTANCE AGAINST HAIL	MAX Ø24 MM WITH IMPACT SPEED OF 83KM/H
PROTECTION CLASS AGAINST ELECTRICAL SHOCK	II
MAXIMUM REVERSE CURRENT	25 A

Warranty

PRODUCT WARRANTY	12 YEARS
PERFORMANCE WARRANTY	25 YEARS
ANNUAL DEGRADATION	1ST YEAR DEGRADATION, 2%, FROM 2ND YEAR 0.55% ANNUAL DEGRADATION.



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REVISIONS

R-001.00
(SHEET 11)

MAC™ 800R

Solar for Innovators

Maximize AC Power Output

The high-performance MAC-800R dual unit microinverter is engineered for maximum AC power output when paired with Aptos Solar Technology's high-power solar panels. The MAC-800R is built for simple system integration and is compatible with third-party devices.

The MAC-800R is equipped and ready for system monitoring and trend tracking through Aptos Solar Technology's cloud based software.

UL LISTED CE C SA US

High-performance 2:1 Microinverter

Up to 800W

Maximum AC Power Output

- Up to 800W
- 10% more AC power output than competing products

Superior Long-term Reliability

- Industry leading 25-year warranty
- Over 7MW of long-term reliability testing hours spread across 28 countries
- NEMA6 (IP67) enclosure rated for protection in harsh outdoor conditions

Streamlined Installation

- Fully integrated trunk cables
- Compatible with 120 & 144 cell PV panels with daisy-chain interconnection
- Battery integration ready

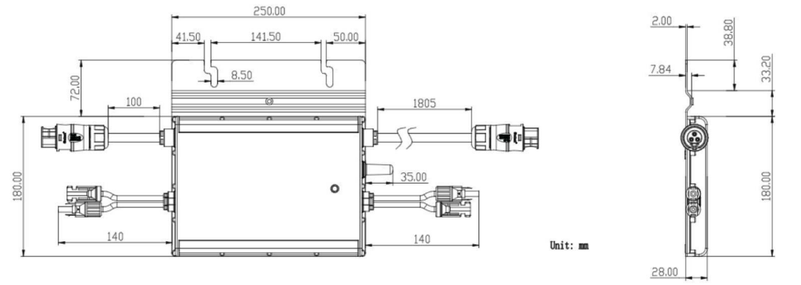
Built for Safety

- Built-in rapid shutdown feature in compliance with National Electrical Code (NEC)
- 6,000V surge protection feature

aptos solar technology
3140 De La Cruz Blvd., Ste 200
Santa Clara, CA 95054
www.aptossolar.com I info@aptossolar.com

MAC™ 800R

Solar for Innovators



Input Data (DC)

Commonly used module power (W)	320W-540W+
Maximum input voltage(V)	60
voltage range(V)	16-60
Start-up voltage(V)	22
Maximum input current(A)	2*12.5

Mechanical Data

Ambient temperature range (°C)	-40 to +65
Dimensions (W X H X D mm)	250 X 170 X 28
Weight (kG)	3.0
Enclosure rating	Outdoor-NEMA (IP67)
Cooling	Natural convection - No fans

Output Data (AC)

Peak output power(VA)	800	
Maximum continuous output power(VA)	766	
Maximum continuous output current (A)	3.19	3.68
Nominal output voltage/range(V)[1]	240/211-264	208/183-228
Nominal frequency/range (Hz)[1]	60/55-65	
Power factor (adjustable)	>0.99 default 0.8 leading...0.8 lagging	
Total harmonic distortion	<3%	
Maximum units per branch[2]	5/4	

Efficiency

CEC peak efficiency	96.7%
CEC weighted efficiency	96.5%
Nominal MPPT efficiency	99.8%
Nighttime power consumption (mW)	<50

Loading Quantity

Container	1 X 20'GP	1 X 40'GP/1 X 40'HQ
Pallet No.	10	22
Carton No.	480	1008
Total quantity	2400	5040

Features

Communication	2.4GHz Proprietary RF(Nordic)
Monitoring	AST Cloud [3]
Warranty	25 Years
Compliance	UL 1741, IEEE 1547, UL 1741 SA (240Vac), CA Rule 21 (240Vac), CSA C22.2 No. 107.1-16, FCC Part 15B, FCC Part 15C
PV Rapid Shutdown	Conforms with NEC-2017 and NEC-2020 Article 690.12 and CEC-2021 Sec 64-218 Rapid Shutdown of PV Systems

*1 Nominal voltage/frequency range can be changed due to the requirements of local power department.
*2 Refer to local requirements for exact number of microinverters per branch.
*3 Aptos Monitoring System.

aptos solar technology

SolarTyme

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REVISIONS

R-002.00
(SHEET 12)

Tech Brief

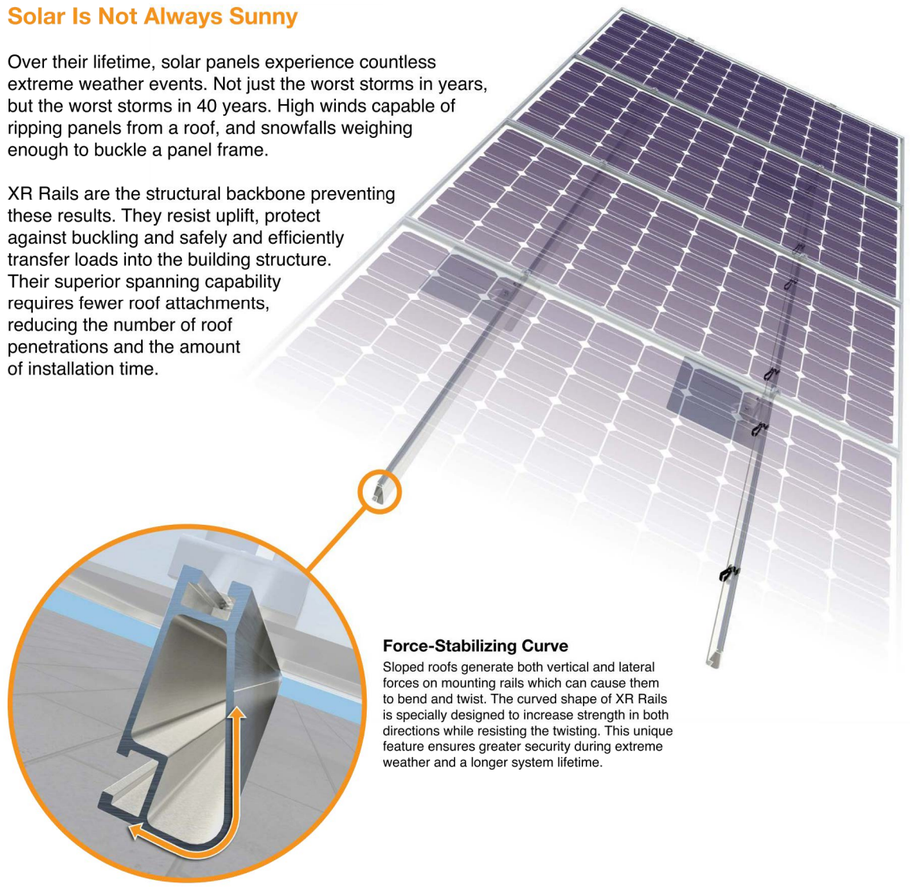
IRONRIDGE

XR Rail Family

Solar Is Not Always Sunny

Over their lifetime, solar panels experience countless extreme weather events. Not just the worst storms in years, but the worst storms in 40 years. High winds capable of ripping panels from a roof, and snowfalls weighing enough to buckle a panel frame.

XR Rails are the structural backbone preventing these results. They resist uplift, protect against buckling and safely and efficiently transfer loads into the building structure. Their superior spanning capability requires fewer roof attachments, reducing the number of roof penetrations and the amount of installation time.



Force-Stabilizing Curve

Sloped roofs generate both vertical and lateral forces on mounting rails which can cause them to bend and twist. The curved shape of XR Rails is specially designed to increase strength in both directions while resisting the twisting. This unique feature ensures greater security during extreme weather and a longer system lifetime.

Compatible with Flat & Pitched Roofs

XR Rails are compatible with FlashFoot and other pitched roof attachments.

IronRidge offers a range of tilt leg options for flat roof mounting applications.

Corrosion-Resistant Materials

All XR Rails are made of marine-grade aluminum alloy, then protected with an anodized finish. Anodizing prevents surface and structural corrosion, while also providing a more attractive appearance.

Tech Brief

XR Rail Family

The XR Rail Family offers the strength of a curved rail in three targeted sizes. Each size supports specific design loads, while minimizing material costs. Depending on your location, there is an XR Rail to match.

XR10

XR10 is a sleek, low-profile mounting rail, designed for regions with light or no snow. It achieves 6 foot spans, while remaining light and economical.

- 6' spanning capability
- Moderate load capability
- Clear anodized finish
- Internal splices available

XR100

XR100 is the ultimate residential mounting rail. It supports a range of wind and snow conditions, while also maximizing spans up to 8 feet.

- 8' spanning capability
- Heavy load capability
- Clear & black anodized finish
- Internal splices available

XR1000

XR1000 is a heavyweight among solar mounting rails. It's built to handle extreme climates and spans 12 feet or more for commercial applications.

- 12' spanning capability
- Extreme load capability
- Clear anodized finish
- Internal splices available

Rail Selection

The following table was prepared in compliance with applicable engineering codes and standards. Values are based on the following criteria: ASCE 7-10, Roof Zone 1, Exposure B, Roof Slope of 7 to 27 degrees and Mean Building Height of 30 ft. Visit IronRidge.com for detailed span tables and certifications.

Load		Rail Span					
Snow (PSF)	Wind (MPH)	4'	5' 4"	6'	8'	10'	12'
None	100	XR10		XR100		XR1000	
	120						
	140						
	160						
10-20	100						
	120						
	140						
	160						
30	100						
	160						
40	100						
	160						
50-70	160						
80-90	160						

SolarTyme

CONTRACTOR

SOLAR TYME

PHONE:

ADDRESS: 6710 JEFFERSON DAVIS HWY
RICHMOND VA, 23237

LIC. NO.: 2705036452
HIC. NO.:
ELE. NO.:

NEW PV SYSTEM:
15.840 kWp DC / 13.788 kWp AC

POTTER RESIDENCE

254 DOCS RD,
LILLINGTON, NC 27546
APN: 030507004001

ENGINEER OF RECORD

PAPER SIZE: 11" x 17" (ANSI B)

RESOURCE DOCUMENT

DATE: 03.20.2023
DESIGN BY: M.H.
CHECKED BY: V.G.

REVISIONS

R-003.00
(SHEET 13)

S-5!®

The Right Way!™

ProteaBracket™

A versatile bracket for mounting solar PV to trapezoidal roof profiles

ProteaBracket™ is now made in aluminum. Still the most versatile trapezoidal metal roof attachment solution on the market, the S-5! ProteaBracket just got better!

The bracket features an adjustable attachment base and module attachment options to accommodate different roof profile dimensions and mounting options.

Our pre-applied EPDM gasket with peel and stick adhesive makes installation a snap, ensuring accurate and secure placement the first time.

With no messy sealants, faster installation, and a weather-proof fit, ProteaBracket offers you the most versatile solar attachment solution available.

ProteaBracket* can be used for rail mounting or "direct-attach" with S-5! PVKIT™

*When ProteaBracket is used in conjunction with the S-5! PVKIT, an additional nut is required during installation.

NEW

NOW AVAILABLE IN ALUMINUM

ProteaBracket™

Features and Benefits

- 34% lighter - saves on shipping
- Stronger L-Foot™
- Load-tested for engineered application
- Corrosion-resistant materials
- Adjustable - Fits rib profiles up to 3"
- Peel-and-Stick prevents accidental shifting during installation
- Fully pre-assembled
- 25-year warranty*

*See www.S-5.com for details.

The right way to attach solar PV to trapezoidal roof profiles!

888-825-3432 | www.S-5.com |

MADE IN THE USA

S-5!®

The Right Way!™

ProteaBracket™ is the perfect solar attachment solution for most trapezoidal rib, exposed-fastened metal roof profiles!

ProteaBracket™ is compatible with common metal roofing materials and comes with a pre-applied EPDM gasket on the base.

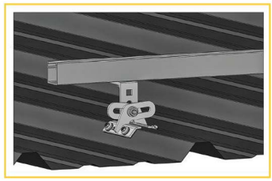
Note: All four pre-punched holes must be used to achieve tested strength. Fasteners are provided.

For design assistance, ask your distributor, or visit **www.S-5.com** for the independent lab test data that can be used for load-critical designs and applications. Also, please visit our website for more information including metallurgical compatibilities and specifications.

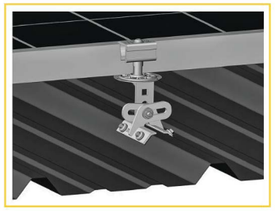
S-5!® holding strength is unmatched in the industry.

Multiple Attachment Options:

Side Mount Rail



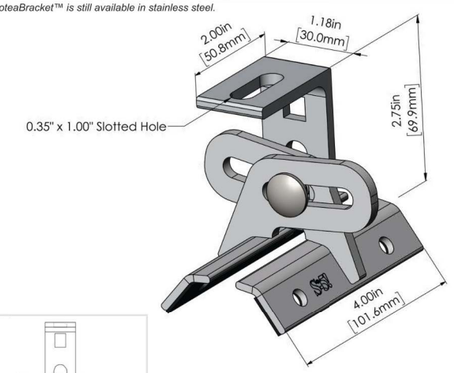
Bottom Mount Rail

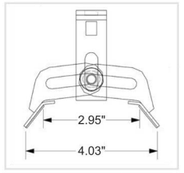


w/ S-5! PVKIT™ (rail-less)

ProteaBracket™

ProteaBracket™ is still available in stainless steel.

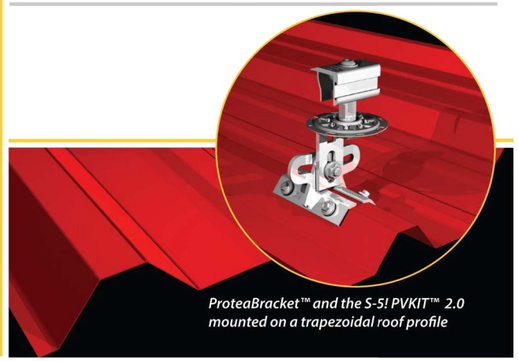




ProteaBracket fits profiles up to 3 inches

INSTALLATION:

No surface preparation needed. (1) Wipe away excess oil and debris. **(2)** Peel off adhesive release paper. **(3)** Align and mount bracket directly onto crown of panel. **(4)** Secure ProteaBracket through pre-punched holes, using piercing-point S-5! screws.



ProteaBracket™ and the S-5! PVKIT™ 2.0 mounted on a trapezoidal roof profile

S-5!® Warning! Please use this product responsibly!

Products are protected by multiple U.S. and foreign patents. For published data regarding holding strength, bolt torque, patents, and trademarks, visit the S-5! website at www.S-5.com.

Distributed by

SolarTyme

CONTRACTOR

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PHONE:

ADDRESS: 6710 JEFFERSON DAVIS HWY
RICHMOND VA, 23237

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