

ROOF MOUNT PHOTOVOLTAIC SYSTEM

CODES:

THIS PROJECT COMPLIES WITH THE FOLLOWING:
 2018 NORTH CAROLINA BUILDING CODE
 2018 NORTH CAROLINA RESIDENTIAL CODE
 2018 NORTH CAROLINA PLUMBING CODE
 2018 NORTH CAROLINA MECHANICAL CODE
 2018 NORTH CAROLINA FUEL GAS CODE
 2017 NATIONAL ELECTRICAL CODE
 AS ADOPTED BY HARNETT COUNTY (NC)

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

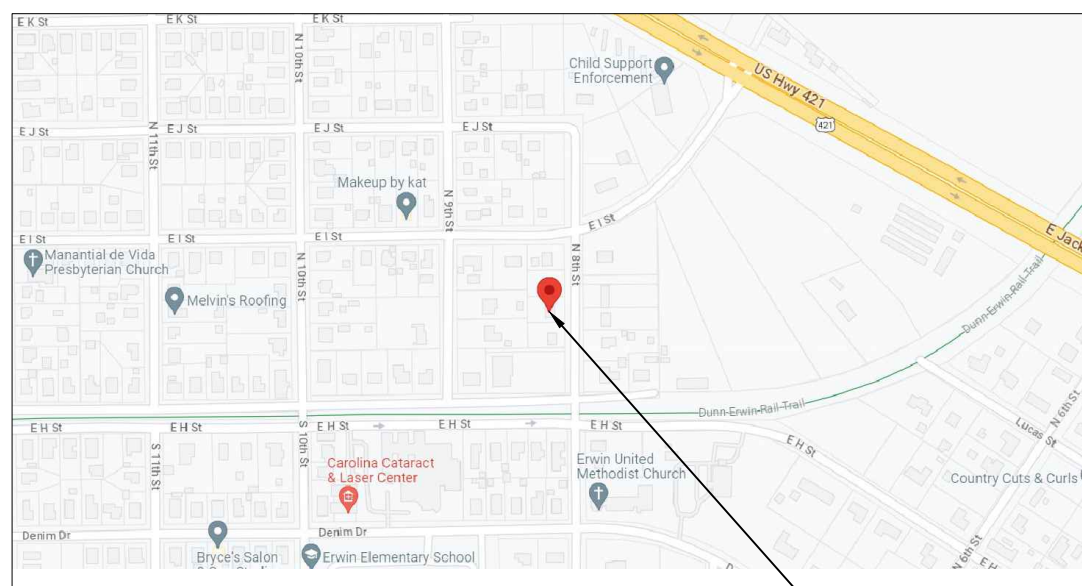
SOLAREGE OPTIMIZERS ARE LISTED TO IEC 62109-1 (CLASS II SAFETY) AND UL 1741 STANDARDS

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

THIS SYSTEM DESIGNED WITH:

WIND SPEED: 130
 WIND EXPOSURE: B
 SNOW LOAD: 15

VICINITY MAP:



SITE LOCATION

TABLE OF CONTENTS:

PV-1	SITE LOCATION
PV-2	SITE PLAN
PV-2A	ROOF PLAN WITH MODULES LAYOUT
PV-2B	ROOF AND STRUCTURAL TABLES
PV-3	MOUNTING DETAILS
PV-4	THREE LINE DIAGRAM
PV-5	CONDUCTOR CALCULATIONS
PV-6	EQUIPMENT & SERVICE LIST
PV-7	LABELS
PV-7A	SITE PLACARD
PV-8	OPTIMIZER CHART
PV-9	SAFETY PLAN
PV-10	SAFETY PLAN
APPENDIX	MANUFACTURER SPECIFICATION SHEETS

CLIENT:
 SHAKIRAH GHAFUR
 106 NORTH 8TH STREET, ERWIN, NC 28339
 AHJ: HARNETT COUNTY (NC)
 UTILITY: DUKE ENERGY
 METER: 332303350
 PHONE: (609) 665-6817
 EMAIL: SHAKIRAHG1017@GMAIL.COM
 FINANCE: OTHER

SYSTEM:
 SYSTEM SIZE (DC): 19 X 410 = 7.790 kW
 SYSTEM SIZE (AC): 6.000 kW @ 240V
 MODULES: 19 X REC SOLAR: REC410AA PURE-R
 OPTIMIZERS: 19 X SOLAREGE S440
 INVERTER: SOLAREGE SE6000H-USRGM [S11]

REVISIONS		
NO.	REVISED BY	DATE
-	-	-
-	-	-
-	-	-



FREEDOM FOREVER LLC
 415 INDUSTRIAL CT., GREER, SC 29651
 Tel: (800) 385-1075











GREG ALBRIGHT

CONTRACTOR LICENSE:
 ELECTRICAL CONTRACTOR U.34043

SITE LOCATION

JOB NO: 333019	DATE: 5/18/2023	DESIGNED BY: A.N.	SHEET: PV-1
-------------------	--------------------	----------------------	----------------

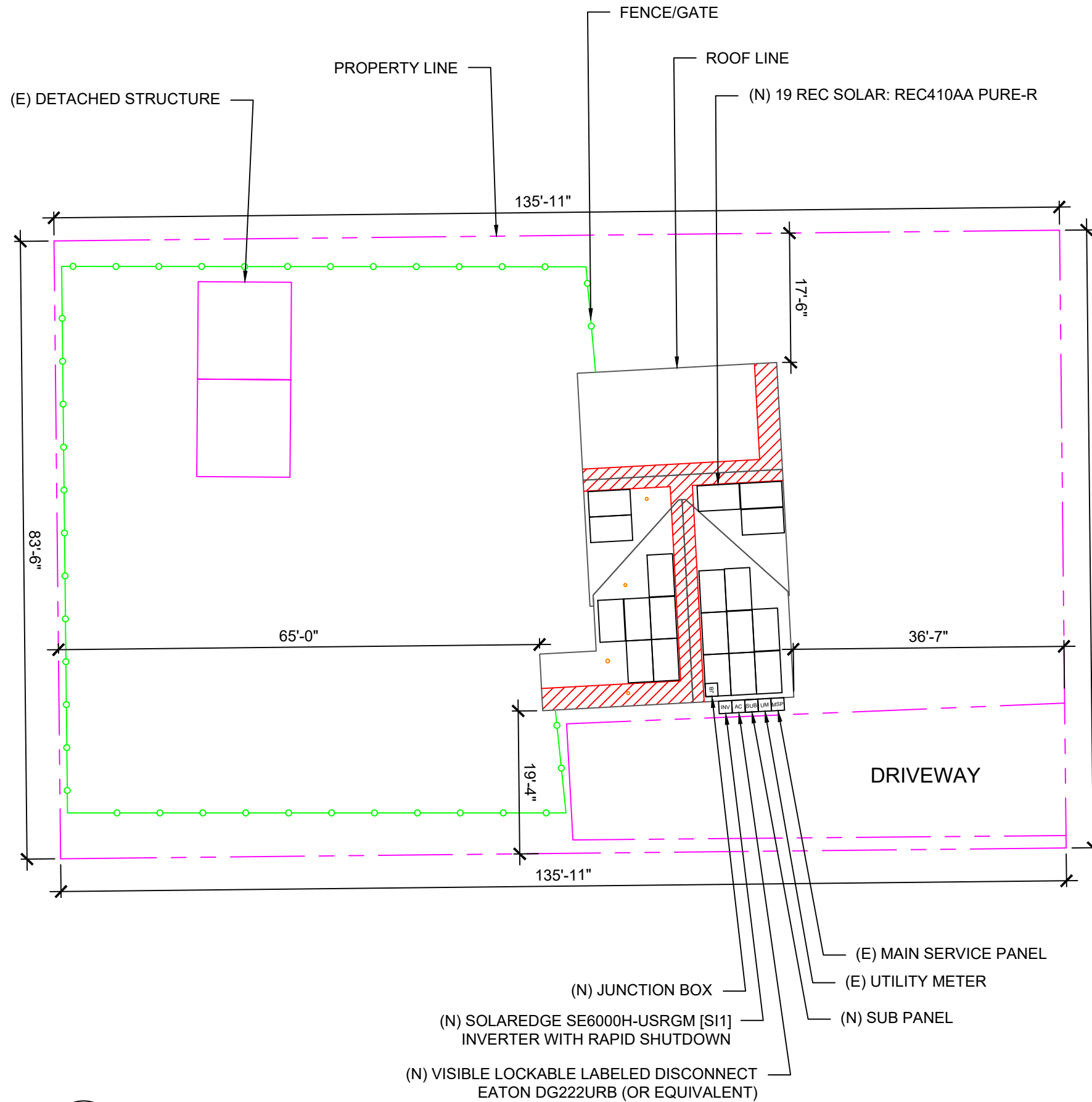
LEGEND:

-  CHIMNEY
-  PIPE VENT
-  MODULES
-  CONDUIT
-  SETBACK
-  AC DISCONNECT
-  JUNCTION BOX
-  INVERTER
-  SUBPANEL
-  MAIN SERVICE PANEL

PV SYSTEM
 7.790 kW-DC
 6.000 kW-AC

TOTAL ROOF AREA RIDGE SETBACK CALCS:
 TOTAL ROOF AREA: 1352.78 SQ FT
 SINGLE MODULE AREA: 20.81908296 SQ FT
 TOTAL NUMBER OF MODULES: 19
 TOTAL AREA OF MODULES: 395.56 SQ FT
 ROOF COVERAGE: 29.24%
 FIRE SPRINKLERS : NO

THIS SYSTEM DESIGNED WITH:
 WIND SPEED: 130
 WIND EXPOSURE: B
 SNOW LOAD: 15



ROOF AREA: 1352.78 SQ FT

CLIENT:
 SHAKIRAH GHAFUR
 106 NORTH 8TH STREET, ERWIN, NC 28339
 AHJ: HARNETT COUNTY (NC)
 UTILITY: DUKE ENERGY
 METER: 332303350
 PHONE: (609) 665-6817
 EMAIL: SHAKIRAHG1017@GMAIL.COM
 FINANCE: OTHER

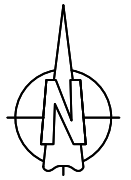
SYSTEM:
 SYSTEM SIZE (DC): 19 X 410 = 7.790 kW
 SYSTEM SIZE (AC): 6.000 kW @ 240V
 MODULES: 19 X REC SOLAR: REC410AA PURE-R
 OPTIMIZERS: 19 X SOLAREEDGE S440
 INVERTER: SOLAREEDGE SE6000H-USRGM [S11]

REVISIONS		
NO.	REVISED BY	DATE
-	-	-
-	-	-
-	-	-


FREEDOM FOREVER LLC
 415 INDUSTRIAL CT., GREER, SC 29651
 Tel: (800) 385-1075
GREG ALBRIGHT

 CONTRACTOR LICENSE:
 ELECTRICAL CONTRACTOR U.34043

SITE PLAN			
JOB NO:	DATE:	DESIGNED BY:	SHEET:
333019	5/18/2023	A.N.	PV-2



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

1

NORTH 8TH STREET

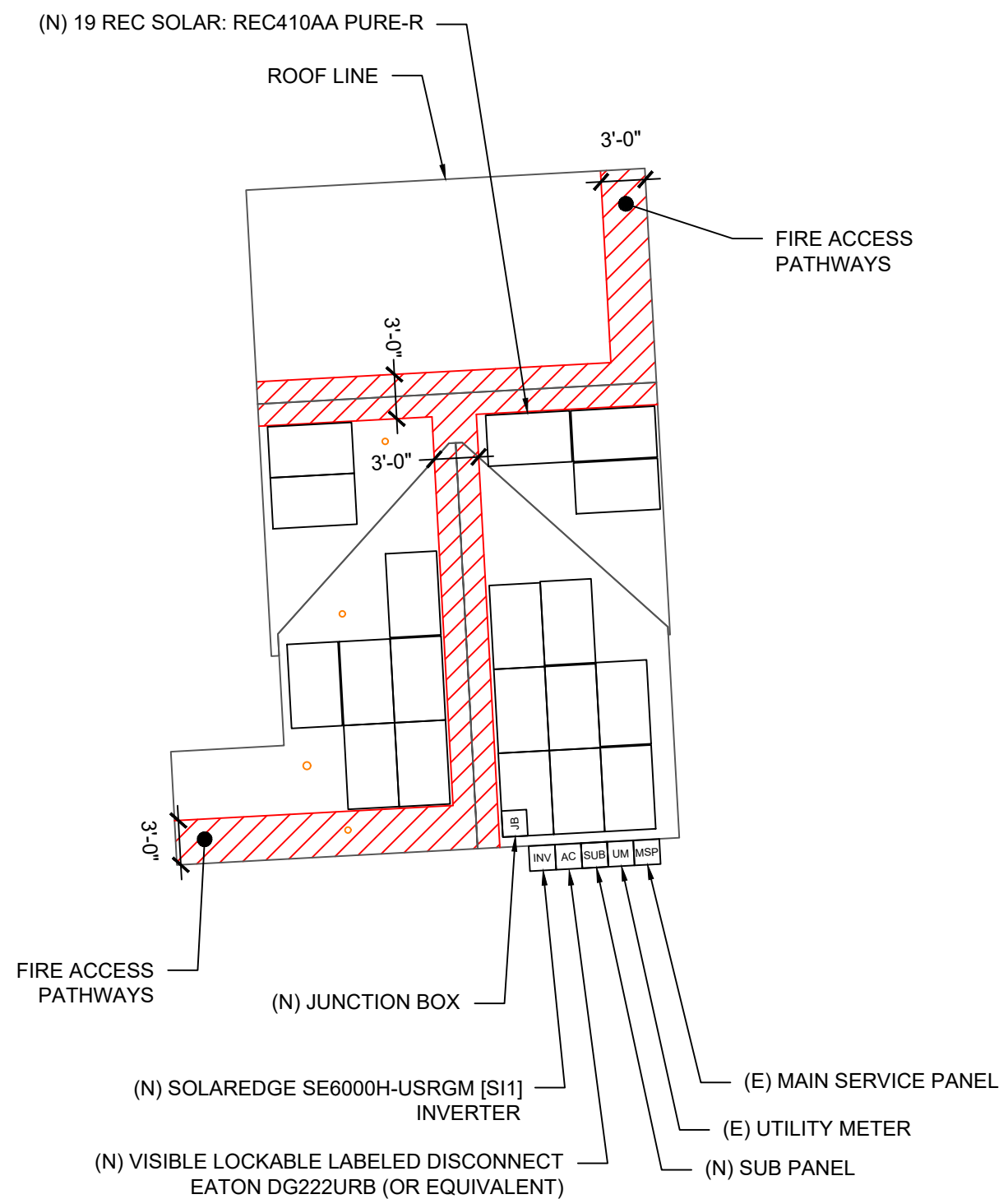
LEGEND:

	CHIMNEY
	PIPE VENT
	MODULES
	CONDUIT
	SETBACK
	AC DISCONNECT
	JUNCTION BOX
	INVERTER
	SUBPANEL
	MAIN SERVICE PANEL

PV SYSTEM
7.790 kW-DC
6.000 kW-AC

THIS SYSTEM DESIGNED WITH:
WIND SPEED: 130
WIND EXPOSURE: B
SNOW LOAD: 15

TOTAL ROOF AREA: 1352.78 SQ FT
TOTAL ARRAY AREA: 395.56 SQ FT
ARRAY COVERAGE: 29.24%
SYSTEM DISTRIBUTED WEIGHT: 2.28 LBS
ROCKIT SMART SLIDE POINT-LOAD: 20.95 LBS



ROOF AREA: 1352.78 SQ FT

CLIENT:
SHAKIRAH GHAFUR
106 NORTH 8TH STREET, ERWIN, NC 28339
AHJ: HARNETT COUNTY (NC)
UTILITY: DUKE ENERGY
METER: 332303350
PHONE: (609) 665-6817
EMAIL: SHAKIRAHG1017@GMAIL.COM
FINANCE: OTHER

SYSTEM:
SYSTEM SIZE (DC): 19 X 410 = 7.790 kW
SYSTEM SIZE (AC): 6.000 kW @ 240V
MODULES: 19 X REC SOLAR: REC410AA PURE-R
OPTIMIZERS: 19 X SOLAREEDGE S440
INVERTER: SOLAREEDGE SE6000H-USRGM [SI1]

REVISIONS		
NO.	REVISED BY	DATE
-	-	-
-	-	-
-	-	-



FREEDOM FOREVER LLC
415 INDUSTRIAL CT., GREER, SC 29651
Tel: (800) 385-1075

GREG ALBRIGHT

CONTRACTOR LICENSE:
ELECTRICAL CONTRACTOR U.34043



ROOF PLAN
SCALE: 3/32" = 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 PLAN WITH MODULES LAYOUT			
JOB NO:	DATE:	DESIGNED BY:	SHEET:
333019	5/18/2023	A.N.	PV-2A

ROOF DETAILS:

TOTAL ROOF AREA: 1352.78 SQ FT
 TOTAL ARRAY AREA: 395.56 SQFT
 ARRAY COVERAGE: 29.24%
 SYSTEM DISTRIBUTED WEIGHT: 2.28 LBS
 ROCKIT SMART SLIDE POINT-LOAD: 20.95 LBS



ROOF AREA STATEMENT						
ROOF	MODULE QUANTITY	ROOF PITCH	ARRAY PITCH	AZIMUTH	ROOF AREA	ARRAY AREA
ROOF 1	6	20	20	257	353.56 SQ FT	124.91 SQ FT
ROOF 2	5	20	20	177	277.75 SQ FT	104.1 SQ FT
ROOF 3	8	20	20	87	166.55 SQ FT	166.55 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

CLIENT:
 SHAKIRAH GHAFUR
 106 NORTH 8TH STREET, ERWIN, NC 28339
 AHJ: HARNETT COUNTY (NC)
 UTILITY: DUKE ENERGY
 METER: 332303350
 PHONE: (609) 665-6817
 EMAIL: SHAKIRAHG1017@GMAIL.COM
 FINANCE: OTHER

SYSTEM:
 SYSTEM SIZE (DC): 19 X 410 = 7.790 kW
 SYSTEM SIZE (AC): 6.000 kW @ 240V
 MODULES: 19 X REC SOLAR: REC410AA
 PURE-R
 OPTIMIZERS: 19 X SOLAREEDGE S440
 INVERTER: SOLAREEDGE SE6000H-USRGM [S1]

REVISIONS		
NO.	REVISED BY	DATE
-	-	-
-	-	-
-	-	-



FREEDOM FOREVER LLC
 415 INDUSTRIAL CT., GREER, SC 29651
 Tel: (800) 385-1075

GREG ALBRIGHT

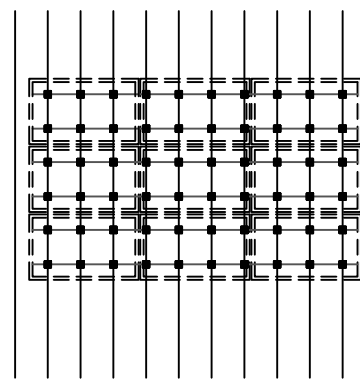
CONTRACTOR LICENSE:
 ELECTRICAL CONTRACTOR U.34043

ROOF DETAILS			
JOB NO:	DATE:	DESIGNED BY:	SHEET:
333019	5/18/2023	A.N.	PV-2B

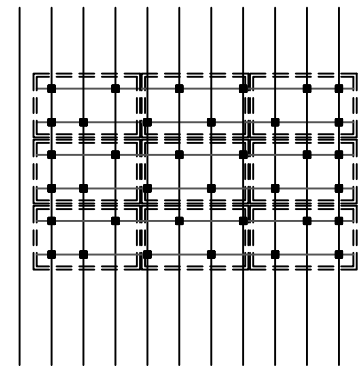
TABLE 1 - ARRAY INSTALLATION

	ROOF PITCH	ROOFING TYPE	ATTACHMENT TYPE	FRAMING TYPE ¹	MAX UNBRACED LENGTH(FT.) ¹	RAFTER/TRUSS SISTERING	PENETRATION PATTERN ²	MAX ATTACHMENT SPACING (IN.) ²	MAX RAIL OVERHANG(I N.) ³
ROOF 1	20	COMP SHINGLE	ECOFASTEN ROCKIT SMART SLIDE	2X6 RAFTER @ 16" OC	9.00'	NOT REQ'D	STAGGERED	48" OC	16"
ROOF 2	20	COMP SHINGLE	ECOFASTEN ROCKIT SMART SLIDE	2X6 RAFTER @ 16" OC	9.00'	NOT REQ'D	STAGGERED	48" OC	16"
ROOF 3	20	COMP SHINGLE	ECOFASTEN ROCKIT SMART SLIDE	2X6 RAFTER @ 16" OC	9.00'	NOT REQ'D	STAGGERED	48" OC	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. WHERE APPLICABLE FOR RAILED ATTACHMENT INSTALLATIONS.



STACKED DETAIL
For Illustration purposes only



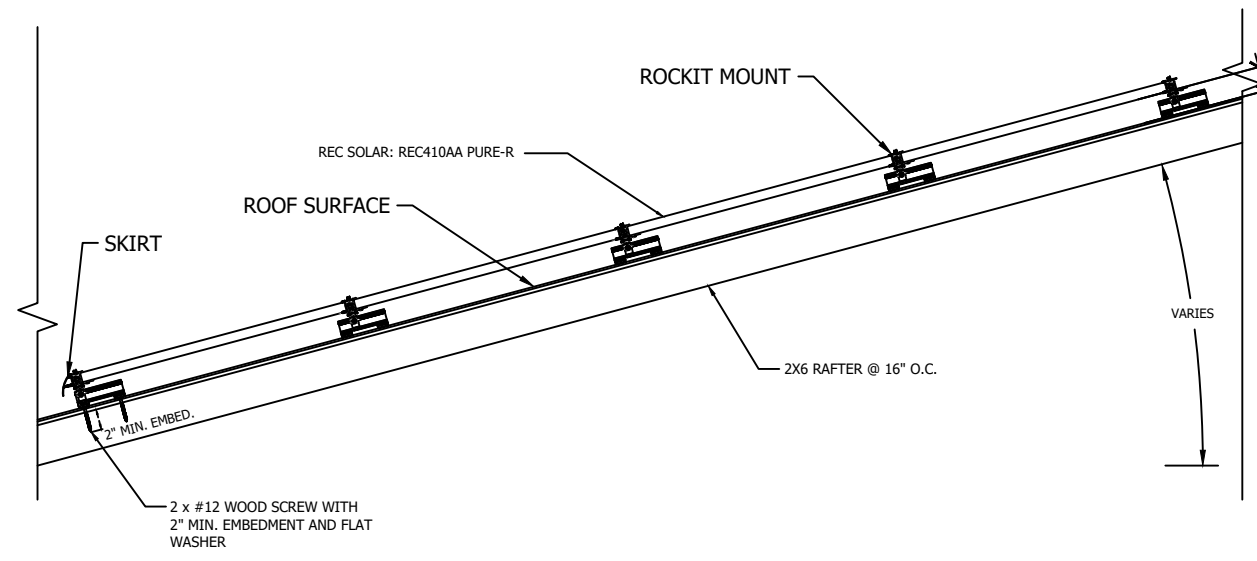
STAGGERED DETAIL
For Illustration purposes only



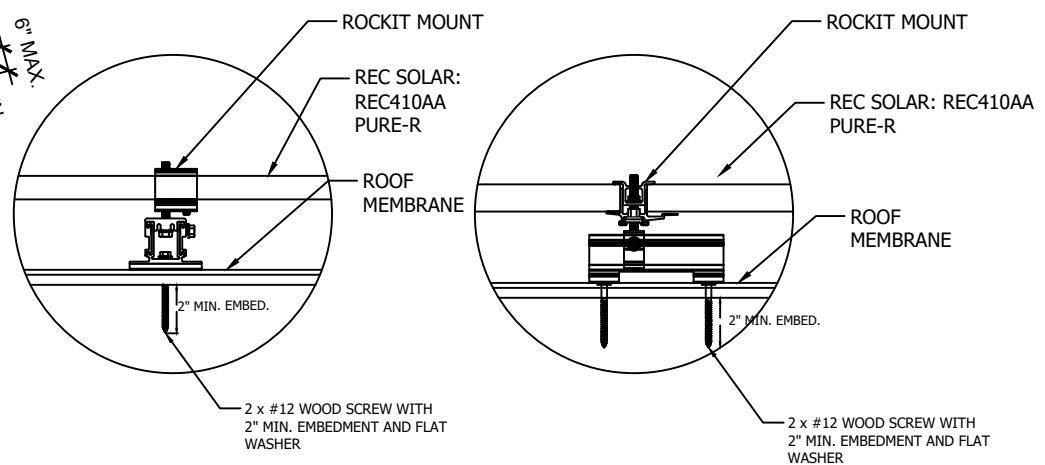
CLIENT:
SHAKIRAH GHAFUR
106 NORTH 8TH STREET, ERWIN, NC 28339
AHJ: HARNETT COUNTY (NC)
UTILITY: DUKE ENERGY
METER: 332303350
PHONE: (609) 665-6817
EMAIL: SHAKIRAHG1017@GMAIL.COM
FINANCE: OTHER

SYSTEM:
SYSTEM SIZE (DC): 19 X 410 = 7.790 kW
SYSTEM SIZE (AC): 6.000 kW @ 240V
MODULES: 19 X REC SOLAR: REC410AA PURE-R
OPTIMIZERS: 19 X SOLAREEDGE S440
INVERTER: SOLAREEDGE SE6000H-USRGM [S11]

REVISIONS		
NO.	REVISED BY	DATE
-	-	-
-	-	-
-	-	-



SOLAR PV ARRAY SECTION VIEW
Scale: NTS

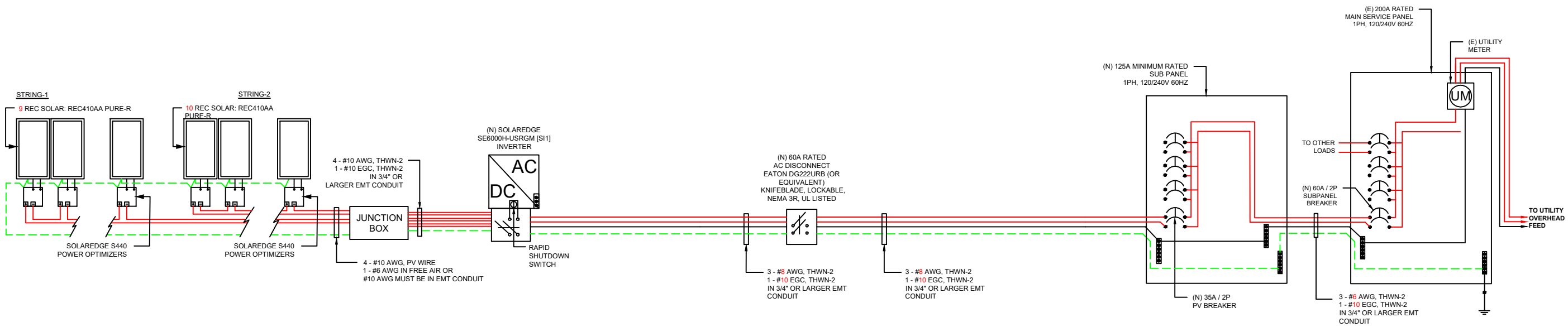


ATTACHMENT DETAIL
Scale: NTS

freedom FOREVER
FREEDOM FOREVER LLC
415 INDUSTRIAL CT., GREER, SC 29651
Tel: (800) 385-1075
GREG ALBRIGHT
Greg Albright
CONTRACTOR LICENSE:
ELECTRICAL CONTRACTOR U.34043

MOUNTING DETAILS			
JOB NO:	DATE:	DESIGNED BY:	SHEET:
333019	5/18/2023	A.N.	PV-3

BACKFEED BREAKER SIZING					
MAX. CONTINUOUS OUTPUT 25.00A @ 240V					
25.00	X	1.25	=	31.25AMPS	35A BREAKER - OK
SEE 705.12 OF 2017 NEC					
125	X	1.20	=	150	
150	-	60	=	90A ALLOWABLE BACKFEED	



NOTE : USE QUAD/THIN BREAKERS TO MAKE ROOM FOR THE SUB PANEL BREAKER IN MSP.

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

CLIENT:
SHAKIRAH GHAFUR
106 NORTH 8TH STREET, ERWIN, NC 28339
AHJ: HARNETT COUNTY (NC)
UTILITY: DUKE ENERGY
METER: 332303350
PHONE: (609) 665-6817
EMAIL: SHAKIRAHG1017@GMAIL.COM
FINANCE: OTHER

SYSTEM:
SYSTEM SIZE (DC): 19 X 410 = 7.790 kW
SYSTEM SIZE (AC): 6.000 kW @ 240V
MODULES: 19 X REC SOLAR: REC410AA PURE-R
OPTIMIZERS: 19 X SOLAREEDGE S440
INVERTER: SOLAREEDGE SE6000H-USRGM [SI1]

REVISIONS		
NO.	REVISED BY	DATE
-	-	-
-	-	-
-	-	-

freedom
FOREVER

FREEDOM FOREVER LLC
415 INDUSTRIAL CT., GREER, SC 29651
Tel: (800) 385-1075

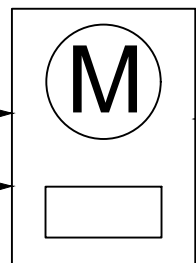
GREG ALBRIGHT

CONTRACTOR LICENSE:
ELECTRICAL CONTRACTOR U.34043

THREE LINE DIAGRAM			
JOB NO: 333019	DATE: 5/18/2023	DESIGNED BY: A.N.	SHEET: PV-4

WARNING:
POWER SOURCE OUTPUT
CONNECTION
DO NOT RELOCATE THIS
OVERCURRENT DEVICE.

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



"WARNING"
DUAL POWER SOURCES
SECOND SOURCE IS PHOTOVOLTAIC SYSTEM
RATED AC OUTPUT CURRENT - 25.00 AMPS
AC NORMAL OPERATING VOLTAGE - 240 VOLTS

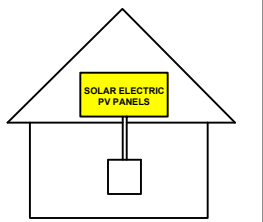
690.54

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. ARIAL 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

**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

PM

AC

PV SYSTEM AC DISCONNECT
RATED AC OUTPUT CURRENT - 25.00 AMPS
AC NORMAL OPERATING VOLTAGE - 240 VOLTS

690.15, 690.54

**RAPID SHUTDOWN SWITCH FOR
SOLAR PV SYSTEM**

690.56(C)(3)

INVERTER

MAXIMUM VOLTAGE V
MAXIMUM CIRCUIT CURRENT A
MAX DC-DC CONVERTER
OUTPUT CURRENT A

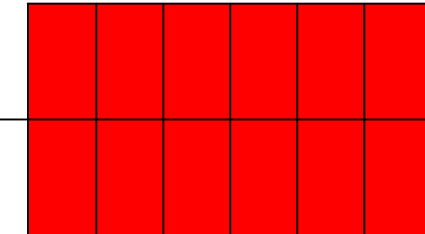
"WARNING"
ELECTRICAL SHOCK HAZARD.
TERMINALS ON BOTH LINE AND LOAD SIDES
MAY BE ENERGIZED IN THE OPEN POSITION.

690.13 (B)

PV SYSTEM DC DISCONNECT
MAXIMUM VOLTAGE: 480V
MAXIMUM CIRCUIT CURRENT: 16.5A
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

CLIENT:
SHAKIRAH GHAFUR
106 NORTH 8TH STREET, ERWIN, NC 28339
AHJ: HARNETT COUNTY (NC)
UTILITY: DUKE ENERGY
METER: 332303350
PHONE: (609) 665-6817
EMAIL: SHAKIRAHG1017@GMAIL.COM
FINANCE: OTHER

SYSTEM:
SYSTEM SIZE (DC): 19 X 410 = 7.790 kW
SYSTEM SIZE (AC): 6.000 kW @ 240V
MODULES: 19 X REC SOLAR: REC410AA
PURE-R
OPTIMIZERS: 19 X SOLAREEDGE S440
INVERTER: SOLAREEDGE SE6000H-USRGM [S11]

REVISIONS		
NO.	REVISED BY	DATE
-	-	-
-	-	-
-	-	-



FREEDOM FOREVER LLC
415 INDUSTRIAL CT., GREER, SC 29651
Tel: (800) 385-1075

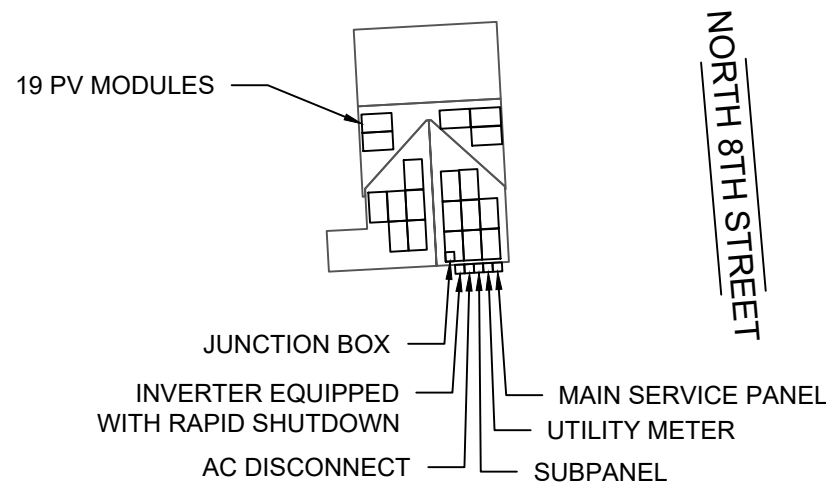
GREG ALBRIGHT

CONTRACTOR LICENSE:
ELECTRICAL CONTRACTOR U.34043

LABELS			
JOB NO:	DATE:	DESIGNED BY:	SHEET:
333019	5/18/2023	A.N.	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



CLIENT:
 SHAKIRAH GHAFUR
 106 NORTH 8TH STREET, ERWIN, NC 28339
 AHJ: HARNETT COUNTY (NC)
 UTILITY: DUKE ENERGY
 METER: 332303350
 PHONE: (609) 665-6817
 EMAIL: SHAKIRAHG1017@GMAIL.COM
 FINANCE: OTHER

SYSTEM:
 SYSTEM SIZE (DC): 19 X 410 = 7.790 kW
 SYSTEM SIZE (AC): 6.000 kW @ 240V
 MODULES: 19 X REC SOLAR: REC410AA
 PURE-R
 OPTIMIZERS: 19 X SOLAREEDGE S440
 INVERTER: SOLAREEDGE SE6000H-USRGM [S1]

REVISIONS		
NO.	REVISED BY	DATE
-	-	-
-	-	-
-	-	-



FREEDOM FOREVER LLC
 415 INDUSTRIAL CT., GREER, SC 29651
 Tel: (800) 385-1075

GREG ALBRIGHT

CONTRACTOR LICENSE:
 ELECTRICAL CONTRACTOR U.34043

SITE PLACARD

JOB NO:	DATE:	DESIGNED BY:	SHEET:
333019	5/18/2023	A.N.	PV-7A

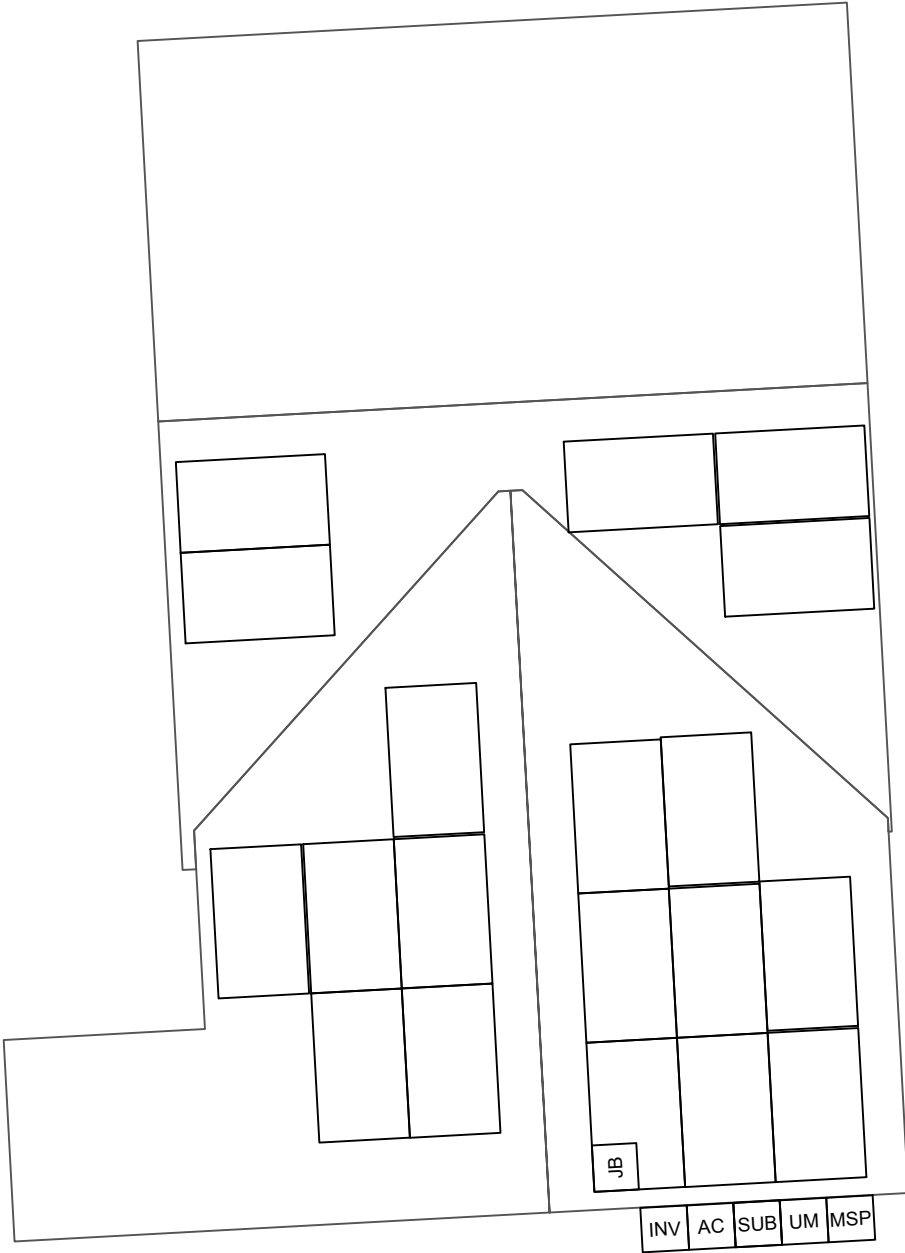
NOTES:

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.

SOLAREEDGE OPTIMIZER CHART

1-10 11-20 21-30 31-40 41-50 51-60

1
2
3
4
5
6
7
8
9
10



CLIENT:
 SHAKIRAH GHAFUR
 106 NORTH 8TH STREET, ERWIN, NC 28339
 AHJ: HARNETT COUNTY (NC)
 UTILITY: DUKE ENERGY
 METER: 332303350
 PHONE: (609) 665-6817
 EMAIL: SHAKIRAHG1017@GMAIL.COM
 FINANCE: OTHER

SYSTEM:
 SYSTEM SIZE (DC): 19 X 410 = 7.790 kW
 SYSTEM SIZE (AC): 6.000 kW @ 240V
 MODULES: 19 X REC SOLAR: REC410AA
 PURE-R
 OPTIMIZERS: 19 X SOLAREEDGE S440
 INVERTER: SOLAREEDGE SE6000H-USRGM [S1]

REVISIONS		
NO.	REVISED BY	DATE
-	-	-
-	-	-
-	-	-



FREEDOM FOREVER LLC
 415 INDUSTRIAL CT., GREER, SC 29651
 Tel: (800) 385-1075

GREG ALBRIGHT

CONTRACTOR LICENSE:
 ELECTRICAL CONTRACTOR U.34043

OPTIMIZER CHART

JOB NO:	DATE:	DESIGNED BY:	SHEET:
333019	5/18/2023	A.N.	PV-8

SAFETY PLAN

MARK UP KEY

INSTRUCTIONS:

- USE SYMBOLS IN KEY TO MARK UP THIS SHEET.
- SAFETY PLAN MUST BE MARKED BEFORE JOB STARTS AS PART OF THE PRE-PLAN
- 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: _____

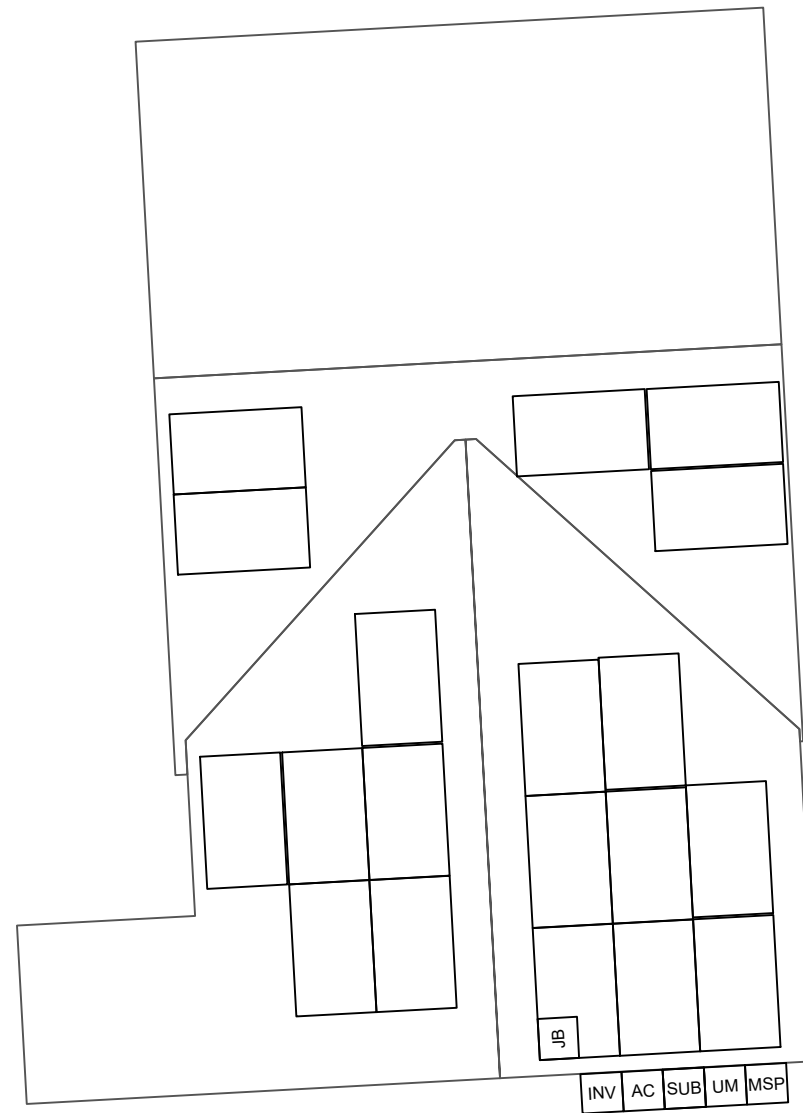
ALL EMPLOYEES ON SITE SHALL BE MADE AWARE OF THE SAFETY PLAN AND SIGN INDICATING THAT THEY ARE AWARE OF THE HAZARDS ON-SITE AND THE PLAN FOR WORKING SAFELY.

NAME

SIGNATURE

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

DATE: _____ TIME: _____



- P PERMANENT ANCHOR
- T TEMPORARY ANCHOR
- IL INSTALLER LADDER
- B JUNCTION / COMBINER BOX
- S STUB-OUT
- ☒ SKYLIGHT
- NO LADDER ACCESS (STEEP GRADE OR GROUND LEVEL OBSTRUCTIONS)
- RESTRICTED ACCESS
- CONDUIT
- GAS GAS SHUT OFF
- H₂O WATER SHUT OFF
- 7 SERVICE DROP
- Z POWER LINES

CLIENT:
 SHAKIRAH GHAFUR
 106 NORTH 8TH STREET, ERWIN, NC 28339
 AHJ: HARNETT COUNTY (NC)
 UTILITY: DUKE ENERGY
 METER: 332303350
 PHONE: (609) 665-6817
 EMAIL: SHAKIRAHG1017@GMAIL.COM
 FINANCE: OTHER

SYSTEM:
 SYSTEM SIZE (DC): 19 X 410 = 7.790 kW
 SYSTEM SIZE (AC): 6.000 kW @ 240V
 MODULES: 19 X REC SOLAR: REC410AA PURE-R
 OPTIMIZERS: 19 X SOLAREEDGE S440
 INVERTER: SOLAREEDGE SE6000H-USRGM [S11]

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

REVISIONS		
NO.	REVISED BY	DATE
-	-	-
-	-	-
-	-	-
-	-	-

FREEDOM FOREVER LLC
 415 INDUSTRIAL CT., GREER, SC 29651
 Tel: (800) 385-1075

GREG ALBRIGHT

CONTRACTOR LICENSE:
 ELECTRICAL CONTRACTOR U.34043

SAFETY PLAN			
JOB NO:	DATE:	DESIGNED BY:	SHEET:
333019	5/18/2023	A.N.	PV-9

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 identified and protected from contact, as necessary.

EQP (name and title):

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:

With: Your full name, phone number, office location, brief description of what happen and when.

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:
Define the Hazard:	Method/steps to prevent incident:
Define the Hazard:	Method/steps to prevent incident:

CLIENT:
SHAKIRAH GHAFUR
106 NORTH 8TH STREET, ERWIN, NC 28339
AHJ: HARNETT COUNTY (NC)
UTILITY: DUKE ENERGY
METER: 332303350
PHONE: (609) 665-6817
EMAIL: SHAKIRAHG1017@GMAIL.COM
FINANCE: OTHER

SYSTEM:
SYSTEM SIZE (DC): 19 X 410 = 7.790 kW
SYSTEM SIZE (AC): 6.000 kW @ 240V
MODULES: 19 X REC SOLAR: REC410AA
PURE-R
OPTIMIZERS: 19 X SOLAREEDGE S440
INVERTER: SOLAREEDGE SE6000H-USRGM [S11]

REVISIONS		
NO.	REVISED BY	DATE
-	-	-
-	-	-
-	-	-



FREEDOM FOREVER LLC
415 INDUSTRIAL CT., GREER, SC 29651
Tel: (800) 385-1075

GREG ALBRIGHT

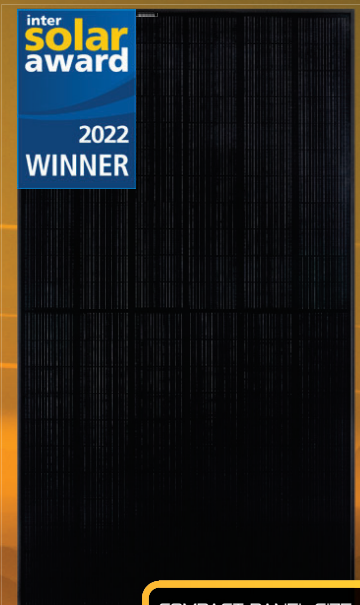
Greg Albright

CONTRACTOR LICENSE:
ELECTRICAL CONTRACTOR U.34043

SAFETY PLAN

JOB NO: 333019	DATE: 5/18/2023	DESIGNED BY: A.N.	SHEET: PV-10
-------------------	--------------------	----------------------	-----------------

SOLAR'S MOST TRUSTED



REC ALPHA[®] PURE SERIES PRODUCT SPECIFICATIONS

COMPACT PANEL SIZE

410 WP
19.3 W/FT²
22.2% EFFICIENCY

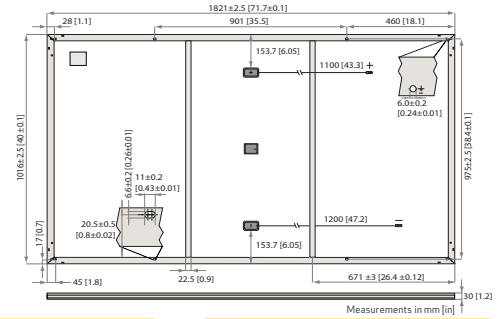


REC ALPHA PURE SERIES PRODUCT SPECIFICATIONS



GENERAL DATA

Cell type:	132 half-cut REC heterojunction bifacial cells with lead-free, gapless technology, 6 strings of 22 cells in series
Glass:	0.13 in (3.2 mm) solar glass with anti-reflective surface treatment in accordance with EN 12150
Backsheet:	Highly resistant polymer (black)
Frame:	Anodized aluminum (black)
Junction box:	3-part, 3 bypass diodes, lead-free IP68 rated, in accordance with IEC 62790
Connectors:	Stäubli MC4 PV-KBT4/KST4 (4 mm ²) in accordance with IEC 62852, IP68 only when connected
Cable:	12 AWG (4 mm ²) PV wire, 43+47 in (1.1+1.2 m) in accordance with EN 50618
Dimensions:	71.7 x 40 x 1.2 in (19.91 ft) / 1821 x 1016 x 30 mm (1.85 m ²)
Weight:	45 lbs (20.5 kg)
Origin:	Made in Singapore



ELECTRICAL DATA

	Product Code: RECxxxAA Pure						
STC	Power Output - P _{max} (Wp)	390	395	400	405	410	
	Watt Class Sorting - (W)	0/+5	0/+5	0/+5	0/+5	0/+5	
	Nominal Power Voltage - V _{MPP} (V)	41.5	41.8	42.1	42.4	42.7	
	Nominal Power Current - I _{MPP} (A)	9.40	9.45	9.51	9.56	9.61	
	Open Circuit Voltage - V _{OC} (V)	48.6	48.7	48.8	48.9	49.0	
	Short Circuit Current - I _{SC} (A)	10.22	10.25	10.28	10.30	10.35	
	Power Density (W/ft ²)	211	214	216	219	222	
	Panel Efficiency (%)	21.1	21.4	21.6	21.9	22.2	
	NMOT	Power Output - P _{max} (Wp)	297	301	305	309	312
		Nominal Power Voltage - V _{MPP} (V)	39.1	39.4	39.7	40.0	40.2
Nominal Power Current - I _{MPP} (A)		7.59	7.63	7.68	7.72	7.76	
Open Circuit Voltage - V _{OC} (V)		45.8	45.9	46.0	46.1	46.2	
Short Circuit Current - I _{SC} (A)		8.20	8.24	8.28	8.32	8.36	

Values at standard test conditions (STC: air mass AM1.5, irradiance 10.75 W/sq ft (1000 W/m²), temperature 77°F (25°C), based on a production speed with a tolerance of P_{max}, V_{MPP} & I_{MPP} ±3% within one watt class. Nominal module operating temperature (NMOT: air mass AM1.5, irradiance 800 W/m², temperature 68°F (20°C), wind speed 3.3 ft/s (1 m/s)). *Where xxx indicates the nominal power class (P_{max}) at STC above.

MAXIMUM RATINGS

Operational temperature:	-40 ... +85°C
Maximum system voltage:	1000 V
Maximum test load (front):	+7000 Pa (146 lbs/ft ²)
Maximum test load (rear):	-4000 Pa (83.5 lbs/ft ²)
Max series fuse rating:	25 A
Max reverse current:	25 A

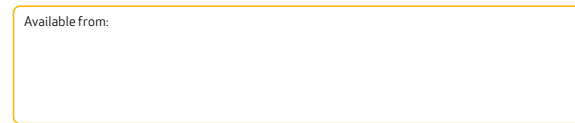
*See installation manual for mounting instructions. Design load = Test load / 1.5 (safety factor)

WARRANTY

	Standard	REC ProTrust
Installed by an REC Certified Solar Professional	No	Yes
System Size	All	<25 kW 25-500 kW
Product Warranty (yrs)	20	25
Power Warranty (yrs)	25	25
Labor Warranty (yrs)	0	25
Power in Year 1	98%	98%
Annual Degradation	0.25%	0.25%
Power in Year 25	92%	92%

See warranty documents for details. Conditions apply

Available from:



CERTIFICATIONS

IEC 61215:2016, IEC 61730:2016, UL 61730
IEC 62804 PID
IEC 61701 Salt Mist
IEC 62716 Ammonia Resistance
UL 61730 Fire Type Class 2
IEC 62782 Dynamic Mechanical Load
IEC 61215-2:2016 Hailstone (35mm)
IEC 62321 Lead-free acc. to RoHS EU 863/2015
ISO 14001, ISO 9001, IEC 45001, IEC 62941



TEMPERATURE RATINGS*

Nominal Module Operating Temperature:	44°C (±2°C)
Temperature coefficient of P _{max} :	-0.26 %/°C
Temperature coefficient of V _{OC} :	-0.24 %/°C
Temperature coefficient of I _{SC} :	0.04 %/°C

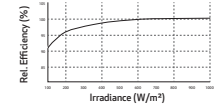
*The temperature coefficients stated are linear values

DELIVERY INFORMATION

Panels per pallet:	33
Panels per 40 ft GP/high cube container:	792 (24 pallets)
Panels per 53 ft truck:	891 (27 pallets)

LOW LIGHT BEHAVIOUR

Typical low irradiance performance of module at STC:



Founded in 1996, REC Group is an international pioneering solar energy company dedicated to empowering consumers with clean, affordable solar power. As Solar's Most Trusted, REC is committed to high quality, innovation, and a low carbon footprint in the solar materials and solar panels it manufactures. Headquartered in Norway with operational headquarters in Singapore, REC also has regional hubs in North America, Europe, and Asia-Pacific.



www.recgroup.com

Specifications subject to change without notice

Ref: PM-0512-06-Rev-H-08-22

Power Optimizer For North America

S440, S500



POWER OPTIMIZER

PV power optimization at the module level

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

* Expected availability in 2022

solaredge.com



Power Optimizer For North America S440, S500

	S440	S500	Unit
INPUT			
Rated Input DC Power ⁽¹⁾	440	500	W
Absolute Maximum Input Voltage (Voc)	60		Vdc
MPPT Operating Range	8 - 60		Vdc
Maximum Short Circuit Current (Isc) of Connected PV Module	14.5	15	Adc
Maximum Efficiency	99.5		%
Weighted Efficiency	98.6		%
Oversvoltage Category	II		
OUTPUT DURING OPERATION			
Maximum Output Current	15		Adc
Maximum Output Voltage	60		Vdc
OUTPUT DURING STANDBY (POWER OPTIMIZER DISCONNECTED FROM INVERTER OR INVERTER OFF)			
Safety Output Voltage per Power Optimizer	1+/-0.1		Vdc
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), UL1741		
Material	UL94 V-0, UV Resistant		
RoHS	Yes		
Fire Safety	VDE-AR-E 2100-712:2013-05		
INSTALLATION SPECIFICATIONS			
Maximum Allowed System Voltage	1000		Vdc
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

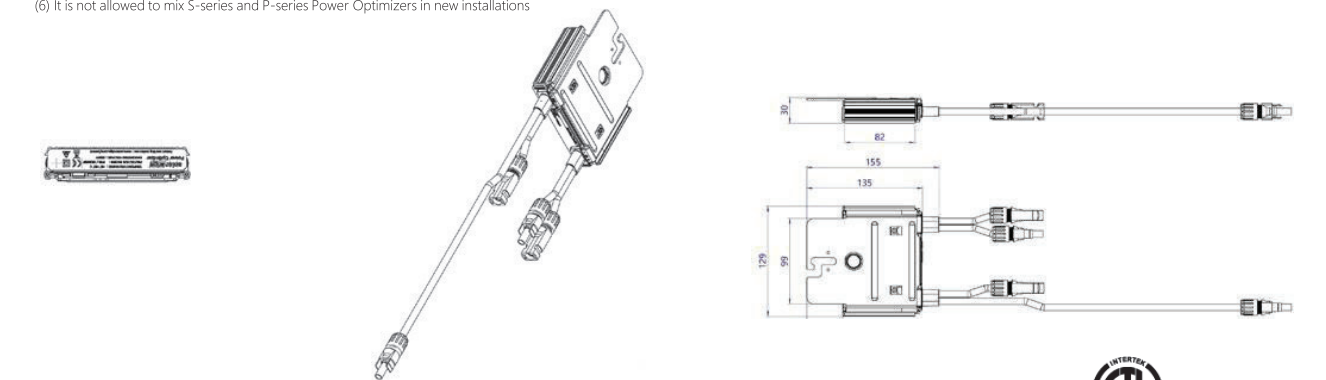
(3) For ambient temperature above +70°C / +158°F power de-rating is applied. Refer to Power Optimizers Temperature De-Rating Technical Note for more details

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-US-SE11400-U)	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



© SolarEdge Technologies, Inc. All rights reserved. SOLAREEDGE, the SolarEdge logo, OPTIMIZED BY SOLAREEDGE are trademarks or registered trademarks of SolarEdge Technologies, Inc. All other trademarks mentioned herein are trademarks of their respective owners. Date: February 8, 2022 DS-000018-NA. Subject to change without notice.



Single Phase Inverter with HD-Wave Technology for North America

SE3000H-US / 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 the SolarEdge SetApp
- Fixed voltage inverter for longer strings
- Integrated arc fault protection and rapid shutdown for NEC 2014, NEC 2017 and NEC 2020 per article 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)

Single Phase Inverter with HD-Wave Technology for North America

SE3000H-US / SE3800H-US / SE5000H-US / SE6000H-US / SE7600H-US / SE10000H-US / SE11400H-US

MODEL NUMBER	SE3000H-US	SE3800H-US	SE5000H-US	SE6000H-US	SE7600H-US	SE10000H-US	SE11400H-US	
APPLICABLE TO INVERTERS WITH PART NUMBER	SEXXXXH-XXXXXBXX4							
OUTPUT								
Rated AC Power Output	3000	3800 @ 240V 3300 @ 208V	5000	6000 @ 240V 5000 @ 208V	7600	10000	11400 @ 240V 10000 @ 208V	VA
Maximum AC Power Output	3000	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	12.5	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	4650	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⁾	8.5	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 Ω Sensitivity							
Maximum Inverter Efficiency	99	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

/ Single Phase Inverter with HD-Wave Technology

for North America

SE3000H-US / SE3800H-US / SE5000H-US / SE6000H-US/
SE7600H-US / SE10000H-US / SE11400H-US

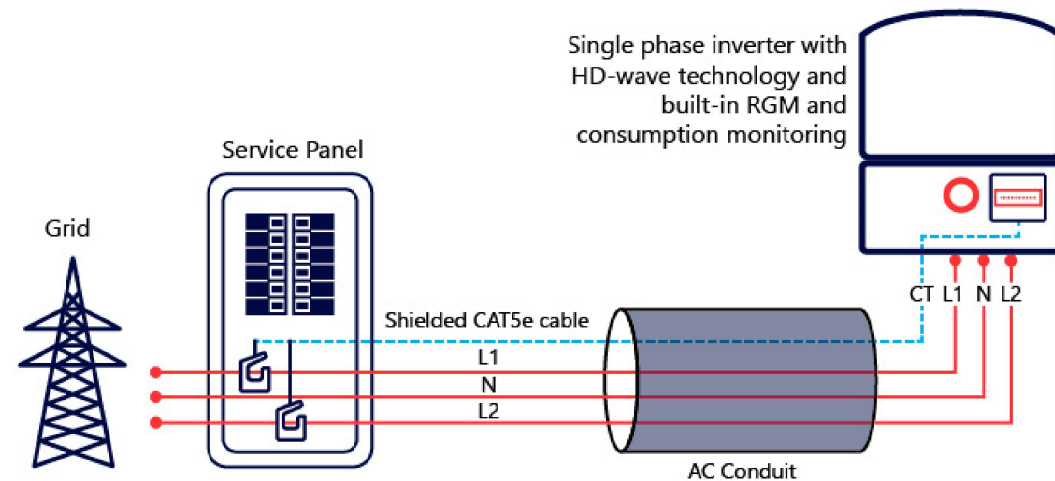
MODEL NUMBER	SE3000H-US	SE3800H-US	SE5000H-US	SE6000H-US	SE7600H-US	SE10000H-US	SE11400H-US
ADDITIONAL FEATURES							
Supported Communication Interfaces	RS485, Ethernet, ZigBee (optional), Cellular (optional)						
Revenue Grade Metering, ANSI C12.20	Optional ⁽³⁾						
Consumption metering							
Inverter Commissioning	With the SetApp mobile application using Built-in Wi-Fi Access Point for Local Connection						
Rapid Shutdown - NEC 2014, NEC 2017 and NEC 2020, 690.12	Automatic Rapid Shutdown upon AC Grid Disconnect						
STANDARD COMPLIANCE							
Safety	UL1741, UL1741 SA, UL1699B, CSA C22.2, Canadian AFCI according to T.I.L. M-07						
Grid Connection Standards	IEEE1547, Rule 21, Rule 14 (HI)						
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 (HxWxD)	17.7 x 14.6 x 6.8 / 450 x 370 x 174			21.3 x 14.6 x 7.3 / 540 x 370 x 185			
Weight with Safety Switch	22 / 10	25.1 / 11.4	26.2 / 11.9	38.8 / 17.6			
Noise	< 25			< 50			
Cooling	Natural Convection						
Operating Temperature Range	-40 to +140 / -40 to +60 ⁽⁴⁾						
Protection Rating	NEMA 4X (Inverter with Safety Switch)						

(3) Inverter with Revenue Grade Meter P/N: SExxxxH-US000BNC4; Inverter with Revenue Grade Production and Consumption Meter P/N: SExxxxH-US000BNI4. For consumption metering, current transformers should be ordered separately: SEACT0750-200NA-20 or SEACT0750-400NA-20. 20 units per box

(4) Full power up to at least 50°C / 122°F; for power de-rating information refer to: <https://www.solaredge.com/sites/default/files/se-temperature-derating-note-na.pdf>

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



Product specifications

Eaton DG222URB

Catalog Number: DG222URB

Eaton General duty non-fusible safety switch, single-throw, 60 A, NEMA 3R, Rainproof, Painted galvanized steel, Two-pole, Two-wire, 240 V

General specifications

Product Name	Catalog Number
Eaton general duty non-fusible safety switch	DG222URB
	UPC
	782113144238

Product Length/Depth	Product Height
7.38 in	14.38 in

Product Width	Product Weight
8.69 in	9 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.



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
60A

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 - DG222URB](#)

Warranty guides
[Selling Policy 25-000 - Distribution and Control Products and Services](#)

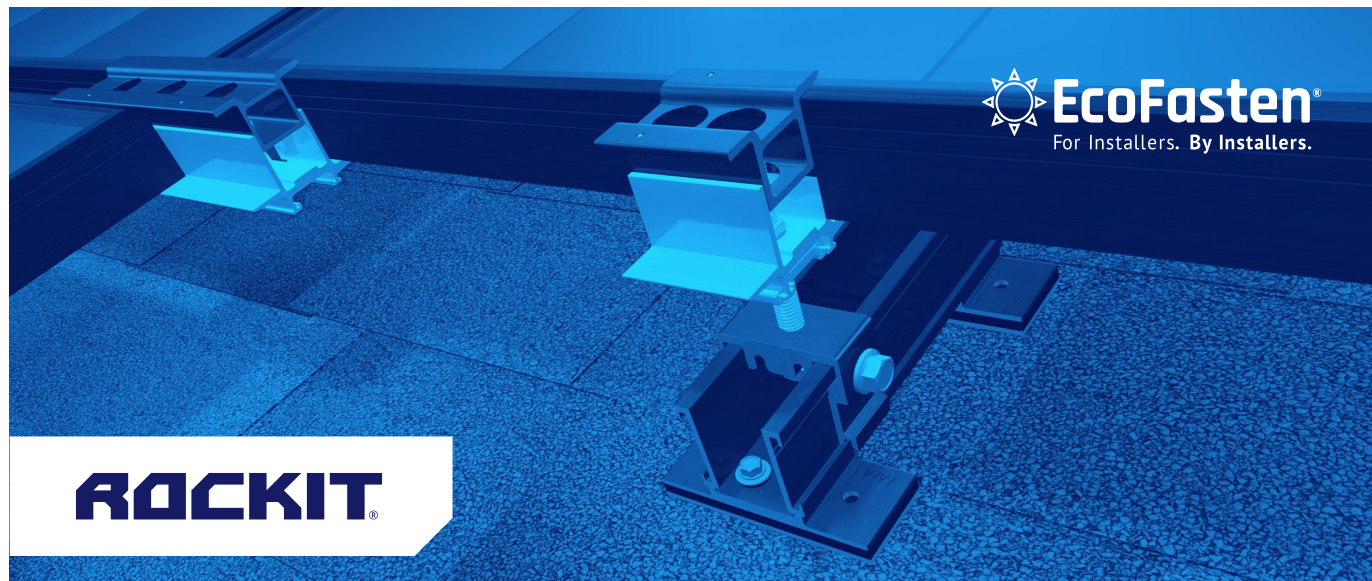


Eaton Corporation plc
Eaton House
30 Pembroke Road
Dublin 4, Ireland
Eaton.com
© 2023 Eaton. All Rights Reserved.

Eaton is a registered trademark.
All other trademarks are property of their respective owners.



[Eaton.com/socialmedia](https://www.eaton.com/socialmedia)



ROCKIT

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

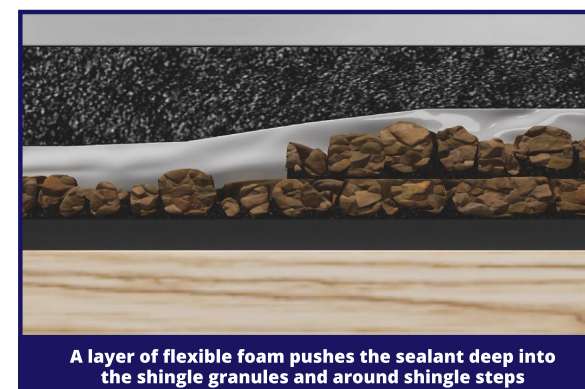
Required Components:

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

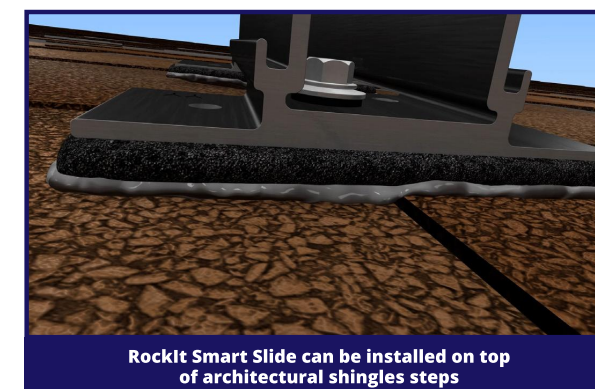
ROCKIT SMART SLIDE

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.



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



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

Testing & Documentation

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



RI SMART SLIDE BLK 6.75"

PART NUMBER	DESCRIPTION
2011024	RI SMART SLIDE BLK 6.75"

ITEM NO.	DESCRIPTION
1	ROCKIT SMART SLIDE ASSEMBLY

1) ROCKIT FLASHLESS SLIDE ASSEMBLY

MATERIAL	ALUMINUM, EPDM, ADHESIVE, TREATED PAPER
FINISH	BLACK

Rev: CS-3

RI SMART SCREW #12X3" W/BW

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

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

MATERIAL	STAINLESS STEEL, EPDM RUBBER
FINISH	MILL, BLACK

Rev: CS-2



May 16, 2022

EcoFasten Solar LLC
4141 W Van Buren St, Ste 2
Phoenix, AZ 85009
TEL: (877) 859-3947

Attn.: Eco Fasten Solar LLC - Engineering Department

Re: Report # 2015-05884HG.07.01 – EcoFasten - RockIt System for Gable and Hip Roofs
Subject: Engineering Certification for the State of North Carolina

PZSE, Inc. – Structural Engineers has provided engineering and span tables for the EcoFasten - RockIt System, as presented in PZSE Report # 2015-05884HG.07.01, "Engineering Certification for the EcoFasten - RockIt System for Gable and Hip Roofs". All information, data, and analysis therein are based on, and comply with, the following building codes and typical specifications:

- Building Codes:
1. ASCE/SEI 7-10, 7-16, Minimum Design Loads for Buildings and Other Structures, by American Society of Civil Engineers
 2. 2015 & 2018 International Building Code
 3. 2015 & 2018 International Residential Code
 4. AC428, Acceptance Criteria for Modular Framing Systems Used to Support Photovoltaic (PV) Panels, November 1, 2012 by ICC-ES
 5. Aluminum Design Manual 2015 & 2018, by The Aluminum Association, Inc.
 6. ANSI/AWC NDS-2015 & 2018, National Design Specification for Wood Construction, by the American Wood Council

Design Criteria:

Risk Category II
Seismic Design Category = A - E
Exposure Category = B, C & D
Basic Wind Speed (ultimate) per ASCE 7-16 = 90 mph to 180 mph
Ground Snow Load = 0 to 60 (psf)

This letter certifies that the loading criteria and design basis for the EcoFasten - RockIt System Span Tables are in compliance with the above codes.

If you have any questions on the above, do not hesitate to call.

Prepared by:
PZSE, Inc. – Structural Engineers
Roseville, CA

DIGITALLY SIGNED

