

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: Scarlett Suarez Phone: 910-964-2989

Owner (s) Mailing Address: 251 Hayden Lane, Cameron, NC 28326

Land Owner Name (s): Scarlett and Chad Granillo Phone: 910-964-2989

Construction or Site Address: 251 Hayden Lane, Cameron, NC 28326

PIN # _____ Parcel # _____

Job Cost: \$11,200 Description of Work to be done Installation of a Tesla Power wall

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, INC
Contractor's Company Name
2517 Atlantic Ave Raleigh 27604
Address
31533-L
License #

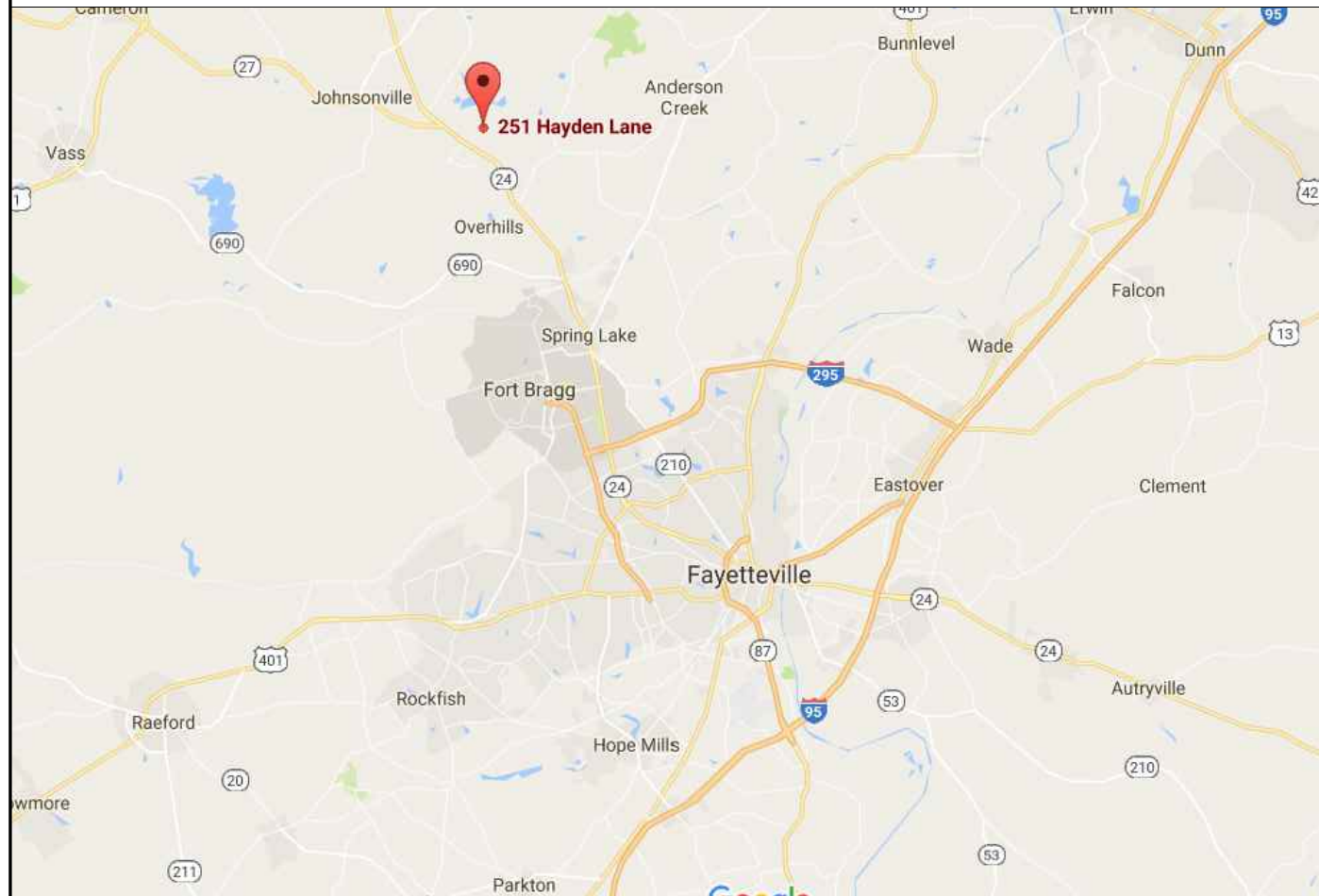
919-833-9096
Telephone
Permitting@ncsolarnow.com
Email Address

Structure Owner / Contractor Signature:  Date: 10/16/19

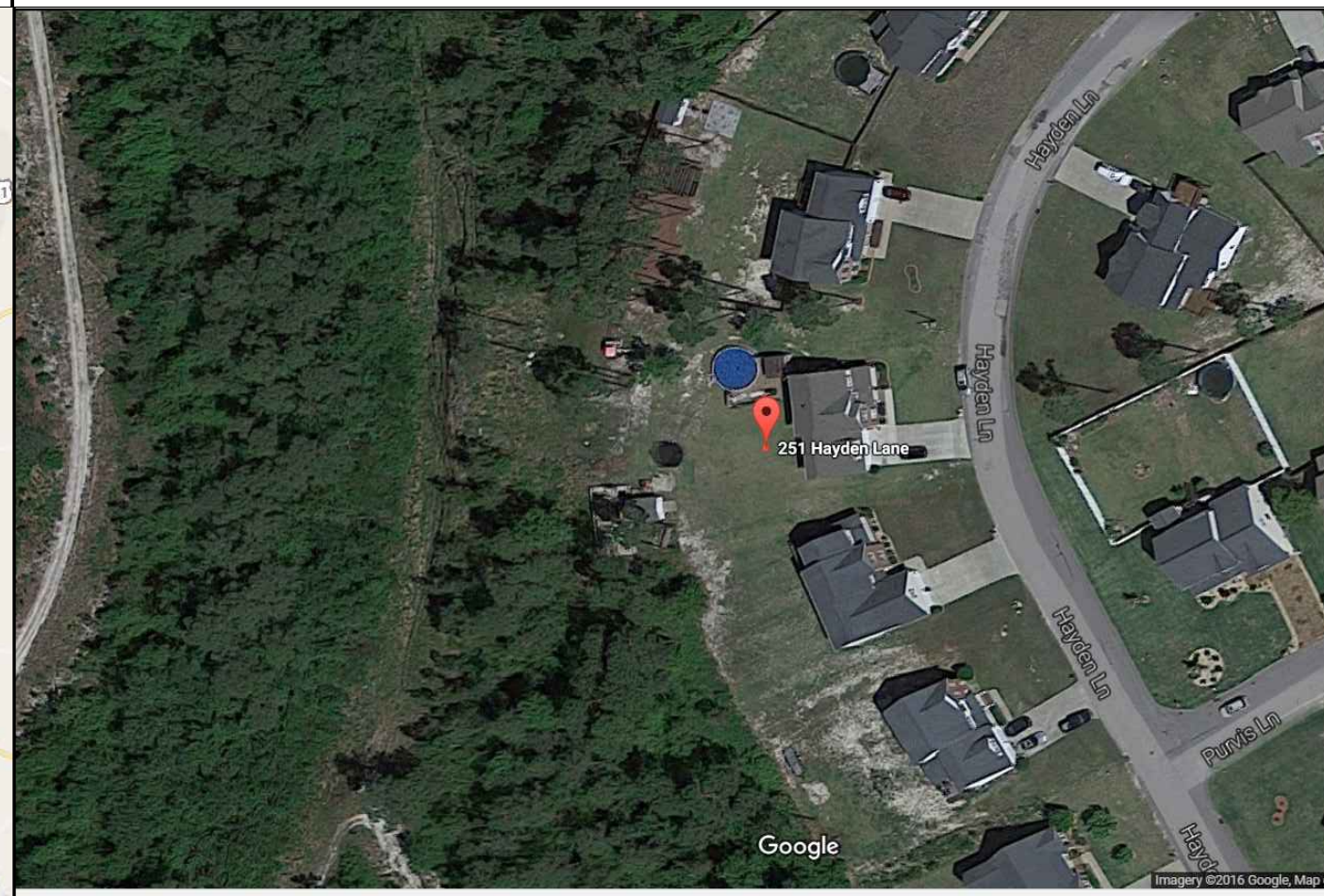
By signing this application you affirm that you have obtained permission from the above listed license holder to purchase permits on their behalf. If doing the work as owner you understand that you cannot rent, lease or sell the listed property for 12 months after completion of the listed work.

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

VICINITY MAP



PROPERTY MAP



ENGINEER:



MODEL ENERGY

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

P-1194

JOB TITLE:

BATTERY ADDITION

Scarlett Suarez
251 Hayden Lane
Cameron, NC 28326

CLIENT:



ISSUED FOR: CONSTRUCTION
DATE: 10/08/19

PROJECT INFORMATION

PV1.1

CONSTRUCTION NOTES

1. ALL WORK AND EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST NATIONAL, STATE, AND LOCAL CODES AND ORDINANCES
2. FOLLOW MANUFACTURER'S INSTALLATION INSTRUCTIONS, BEST PRACTICES, AND SPECIFICATIONS
3. WIRES SHALL BE RATED AND LABELED "SUNLIGHT RESISTANT" WHERE EXPOSED TO AMBIENT CONDITIONS
4. THE PHOTOVOLTAIC SYSTEM SHALL NOT EXCEED 600 VOLTS OR 800 AMPS
5. 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
6. WHERE APPLICABLE, GROUNDING ELECTRODE CONDUCTOR TO BE CONTINUOUS. GROUNDING CRIMPS TO BE IRREVERSIBLE
7. GROUNDED 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
8. 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.
9. PHOTOVOLTAIC SYSTEMS SHALL BE PERMANENTLY MARKED AT VARIOUS EQUIPMENT LOCATIONS TO IDENTIFY THAT A PHOTOVOLTAIC SYSTEM IS INSTALLED AND THAT VARIOUS DANGERS ARE PRESENT.
10. EACH PHOTOVOLTAIC SYSTEM DISCONNECTING MEANS SHALL BE PERMANENTLY MARKED TO IDENTIFY IT AS A PHOTOVOLTAIC SYSTEM DISCONNECT
11. 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
12. A PERMANENT LABEL FOR THE DIRECT-CURRENT PHOTOVOLTAIC POWER SOURCE SHALL BE PROVIDED BY THE INSTALLED AT THE DC DISCONNECT MEANS
13. 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.
14. 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.
15. 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
P _{NOM}	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

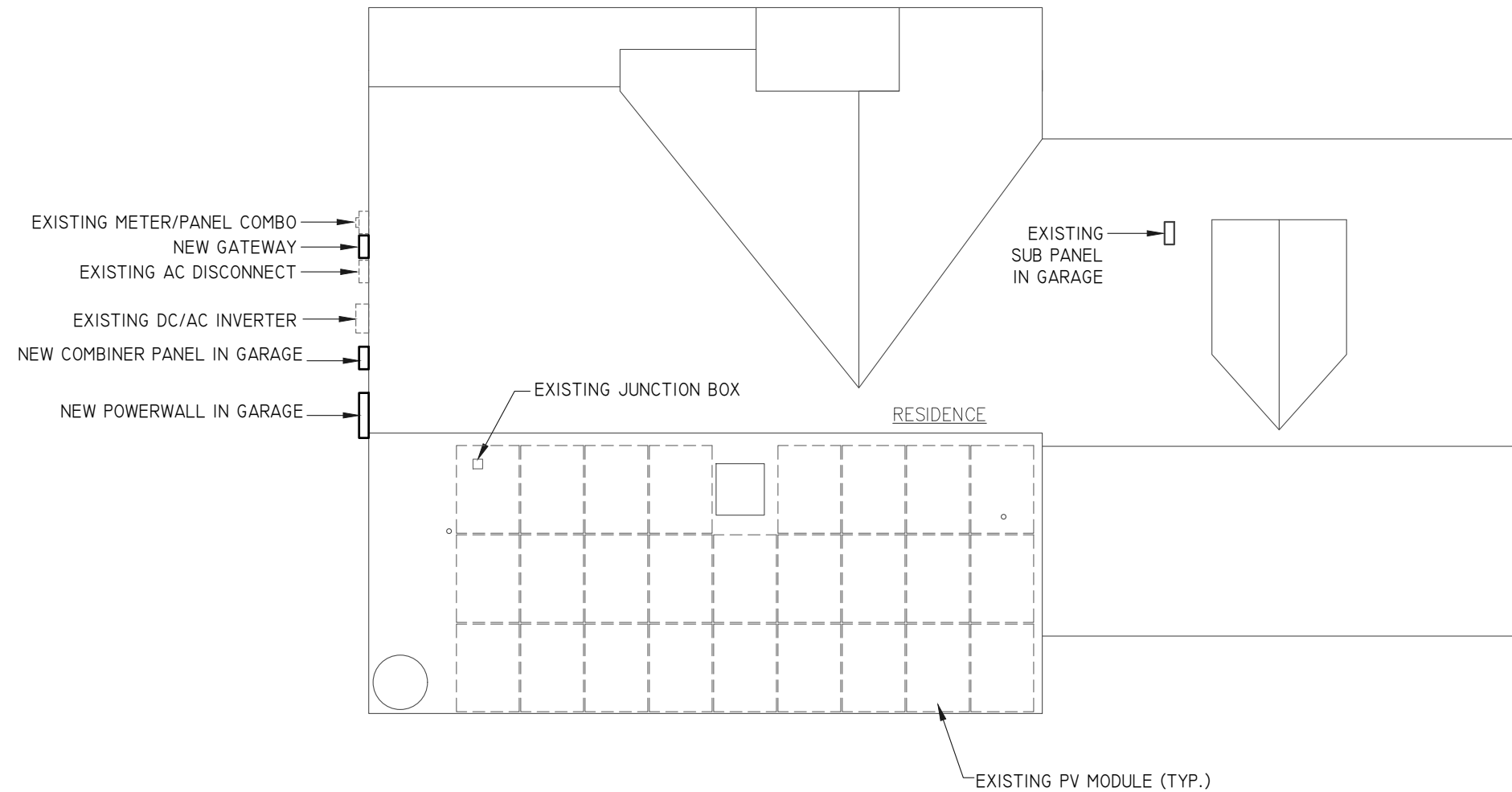
PV1.1 - PROJECT INFORMATION
PV2.1 - SITE INFORMATION
PV3.1 - ELECTRICAL INFORMATION

SITE CONDITIONS

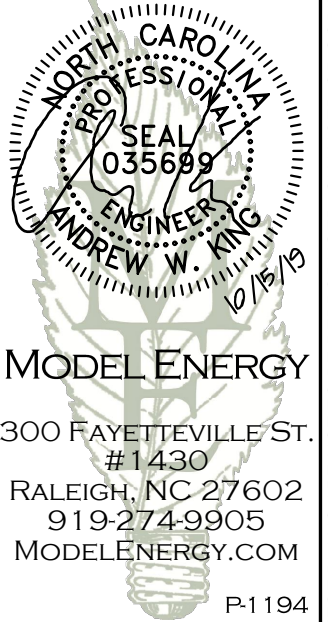
ASCE 7-10 WIND SPEED - 115 MPH
EXPOSURE CATEGORY - B
RISK CATEGORY - II

LEGEND

	DISCONNECT SWITCH
	FUSE
	CIRCUIT BREAKER
	EQUIP. GROUND



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CONSTRUCTION	10/08/19

SITE & STRUCTURAL
INFORMATION

PV2.1

DC/AC INVERTER (EXISTING)	
MAKE	SOLAREEDGE
MODEL	SE7600A-USS
TECHNOLOGY	TRANSFORMER-LESS
DC INPUT:	
MAX. POWER	10250 WATTS
VOLT. RANGE	350-500 VOLTS
MAX. CURRENT	23 AMPS
AC OUTPUT:	
NOM. POWER	7600 WATTS
NOM. VOLT.	240 VOLTS
MAX. CURR.	32 AMPS
GFP (Y/N)	YES
GFCI (Y/N)	YES
AFCI (Y/N)	YES
DC DISC. (Y/N)	YES
RAPID SHUTDOWN	YES
FUSE RATING	15 AMPS
PROTECT. RATING	NEMA 3R

PV MODULES (EXISTING)	
MAKE	CAN. SOLAR
MODEL	CS6K-275M
TECHNOLOGY	POLY-CRYST.
NOM. POWER (Pnom)	275 WATTS
NOM. VOLT. (Vmp)	31.3 VOLTS
O.C. VOLT. (Voc)	38.3 VOLTS
MAX. SYS. VOLT.	1000 V (UL)
TEMP. COEF. (Vtc)	-0.31 %/°C
NOM. CURR. (Imp)	8.80 AMPS
S.C. CURR. (Isc)	9.31 AMPS
MAX. SERIES FUSE	15 AMPS

MODULE OPTIMIZER (EXISTING)	
MAKE	SOLAR EDGE
MODEL	P300
DC INPUT:	
NOM. POWER	300 WATTS
VOLT. RANGE	8-48
MAX. CURR.	10.0 AMPS
DC OUTPUT:	
NOM. POWER	300 WATTS
MAX. VOLT.	60 VOLTS
MAX. CURR.	15.0 AMPS
MIN. STRING	8 OPTIMIZERS
MAX. STRING	25 OPTIMIZERS
MAX. POWER	5250 WATTS

PV COMBINER PANEL (NEW)	
MAKE	EATON
MODEL	N/A
ENCL. RATING	NEMA 3R
VOLT. RATING	240 VOLTS
BUS RATING	125 AMPS
UL LIST. (Y/N)	YES
MAIN BREAKER (Y/N)	YES
BREAKER RATING	100 AMPS

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

BATTERY STORAGE SYSTEM (NEW)	
MAKE	TESLA
MODEL	POWERWALL
TOTAL ENERGY	14 kWh
USABLE ENERGY	13.5 kWh
REAL PWR. (cont.)	5 kW
REAL PWR. (10s)	7 kW
APPR. PWR. (cont.)	5.8 kW
APPR. PWR. (10s)	7.2 kW
OCV	30 AMPS

NOTES:

- BACK-FEED SOLAR OUTPUT VIA 40A BREAKER AT THE OPPOSITE END OF THE BUS BAR FROM INCOMING FEEDERS.
- BACK-FEED BATTERY WALL OUTPUTS VIA 30A BREAKER AT THE OPPOSITE END OF THE BUS BAR FROM INCOMING FEEDERS.
- PV & POWERWALL COMBINER PANEL. PROVIDE WITH LABEL THAT READS "PV COMBINER PANEL. DO NOT ADD ADDITIONAL LOADS".

TAG	CURRENT CARRYING CONDUCTORS				GROUNDING CONDUCTORS				CONDUIT/RACEWAY				NOTES
	QTY.	SIZE	MATERIAL	INSULATION	QTY.	SIZE	MATERIAL	INSULATION	QTY.	SIZE	MATERIAL	LOCATION	
C1	3	8 AWG	COPPER	THWN	1	10 AWG	COPPER	THWN	1	3/4"	NOTE 4	INT/EXT	1,3,4
C2	3	3 AWG	COPPER	THWN	1	8 AWG	COPPER	THWN	1	1"	NOTE 4	INT/EXT	1,3,4
C3	3	10 AWG	COPPER	THWN	1	10 AWG	COPPER	THWN	1	3/4"	NOTE 4	INTERIOR	1,3,4
XC	-	-	-	-	-	-	-	-	-	-	-	-	2

NOTES:

- CONDUIT SIZE SHOWN IS CODE MINIMUM. LARGER SIZES ARE ALLOWED
- EXISTING CONDUCTORS, FIELD VERIFY
- EQUIPMENT TERMINAL RATING SHALL BE A MINIMUM OF 75°C AT BOTH END OF CONDUCTOR
- 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 (EXISTING)	
MAKE	GENERIC
MODEL	N/A
ENCL. RATING	NEMA 3R
VOLT. RATING	240 VOLTS
AMP RATING	60 AMPS
UL LIST. (Y/N)	YES
FUSED (Y/N)	NO
FUSE RATING	N/A

CRITICAL LOADS PANEL (EXISTING)	
MAKE	SQUARE D
MODEL	QOC30UF
ENCL. RATING	NEMA 3R
VOLT. RATING	240 VOLTS
BUS RATING	200 AMPS
UL LIST. (Y/N)	YES
MAIN BREAKER (Y/N)	YES
BREAKER RATING	100 AMPS

METER/PANEL COMBO (EXISTING)	
MAKE	SQUARE D
MODEL	NA
ENCL. RATING	NEMA 3R
VOLT. RATING	240 VOLTS
BUS RATING	200 AMPS
UL LIST. (Y/N)	YES
MAIN BREAKER (Y/N)	NO
BREAKER RATING	N/A

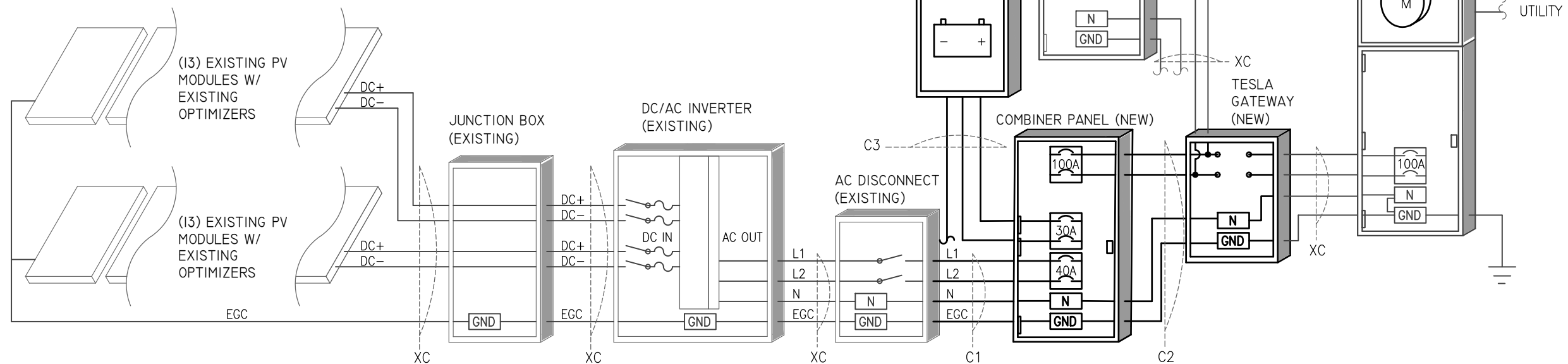
NOTES:

- 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

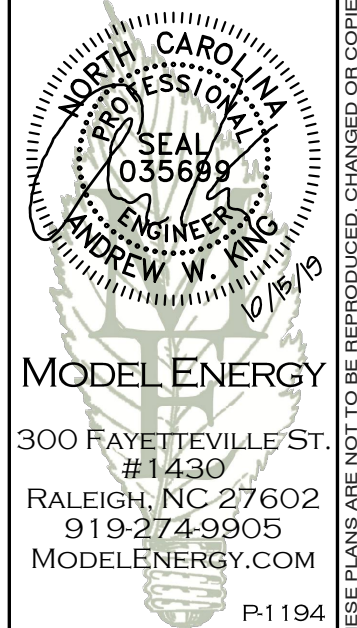
NOTES:

- INSTALL NEW 100A MAIN BREAKER IN CRITICAL LOADS PANEL

POWER MANAGEMENT SYSTEM (NEW)	
MAKE	TESLA
MODEL	BACKUP GATE
AC VOLTAGE	240 VOLTS
MAX. AC CURR.	200 AMPS
PROTECT. RATING	NEMA 3R
MAIN BREAKER (Y/N)	NO
BREAKER RATING	N/A



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ELECTRICAL INFORMATION

PV3.1

POWERWALL

Tesla Powerwall is a fully-integrated AC battery system for residential or light commercial use. Its rechargeable lithium-ion battery pack provides energy storage for solar self-consumption, time-based control, and backup.

Powerwall's electrical interface provides a simple connection to any home or building. Its revolutionary compact design achieves market-leading energy density and is easy to install, enabling owners to quickly realize the benefits of reliable, clean power.



PERFORMANCE SPECIFICATIONS

AC Voltage (Nominal)	120/240 V
Feed-In Type	Split Phase
Grid Frequency	60 Hz
Total Energy	14 kWh
Usable Energy	13.5 kWh
Real Power, max continuous	5 kW (charge and discharge)
Real Power, peak (10s, off-grid/backup)	7 kW (charge and discharge)
Apparent Power, max continuous	5.8 kVA (charge and discharge)
Apparent Power, peak (10s, off-grid/backup)	7.2 kVA (charge and discharge)
Maximum Supply Fault Current	10 kA
Maximum Output Fault Current	32 A
Overcurrent Protection Device	30 A
Imbalance for Split-Phase Loads	100%
Power Factor Output Range	+/- 1.0 adjustable
Power Factor Range (full-rated power)	+/- 0.85
Internal Battery DC Voltage	50 V
Round Trip Efficiency ^{1,3}	90%
Warranty	10 years

¹Values provided for 25°C (77°F), 3.3 kW charge/discharge power.

²In Backup mode, grid charge power is limited to 3.3 kW.

³AC to battery to AC, at beginning of life.

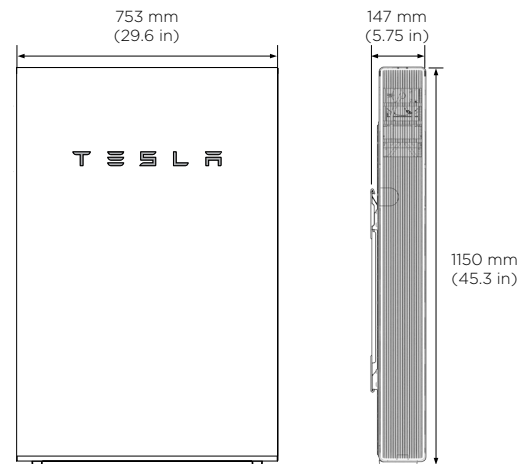
COMPLIANCE INFORMATION

Certifications	UL 1642, UL 1741, UL 1973, UL 9540, IEEE 1547, UN 38.3
Grid Connection	Worldwide Compatibility
Emissions	FCC Part 15 Class B, ICES 003
Environmental	RoHS Directive 2011/65/EU
Seismic	AC156, IEEE 693-2005 (high)

MECHANICAL SPECIFICATIONS

Dimensions ¹	1150 mm x 755 mm x 147 mm (45.3 in x 29.6 in x 5.75 in)
Weight ¹	114 kg (251.3 lbs)
Mounting options	Floor or wall mount

¹Dimensions and weight differ slightly if manufactured before March 2019. Contact Tesla for additional information.

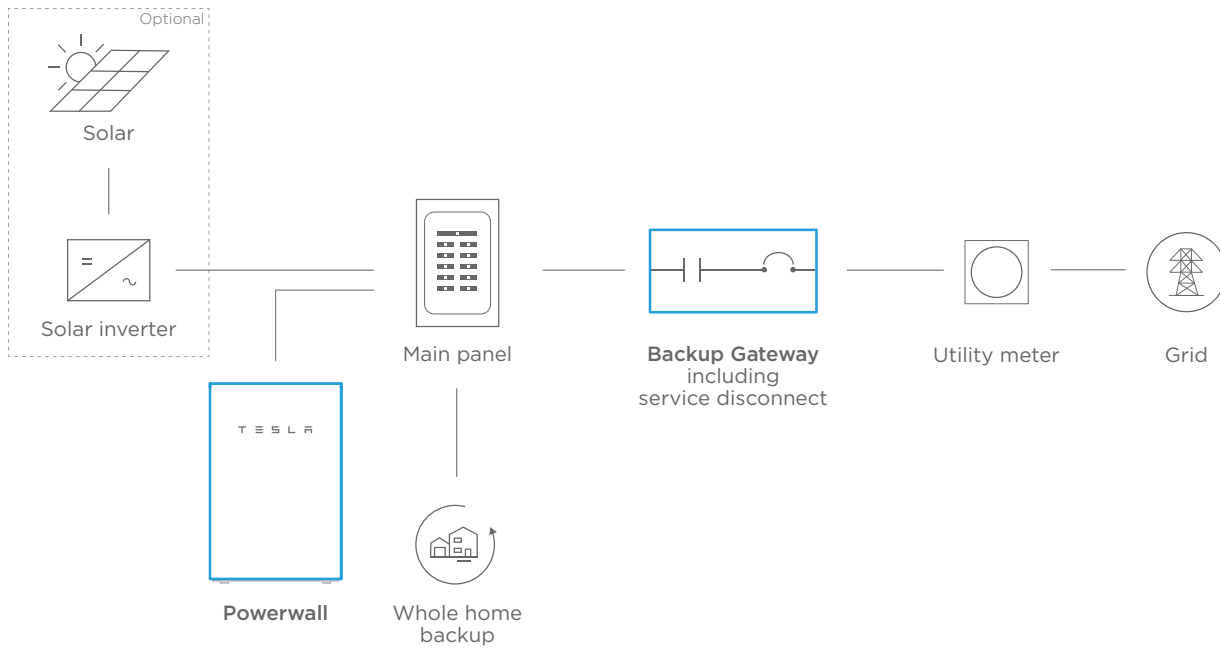


ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	-20°C to 50°C (-4°F to 122°F)
Recommended Temperature	0°C to 30°C (32°F to 86°F)
Operating Humidity (RH)	Up to 100%, condensing
Storage Conditions	-20°C to 30°C (-4°F to 86°F) Up to 95% RH, non-condensing State of Energy (SoE): 25% initial
Maximum Elevation	3000 m (9843 ft)
Environment	Indoor and outdoor rated
Enclosure Type	NEMA 3R
Ingress Rating	IP67 (Battery & Power Electronics) IP56 (Wiring Compartment)
Wet Location Rating	Yes
Noise Level @ 1m	< 40 dBA at 30°C (86°F)

TYPICAL SYSTEM LAYOUTS

WHOLE HOME BACKUP



PARTIAL HOME BACKUP

