

GENERAL NOTES

1. All electrical materials shall be new and listed by recognized electrical testing laboratory
Custom made equipment shall have complete test data submitted by the manufacturer attesting to its safety
2. Outdoor equipment shall be NEMA 3R rated or equivalent
3. All metallic equipment shall be grounded
4. Contractor shall obtain electrical permits prior to installation and shall coordinate all inspections, testing commissioning and acceptance with the client, utility co. and city inspectors as needed.
5. The electrical contractor shall verify the exact locations of service points and service sizes with the serving utility company and comply with all utility companies requirements.
6. Drawings are diagrammatic only, routing of raceways shall be option of the contractor unless otherwise noted and shall be coordinated with other trades.
7. If the roof material or the roof structure not adequate for PV installation, call the engineer of record prior to installation. The contractor is responsible to verify that the roof is capable of withstanding the extra weight.
8. If the distances for cable runs are different than shown, the contractor shall notify the electrical engineer to validate the wire size. Final drawings will be red-lined and updated as appropriate.
9. Whenever a discrepancy in quality of equipment arises on the drawing or specifications, the contractor shall be responsible for providing and installing all materials and services required by the strictest conditions noted on the drawings or in the specifications to ensure complete compliance and longevity of the operable system required by the engineer of record.

PHOTOVOLTAIC NOTES:

1. Rooftop mounted photovoltaic panels and modules shall be tested, listed and identified by recognized testing laboratory
2. Solar system shall not cover any plumbing or mechanical vents
3. Modules and support structures shall be grounded unless racking has integrated ground.
4. Removal of an interactive inverter or other equipment shall not disconnect the bonding connection between the grounding electrode conductor and the photovoltaic source and/or output circuit grounded conductors.
5. All PV modules and associated equipment and wiring shall be protected from physical damage.
6. Live parts of PV source circuits and PV output circuits over 150v to ground shall not be accessible to other than qualified persons while energized.
7. Inverter is equipped with integrated DC disconnect, thus providing ground fault protection
8. All conductors shall be copper and 75 deg rated
9. A single conductor shall be permitted to be used to perform the multiple functions of dc grounding, AC grounding and bonding between AC and DC systems.
10. Non-current carrying metal parts of equipment shall be effectively bonded together. Bond both ends of raceways.

ENGINEERINC

Engineerinc.io,
303 N Glenoaks Blvd
Burbank, CA 91502
(310) 928-0938
new@engineerinc.io

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 North Carolina.

License No. 051274, Expiration Date: 12/31/2024

SHEET INDEX

COVER PAGE	CP 0.0
SITE MAP & PV LAYOUT	PV 1.0
ELECTRICAL 1-LINE DIAGRAM	PV 2.0
SYSTEM LABELING DETAIL	PV 3.0
PROPERTY PLAN	PV 4.0
ATTACHMENT LAYOUT	PV 5.0
INVERTER DATA SHEET	D 6.0
OPTIMIZER DATA SHEET	D 7.0
MODULE DATA SHEET	D 8.0
RACKING DATA SHEET	D 9.0
ATTACHMENT DATA SHEET	D 10.0
BATTERY DATA SHEET	D 11.0
PV LINK DATA SHEET	D 12.0

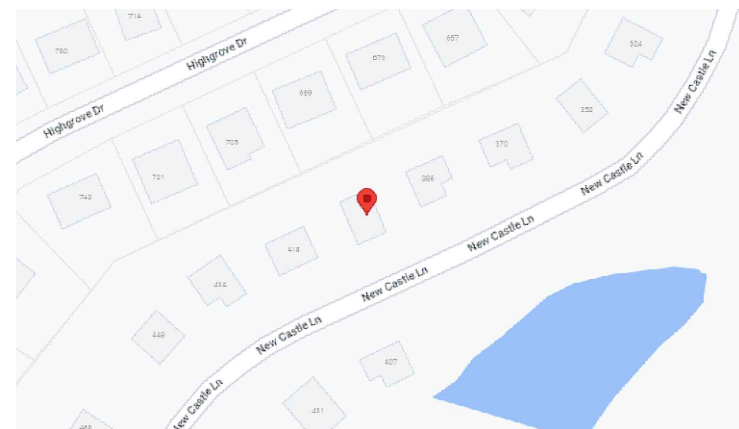
SYSTEM RATING

DC 5.600 KW STC
AC 7.600 KW STC

EQUIPMENT SUMMARY

14 HANWHA 400 WATT MODULES
3 GENERAC PV LINK (APKE00010) POWER OPTIMIZERS
GENERAC POWERCELL 7.6KW INVERTER
3 GENERAC POWERCELL 3.0KW BATTERY

VICINITY MAP (SCALE: NTS)



GOVERNING CODES

THE INSTALLATION OF SOLAR ARRAYS AND PHOTOVOLTAIC POWER SYSTEMS SHALL COMPLY WITH THE FOLLOWING CODES:

- 2017 National Electrical Code
 - 2018 International Residential Code
 - 2018 International Building Code
 - 2018 Mechanical Code
 - 2018 International Fire Code
 - 2018 International Energy Conservation Code
- AS ADOPTED BY THE STATE OF NORTH CAROLINA
ALL OTHER ORDINANCE ADOPTED BY THE LOCAL GOVERNING AGENCIES

These drawings are protected by copyright under US law. Any form of reproduction is strictly prohibited without prior written approval from Engineerinc.

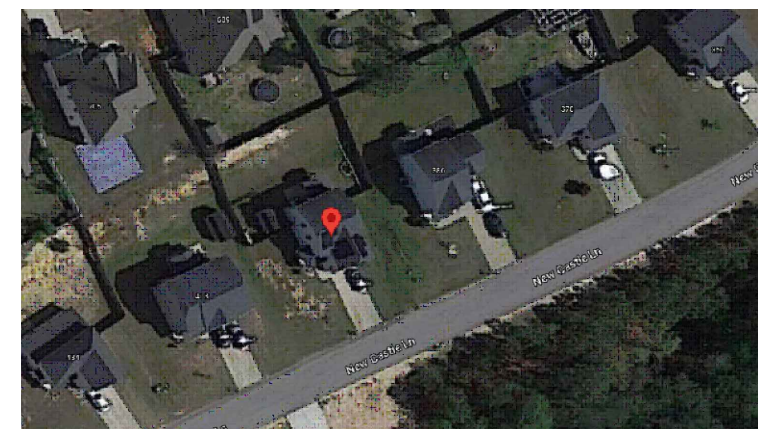
ELECTRICAL INFORMATION

EXISTING
MAIN SERVICE PANEL BUS SIZE: **200A**
MAIN SERVICE BREAKER SIZE: **200A**
MOUNTING SYSTEM: QRAIL

BUILDING INFORMATION

CONSTRUCTION TYPE: V-B
OCCUPANCY: R3
ROOF: COMP. SHINGLE
Truss 2 x 4 @ 24" O.C.

SATELLITE VIEW (SCALE: NTS)



CONTRACTOR

Renewable Energy Design Group

Phone number: (877)-520-7652
Address: 90 Beechwood Dr
Lewisville, North Carolina 27023



Exp.: 12/31/2024
Date Certified and Signed: 09/27/2023

ENGINEERINC

Drawn by: New@engineerinc.io
Phone Number: (310) 928-0938
DATE: 09/27/2023

Project Name:
Roneil Swaby
Property Address:
402 New Castle Ln
Spring Lake, NC 28390

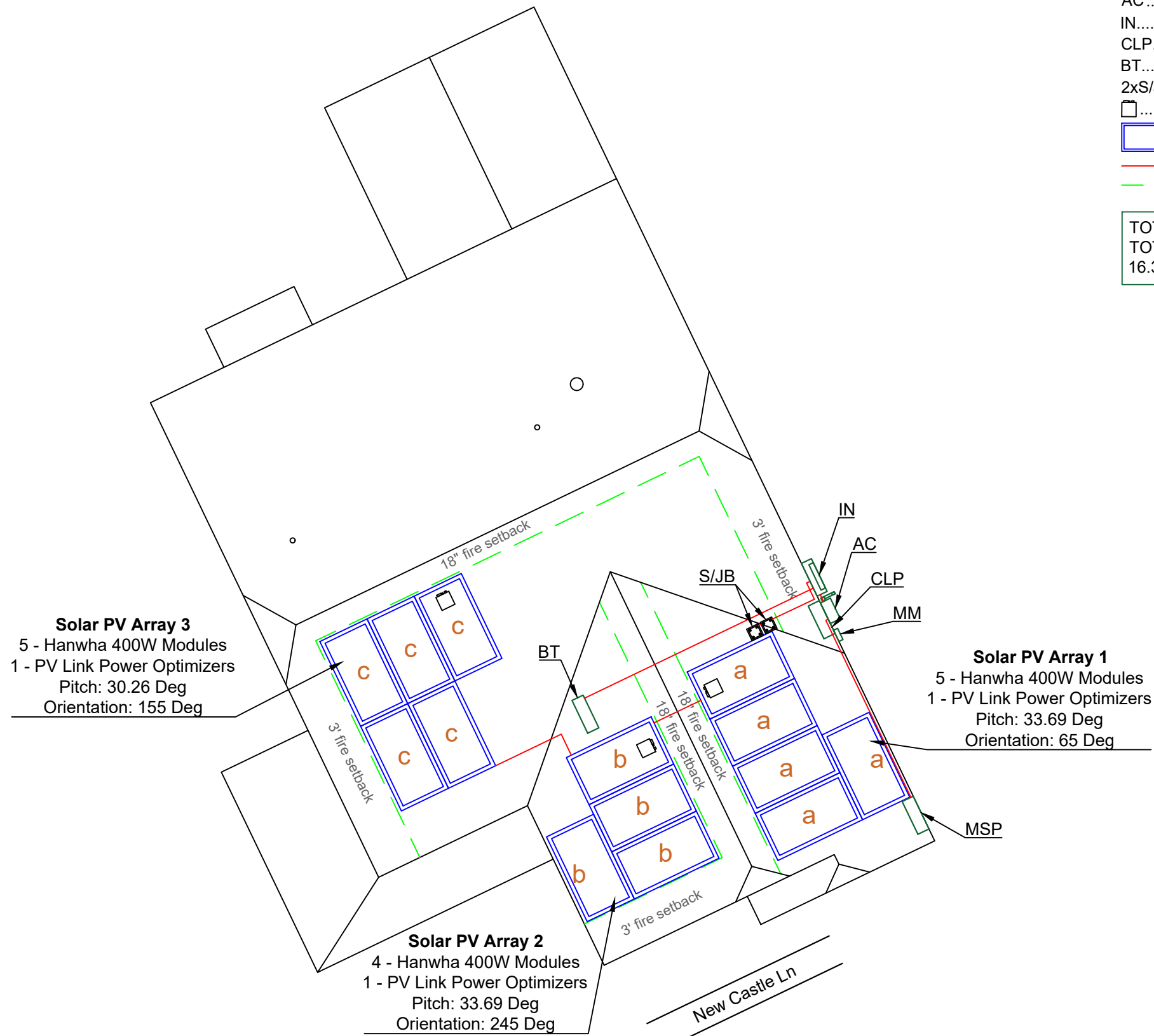
COVER PAGE

Project: PV SYSTEM
Scale: AS INDICATED

CP 0.0



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



Solar PV Array 3
 5 - Hanwha 400W Modules
 1 - PV Link Power Optimizers
 Pitch: 30.26 Deg
 Orientation: 155 Deg

Solar PV Array 2
 4 - Hanwha 400W Modules
 1 - PV Link Power Optimizers
 Pitch: 33.69 Deg
 Orientation: 245 Deg

Solar PV Array 1
 5 - Hanwha 400W Modules
 1 - PV Link Power Optimizers
 Pitch: 33.69 Deg
 Orientation: 65 Deg

- INDEX**
- MM(E) Main Meter
 - MSP (E) **200A** Main Service Panel
 - AC(N) 60A AC Disconnect
 - IN.....(N) Inverter
 - CLP.....(N) Critical Loads Panel
 - BT.....(N) Battery
 - 2xS/JB (N) Soladeck Junction Box
 -(N) Microinverter
 -(N) Solar Module
 -EMT Type Conduit
 - Fire Setback Line

TOTAL ROOF AREA: 1882
 TOTAL MODULE AREA: 308
 16.36% OF COVERAGE

SOLAR MODULES
 14 Hanwha 400 Watt
 Model #Q.PEAK DUO BLK ML-G10

INVERTER
 INVERTER TYPE: Central:
 GENERAC PWRCELL INVERTER
 Model #XVT076A03(240V)

CONTRACTOR
Renewable Energy Design Group

Phone number: (877)-520-7652
 Address:90 Beechwood Dr
 Lewisville, North Carolina 27023



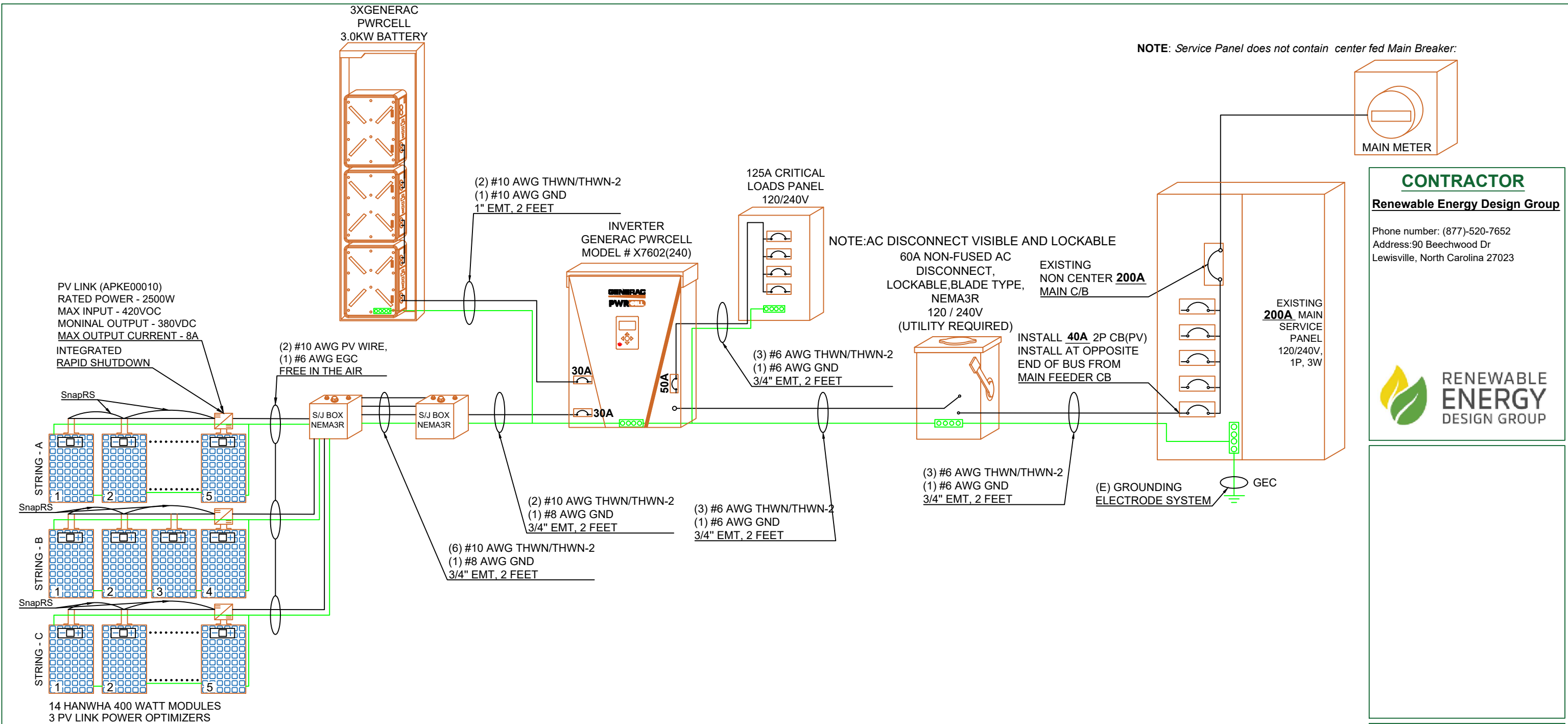
ENGINEERING INC
 Drawn by: New@engineerinc.io
 Phone Number: (310) 928-0938
 DATE: 09/27/2023

Project Name:
 Roneil Swaby
 Property Address:
 402 New Castle Ln
 Spring Lake, NC 28390

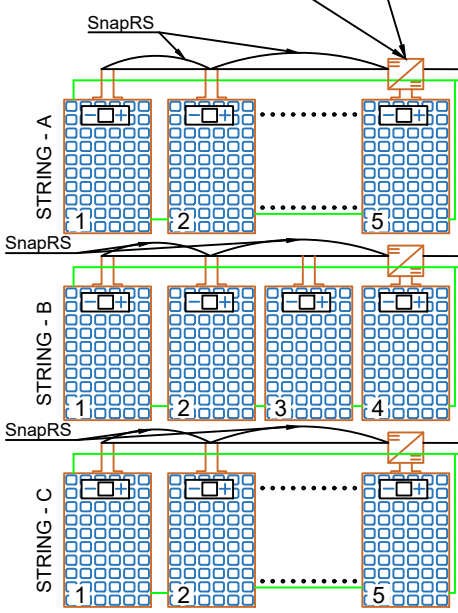
SITE MAP & PV LAYOUT

Project: PV SYSTEM Scale: AS INDICATED

PV 1.0



PV LINK (APKE00010)
 RATED POWER - 2500W
 MAX INPUT - 420VOC
 MONINAL OUTPUT - 380VDC
 MAX OUTPUT CURRENT - 8A
 INTEGRATED RAPID SHUTDOWN



NOTE: A , B and C String are combined:

PV ARRAY RATING				WIRE SIZE CALCULATION			
PV ARRAY				FROM JUNCTION BOX TO INVERTER			
Number Modules	14	Q.PEAK DUO BLK ML-G10+	Hanwha 400 Watt.	Maximum Current (A)	5 * 400 / 400 = 5		
Number Inverters	1	Generac 7.6kW Inverter		Considers Continuous (A)	5 * 1.25 = 6.25		
Total DC Wattage (Watts)	Watts STC, (Watts/Module) 14 * 400 = 5600			Short Circuit Current (A)	6.25 * 1.25 = 7.81		
Array Currents	I-SC	11.14	A	I-MP	10.77	A	Raceway Height From Roof (Temp 39+22=61C)
Module Voltage	V-OC	45.3	V	V-MP	37.13	V	Temp. Derate Factor (A)
SYSTEM POWER				#of wire(#of Strings*2)			
Number Of Strings	3	Max Number of Modules Per String		5	More Than 3 CCC Adjust. Factor		
Max DC Wattage In Strings	#N/A		Max AC Voltage 120/240V		Adjusted Conductor Ampacity(A)		
FROM INVERTER TO MAIN PANEL				Wire Size from NEC Table 310.15(b)16			
Total Current (A)	32			Ambient Temp Factor Per NEC Table 310.15(b)(2)(a)			
Total AC Wattage (Watts)	4260						
Consider Continuous (A)	32 * 1.25 = 40	Temperature Adjustment	40 / 0.91 = 43.96	Conductor Size From NEC Table 310.16		8 AWG	
MAIN PANEL							
PV Backfeed Breaker Size (A)	40	Main Breaker (A)	200	Main Bus Rating (A)	200	Total Amps On Bus (120%)	40 + 200 = 240 <= 240 (A)

ENGINEERING INC
 Drawn by: New@engineeringinc.io
 Phone Number: (310) 928-0938
 DATE: 09/27/2023

Project Name:
Roneil Swaby
 Property Address:
 402 New Castle Ln
 Spring Lake, NC 28390

ELECTRICAL ONE LINE DIAGRAM

Project: PV SYSTEM Scale: AS INDICATED

PV 2.0

LABEL 1

CAUTION
AUTHORIZED SOLAR
PERSONNEL ONLY!

LABEL 2

CAUTION
SOLAR DC CURRENT PRESENT
DURING DAYLIGHT HOURS

(STICKER TO BE LOCATED ON
CONDUIT WITH DC CURRENT
EVERY 4' HORIZONTALLY OR
10' VERTICALLY AND 1' FROM
EACH SIDE OF A BEND)

LABEL 3

WARNING!
ELECTRIC SHOCK HAZARD.
IF GROUND FAULT IS INDICATED,
NORMALLY GROUNDED
CONDUCTORS MAY BE
UNGROUND AND ENERGIZED.

LABEL 4

WARNING!
ELECTRIC SHOCK HAZARD.
DO NOT TOUCH THE TERMINALS.
TERMINALS ON BOTH THE LINE AND
LOAD SIDES MAY BE ENERGIZED IN
THE OPEN POSITION.

LABEL 5

PV SUB-PANEL ONLY
(TO BE LOCATED ON
SUB-PANEL ONLY
WHEN SUB-PANEL IS
DEDICATED FOR PV ONLY)

LABEL 6

AC DISCONNECT
AC PHOTOVOLTAIC POWER SOURCE
RATED AC OUTPUT CURRENT: 40 A MAX
NOMINAL AC OPERATING VOLTAGE: 240 Vac

LABEL 7

**THIS PANEL FED BY
MULTIPLE SOURCES
(UTILITY & SOLAR)**

LABEL 8

SOLAR

(STICKER LOCATED
INSIDE PANEL
NEXT TO SOLAR BREAKER)

LABEL 9

WARNING!
INVERTER OUTPUT CONNECTION. DO NOT
RELOCATE THIS OVERCURRENT DEVICE

(STICKER LOCATED
INSIDE PANEL
BELOW PV BREAKER)

LABEL 10

**PV LOAD CENTER SIZED FOR PV
BREAKERS ONLY OR RENDERED UNABLE
TO ACCEPT ANY ADDITIONAL LOADS.**

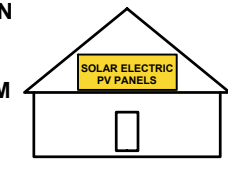
(STICKER LOCATED
ON THE PV SUB PANEL)

LABEL 11

DC DISCONNECT
DC PHOTOVOLTAIC POWER SOURCE
RATED MAX POWER POINT CURRENT-10.77AMPS
RATED MAX POWER POINT VOLTAGE-360 VOLTS
MAXIMUM SYSTEM VOLTAGE-420 VOLTS
SHORT CIRCUIT CURRENT-7.81 AMPS

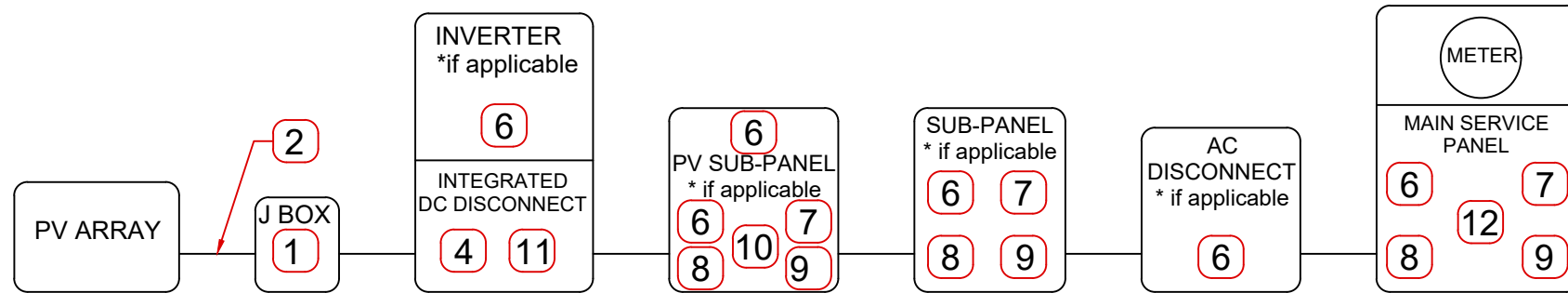
LABEL 12

**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



DIRECTORY

Permanent directory or plaque providing location of service disconnecting means and photovoltaic system disconnecting means, if not located at the same location. (Plaques shall be metal or plastic, with engraved or machine printed letters, or electro-photo plating, in a contrasting color to the plaque. Plaques shall be permanently attached to the equipment or in the required location using an approved method that is suitable to withstand the environment to which it is exposed. Plaques and signage shall meet legibility, defacement, exposure and adhesion requirements of Underwriters Laboratories marking and labeling system 969(UL969).



MARKINGS, LABELS AND WIRING SIGNS

- A. Purpose: Provide emergency responders with appropriate warning and guidance with respect to isolating solar electric system. This can facilitate identifying energized electrical lines that connect solar panels to the inverter, as these should not be cut when venting for smoke removal
- B. Main Service Disconnect.
 1. Residential buildings - The marking main be placed within the main service disconnect. The marking shall be placed outside cover if the main service disconnect is operable with the service panel closed.
 2. Commercial buildings - The marking shall be placed adjacent to the main service disconnect clearly visible from the location where the level is operated
 3. Markings: Verbiage, Format and Type of Material.
 - a. Verbiage: CAUTION: SOLAR ELECTRIC SYSTEM CONNECTED
 - b. Format: White lettering on a red background. Minimum 3/8 inches letter height. All letters shall be capitalized. Arial or similar font, non bold.
 - c. Material: Reflective, weather resistant material suitable for the environment (use UL - 969 as standard for weather rating). Durable adhesive materials meet this requirement.
- C. Marking Requirements on DC conduit, raceways, enclosures, cable assemblies, DC combiners and junction boxes:
 1. Markings: Verbiage, Format and Type of Material.
 - a. Placement : Markings shall be placed every 10 feet on all interior and exterior DC conduits, raceways, enclosures, and cable assemblies, at turns, above and for below penetrations, all DC combiners and junction boxes
 - b. Verbiage: CAUTION: SOLAR CIRCUIT Note: The format and type of material shall adhere to "V. V-3b, c" of this requirement.
 - c. Inverters are not required to have caution markings
 1. Marking is required on all interior and exterior DC conduit raceways, enclosures, cable assemblies, and junction boxes, combiner boxes and disconnects.
 2. The materials used for marking shall be reflective, weather resistant material suitable for the environment. Minimum 3/8 "letter height; all upper case letters Arial or similar font; Red background with white lettering.
 3. Marking shall contain the words: **WARNING : PHOTOVOLTAIC POWER SOURCE.**
 4. Marking shall be placed adjacent to the main service disconnect in a location clearly visible from the location where the disconnect is operated

CONTRACTOR
Renewable Energy Design Group

Phone number: (877)-520-7652
Address: 90 Beechwood Dr
Lewisville, North Carolina 27023



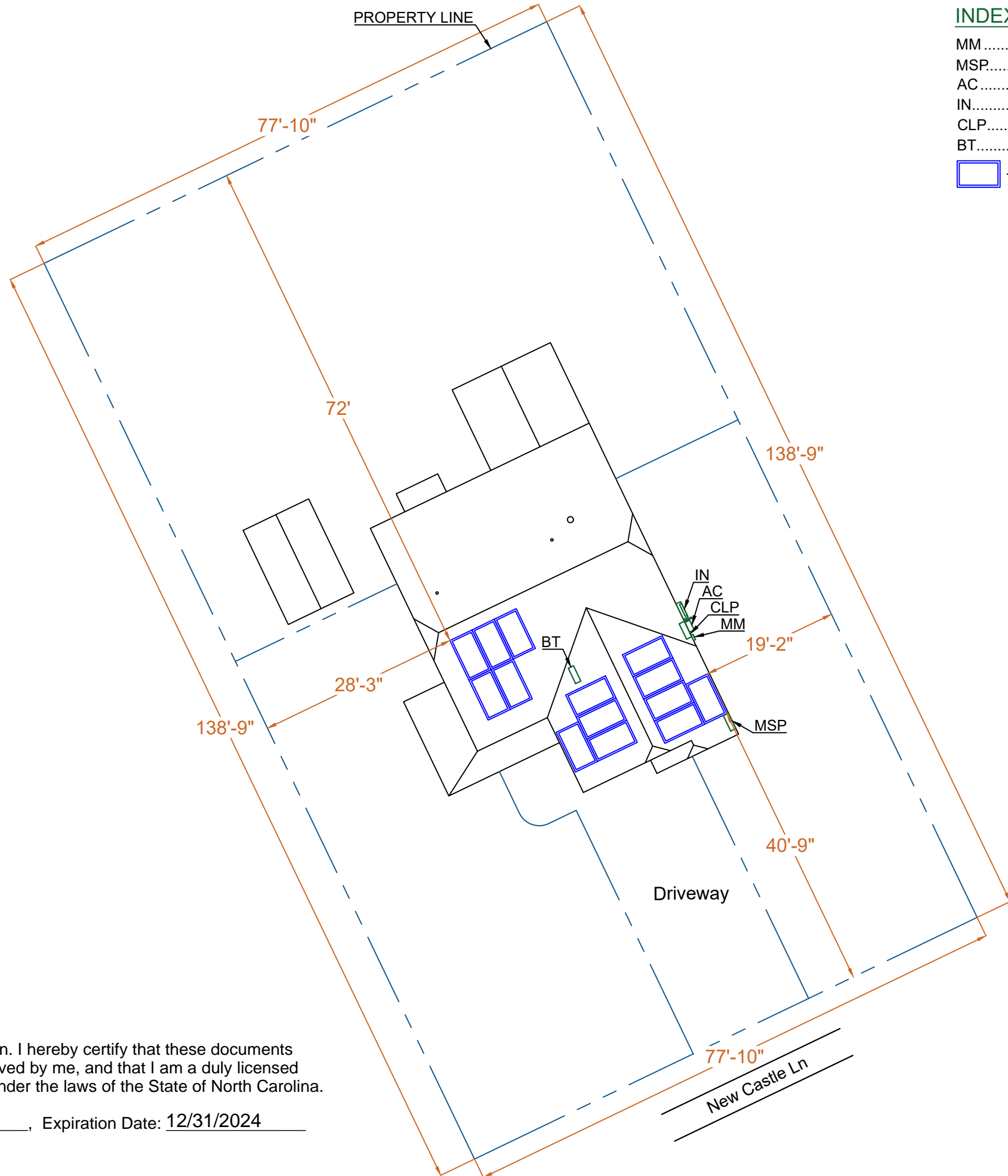
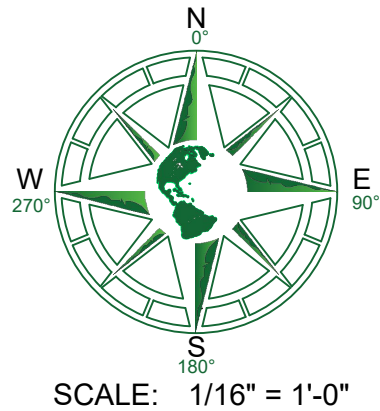
ENGINEERING
Drawn by: New@engineering.io
Phone Number: (310) 928-0938
DATE: 09/27/2023

Project Name:
Roneil Swaby
Property Address:
402 New Castle Ln
Spring Lake, NC 28390

**SYSTEM LABELING
DETAILS**

Project: PV SYSTEM Scale: AS INDICATED



PV 3.0



INDEX

- MM.....Main Meter
- MSP.....Main Service Panel
- AC.....AC Disconnect
- IN.....Inverter
- CLP.....Critical Loads Panel
- BT.....Battery
-Solar Module

CONTRACTOR
Renewable Energy Design Group
 Phone number: (877)-520-7652
 Address: 90 Beechwood Dr
 Lewisville, North Carolina 27023

Exp.: 12/31/2024
 Date Certified and Signed: 09/27/2023

ENGINEERINC
 Drawn by: New@engineerinc.io
 Phone Number: (310) 928-0938
 DATE: 09/27/2023

Project Name:
 Roneil Swaby
 Property Address:
 402 New Castle Ln
 Spring Lake, NC 28390

PROPERTY PLAN

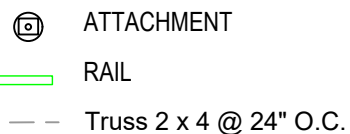
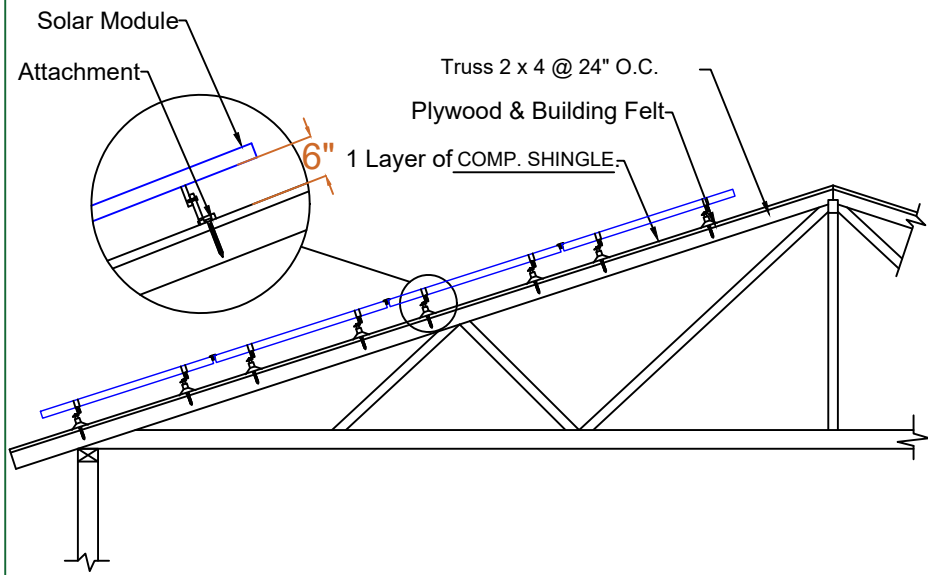
Project: PV SYSTEM	Scale: AS INDICATED
-----------------------	------------------------

PV 4.0

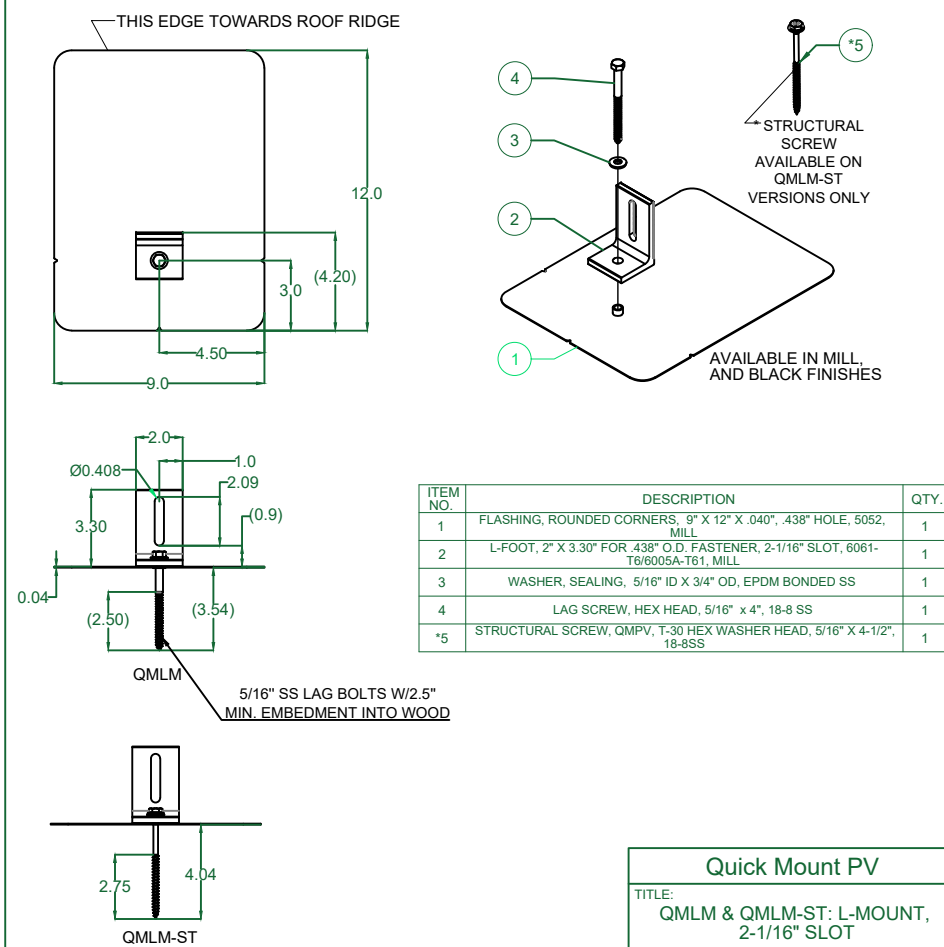
ENGINEERINC
 Engineerinc.io,
 303 N Glenoaks Blvd
 Burbank, CA 91502
 (310) 928-0938
 new@engineerinc.io

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 North Carolina.
 License No. 051274, Expiration Date: 12/31/2024

ROOF SECTION DETAIL



QUICK MOUNT ATTACHMENT DETAILS



Quick Mount PV
 TITLE: QMLM & QMLM-ST: L-MOUNT, 2-1/16" SLOT
 SIZE A
 UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL: ± 1/16 TWO PLACE DECIMAL: ± .01 THREE PLACE DECIMAL: ± .004
 DO NOT SCALE DRAWING SCALE: 1:4 WEIGHT: 1.0723

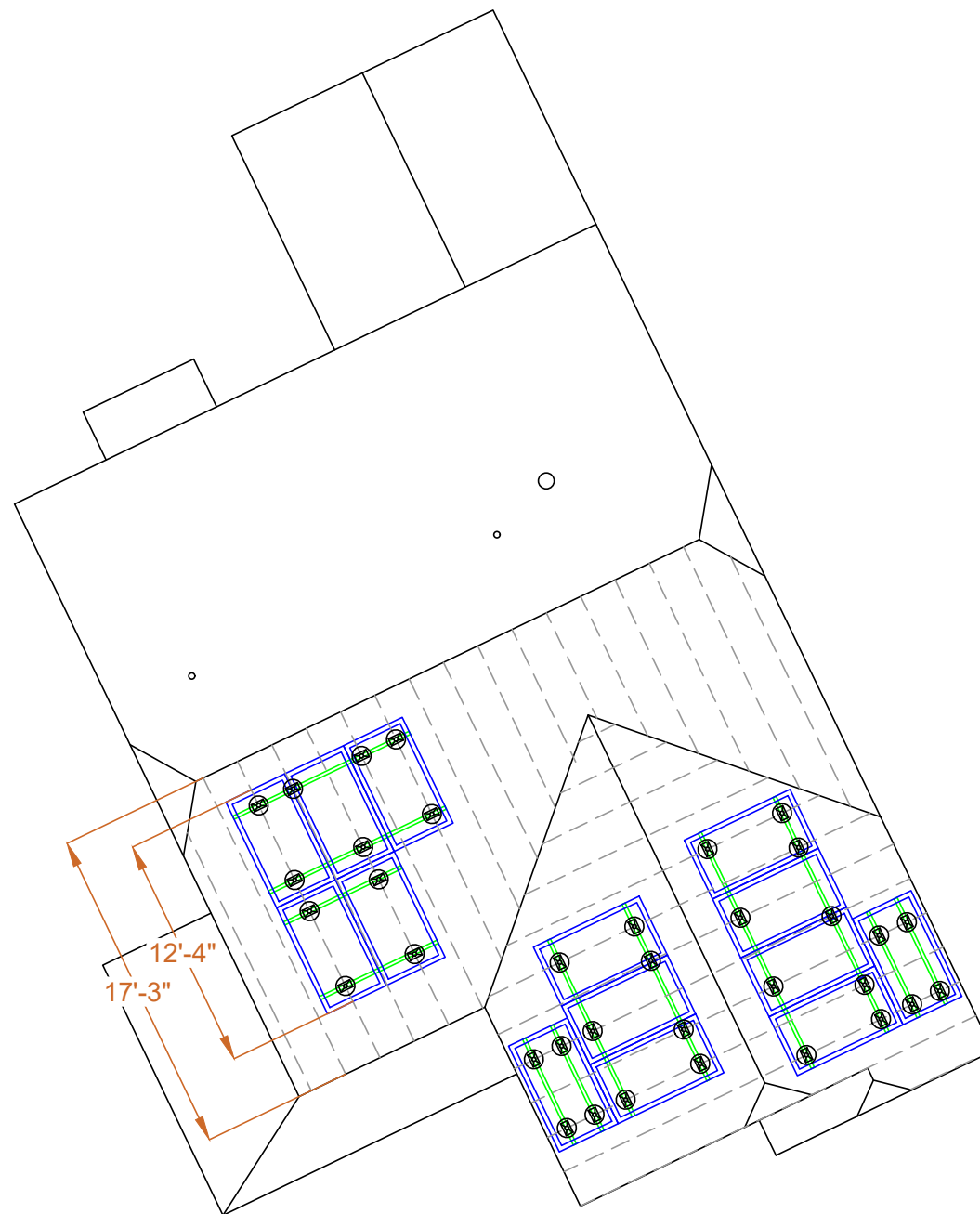
DESIGN CRITERIA

Modules: 14
Max Distributed Load: 3 PSF

POINT LOAD CALCULATION PER ARRAY

Module Weight (lbs)	48.5
# Of Modules	14
Total Module Weight (lbs)	679
Rack Weight (lbs)	135.8
Optimizers Weight (lbs)	0.34
Total System Weight (lbs)	815.14
# Of Standoffs	35
Max Span Between Standoffs (in)	48
Loading Per Standoff (lbs)	23.28
Total Area (sq.ft.)	308
Loading (PSF)	2.64

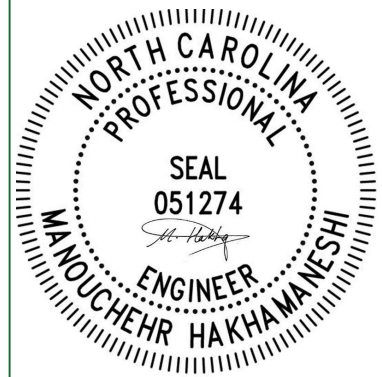
Prior to the commencement of work, the contractor shall verify the existing roof and framing conditions. Notify New@engineerinc.io of any Discrepancies prior to starting construction. Prior to the commencement of work, the contractor shall inspect framing for any damage such as water damage, cracked framing, etc. and These Plans are stamped for structural code compliance of the roof framing supporting the proposed PV installation reference only. These plans are not stamped for water leakage. PV modules, racking, and attachment components must follow manufacturer guidelines and requirements. Attachments to be installed in a staggered orientation to properly distribute loads.



CONTRACTOR

Renewable Energy Design Group

Phone number: (877)-520-7652
 Address: 90 Beechwood Dr
 Lewisville, North Carolina 27023



Exp.: 12/31/2024
 Date Certified and Signed: 09/27/2023

ENGINEERINC

Drawn by: New@engineerinc.io
 Phone Number: (310) 928-0938
 DATE: 09/27/2023

Project Name:
Roneil Swaby
 Property Address:
 402 New Castle Ln
 Spring Lake, NC 28390

ATTACHMENT LAYOUT

Project: PV SYSTEM Scale: AS INDICATED

PV 5.0

ENGINEERINC

Engineerinc.io,
 303 N Glenoaks Blvd
 Burbank, CA 91502
 (310) 928-0938
 new@engineerinc.io

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 North Carolina.

License No. 051274, Expiration Date: 12/31/2024

GENERAC

PWRCELL

7.6kW 1Ø PWRcell Inverter with CTs
Model #: XVT076A03
11.4 kW 3Ø PWRcell Inverter with CTs
Model #: X11402 (Ordering SKU: APKE00013)



Solar + storage is simple with the Generac PWRcell™ Inverter. This bi-directional, REbus™-powered inverter offers a simple, efficient design for integrating smart batteries with solar. Ideal for self-supply, backup power, zero-export and energy cost management, the PWRcell Inverter is the industry's most feature-rich line of inverters, available in single-phase and three-phase models.

FEATURES & BENEFITS

- Single inverter for grid-tied solar with smart battery integration
- Simplified system design: No autotransformer or battery inverter needed
- User-selectable modes for backup power, self-supply, time-of-use, zero-import and export limiting
- Free system monitoring included via PWRview™ Web Portal and Mobile App

AC OUTPUT/GRID-TIE	MODEL XVT076A03	MODEL X11402
CONT. GRID-TIED AC POWER @ 50°C (122°F):	7600 W	11400 W
AC OUTPUT VOLTAGE:	120/240, 1Ø VAC	120/208, 3Ø VAC
AC FREQUENCY:	60 Hz	
MAXIMUM CONTINUOUS OUTPUT CURRENT:	32 A, RMS	
GROUND-FAULT ISOLATION DETECTION:	Included	
CHARGE BATTERY FROM AC:	Yes	
THD (CURRENT):	< 2%	
TYPICAL NIGHTTIME POWER CONSUMPTION ¹ :	< 7 W	

AC OUTPUT/ISLAND MODE	MODEL XVT076A03	MODEL X11402
MAX. CONT. AC POWER WHILE IN ISLAND MODE WITHOUT AN EXTERNAL TRANSFER SWITCH ² :	7600 W	
MAX. CONT. AC POWER WHILE IN ISLAND MODE W/ EXTERNAL TRANSFER SWITCH AND SINGLE 6 MODULE BATTERY CABINET ³ :	9000 W	
MAX. CONT. AC POWER WHILE IN ISLAND MODE W/ EXTERNAL TRANSFER SWITCH AND 2 BATTERY CABINETS (8 MODULES MINIMUM) ³ :	11000 W	9600 W-11000 W ⁴
PEAK MOTOR STARTING CURRENT (2 SEC):	50 A, RMS	
AC BACKUP OUTPUT VOLTAGE:	120/240, 1Ø VAC	120/208, 1Ø VAC
AC FREQUENCY:	60 Hz	
THD (VOLTAGE):	< 2%	
ALLOWABLE SPLIT PHASE IMBALANCE:	Up to 30%	

DC INPUT	MODEL XVT076A03	MODEL X11402
DC INPUT VOLTAGE RANGE:	360-420 VDC	
NOMINAL DC BUS VOLTAGE:	380 VDC	
DC DISTRIBUTION INPUT BREAKERS:	4 x 2P3Ø A	
MAX INPUT CURRENT PER DC INPUT:	30 A	
REVERSE-POLARITY PROTECTION:	Yes	
TRANSFORMERLESS, UNGROUNDED:	Yes	
DC BUS EXPORT FUSES (+/-):	40 A	
2-POLE DISCONNECTION:	Yes	

EFFICIENCY	MODEL XVT076A03	MODEL X11402
PEAK EFFICIENCY:	97.3%	97.7%
CEC WEIGHTED EFFICIENCY:	96.5%	97.5%

¹Nighttime power consumption depends on the system mode
²In Island Mode, continuous power output is restricted to 7.6kW unless backup power is routed through an external transfer switch in a whole home backup application.
³Peak performance, values provided for 40°C (104°F).
⁴In Island mode X11402 protected loads only supply 2 phases 120 VAC L-N, 208 L-L which results in lower power than in a grid tied 3 phase state. The low value of the range is for full L-L loading while high value of the range is full L-N loading

Specifications

FEATURES AND MODES

ISLAND MODE ¹ :	Yes
GRID SELL:	Yes
SELF CONSUMPTION:	Yes
PRIORITIZED CHARGING FROM RENEWABLES:	Yes
GRID SUPPORT - ZERO EXPORT:	Yes
ESS PCS OPERATION MODES (IMPORT ONLY, EXPORT ONLY):	Yes

ADDITIONAL FEATURES

SUPPORTED COMMUNICATION INTERFACES:	REbus™, CANbus, Ethernet
SYSTEM MONITORING:	PWRview™ Web Portal and Mobile App
BACKUP LOADS DISCONNECT ² :	Yes, 50 A Circuit Breaker
INVERTER BYPASS SWITCH:	Automatic
WARRANTY:	10 Years

STANDARDS COMPLIANCE

SAFETY:	UL 1741 SA, CSA 22.2 #107.1, UL 1998
GRID CONNECTION STANDARDS:	IEEE 1547, Rule 21, Rule 14H (HECO V1.1), CSIP, UL 1741 PCS CRD (Import Only, Export Only)
EMISSIONS:	FCC Part 15 Class B

DIMENSIONS AND INSTALLATION SPECIFICATIONS

ENCLOSURE KNOCKOUTS - QTY, SIZE - IN (MM):	6 x Combo 3/4" x 1" (19 x 25.4) 7 x Combo 1/2" x 3/4" (12.7 x 19)	1 x 0.575" exclusively for optional LTE antenna mounting
DIMENSIONS L x W x H - IN (MM):	24.5" x 19.25" x 8" (622.3 x 488.9 x 203.2)	
WEIGHT - LB (KG):	62.7 (28.4)	
COOLING:	Forced convection	
AUDIBLE NOISE:	< 40 dBA	
OPERATING TEMPERATURE:	-4 to 122 °F (-20 to 50 °C) ⁵	
ENCLOSURE TYPE:	Type 3R	

INSTALLATION GUIDELINES

BATTERY TYPES SUPPORTED:	PWRcell™ Battery
MODULE SUBSTRING SIZE PER PV LINK OPTIMIZER:	Varies, refer to PV Link Installation Manual
MAXIMUM RECOMMENDED DC POWER FROM PV ⁶ :	10 kW (1Ø), 15 kW (3Ø)

⁴3Ø inverters offer backup for [single phase] 208 V loads.
⁵Includes ambient temperature rising from inverter operation. Reduced power at extreme temperatures.
⁶Values provided for PV-only or small storage systems. Additional PV power is permissible if sufficient battery storage capacity is installed.

Generac Power Systems, Inc.
S45 W29290 Hwy. 59, Waukesha, WI 53189
www.Generac.com | 888-GENERAC (436-3722)

A0000909057 REV D

©2021 Generac Power Systems. All rights reserved.
Specifications are subject to change without notice.

GENERAC

CONTRACTOR

Renewable Energy Design Group

Phone number: (877)-520-7652
Address: 90 Beechwood Dr
Lewisville, North Carolina 27023



ENGINEERING

Drawn by: New@engineering.io
Phone Number: (310) 928-0938
DATE: 09/27/2023

Project Name:
Roneil Swaby
Property Address:
402 New Castle Ln
Spring Lake, NC 28390

INVERTER DATA SHEET

Project: PV SYSTEM Scale: AS INDICATED

D 6.0

GENERAC

SnapRS™

InLine Disconnect Switch
Model #: RS802



Generac SnapRS are a simple way to satisfy rapid shutdown compliance for solar + storage systems. Generac SnapRS are 2017/2020 NEC 690.12 compliant, don't require any extra hardware to mount, and need no pairing or fussy digital communications.

FEATURES & BENEFITS

- Fast, easy, and simple to install
- One SnapRS device per PV module
- Achieves PVRSS Compliance
- Low cost, high efficiency solution

SYSTEM DESIGN

Snap a Generac SnapRS disconnect device (RS) to the negative lead (-) of each module in the solar array for simple module-level rapid shutdown compliance. SnapRS devices isolate array voltage when a rapid shutdown is initiated at a PWRcell™ Inverter. When rapid shutdown is initiated, SnapRS units isolate each PV module in the array, reducing array voltage to <80V in seconds.

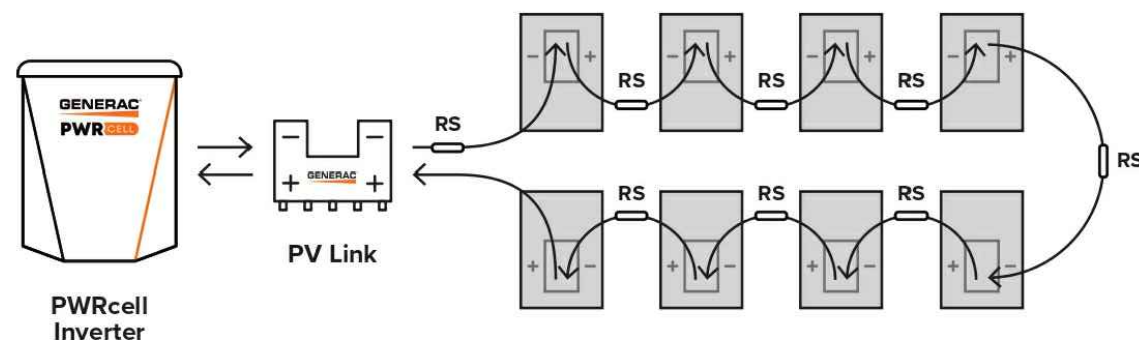


Diagram is applicable for most 60 cell PV modules. Modules with higher cell count may require a different arrangement. Contact Generac for more details.

Specifications

SnapRS™ (RS802)	
PV MODULE MAX VOC:	75 V
EFFICIENCY:	99.8%*
MAX INPUT CURRENT:	15 A
MAX TOTAL QTY IN SUBSTRING:	10
SHUTDOWN TIME:	< 10 Seconds
ENCLOSURE RATING:	NEMA 6P
OPERATING TEMPERATURE - FAHRENHEIT (CELSIUS):	-40 to 158 °F (-40 to 70 °C)
CERTIFICATIONS:	UL1741
PROTECTIONS:	PVRSE
WEIGHT - LB (KG):	0.17 (0.08)
DIMENSIONS, L x W x H - IN (MM):	7" x 1" x 1" (177.8 x 25.4 x 25.4)
WARRANTY:	25 Years

*When used with a 50V panel

Connect one SnapRS device to the negative lead of each PV module in the PV Link controlled array for complete PV Rapid shutdown performance



Generac Power Systems, Inc.
S45 W29290 Hwy. 59, Waukesha, WI 53189
www.Generac.com | 888-GENERAC (436-3722)
A0001520570 REV A

©2021 Generac Power Systems. All rights reserved.
Specifications are subject to change without notice.

GENERAC

CONTRACTOR

Renewable Energy Design Group

Phone number: (877)-520-7652
Address: 90 Beechwood Dr
Lewisville, North Carolina 27023



ENGINEERING

Drawn by: New@engineeringinc.io
Phone Number: (310) 928-0938
DATE: 09/27/2023

Project Name:
Roneil Swaby
Property Address:
402 New Castle Ln
Spring Lake, NC 28390

OPTIMIZER DATA SHEET

Project: PV SYSTEM Scale: AS INDICATED

D 7.0

powered by
Q.ANTUM DUO Z



Q.PEAK DUO BLK ML-G10+

385-405

ENDURING HIGH PERFORMANCE



- BREAKING THE 20% EFFICIENCY BARRIER**
Q.ANTUM DUO Z Technology with zero gap cell layout boosts module efficiency up to 20.9%.
- THE MOST THOROUGH TESTING PROGRAMME IN THE INDUSTRY**
Q CELLS is the first solar module manufacturer to pass the most comprehensive quality programme in the industry. The new "Quality Controlled PV" of the independent certification institute TÜV Rheinland.
- INNOVATIVE ALL-WEATHER TECHNOLOGY**
Optimal yields, whatever the weather with excellent low-light and temperature behavior.
- ENDURING HIGH PERFORMANCE**
Long-term yield security with Anti LID Technology, Anti PID Technology¹, Hot-Spot Protect and Traceable Quality Tra.Q™.
- EXTREME WEATHER RATING**
High-tech aluminum alloy frame, certified for high snow (5400 Pa) and wind loads (4000 Pa).
- A RELIABLE INVESTMENT**
Inclusive 25-year product warranty and 25-year linear performance warranty².



THE IDEAL SOLUTION FOR:
Rooftop arrays on residential buildings

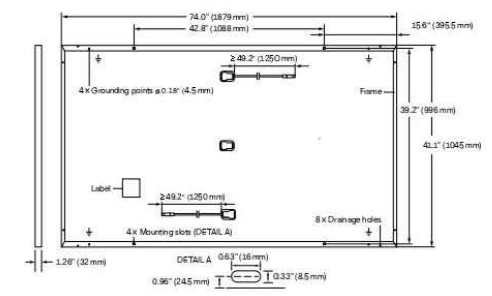
¹ APT test conditions according to IEC / TS 62804-1:2015, method A (-1500V, 96h)
² See data sheet on rear for further information.

Engineered in Germany



MECHANICAL SPECIFICATION

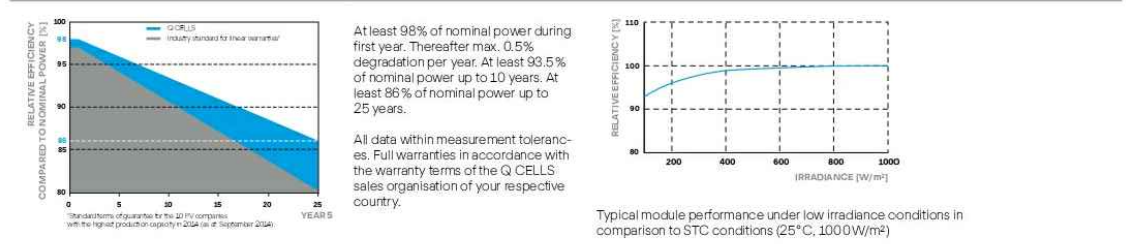
Format	74.0 in × 41.1 in × 1.26 in (including frame) (1879 mm × 1045 mm × 32 mm)
Weight	48.5 lbs (22.0 kg)
Front Cover	0.13 in (3.2 mm) thermally pre-stressed glass with anti-reflection technology
Back Cover	Composite Film
Frame	Black anodized aluminum
Cell	6 × 22 monocrystalline Q.ANTUM solar half cells
Junction Box	2.09-3.98 in × 1.26-2.36 in × 0.59-0.71 in (53-101 mm × 32-60 mm × 15-18 mm), IP67, with bypass diodes
Cable	4 mm ² Solar cable; (+) ≥ 49.2 in (1250 mm), (-) ≥ 49.2 in (1250 mm)
Connector	Stäubli MC4; IP68



ELECTRICAL CHARACTERISTICS

POWER CLASS	385	390	395	400	405	
MINIMUM PERFORMANCE AT STANDARD TEST CONDITIONS, STC ¹ (POWER TOLERANCE +5 W / -0 W)						
Power at MPP ²	P _{MPP} [W]	385	390	395	400	405
Short Circuit Current ¹	I _{SC} [A]	11.04	11.07	11.10	11.14	11.17
Open Circuit Voltage ¹	V _{OC} [V]	45.19	45.23	45.27	45.30	45.34
Current at MPP	I _{MPP} [A]	10.59	10.65	10.71	10.77	10.83
Voltage at MPP	V _{MPP} [V]	36.36	36.62	36.88	37.13	37.39
Efficiency ¹	η [%]	≥ 19.6	≥ 19.9	≥ 20.1	≥ 20.4	≥ 20.6
MINIMUM PERFORMANCE AT NORMAL OPERATING CONDITIONS, NMOT ¹						
Power at MPP	P _{MPP} [W]	288.8	292.6	296.3	300.1	303.8
Short Circuit Current	I _{SC} [A]	8.90	8.92	8.95	8.97	9.00
Open Circuit Voltage	V _{OC} [V]	42.62	42.65	42.69	42.72	42.76
Current at MPP	I _{MPP} [A]	8.35	8.41	8.46	8.51	8.57
Voltage at MPP	V _{MPP} [V]	34.59	34.81	35.03	35.25	35.46

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



TEMPERATURE COEFFICIENTS

Temperature Coefficient of I _{SC}	α [%/K]	+0.04	Temperature Coefficient of V _{OC}	β [%/K]	-0.27
Temperature Coefficient of P _{MPP}	γ [%/K]	-0.34	Nominal Module Operating Temperature	NMOT [°F]	109 ± 5.4 (43 ± 3 °C)

PROPERTIES FOR SYSTEM DESIGN

Maximum System Voltage V _{sys}	[V]	1000 (IEC) / 1000 (UL)	PV module classification	Class II
Maximum Series Fuse Rating	[A DC]	20	Fire Rating based on ANSI / UL 61730	TYPE 2
Max. Design Load, Push / Pull ³	[lbs / R ²]	75 (3600 Pa) / 55 (2660 Pa)	Permitted Module Temperature on Continuous Duty	-40 °F up to +185 °F (-40 °C up to +85 °C)
Max. Test Load, Push / Pull ³	[lbs / R ²]	113 (5400 Pa) / 84 (4000 Pa)		

³ See Installation Manual

QUALIFICATIONS AND CERTIFICATES

UL 61730, CE-compliant, Quality Controlled PV - TÜV Rheinland, IEC 61215:2016, IEC 61730:2016, U.S. Patent No. 9,893,215 (polar cells).

PACKAGING INFORMATION

Horizontal packaging	76.4 in / 1940 mm	43.3 in / 1100 mm	48.0 in / 1220 mm	1656 lbs / 751 kg	24 pallets	24 pallets	32 modules
----------------------	-------------------	-------------------	-------------------	-------------------	------------	------------	------------

Note: Installation instructions must be followed. See the installation and operating manual or contact our technical service department for further information on approved installation and use of this product.

Hanwha Q CELLS America Inc.
400 Spectrum Center Drive, Suite 1400, Irvine, CA 92618, USA | TEL +1 949 748 59 96 | EMAIL inquiry@us.q-cells.com | WEB www.q-cells.us

CONTRACTOR

Renewable Energy Design Group

Phone number: (877)-520-7652
Address: 90 Beechwood Dr
Lewisville, North Carolina 27023



ENGINEERING INC

Drawn by: New@engineering.io
Phone Number: (310) 928-0938
DATE: 09/27/2023

Project Name:
Roneil Swaby
Property Address:
402 New Castle Ln
Spring Lake, NC 28390

MODULE DATA SHEET

Project: PV SYSTEM | Scale: AS INDICATED

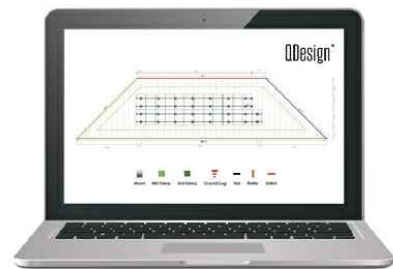
D 8.0

Specifications subject to technical changes © Q CELLS Q.PEAK DUO BLK ML-G10+ 385-405, Da. 2022-02, Rev.01_NA



QRail™ — Single-Tool Mounting and Racking System

The QRail Series is a strong and versatile single-tool installation solar racking system that provides unrivaled benefits to solar designers and installers. Combined with Quick Mount PV's industry-leading weather-proof mounts, QRail offers a complete racking solution for mounting solar modules on any roof. An optional skirt is available.



QDesign.solar

Easily design array configurations with the QDesign software application. Generate complete engineering reports and calculate a precise bill of materials for all the mounting, racking and accessories needed for a complete solar array. Works 2-rail, 3-rail, shared-rail and fixed-tilt applications.

Comprehensive, One-Source Solution

QRail, together with Quick Mount PV's waterproof mounting products, provides the benefit of a single-sourced, seamlessly integrated rooftop installation that works with all roof types — composition/asphalt shingles, flat or curved tile, metal shingle, shake, slate and low slope roofs. The QRail system also works with any roof attachment system for maximum flexibility.

Superior Strength and Versatility

QRail is engineered for optimal structural performance. The system is certified to UL 2703, fully code compliant and backed by a 25-year warranty. QRail is available in Light and Standard versions and is compatible with virtually all modules and works on a wide range of pitched roof surfaces. Modules can be mounted in portrait or landscape orientation in standard or shared-rail configurations.



QRails come in two lengths —
168 inches (14 ft) and 208 inches (17.3 ft)
Mill and Black Finish

Fast, Simple Installation: It Just Clicks

QClick Technology™

The universal mid and end clamps use QClick technology to simply “click” into the rail channel and remain upright, ready to accept the module. The pre-assembled clamps fit virtually all module frames and require no extra hardware, eliminating pre-loading and reducing installation time. Hidden end clamps are also available.



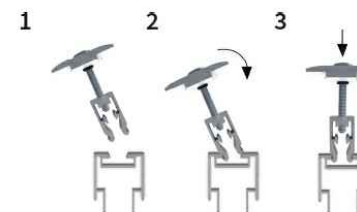
UNIVERSAL END CLAMP

Clamps for modules from 30-45mm or 38-50mm thick



UNIVERSAL BONDED MID CLAMP

2 clamps for modules from 30-45mm or 38-50mm thick



Installing is as easy as 1-2-3

QSplice™ Technology

QRail's innovative internal QSplice installs in seconds, requiring no tools or screws. Simply insert QSplice into the rail and slide the other rail on to create a fully structural, bonded splice.



QSPlice



Installs in seconds — no tools or hardware required

Fully Integrated Electrical Bonding

The QRail system is UL 2703 Listed, ensuring that all exposed metal parts and the solar module frames are electrically connected. All electrical bonds are created when the components are installed and tightened down.

CONTRACTOR

Renewable Energy Design Group

Phone number: (877)-520-7652
Address: 90 Beechwood Dr
Lewisville, North Carolina 27023



ENGINEERING

Drawn by: New@engineering.io
Phone Number: (310) 928-0938
DATE: 09/27/2023

Project Name:
Roneil Swaby
Property Address:
402 New Castle Ln
Spring Lake, NC 28390

RACKING DATA SHEET

Project:
PV SYSTEM

Scale:
AS INDICATED

D 9.0

L-Mount | QMLM / QMLM-ST

Elevated Water Seal Technology®

ITEM NO.	DESCRIPTION	QTY.
1	FLASHING, ROUNDED CORNERS, 9" X 12" X .040", .438" HOLE, 5052, MILL	1
2	L-FOOT, 2" X 3.30" FOR .438" O.D. FASTENER, 2-1/16" SLOT, 6061-T6/6005A-T61, MILL	1
3	WASHER, SEALING, 5/16" ID X 3/4" OD, EPDM BONDED SS	1
4	LAG SCREW, HEX HEAD, 5/16" X 4", 18-8 SS	1
*5	STRUCTURAL SCREW, QMPV, T-30 HEX WASHER HEAD, 5/16" X 4-1/2", 18-8SS	1

THIS EDGE TOWARDS ROOF RIDGE

AVAILABLE IN MILL AND BLACK FINISHES

Quick Mount PV®

TITLE: QMLM & QMLM-ST: L-MOUNT, 2-1/16" SLOT

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL: 1/8 TWO-PLACE DECIMAL ±.19 THREE PLACE DECIMAL ±.094

SCALE: 1:4 W/BGHT: 0.7565 SHEET 1 OF 1

PROPRIETARY AND CONFIDENTIAL THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF QUICK MOUNT PV. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF QUICK MOUNT PV IS PROHIBITED. COPYRIGHT © 2019 QUICK MOUNT PV. DO NOT SCALE DRAWING

L-Mount Installation Instructions

Installation Tools Required: tape measure, roofing bar, chalk line, stud finder, caulking gun, sealant compatible with roofing materials, drill with 7/32" or 1/8" bit, drill or impact gun with 1/2" socket.

WARNING: Quick Mount PV products are NOT designed for and should NOT be used to anchor fall protection equipment.



1 Locate, choose, and mark centers of rafters to be mounted. Select the courses of shingles where mounts will be placed.



2 Carefully lift composition roof shingle with roofing bar, just above placement of mount. Remove nails as required and backfill holes with approved sealant. See "Proper Flashing Placement" on next page.



3 Insert flashing between 1st and 2nd course. Slide up so top edge of flashing is at least 3/4" higher than the butt-edge of the 3rd course and lower flashing edge is above the butt-edge of 1st course. Mark center for drilling.



4 If attaching with lag bolt use a 7/32" bit (Lag). Use a 1/8" bit (ST) for attaching with the structural screw. Drill pilot hole into roof and rafter, taking care to drill square to the roof. Do not use mount as a drill guide. Drill a 2" deep hole into rafter.



5 Clean off any sawdust, and fill hole with sealant compatible with roofing materials.



6 Place L-foot onto elevated flute and rotate L-foot to desired orientation.



7 Prepare lag bolt or structural screw with sealing washer. Using a 1/2-inch socket on an impact gun, drive prepared lag bolt through L-foot until L-foot can no longer easily rotate. **DO NOT over-torque.** NOTE: Structural screw can be driven with T-30 hex head bit.



8 You are now ready for the rack of your choice. Follow all the directions of the rack manufacturer as well as the module manufacturer. NOTE: Make sure top of L-Foot makes solid contact with racking.

All roofing manufacturers' written instructions must also be followed by anyone modifying a roof system. Consult the roof manufacturer's specs and instructions prior to working on the roof.

CONTRACTOR
Renewable Energy Design Group

Phone number: (877)-520-7652
Address: 90 Beechwood Dr
Lewisville, North Carolina 27023



ENGINEERING
Drawn by: New@engineering.io
Phone Number: (310) 928-0938
DATE: 09/27/2023

Project Name:
Roneil Swaby
Property Address:
402 New Castle Ln
Spring Lake, NC 28390

ATTACHMENT DATA SHEET

Project: PV SYSTEM Scale: AS INDICATED

D 10.0

GENERAC® PWRCELL

3.0kWh DCB BATTERY MODULE

3.0kWh PWRcell DCB Battery Module
Model #: BJ-DCB052KBG (Ordering SKU: G0080040)



Build a better backup system with the Generac DCB Battery Module for PWRcell™. Add capacity and backup power with as few as three or as many as six modules. Upgrade a PWRcell Battery post-installation with the addition of more DCB modules for more power and capacity.

FEATURES & BENEFITS

- Suitable for indoor and outdoor cabinets
- Modular: Stack the right number of battery modules for the application
- Upgradeable: Add more modules later when consumer needs change
- Easy to install: At just 55lbs, installers won't need special equipment to move and install these batteries

SPECIFICATIONS

NOMINAL VOLTAGE:	46.8 VDC
USABLE CAPACITY @ TYPICAL VOLTAGE:	3.00 kWh
MAXIMUM AMBIENT OPERATING TEMPERATURE:	14 to 122 °F (-10 to 50 °C)
OPTIMAL AMBIENT OPERATING TEMPERATURE:	41 to 104 °F (5 to 40 °C)
STORAGE TEMPERATURE RANGE:	-4 to 68 °F (-20 to 20 °C)
SCALABILITY:	3-6 pcs in series
DIMENSIONS, L x W x H - IN (MM):	17.3" x 17.7" x 3.3" (440 x 450 x 84)
WEIGHT - LB (KG):	55 (25)
BATTERY CHEMISTRY:	Lithium Nickel Manganese Cobalt (NMC)
WARRANTY:	10 years or 7.56MWh Throughput (per module)
COMPLIANCE:	UL 1973

Note: Charge/discharge rate may be reduced at temperature extremes

Generac Power Systems, Inc.
S45 W29290 Hwy. 59, Waukesha, WI 53189
www.Generac.com | 888-GENERAC (436-3722)

A0000953959 REV E

©2021 Generac Power Systems. All rights reserved.
Specifications are subject to change without notice.

GENERAC®

Overview of technical specifications

PWRcell™ BATTERY CONFIGURATIONS				
BATTERY MODULE SERIES:	3.0 kWh DCB / 3.0 kWh EX			
BATTERY MODULES:	3	4	5	6
USABLE ENERGY:	9 kWh	12 kWh	15 kWh	18 kWh
NOMINAL CONT. AC POWER ¹ :	3.4 kW	4.5 kW	5.6 kW	6.7 kW
MAX. CONT. AC POWER ² :	4.5 kW	6 kW	7.5 kW	9 kW
MAX. CONT. DC CURRENT (CHARGE/DISCHARGE) - A:	13.8	18.4	23.0	27.5
PEAK MOTOR STARTING CURRENT (2 SEC) - A, RMS:	25	33	42	50
REbus™ VOLTAGE - INPUT/OUTPUT:	360-420 VDC			
NOMINAL VOLTAGE:	380 VDC			
DC-DC ROUND-TRIP EFFICIENCY:	96.5%			
MAXIMUM AMBIENT OPERATING TEMPERATURE:	14 to 122 °F (-10 to 50 °C)			
RECOMMENDED AMBIENT OPERATING TEMPERATURE:	41 to 104 °F (5 to 40 °C)			
MAXIMUM INSTALLATION ALTITUDE - FT (M):	9834 (3000)			
DIMENSIONS, L x W x H - IN (MM):	22" X 10" X 68" (559 X 254 X 1727)			
WEIGHT, ENCLOSURE - LB (KG):	111 (50)			
WEIGHT, INSTALLED W/ DCB MODULES- LB (KG):	276 (125)	331 (150)	386 (175)	441 (200)
WEIGHT, INSTALLED W/ EX MODULES - LB (KG):	282 (128)	340 (154)	397 (180)	454 (206)
ENCLOSURE TYPE:	Type 1			
WARRANTY - LI-ION MODULES:	10 Years, (7.56MWh)			
WARRANTY - ELECTRONICS AND ENCLOSURE:	10 Years			
COMMUNICATION PROTOCOL:	REbus™ DC Nanogrid™			
SEISMIC RATING:	IEEE 693-2018 (HIGH)			
COMPLIANCE:	UL 9540, UL 1973, UL 1642, CSA 22.2 #107.1			

CONTRACTOR

Renewable Energy Design Group

Phone number: (877)-520-7652
Address: 90 Beechwood Dr
Lewisville, North Carolina 27023



ENGINEERING

Drawn by: New@engineerinc.io
Phone Number: (310) 928-0938
DATE: 09/27/2023

Project Name:

Roneil Swaby

Property Address:

402 New Castle Ln
Spring Lake, NC 28390

BATTERY DATA SHEET

Project:
PV SYSTEM

Scale:
AS INDICATED

D 11.0



FEATURES:

Fast, simple installation

Lower failure risk than module-level optimizers

NEC 2017 rapid shutdown compliant with SnapRS™

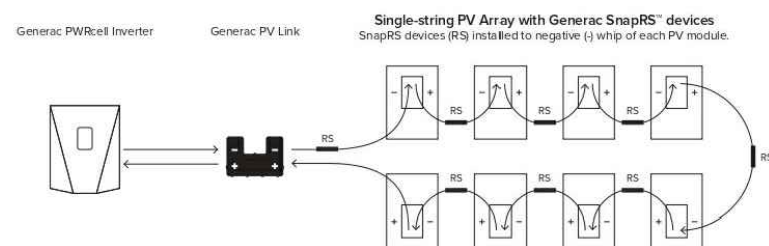
PV Link™

2500W MPPT Substring Optimizer
 Model: APKE00010 Certification Model Reference: S2502

PV Link is the simple solar optimizer for quick installation and long-lasting performance. Connect as few as two or as many as nine PV modules to each PV Link to overcome shading and challenging roof lines.

ADDITIONAL FEATURES

- Quick connections with MC4 connectors
- 2500W capacity
- Compatible with high-voltage smart batteries
- Cost-effective solution for high-performance PV
- Ground-fault protection



Specifications



PWRCELL PV LINK (APKE00010)

RATED POWER	2500 W	PROTECTIONS	Ground-fault, Arc-fault (Arc-fault Type 1AFCI, Integrated)
PEAK EFFICIENCY	99%	MAX OPERATING TEMP	70 °C
MPPT VOLTAGE RANGE	60-360 VMP	SYSTEM MONITORING	PWRview Web Portal and Mobile App
MAX INPUT VOLTAGE	420 VOC; max when cold	ENCLOSURE	Type 3R
MAX OUTPUT	420 VOC	WEIGHT	7.3 lb
NOMINAL OUTPUT (REBUS™)	380 VDC	DIMENSIONS (L,W,H)	2" x 15.4" x 9.6"
MAX OUTPUT CURRENT	8 A	COMPLIANCE	UL 1741, CSA 22.2
MAX SHORT CIRCUIT CURRENT (ISC)	18 A	WARRANTY	25 Years
STANDBY POWER	<1 W		

Specifications subject to change without notice.

CONTRACTOR

Renewable Energy Design Group

Phone number: (877)-520-7652
 Address: 90 Beechwood Dr
 Lewisville, North Carolina 27023



ENGINEERING INC

Drawn by: New@engineerinc.io
 Phone Number: (310) 928-0938
 DATE: 09/27/2023

Project Name:
Roneil Swaby
 Property Address:
 402 New Castle Ln
 Spring Lake, NC 28390

PV LINK DATA SHEET

Project: PV SYSTEM Scale: AS INDICATED

D 12.0



Generac Power Systems, Inc.
 S45 W29290 Hwy. 59, Waukesha, WI 53189
 www.Generac.com 1-888-GENERAC (1-888-436-3722)



Generac Power Systems, Inc.
 S45 W29290 Hwy. 59, Waukesha, WI 53189
 www.Generac.com 1-888-GENERAC (1-888-436-3722)
 Part No. A0000528162 REV A