

Initial Application Date: _____

Application # _____

CU# _____

COUNTY OF HARNETT RESIDENTIAL LAND USE APPLICATION

Central Permitting 108 E. Front Street, Lillington, NC 27546 Phone: (910) 893-7525 ext:2 Fax: (910) 893-2793 www.harnett.org/permits

****A RECORDED SURVEY MAP, RECORDED DEED (OR OFFER TO PURCHASE) & SITE PLAN ARE REQUIRED WHEN SUBMITTING A LAND USE APPLICATION****

LANDOWNER: _____ Mailing Address: _____

City: _____ State: _____ Zip: _____ Contact No: _____ Email: _____

APPLICANT*: _____ Mailing Address: _____

City: _____ State: _____ Zip: _____ Contact No: _____ Email: _____

*Please fill out applicant information if different than landowner

CONTACT NAME APPLYING IN OFFICE: _____ Phone # _____

PROPERTY LOCATION: Subdivision: _____ Lot #: _____ Lot Size: _____

State Road # _____ State Road Name: _____ Map Book & Page: _____ / _____

Parcel: _____ PIN: _____

Zoning: _____ Flood Zone: _____ Watershed: _____ Deed Book & Page: _____ / _____ Power Company*: _____

*New structures with Progress Energy as service provider need to supply premise number _____ from Progress Energy.

PROPOSED USE:

SFD: (Size _____x_____) # Bedrooms:___ # Baths:___ Basement(w/wo bath):___ Garage:___ Deck:___ Crawl Space:___ Slab:___ Slab:___
(Is the bonus room finished? () yes () no w/ a closet? () yes () no (if yes add in with # bedrooms) Monolithic

Mod: (Size _____x_____) # Bedrooms___ # Baths___ Basement (w/wo bath)___ Garage:___ Site Built Deck:___ On Frame___ Off Frame___
(Is the second floor finished? () yes () no Any other site built additions? () yes () no

Manufactured Home: ___SW ___DW ___TW (Size _____x_____) # Bedrooms: ___ Garage:___(site built?___) Deck:___(site built?___)

Duplex: (Size _____x_____) No. Buildings:_____ No. Bedrooms Per Unit:_____

Home Occupation: # Rooms:_____ Use:_____ Hours of Operation:_____ #Employees:_____

Addition/Accessory/Other: (Size _____x_____) Use:_____ Closets in addition? () yes () no

Water Supply: _____ County _____ Existing Well _____ New Well (# of dwellings using well _____) ***Must have operable water before final**

Sewage Supply: _____ New Septic Tank (Complete Checklist) _____ Existing Septic Tank (Complete Checklist) _____ County Sewer

Does owner of this tract of land, own land that contains a manufactured home within five hundred feet (500') of tract listed above? () yes () no

Does the property contain any easements whether underground or overhead () yes () no

Structures (existing or proposed): Single family dwellings:_____ Manufactured Homes:_____ Other (specify):_____

Required Residential Property Line Setbacks:

Comments: _____

Front **Minimum** _____ **Actual** _____

Rear _____

Closest Side _____

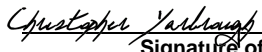
Sidestreet/corner lot _____

Nearest Building on same lot _____

SPECIFIC DIRECTIONS TO THE PROPERTY FROM LILLINGTON: _____

Attached Separately

If permits are granted I agree to conform to all ordinances and laws of the State of North Carolina regulating such work and the specifications of plans submitted. I hereby state that foregoing statements are accurate and correct to the best of my knowledge. Permit subject to revocation if false information is provided.

DeSigned by:  _____ Date _____
Signature of Owner or Owner's Agent

*****It is the owner/applicants responsibility to provide the county with any applicable information about the subject property, including but not limited to: boundary information, house location, underground or overhead easements, etc. The county or its employees are not responsible for any incorrect or missing information that is contained within these applications.*****

****This application expires 6 months from the initial date if permits have not been issued****

Application # _____

Harnett County Central Permitting

PO Box 65 Lillington, NC 27546 - Ph: 910-893-7525 - Fx: 910-893-2793 - www.harnett.org/permits
Certification of Work Performed By Owner/Contractor
(Individual Trade Application)

Owner (s) of Structure: Ida Cameron Phone: 919-623-1091

Owner (s) Mailing Address: 241 Happy Lane. SANFORD, NC 27332

Land Owner Name (s): Ida Cameron Phone: 919-498-3705

Construction or Site Address: 241 Happy Lane. SANFORD, NC 27332

PIN # _____ Parcel # _____

Job Cost: \$1000 Description of Work to be done Installation of a roof-mounted solar pv array

Mechanical: New Unit With Ductwork ___ New Unit Without Ductwork ___ Gas Piping ___ Other ___

Electrical*: 200 Amp <200 Amp ___ Service Change ___ Service Reconnect ___ Other

* For Progress Energy customers we need the premise number

Plumbing: Water/Sewer Tap ___ Number of Baths ___ Water Heater ___

Specific Directions to Job from Lillington:

Attached seperately


Subdivision: _____ Lot #: _____

I Karl Stupka will provide the Electrical labor on this structure.
(Contractors Name) (Trade)

I am the building owner or my NC state license number is 31533-L, which entitles me to perform such work on the above structure legally. All work shall comply with the State Building Code and all other applicable State and local laws, ordinances and regulations.

NC SOLAR NOW
Contractor's Company Name
3401-101 Atlantic Ave Raleigh NC 27604
Address
31533-L
License # _____

919-833-9096
Telephone
Karl@ncsolarnow.com
Email Address

Structure Owner / Contractor Signature:  Date: 5/29/18

By signing this application you affirm that you have obtained permission from the above listed license holder to purchase permits on their behalf. If doing the work as owner you understand that you cannot rent, lease or sell the listed property for 12 months after completion of the listed work.

***Company name, address, & phone must match information on license**

Single Phase Inverter with HD-Wave Technology

for North America

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



Optimized installation with HD-Wave technology

- / Specifically designed to work with power optimizers
- / Record-breaking efficiency
- / Fixed voltage inverter for longer strings
- / Integrated arc fault protection and rapid shutdown for NEC 2014 and 2017, per article 690.11 and 690.12
- / UL1741 SA certified, for CPUC Rule 21 grid compliance
- / Extremely small
- / Built-in module-level monitoring
- / Outdoor and indoor installation
- / Optional: Revenue grade data, ANSI C12.20 Class 0.5 (0.5% accuracy)

Single Phase Inverter with HD-Wave Technology for North America

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

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

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
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				400			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

ADDITIONAL FEATURES								
Supported Communication Interfaces	RS485, Ethernet, ZigBee (optional), Cellular (optional)							
Revenue Grade Data, ANSI C12.20	Optional ⁽³⁾							
Rapid Shutdown - NEC 2014 and 2017 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	3/4" minimum / 14-6 AWG				3/4" minimum / 14-4 AWG				
DC Input Conduit Size / # of Strings / AWG Range	3/4" minimum / 1-2 strings / 14-6 AWG				3/4" minimum / 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				in / mm
Weight with Safety Switch	22 / 10	25.1 / 11.4	26.2 / 11.9	38.8 / 17.6					lb / kg
Noise	< 25				< 50				dBA
Cooling	Natural Convection								
Operating Temperature Range	-40 to +140 / -25 to +60 ⁽⁴⁾ (-40°F / -40°C option) ⁽⁵⁾							°F / °C	
Protection Rating	NEMA 4X (Inverter with Safety Switch)								

⁽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

⁽³⁾ Revenue grade inverter P/N: SExxxH-US000NNC2

⁽⁴⁾ For power de-rating information refer to: <https://www.solaredge.com/sites/default/files/se-temperature-derating-note-na.pdf>

⁽⁵⁾ -40 version P/N: SExxxH-US000NNU4

SOLAR'S MOST TRUSTED



REC N-PEAK BLACK SERIES

PREMIUM FULL BLACK MONO
N-TYPE SOLAR PANELS WITH
SUPERIOR PERFORMANCE



MONO N-TYPE: THE
MOST EFFICIENT C-SI
TECHNOLOGY



NO LIGHT INDUCED
DEGRADATION



SUPER-STRONG
FRAME UP TO 7000 PA
SNOW LOAD



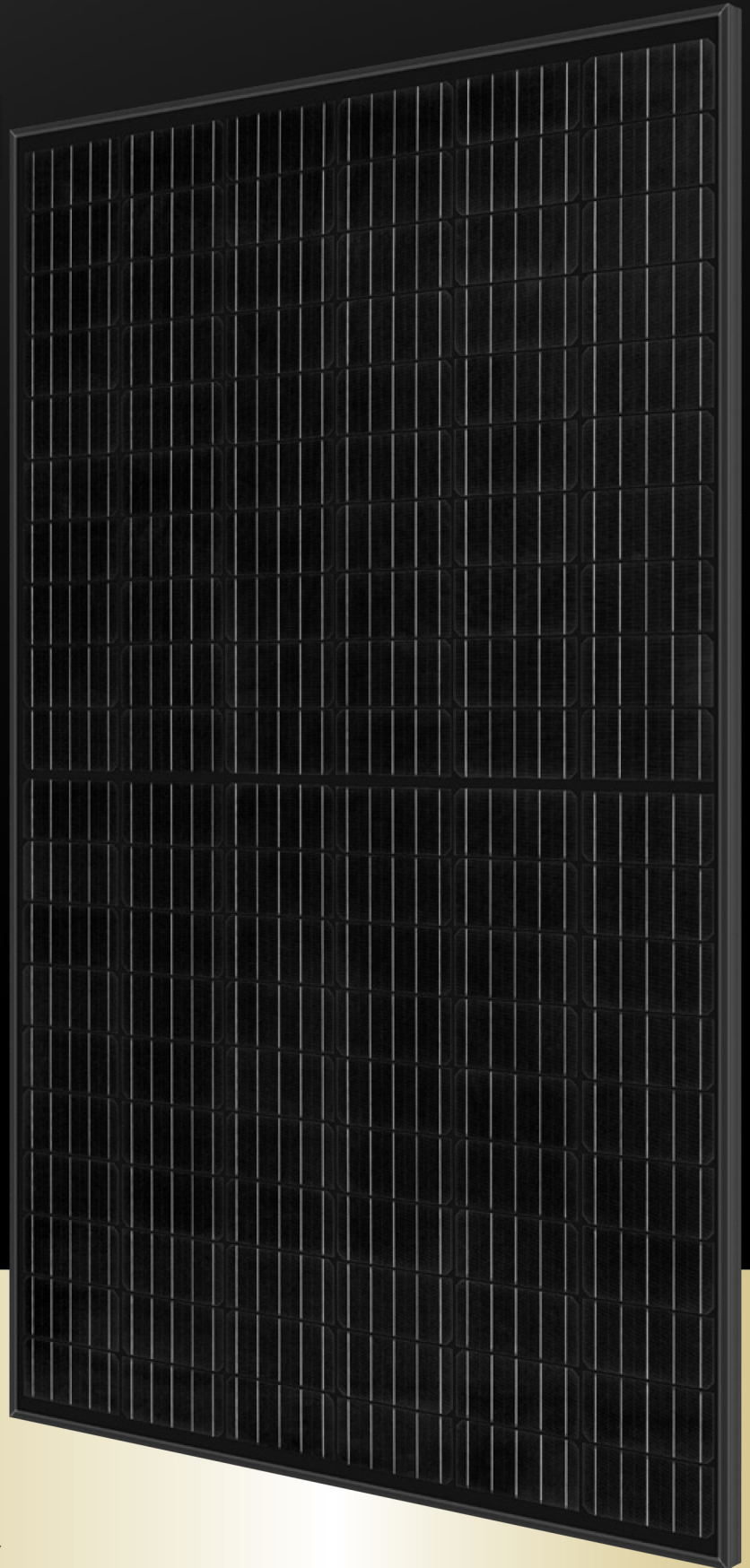
FLEXIBLE
INSTALLATION
OPTIONS



IMPROVED
PERFORMANCE IN
SHADED CONDITIONS



GUARANTEED HIGH
POWER OVER LIFETIME

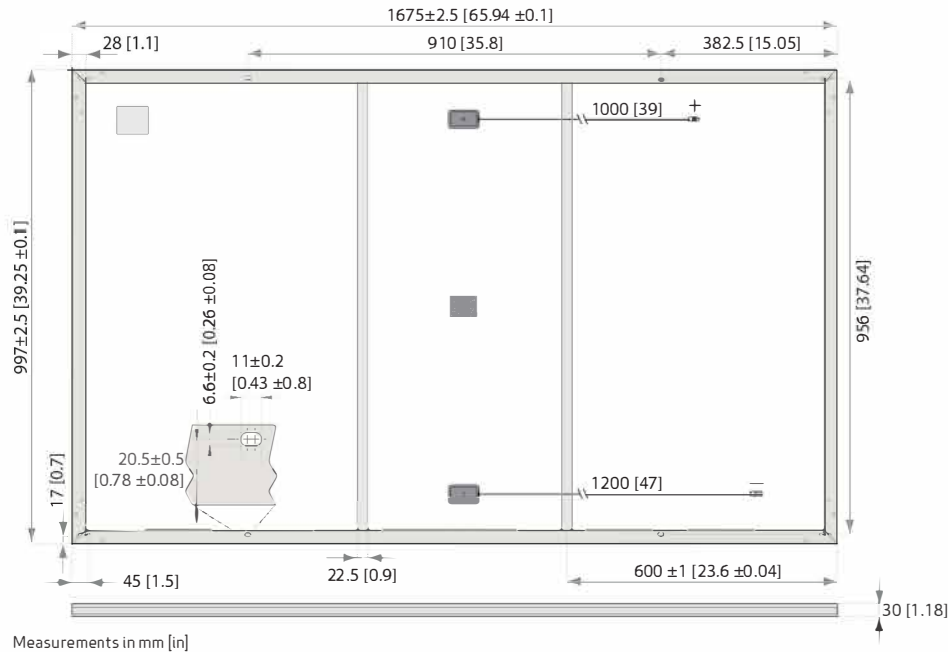


325 W_P POWER

20 YEAR PRODUCT
WARRANTY

0.5% ANNUAL DEGRADATION OVER
25-YEAR POWER WARRANTY

REC N-PEAK BLACK SERIES



GENERAL DATA

Cell type:	120 half cut n-type mono c-Si cells 6 strings of 20 cells in series
Glass:	0.13" (3.2 mm) solar glass with anti-reflection surface treatment
Backsheet:	Highly reflective and resistant polymeric construction (black)
Frame:	Anodized aluminum (black)
Junction box:	3-part, 3 bypass diodes, IP67 rated in accordance with IEC 62790
Cable:	12 AWG (4 mm ²) PV wire, 39 + 47" (1 m + 1.2 m) in accordance with EN 50618
Connectors:	Stäubli MC4 PV-KBT4/KST4, 12 AWG (4 mm ²) IP68 only when connected
Origin:	Made in Singapore

MECHANICAL DATA

Dimensions:	65.9 x 39.25 x 1.1" (1675 x 997 x 30 mm)
Area:	17.98 ft ² (1.67 m ²)
Weight:	39.7 lbs (18 kg)

MAXIMUM RATINGS

Operational temperature:	-40 ... +85°C
Maximum system voltage:	1000 V
Design load (+): snow	4666 Pa (97.5 lbs/ft ²)*
Maximum test load (+):	7000 Pa (146 lbs/ft ²)*
Design load (-): wind	1600 Pa (33.4 lbs/ft ²)*
Maximum test load (-):	2400 Pa (50 lbs/ft ²)*
Max series fuse rating:	25 A
Max reverse current:	25 A

* Calculated using a safety factor of 1.5
* See installation manual for mounting instructions

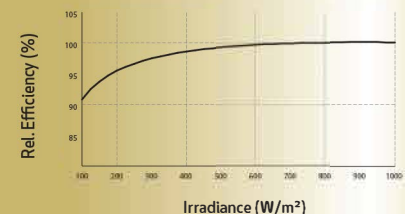
TEMPERATURE RATINGS *

Nominal Operating Cell Temperature:	44°C (±2°C)
Temperature coefficient of P _{MPP} :	-0.35 %/°C
Temperature coefficient of V _{OC} :	-0.27 %/°C
Temperature coefficient of I _{SC} :	0.04 %/°C

* The temperature coefficients stated are linear values

LOW LIGHT BEHAVIOUR

Typical low irradiance performance of module at STC.



ELECTRICAL DATA @ STC

Product code*: RECxxxNP BLACK

Nominal Power - P _{MPP} (Wp)	310	315	320	325
Watt Class Sorting - (W)	-0/+5	-0/+5	-0/+5	-0/+5
Nominal Power Voltage - V _{MPP} (V)	33.6	33.9	34.2	34.4
Nominal Power Current - I _{MPP} (A)	9.24	9.31	9.37	9.46
Open Circuit Voltage - V _{OC} (V)	40.2	40.5	40.8	41.0
Short Circuit Current - I _{SC} (A)	10.01	10.09	10.18	10.27
Panel Efficiency (%)	18.6	18.9	19.2	19.5

Values at standard test conditions (STC: air mass AM1.5, irradiance 1000 W/m², temperature 25°C), based on a production spread with a tolerance of V_{OC} & I_{SC} ±3% within one watt class. * Where xxx indicates the nominal power class (P_{MPP}) at STC above.

ELECTRICAL DATA @ NOCT

Product code*: RECxxxNP BLACK

Nominal Power - P _{MPP} (Wp)	234	238	241	245
Nominal Power Voltage - V _{MPP} (V)	31.1	31.4	31.7	31.9
Nominal Power Current - I _{MPP} (A)	7.51	7.56	7.62	7.69
Open Circuit Voltage - V _{OC} (V)	37.3	37.5	37.8	38.0
Short Circuit Current - I _{SC} (A)	8.01	8.07	8.14	8.22

Nominal operating cell temperature (NOCT: air mass AM1.5, irradiance 800 W/m², temperature 20°C, windspeed 1 m/s).

* Where xxx indicates the nominal power class (P_{MPP}) at STC above.

CERTIFICATIONS



Pending: UL 1703 (Fire type 2), IEC 61215, IEC 61730, IEC 62804 (PID), IEC 61701 (Salt Mist), IEC 62716 (Ammonia), ISO 9001: 2015, ISO 14001: 2004, OHSAS 18001: 2007

WARRANTY

20 year product warranty
25 year linear power output warranty, maximum degradation in performance of 0.5% p.a., giving 86% at end of year 25.
See warranty conditions for further details.

Founded in Norway in 1996, REC is a leading vertically integrated solar energy company. Through integrated manufacturing from silicon to wafers, cells, high-quality panels and extending to solar solutions, REC provides the world with a reliable source of clean energy. REC's renowned product quality is supported by the lowest warranty claims rate in the industry. REC is a Bluestar Elkem company with headquarters in Norway and operational headquarters in Singapore. REC employs more than 2,000 people worldwide, producing 1.5 GW of solar panels annually.



www.recgroup.com

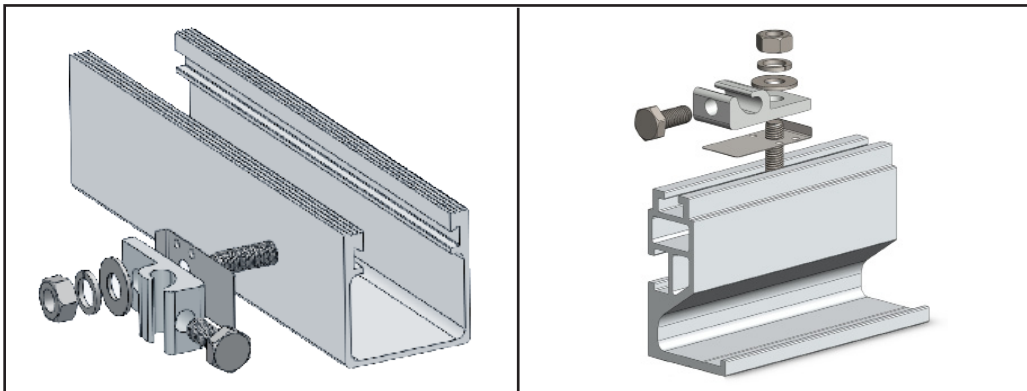
WEEB-LUG

The WEEB-Lug consists of a WEEB washer, lay-in lug, and hardware. It is used with one solid or stranded copper wire (14AWG to 6AWG), or two copper wires (12AWG to 10AWG) to provide a continuous ground on roof or ground mounted solar systems. Unlike traditional lay-in lugs, the WEEB-Lug does not require surface preparation on rail or module to install. The WEEB Lug is installed using stainless steel mounting hardware. When the hardware is tightened the WEEB's specialized teeth embed into anodized aluminum, galvanized steel, or any electrically conductive metal to establish a gas tight electrical connection. The tin-plated Lug assures minimum contact resistance and protection against corrosion. Copper wire is clamped by a 1/4-28 stainless steel screw, which is horizontal to the tang for easy access when mounted under a PV module. The low profile of the WEEB Lug allows it to be installed in a variety of positions.

Catalog	Item #	L x W x H	Hole	Hardware	Torque
WEEB-LUG-6.7	30020109	1.60" x 0.71" x 0.47"	0.266"	1/4 inch hardware - included unassembled	7 ft. lbs. for terminal screw
WEEB-LUG-6.7AS	30020110	1.60" x 0.71" x 0.47"		1/4 inch hardware - included assembled	
WEEB-LUG-8.0	30020111	1.60" x 0.87" x 0.47"	0.323"	M8 or 5/16 inch hardware - not included	10 ft. lbs. for mounting hardware w/ Penetrox-A on threads
WEEB-LUG-8.0AS	50010335	1.60" x 0.87" x 0.47"		5/16 inch hardware - included assembled	
WEEB-LUG-8.2MS	30020115	1.60" x 0.71" x 0.47"		M8 or 5/16 inch hardware - not included	
WEEB-LUG-15.8	30020112	1.60" x 0.71" x 0.47"		M8 or 5/16 inch hardware - not included	



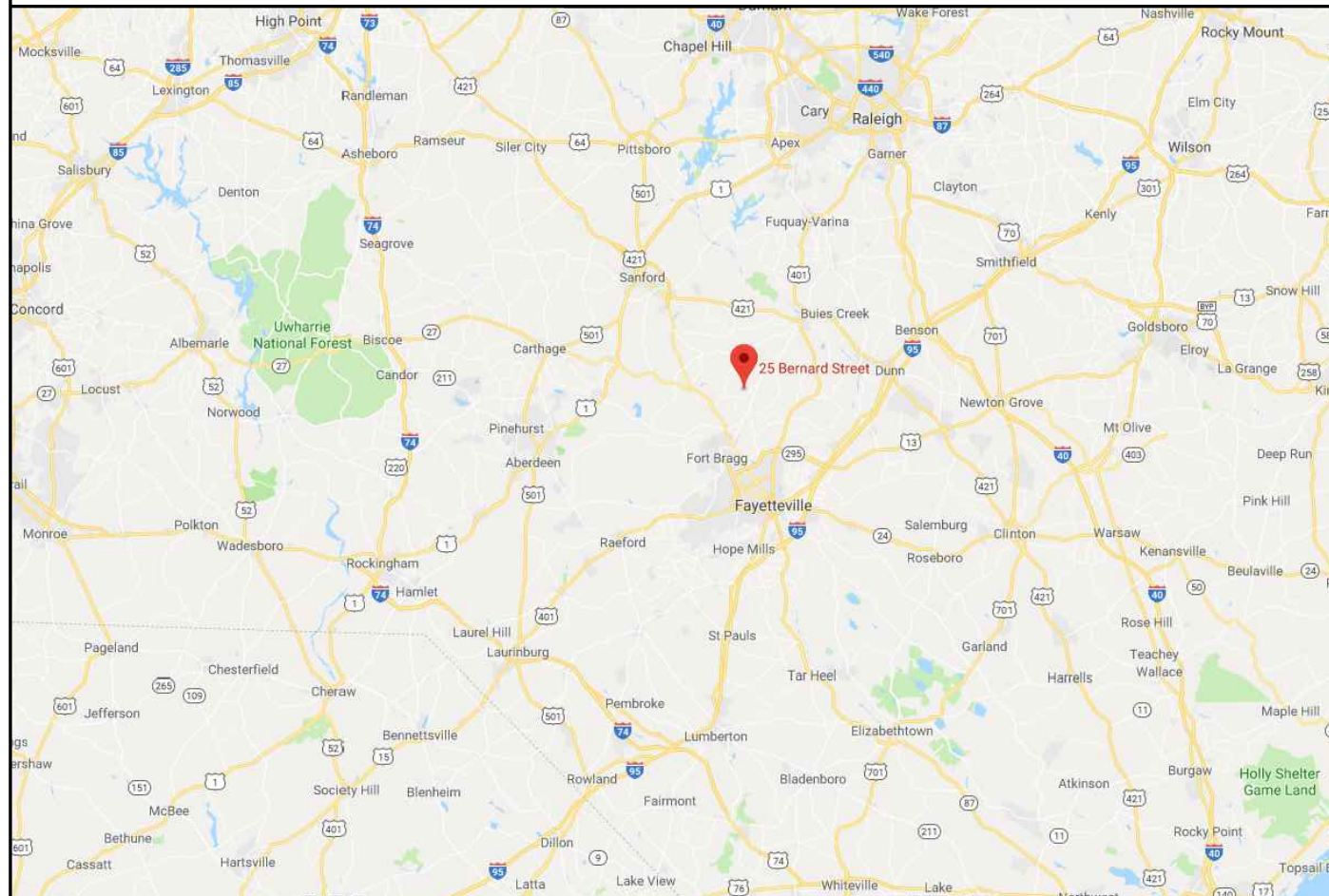
- Material: 304 stainless steel, tin-plated copper, outdoor rated
- Low profile design
- Multiple equipment ground conductor allowance:
One 14 AWG to 6 AWG or two 10 AWG, two 12 AWG
- Listed to ANSI/UL 467 by Intertek ETL



Customer Service Department
7 Aviation Park Drive
Londonderry NH 03053
1-800-346-4175
1-603-647-5299 (International)



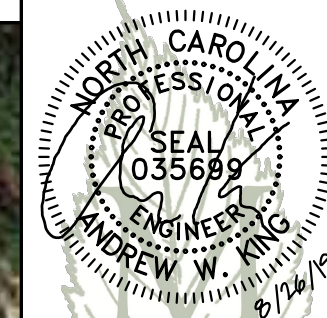
VICINITY MAP



PROPERTY MAP



ENGINEER:



MODEL ENERGY

300 FAYETTEVILLE ST.
#1430
RALEIGH, NC 27602
919-274-9905
MODELENERGY.COM

P-1194

JOB TITLE:

NEW SOLAR PV SYSTEM
3.78 kW DC INPUT
3.80 kW AC EXPORT

George Jackobs
25 Bernard Street
Spring Lake, NC 28390

CLIENT:



ISSUED FOR:	DATE:
CONSTRUCTION	08/23/19

PROJECT INFORMATION

PV1.1

CONSTRUCTION NOTES

- ALL WORK AND EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST NATIONAL, STATE, AND LOCAL CODES AND ORDINANCES
- FOLLOW MANUFACTURER'S INSTALLATION INSTRUCTIONS, BEST PRACTICES, AND SPECIFICATIONS
- WIRES SHALL BE RATED AND LABELED "SUNLIGHT RESISTANT" WHERE EXPOSED TO AMBIENT CONDITIONS
- THE PHOTOVOLTAIC SYSTEM SHALL NOT EXCEED 600 VOLTS OR 800 AMPS
- EACH ELECTRICAL APPLIANCE SHALL BE PROVIDED WITH A NAMEPLATE GIVING THE IDENTIFYING NAME AND THE RATING IN VOLTS AND AMPERES, OR VOLTS AND WATTS. IF THE APPLIANCE IS TO BE USED ON A SPECIFIC FREQUENCY OR FREQUENCIES, IT SHALL BE SO MARKED. WHERE MOTOR OVERLOAD PROTECTION EXTERNAL TO THE APPLIANCES IS REQUIRED, THE APPLIANCE SHALL BE SO MARKED
- WHERE APPLICABLE, GROUNDING ELECTRODE CONDUCTOR TO BE CONTINUOUS. GROUNDING CRIMPS TO BE IRREVERSIBLE
- GROUNDING DC PHOTOVOLTAIC ARRAYS SHALL BE PROVIDED WITH DC GROUND-FAULT PROTECTION THAT MEETS THE REQUIREMENTS OF NEC SECTION 690.5. UNGROUNDED DC PHOTOVOLTAIC ARRAYS SHALL COMPLY WITH NEC SECTION 690.35
- IN ONE- AND TWO-FAMILY DWELLINGS, LIVE PARTS IN PHOTOVOLTAIC SOURCE CIRCUITS AND PHOTOVOLTAIC OUTPUT CIRCUITS OVER 150 VOLTS TO GROUND, SHALL ONLY BE ACCESSIBLE TO QUALIFIED PERSONS WHILE ENERGIZED.
- PHOTOVOLTAIC SYSTEMS SHALL BE PERMANENTLY MARKED AT VARIOUS EQUIPMENT LOCATIONS TO IDENTIFY THAT A PHOTOVOLTAIC SYSTEM IS INSTALLED AND THAT VARIOUS DANGERS ARE PRESENT.
- EACH PHOTOVOLTAIC SYSTEM DISCONNECTING MEANS SHALL BE PERMANENTLY MARKED TO IDENTIFY IT AS A PHOTOVOLTAIC SYSTEM DISCONNECT
- WHERE ALL TERMINALS OF A DISCONNECTING MEANS MAY BE ENERGIZED IN THE OPEN POSITION, A WARNING SIGN SHALL BE MOUNTED ON OR ADJACENT TO THE DISCONNECT
- A PERMANENT LABEL FOR THE DIRECT-CURRENT PHOTOVOLTAIC POWER SOURCE SHALL BE PROVIDED BY THE INSTALLED AT THE DC DISCONNECT MEANS
- A PERMANENT PLAQUE OR DIRECTORY, DENOTING ALL ELECTRIC POWER SOURCES SERVING THE PREMISES, SHALL BE INSTALLED AT EACH SERVICE EQUIPMENT LOCATION AND AT LOCATIONS OF ALL POWER PRODUCTION SOURCES.
- A PERMANENT PLAQUE OR DIRECTORY SHALL BE PROVIDED DENOTING THE LOCATIONS OF THE SERVICE DISCONNECT MEANS AND THE PHOTOVOLTAIC SYSTEM DISCONNECT MEANS IF THEY ARE NOT LOCATED AT THE SAME LOCATION.
- ALL MODULE GROUND CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH NEC SECTION 690.4 (C)

ABBREVIATIONS

A	AMPERE
AC	ALTERNATING CURRENT
DC	DIRECT CURRENT
EGC	EQUIPMENT GROUNDING CONDUCTOR
EMT	ELECTRICAL METAL TUBING
GALV	GALVANIZED
GEC	GROUNDING ELECTRODE CONDUCTOR
GND	GROUND
I	CURRENT
IMP	CURRENT AT MAXIMUM POWER
ISC	SHORT-CIRCUIT CURRENT
KVA	KILOVOLT AMPERE
KW	KILOWATT
MAX	MAXIMUM
MIN	MINIMUM
MCB	MAIN CIRCUIT BREAKER
MLO	MAIN LUG ONLY
NOM	NOMINAL
NTS	NOT TO SCALE
PNOM	NOMINAL POWER
PV	PHOTOVOLTAIC
PVC	POLYVINYL CHLORIDE
SN	SOLAR NOON
STC	STANDARD TEST CONDITIONS
TYP	TYPICAL
V	VOLT
VMP	VOLTAGE AT MAXIMUM POWER
Voc	OPEN-CIRCUIT VOLTAGE
W	WATT

CODE REFERENCES

2017 NATIONAL ELECTRIC CODE
2018 NORTH CAROLINA BUILDING CODE
2018 NORTH CAROLINA RESIDENTIAL CODE
2018 NORTH CAROLINA FIRE CODE

SHEET INDEX

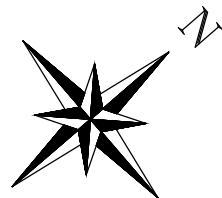
PV1.1 - PROJECT INFORMATION
PV2.1 - SITE & STRUCTURAL INFORMATION
PV3.1 - ELECTRICAL INFORMATION
PV4.1 - EQUIPMENT LABELS

SITE CONDITIONS

ASCE 7-10 WIND SPEED - 115 MPH
EXPOSURE CATEGORY - B
RISK CATEGORY - II

LEGEND

	DISCONNECT SWITCH
	FUSE
	CIRCUIT BREAKER
	EQUIP. GROUND



ROOF MOUNT & FASTENER	
ROOF MOUNT:	
MAKE	SOLAR ROOF HOOK
MODEL	L-FOOT
MATERIAL	ALUMINUM
FASTENER	
MAKE	SOLAR ROOF HOOK
MODEL	QUICKBOLT
MATERIAL	304 SS
SIZE	5/16-18 X 5.25"
GENERAL	
WEIGHT	1 LBS
FASTENERS PER MOUNT	1
MAX. PULL-OUT FORCE	960 LBS. / MOUNT
SAFETY FACTOR	2.0
DESIGN PULL-OUT FORCE	480 LBS. / MOUNT

ARRAY SUMMARY	
# MODULES	12
MOD. ATT. MID	14
MOD. ATT. END	20
ROOF MOUNTS	35
RAIL LENGTH	138 FT.
ARRAY AREA	217 SQFT.
ARRAY WEIGHT	640 LBS.
AZIMUTH @ SN	221°
TILT ANGLE	32°

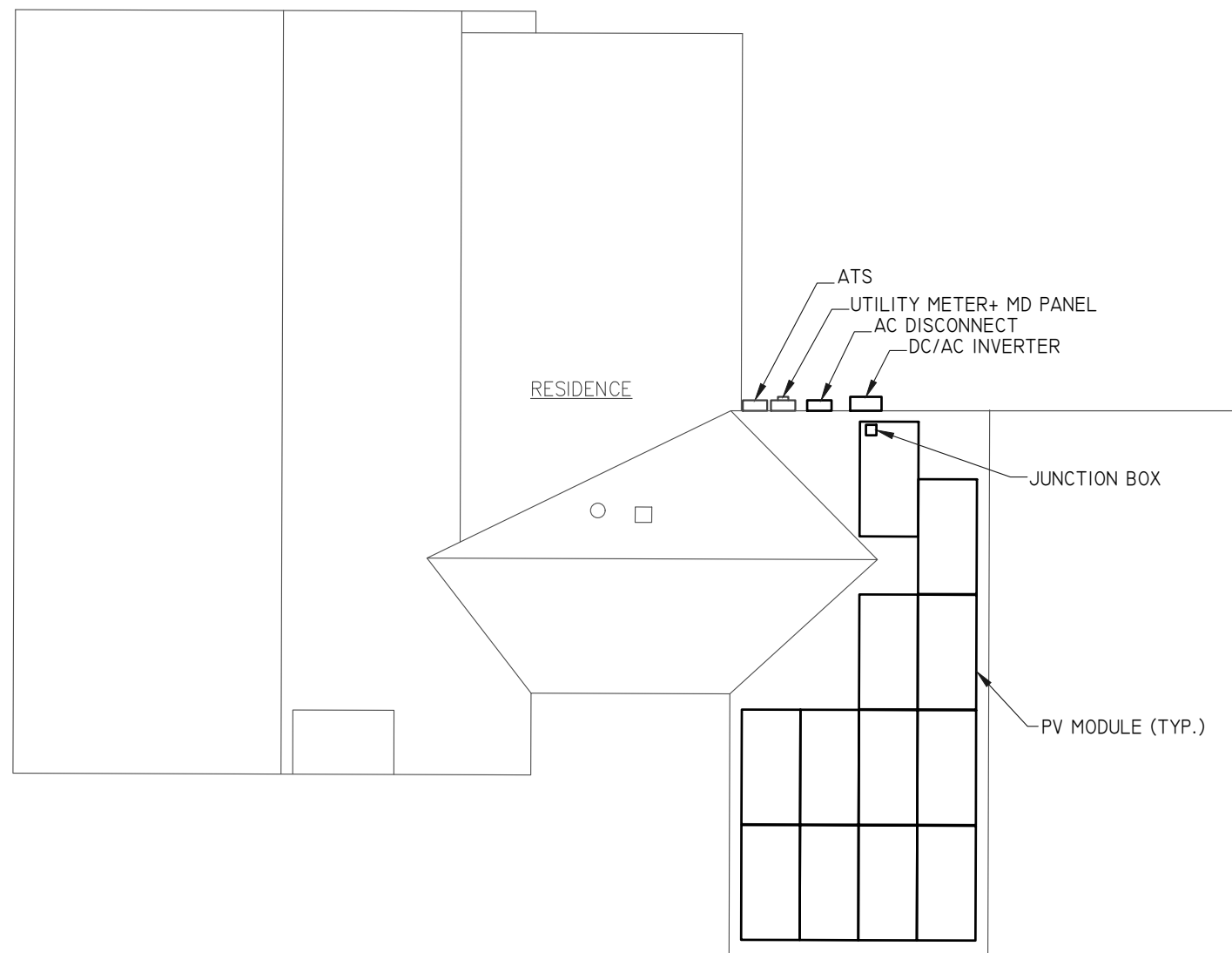
ROOF SUMMARY	
STRUCTURE:	
TYPE	RAFTERS
MATERIAL	SOUTHERN PINE #2
SIZE	2" X 8"
SPACING	24" o.c.
EFF. SPAN	12'-4"
PITCH	7 / 12
DENSITY	30 LBS./CU.FT.
DECKING:	
TYPE	OSB
MATERIAL	WOOD COMPOSITE
THICKNESS	7/16"
WEIGHT	1.6 LBS./SQFT.
ROOFING:	
TYPE	ARCH SHINGLE
MATERIAL	ASPHALT
WEIGHT	2.3 LBS./SQFT.

PV MODULES	
MAKE	REC
MODEL	REC315NP
WIDTH	39.3"
LENGTH	66.0"
THICKNESS	1.2"
WEIGHT	39.7 LBS

MOUNTING RAILS	
MAKE	IRONRIDGE
MODEL	XR10
MATERIAL	ALUMINUM
WEIGHT	1.25 LBS./SQFT.
SPACING	34 IN.


ROOF LOADING	
GROUND SNOW LOAD:	15 LBS./SQFT.
LIVE LOAD:	20 LBS./SQFT.
DEAD LOAD:	
ROOFING	3.9 LBS./SQFT.
PV ARRAY	2.5 LBS./SQFT.
TOTAL	6.4 LBS./SQFT.
WIND LOAD:	
UPLIFT ZONE 1	-24.6 LBS./SQFT.
UPLIFT ZONE 2	-29.0 LBS./SQFT.
UPLIFT ZONE 3	-29.0 LBS./SQFT.
DOWNWARD	23.0 LBS./SQFT.
FASTENER LOAD:	
UPLIFT ZONE 1	-242 LBS.
UPLIFT ZONE 2	-190 LBS.
UPLIFT ZONE 3	-95 LBS.
DOWNWARD	226 LBS.

ROOF ZONES:	
ALL ZONES	MAX. OVERHANG = 16"
ZONE 1	MAX. FASTENER SPAN ZONE 1 = 72"
ZONE 2	MAX. FASTENER SPAN ZONE 2 = 48"
ZONE 3	MAX. FASTENER SPAN ZONE 3 = 24"



STATEMENT OF STRUCTURAL COMPLIANCE

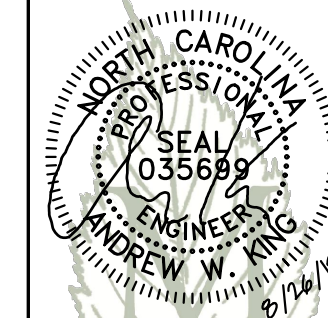
THE EXISTING ROOF STRUCTURE HAS BEEN DESIGNED TO SUPPORT THE ADDITIONAL LOADS OF THE PURPOSED PV SYSTEM. IN ADDITION, THE RACKING AND FASTENING SYSTEM SHALL BE CAPABLE OF SECURING THE SYSTEM TO THE STRUCTURE UNDER DESIGN CONDITIONS WHEN INSTALLED PROPERLY AND IN ACCORDANCE WITH THE RACKING AND FASTENING ARRANGEMENT DETAILED WITHIN THESE DRAWINGS.

SIGNED: 

NAME: ANDREW W. KING, PE

TITLE: PROFESSIONAL ENGINEER

ENGINEER:



MODEL ENERGY

300 FAYETTEVILLE ST.
#1430
RALEIGH, NC 27602
919-274-9905
MODELENERGY.COM

P-1194

JOB TITLE:

NEW SOLAR PV SYSTEM
3.78 kW DC INPUT
3.80 kW AC EXPORT

George Jackobs
25 Bernard Street
Spring Lake, NC 28390

CLIENT:



ISSUED FOR:	DATE:
CONSTRUCTION	08/23/19

SITE & STRUCTURAL INFORMATION

PV2.1

PV MODULES	
MAKE	REC
MODEL	REC315NP
TECHNOLOGY	MONO-CRYST.
NOM. POWER (P _{nom})	315 WATTS
NOM. VOLT. (V _{mp})	33.9 VOLTS
O.C. VOLT. (V _{oc})	40.5 VOLTS
MAX. SYS. VOLT.	1000 V (UL)
TEMP. COEF. (V _{tc})	-0.27 %/°C
NOM. CURR. (I _{mp})	9.31 AMPS
S.C. CURR. (I _{sc})	10.09 AMPS
MAX. SERIES FUSE	25 AMPS

DC/AC INVERTER	
MAKE	SOLAREEDGE
MODEL	SE3800H-US
TECHNOLOGY	TRANS-LESS
DC INPUT:	
MAX. POWER	5900 WATTS
MAX. VOLT	480 VOLTS
NOM. VOLT.	380 VOLTS
MAX. CURRENT	10.5 AMPS
MAX. SCC	45 AMPS
STRINGS INPUTS	2 STRINGS
AC OUTPUT:	
RATED POWER	3800 WATTS
MAX. POWER	3800 WATTS
NOM. VOLT.	240 VOLTS
MAX. CURR.	16 AMPS
GFP (Y/N)	YES
RPP (Y/N)	YES
GFCI (Y/N)	YES
AFCI (Y/N)	YES
DC DISC. (Y/N)	YES
RAPID SHUTDOWN	AUTOMATIC
FUSE RATING	15 AMPS
PROTECT. RATING	NEMA 4X

MODULE OPTIMIZER	
MAKE	SOLAREEDGE
MODEL	P320
DC INPUT:	
RATED POWER	320 WATTS
VOLT. RANGE	8-48
MAX. SCC	11.0 AMPS
MAX. DC INPUT CURRENT	13.75 AMPS
DC OUTPUT:	
MAX. CURRENT	15 AMPS
MAX. VOLT.	60 VOLTS
MAX. SYSTEM VOLT.	1000 VOLTS
MIN. STRING	8 OPTIMIZERS
MAX. STRING	25 OPTIMIZERS
MAX. POWER	
INVERTERS: SE3000H-SE6000H	5700 WATTS
INVERTERS: SE7600H-SE10000H	6000 WATTS

JUNCTION BOX	
MAKE	SOLADECK
MODEL	0783-3R
PRO. RATING	NEMA 3R
VOLT. RATING	600 VOLTS
AMP RATING	120 AMPS
UL LISTING	UL 50

TAG	CURRENT CARRYING CONDUCTORS				GROUNDING CONDUCTORS				CONDUIT/RACEWAY				NOTES
	QTY.	SIZE	MATERIAL	INSULATION	QTY.	SIZE	MATERIAL	INSULATION	QTY.	SIZE	MATERIAL	LOCATION	
C1	2	10 AWG	COPPER	PV WIRE	1	6 AWG	COPPER	PV WIRE	-	-	-	FREE AIR	1
C2	2	10 AWG	COPPER	THWN-2	1	10 AWG	COPPER	THWN-2	1	1/2"	FMC/EMT/MC	EXT/INT	2,4
C3	3	12 AWG	COPPER	THWN	1	12 AWG	COPPER	THWN	1	1/2"	NOTE 5	EXT	2,4,5
XC	-	-	-	-	-	-	-	-	-	-	-	-	3

NOTES:

1. MANUFACTURER PROVIDED, UL LISTED WIRING HARNESS FOR USE ON EXPOSED ROOFS
2. CONDUIT SIZE SHOWN IS CODE MINIMUM. LARGER SIZES ARE ALLOWED
3. EXISTING CONDUCTORS, FIELD VERIFY
4. EQUIPMENT TERMINAL RATING SHALL BE A MINIMUM OF 75°C AT BOTH END OF CONDUCTOR
5. PVC, EMT, ROMEX, LFNMC & FMC ARE ACCEPTABLE WHEN USED IN ACCORDANCE WITH ARTICLES 330, 334, 348, 350, 352, 356, & 358 OF THE 2017 NEC

AC DISCONNECT	
MAKE	GENERIC
MODEL	N/A
ENCL. RATING	NEMA 3R
VOLT. RATING	240 VOLTS
AMP RATING	30 AMPS
UL LIST. (Y/N)	YES
FUSED (Y/N)	YES
FUSE RATING	20 AMPS

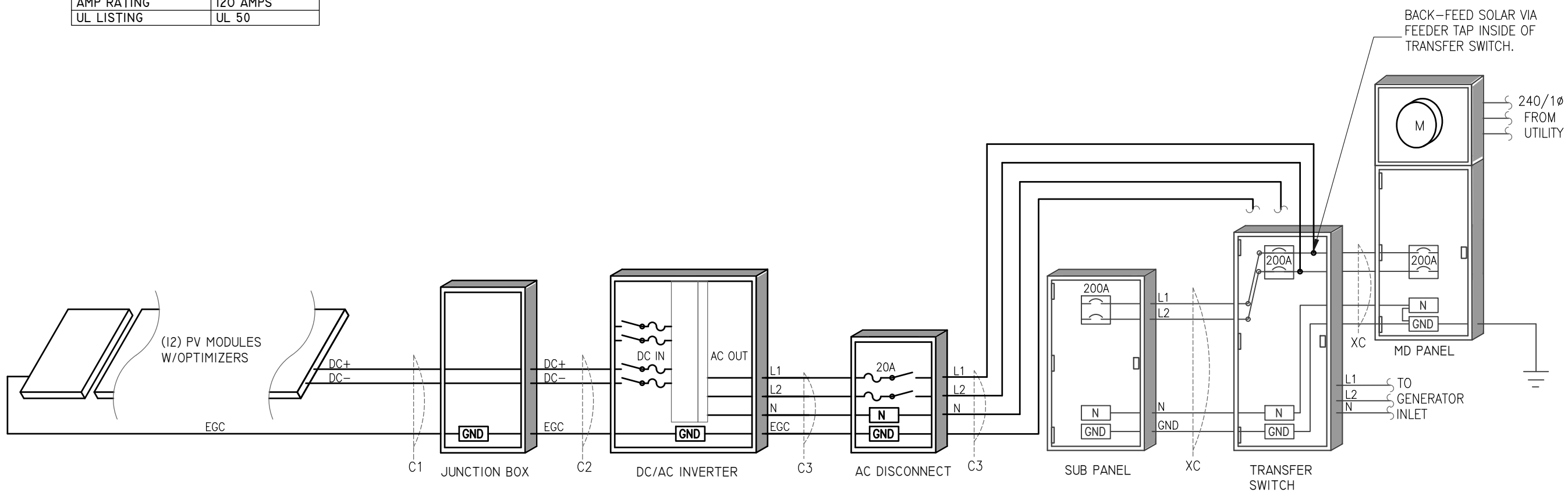
SUB PANEL (EXISTING)	
MAKE	SQUARE D
MODEL	HOMC42UC
ENCL. RATING	NEMA 3R
VOLT. RATING	240 VOLTS
BUS RATING	225 AMPS
UL LIST. (Y/N)	YES
MAIN BREAKER (Y/N)	YES
BREAKER RATING	200 AMPS

MD PANEL (EXISTING)	
MAKE	SQUARE D
MODEL	RC816F200C
ENCL. RATING	NEMA 3R
VOLT. RATING	240 VOLTS
BUS RATING	200 AMPS
UL LIST. (Y/N)	YES
MAIN BREAKER (Y/N)	YES
BREAKER RATING	200 AMPS

NOTES:

- LOAD-BREAK RATED
- VISIBLE OPEN
- LOCKABLE IN OPEN POSITION
- INSTALL ADJACENT TO METER
- DISCONNECT TO BE READILY ACCESSIBLE TO UTILITY COMPANY PERSONNEL AT ALL TIMES

TRANSFER SWITCH	
MAKE	GENERAC
MODEL	N/A
ENCL. RATING	NEMA 3R
VOLT. RATING	240 VOLTS
BUS RATING	200 AMPS
UL LIST. (Y/N)	YES
MAIN BREAKER (Y/N)	YES
BREAKER RATING	200 AMPS



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ELECTRICAL INFORMATION

PV3.1

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! WARNING

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

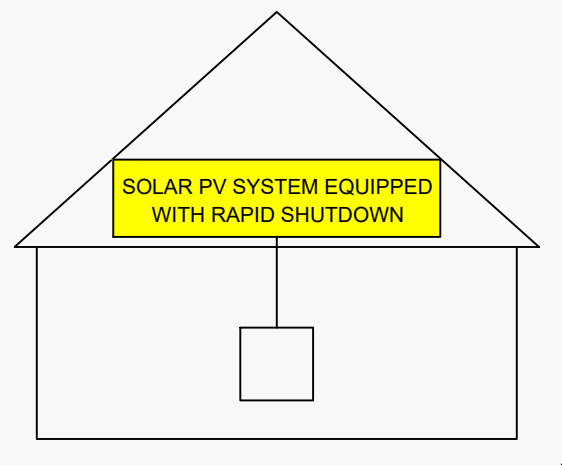
NEC 690.13 (B)
PLACE ON PV SYSTEM DISCONNECTING MEANS.

**RAPID SHUTDOWN
SWITCH FOR
SOLAR PV SYSTEM**

NEC 690.56 (C)(3)
PLACE ON RAPID SHUTDOWN SWITCH OR EQUIPMENT
WITH INTEGRATED RAPID SHUTDOWN *REFLECTIVE*

**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



NEC 690.56 (C)(1)(a)
PLACE WITHIN 3FT OF SERVICE DISCONNECTING MEANS TO
WHICH THE PV SYSTEMS ARE CONNECTED AND SHALL
INDICATE THE LOCATIONS OF RAPID SHUTDOWN SWITCHES

! WARNING

POWER SOURCE
OUTPUT CONNECTION
DO NOT RELOCATE THIS
OVERCURRENT DEVICE

NEC 705.12 (B)(2)(3)(b)
PLACE ADJACENT TO BACK-FED BREAKER

PHOTOVOLTAIC POWER SOURCE

OPERATING AC VOLTAGE 240 V

MAXIMUM OPERATING
AC OUTPUT CURRENT 16.0 A

NEC 690.54
PLACE ON INTERCONNECTION
DISCONNECTING MEANS

**WARNING: PHOTOVOLTAIC
POWER SOURCE**

NEC 690.31 (G)(3)&(4)
PLACE ON ALL JUNCTION BOXES, EXPOSED RACEWAYS, AND OTHER
WIRING METHODS EVERY 10' AND ON EVERY SECTION SEPARATED BY
ENCLOSURES, WALLS, PARTITIONS, CEILINGS, OR FLOORS.

**PV SYSTEM
DISCONNECT**

NEC 690.13 (B)
PLACE ON PV SYSTEM DISCONNECTING MEANS.

! WARNING

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

NEC 705.12 (B)(3)
PLACE ON ALL EQUIPMENT THAT IS SUPPLIED
BY BOTH POWER SOURCES

**DIRECT CURRENT
PHOTOVOLTAIC POWER SOURCE**

MAXIMUM VOLTAGE 600 VDC
MAX CIRCUIT CURRENT 15.0 AMPS

NEC 690.53
PLACE ON ALL DC DISCONNECTING MEANS

EQUIPMENT LABEL NOTES	
1.	LABELS SHOWN ARE THEIR ACTUAL REQUIRED SIZE.
2.	LABEL MATERIAL SHALL BE SUITABLE FOR THE EQUIPMENT ENVIRONMENT.
3.	CONDUIT SHALL BE MARKED WITH REQUIRED LABEL EVERY 10 FEET.

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EQUIPMENT
LABELS

PV4.1

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