PROJECT DETAILS	
PV Modules	20 x REC405AA Pure
Optimizers	20 x P401
Inverter	1 x SE7600H-US
Battery	1 x Tesla Powerwall2
Roof Type	Asphalt Shingles
Racking	PSR-B84 Rails (Black)
Mounting Type	CompMount Flashing (Black)
DC SIZE	8.1 kW
AC SIZE	7.6 kVA

DRAWING INDEX

Item	Drawing #	Rev	Description
1	22301DD00-0	A	Drawing Index
2	22301DD00-1	A	Site Layout
3	22301DD00-2	A	String Mapping
4	22301DD00-3	A	Electrical One Line Diagram
5	22301DD00-4	A	Detailed Electrical Wiring Schematic
6	22301DD00-5	A	PV Labels
7	22301DD00-6	A	Bill of Materials
8	22301DD00-7	A	PV Dead Load

TOP VIEW OF BUILDING

PHOTOVOLTIC NOTES

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

- 2020 NATIONAL ELECTRICAL CODE
- 2018 NORTH CAROLINA RESIDENTIAL CODE
- 2018 NORTH CAROLINA BUILDING CODE
- AS ADOPTED BY THE STATE OF NORTH CAROLINA
- ALL OTHER ORDINANCE ADOPTED BY THE LOCAL GOVERNING AGENCIES

2. ROOFTOP MOUNTED PHOTOVOLTAIC PANELS AND MODULES SHALL BE TESTED, LISTED AND IDENTIFIED BY RECOGNIZED ELECTRICAL TESTING LABORATORY.

3. SOLAR SYSTEM SHALL NOT COVER ANY PLUMBING OR MECHANICAL VENTS

4. MODULES AND SUPPORT STRUCTURES SHALL BE GROUNDED

5. SOLAR INVERTER SHALL BE LISTED TO UL1741

6. ALL CONDUCTORS SHALL BE COPPER AND SHOULD BE 75 AND 90 DEG RATED

7. 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.

8. 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.

9. ALL PV MODULES AND ASSOCIATED EQUIPMENT AND WIRING SHALL BE PROTECTED FROM PHYSICAL DAMAGE.

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NABCEP CERTIFIED
PV Installation Professional
Ali Buttar
PVIP #031310-32

A	08/02/2022	

Customer's Signature

JOB NUMBER
22-301-DD00

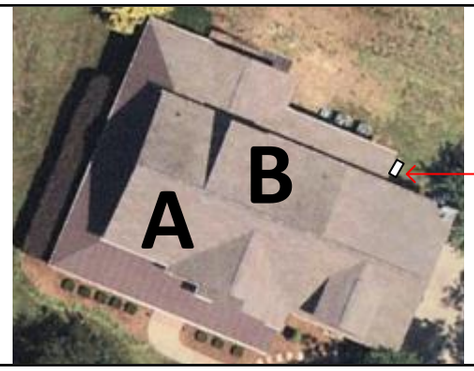
PROJECT STATUS
PERMITTING

SHEET
DRAWING INDEX

DD
22301DD00-0

There is one layer of shingles
Roofing material is asphalt shingles

The roof is located in 115mph wind zone

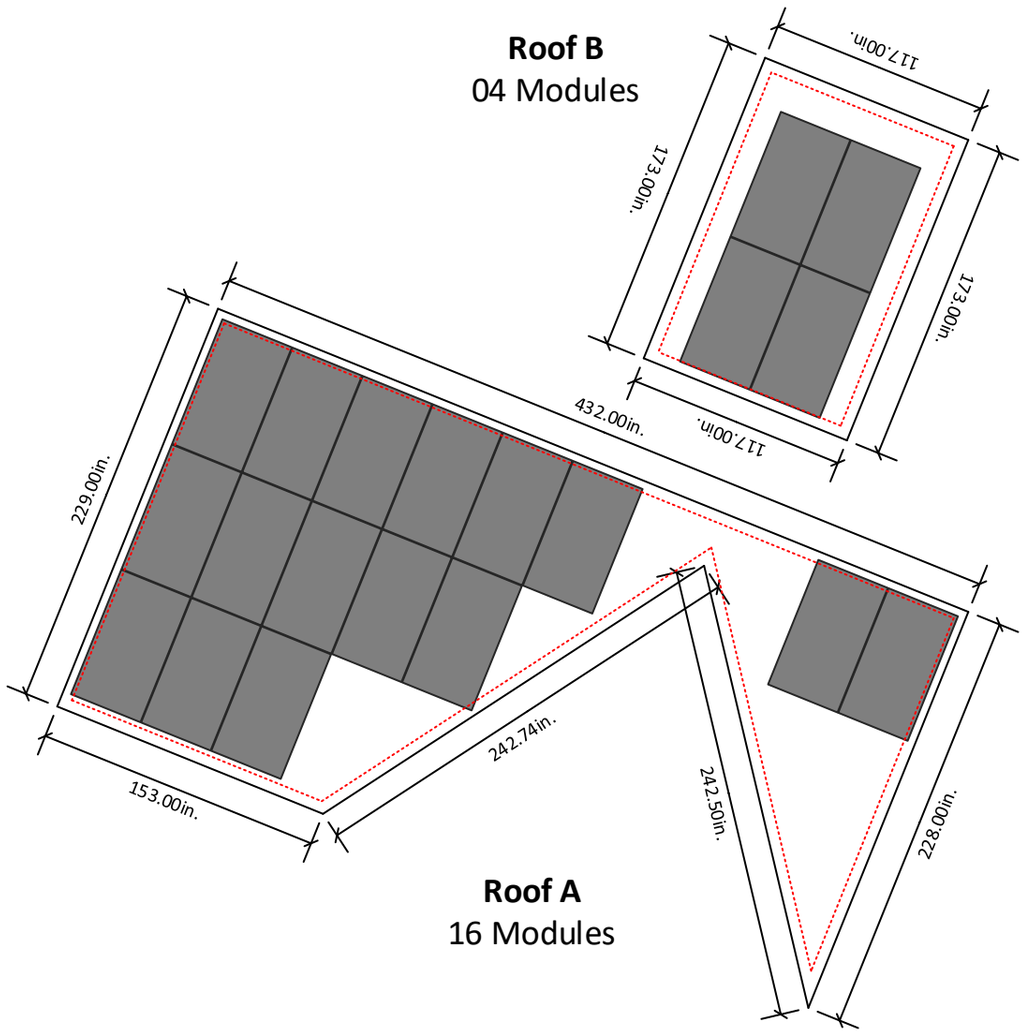


Module Dimension	71.69in. × 40.00in.	
Roofs	Pitch	Azimuth
A	45°	202°
B	22°	22°

SYSTEM DETAILS

NUMBER OF PANELS : 20
PANELS MODEL : REC405AA PURE
DC SIZE : 8.1 KW
AC SIZE : 7.6 KVA

Roof B
04 Modules



Roof A
16 Modules

6" clearance from each side of the roof

SITE LAYOUT
SCALE: 1/8" - 1' 0"

N

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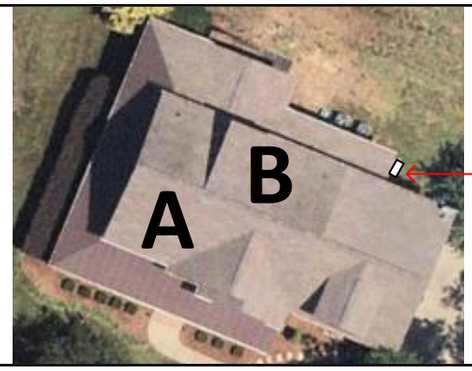
JOB NUMBER
22-301-DD00

PROJECT STATUS
PERMITTING

SHEET
SITE LAYOUT

DD
22301DD00-1

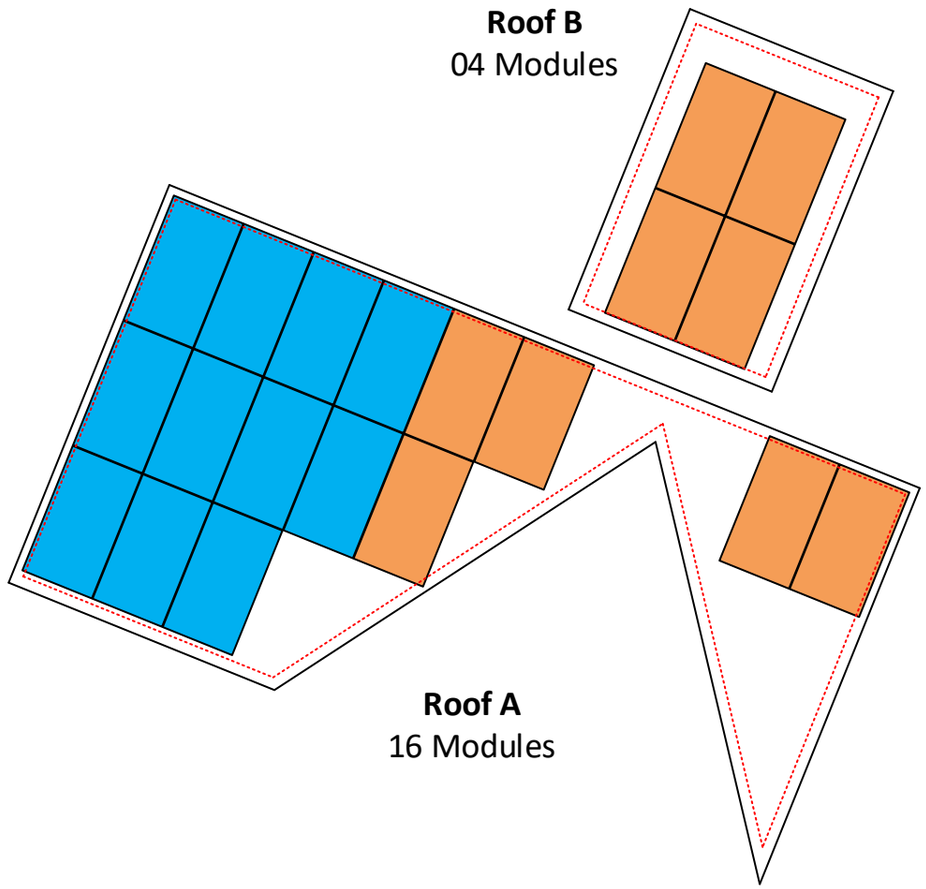
String Layout					
Inverter SE7600H-US					
Strings #	No. of Modules	Color Code	Strings #	No. of Modules	Color Code
String 1	11				
String 2	09				



Module Dimension	71.69in. / 40.00in.	
Roofs	Pitch	Azimuth
A	45°	202°
B	22°	22°

SYSTEM DETAILS

NUMBER OF PANELS : 20
PANELS MODEL : REC405AA PURE
DC SIZE : 8.1 KW
AC SIZE : 7.6 KVA



6" clearance from each side of the roof

STRING MAPPING
SCALE: 1/8" - 1' 0"

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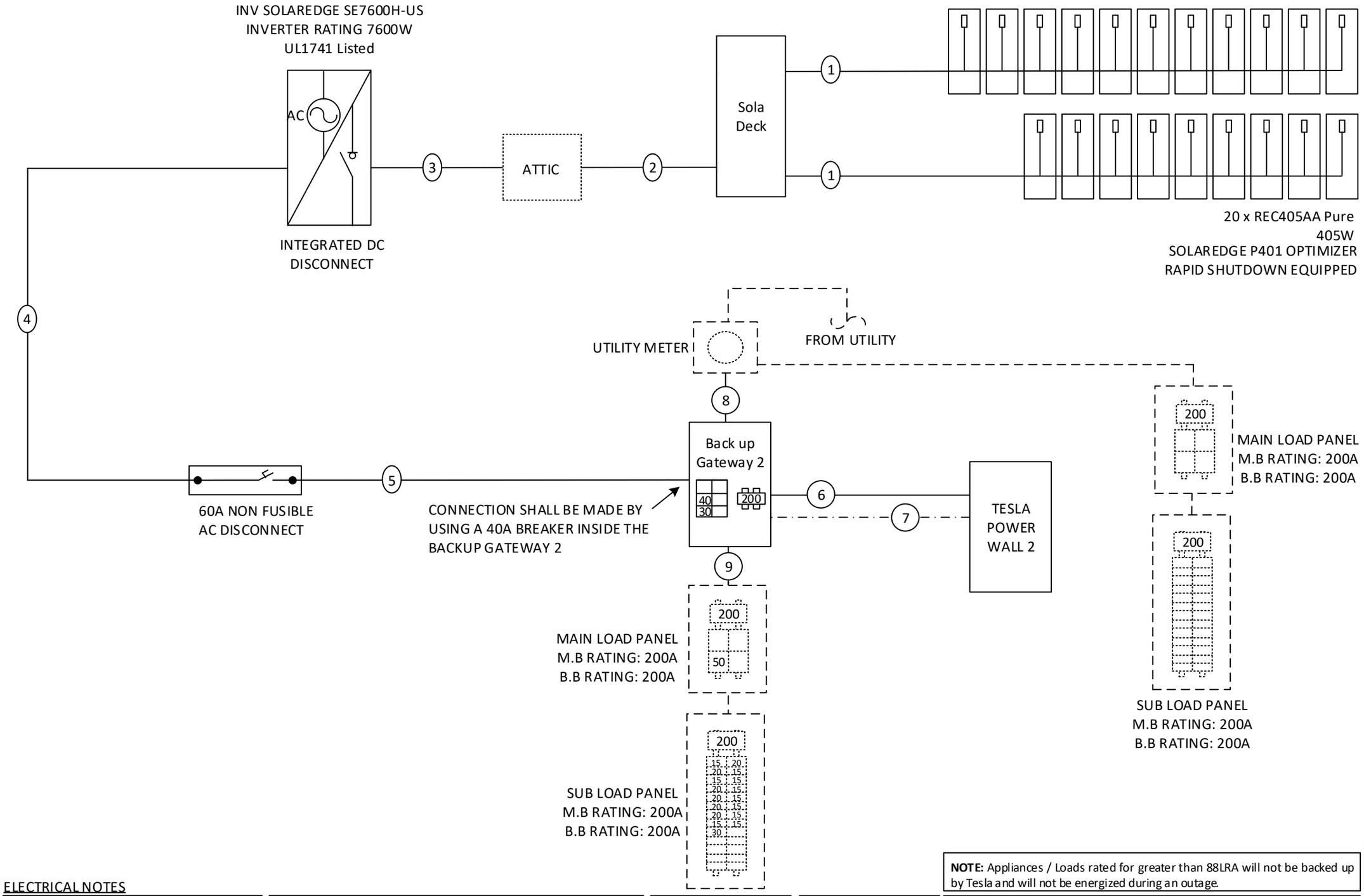
JOB NUMBER
22-301-DD00

PROJECT STATUS
PERMITTING

SHEET
STRING MAPPING

DD
22301DD00-2



NOTE: Appliances / Loads rated for greater than 88LRA will not be backed up by Tesla and will not be energized during an outage.

ELECTRICAL NOTES

- System Size: 8,100W DC
- (20) REC405AA PURE
- (20) SOLAREDGE P401 OPTIMIZERS
- (01) SOLAREDGE SE7600H-US
- Inverter Output: 32A max @ 240 VAC
- 7.6 kVA AC output max

- Grounding will be done via Pegasus grounding mid-clamps and NS bonding jumpers to ensure the rail and panels are continuously grounded.
- Rapid Shutdown is included in the Inverter, refer to inverter & optimizer attached datasheets.
- The load center / disconnect will be visible, lockable accessible to utility linesmen and will be properly labelled as per NEC requirements. It will be located on the exterior wall of the building, next to the utility meter.

STRING 1:
11 x 405W = 4,455W ea
I mpp = 11.13 Adc
I max = 23.4 Adc
V mpp = 400 Vdc
V oc = 11 Vdc

STRING 2:
09 x 405W = 3,645W ea
I mpp = 9.11 Adc
I max = 23.4 Adc
V mpp = 400 Vdc
V oc = 09 Vdc

Sr.No	#Wire	Conduit Size	Ground Wire	Amperage
1	2 x #10 PV		#10 Bare CU	23.4A
2	4 x #10 THHNCu	3/4" LFMC	#10 Bare CU	
3	4 x #10 THHNCu	3/4" EMT	#10 Green	
4	3 x #08 THHNCu	3/4" EMT	#10 Green	40
5	3 x #08 THHNCu	3/4" LFNC	#10 Green	40
6	3 x #08 THHNCu	3/4" EMT	#10 Green	30
7	4-conductor shielded (1 twisted pair) 16 AWG			
8	3 x #3/0 THHNCu	2" PVC	#8 Green	200
9	3 x #3/0 THHNCu	2" PVC	#8 Green	200

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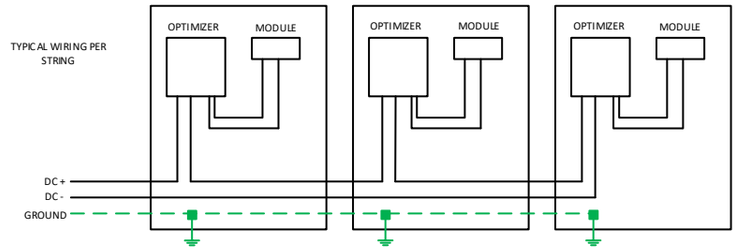
JOB NUMBER
22-301-DD00

PROJECT STATUS
PERMITTING

SHEET
ELECTRICAL ONE LINE DIAGRAM

DD
22301DD00-3



Line 1	
Line 2	
Neutral	
Ground	

Note

- The arrow on the CTs should face the inverter.

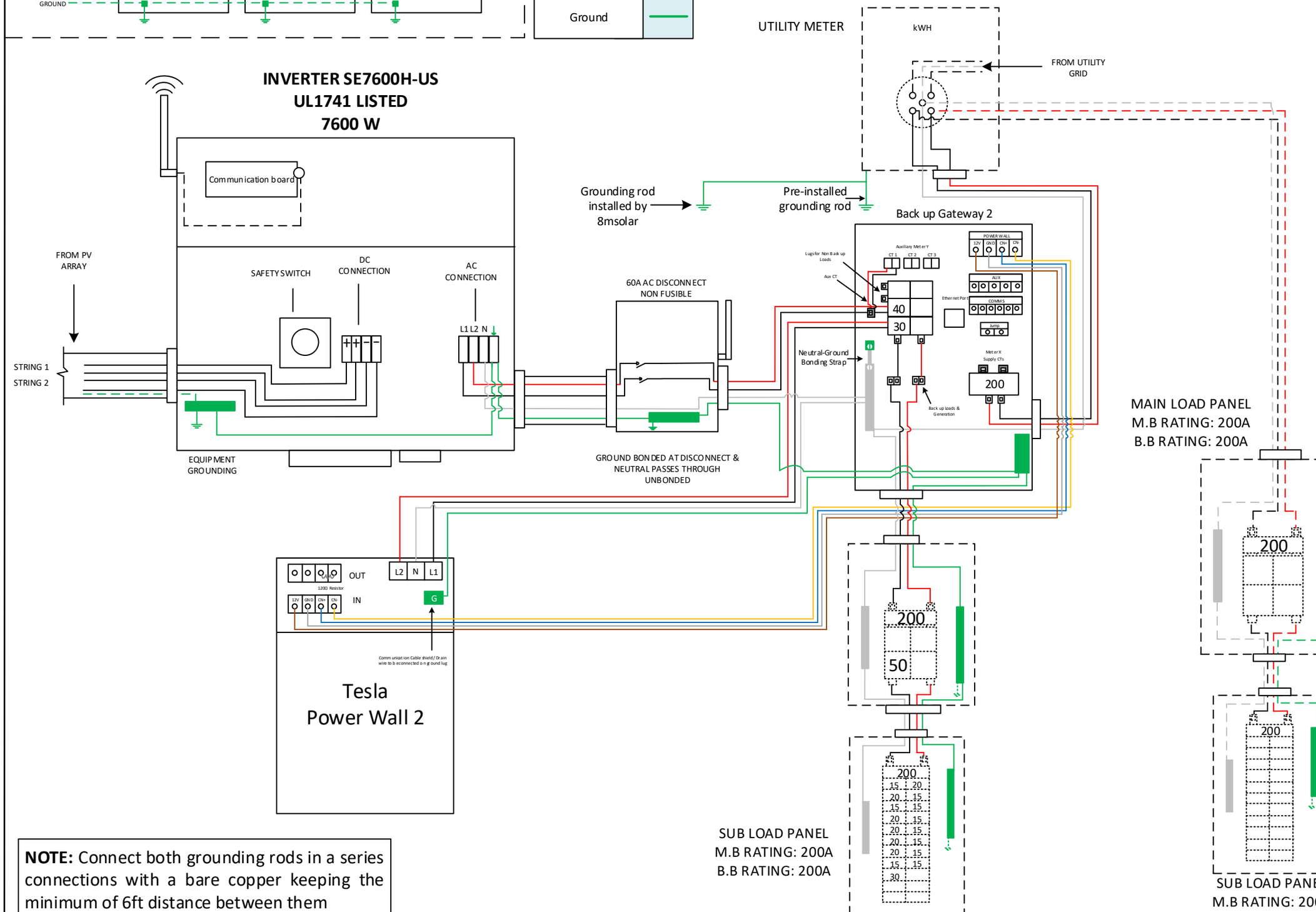
Note

- CT-1 should be installed on Line 1

Note

- Accepted Breakers for Gateway: Eaton CSR or BW (100-200A)

NOTE: Appliances / Loads rated for greater than 88LRA will not be backed up by Tesla and will not be energized during an outage.



NOTE: Connect both grounding rods in a series connections with a bare copper keeping the minimum of 6ft distance between them

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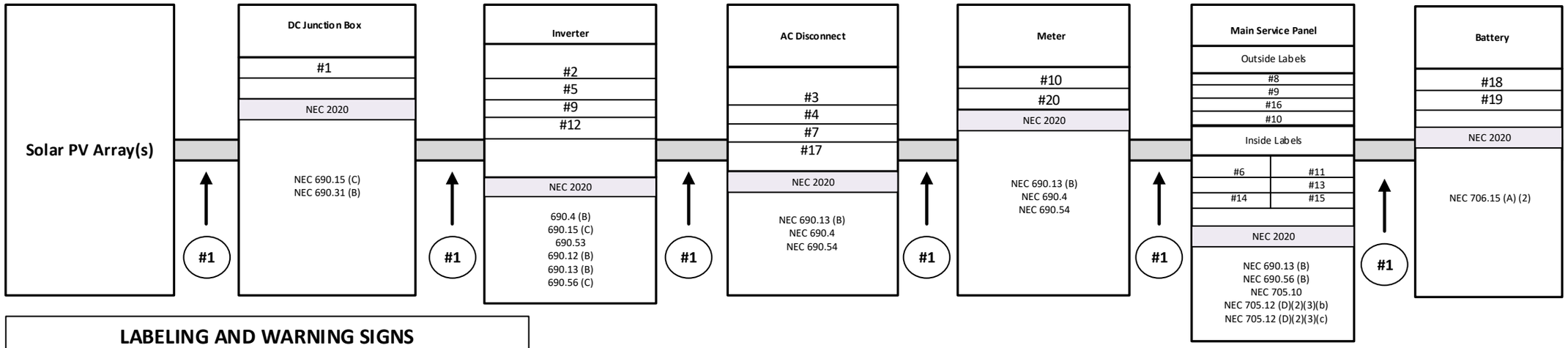
JOB NUMBER
22-301-DD00

PROJECT STATUS
PERMITTING

SHEET
DETAILED ELECTRICAL DIAGRAM

DD
22301DD00-4



LABELING AND WARNING SIGNS
NEC 2020

A. PURPOSE
PROVIDE EMERGENCY RESPONDERS WITH APPROPRIATE WARNING AND GUIDANCE WITH RESPECT TO ISOLATING THE SOLAR ELECTRIC SYSTEM. THIS CAN FACILITATE IDENTIFYING ENERGIZED ELECTRICAL LINES THAT CONNECT THE SOLAR PANELS TO THE INVERTER, AS SHOULD NOT BE CUT WHEN VENTING FOR SMOKE REMOVAL.

B. MAIN SERVICE DISCONNECT:

1. RESIDENTIAL BUILDINGS- THE MARKING MAY BE PLACED WITHIN THE MAIN SERVICE DISCONNECT. THE MARKING SHALL BE PLACED ON THE OUTSIDE COVER IF THE MAIN SERVICE DISCONNECT IS OPERABLE WITH THE SERVICE PANEL CLOSED.

2. COMMERCIAL BUILDINGS- THE MARKINGS SHALL BE PLACED ADJACENT TO THE MAIN SERVICE DISCONNECTCLEARLY VISIBLE FROM THE LOCATION WHERE THE LEVER IS OPERATED

3. MARKINGS, VERBIAGE, FORMAT AND TYPE OF MATERIAL

a. VERBIAGE: CAUTION; SOLAR ELECTRIC SYSTEM CONNECTED
b. FORMAT:

(1) WHITE LETTERING ON A RED BACKGROUND
(2) MINIMUM 3/8 INCH LETTER HEIGHT
(3) ALL LETTERS SHALL BE CAPITALIZED
(4) ARIAL OR SIMILAR FONT, NON-BOLD

c. MATERIAL:

(1) 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. MARKING: PLACEMENT, VERBIAGE, FORMAT AND TYPE OF MATERIAL.

a. PLACEMENT: MARKINGS SHALL BE PLACED EVERY 10 (TEN) FEET ON ALL INTERIOR AND EXTERIOR DC CONDUITS, RACEWAYS, ENCLOSURES AND CABLE ASSEMBLIES, AT TURNS ABOVE AND/OR BELOW PENETRATIONS, ALL DC COMBINERS AND JUNCTION BOXES.
b. VERBIAGE: CAUTION SOLAR CIRCUIT
c. THE FORMAT AND TYPE OF MATERIAL SHALL ADHERE TO SECTION B-3.B & C ABOVE

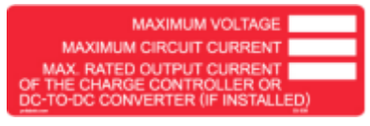
D. INVERTERS ARE NOT REQUIRED TO HAVE CAUTION MARKINGS

#1


#2


#3


#4


#5


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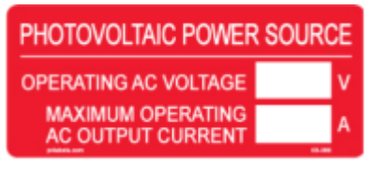

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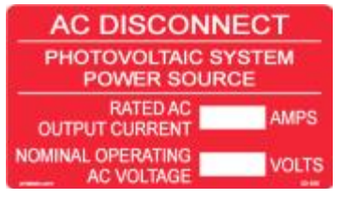

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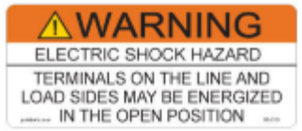
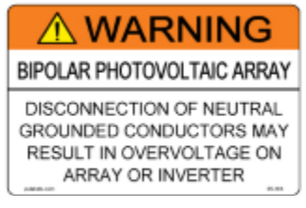


#9

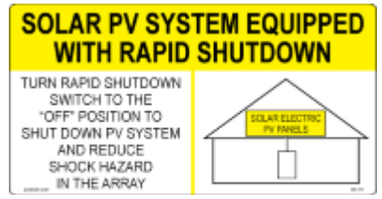

#10


#11


#12


#13


#14


#15


#16
SOLAR AC DISCONNECT LOCATED AT EAST SIDE WALL OF THE HOUSE BESIDE THE UTILITY METER

#17
SERVICE DISCONNECT LOCATED IN THE BACK UP GATEWAY 2 PANEL

#18


#19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A	08/02/2022	

Customer's Signature

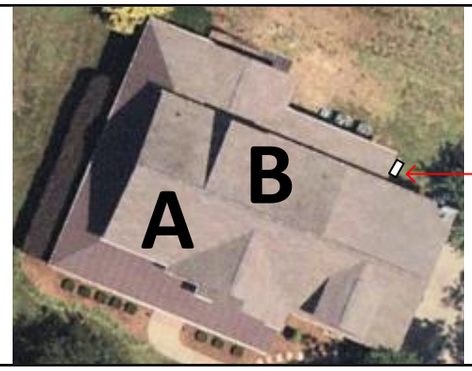
JOB NUMBER
22-301-DD00

PROJECT STATUS
PERMITTING

SHEET
PV LABELS

DD
22301DD00-5

Rails and Splices : PSR-B84 (BLACK)	Roof Attachment : Pegasus Comp Mount
Rafter Spacing : 16 in	There is one layer of shingles Roofing material is asphalt shingles
Attachment Span: 4ft	The roof is located in 115mph wind zone



Module Dimension	71.69in. / 40.00in.	
Roofs	Pitch	Azimuth
A	45°	202°
B	22°	22°

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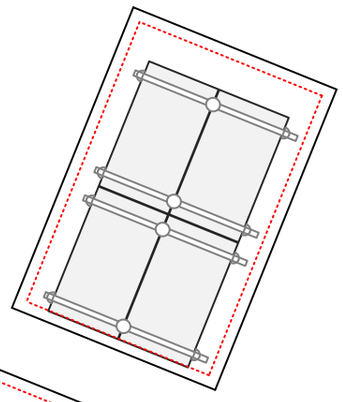
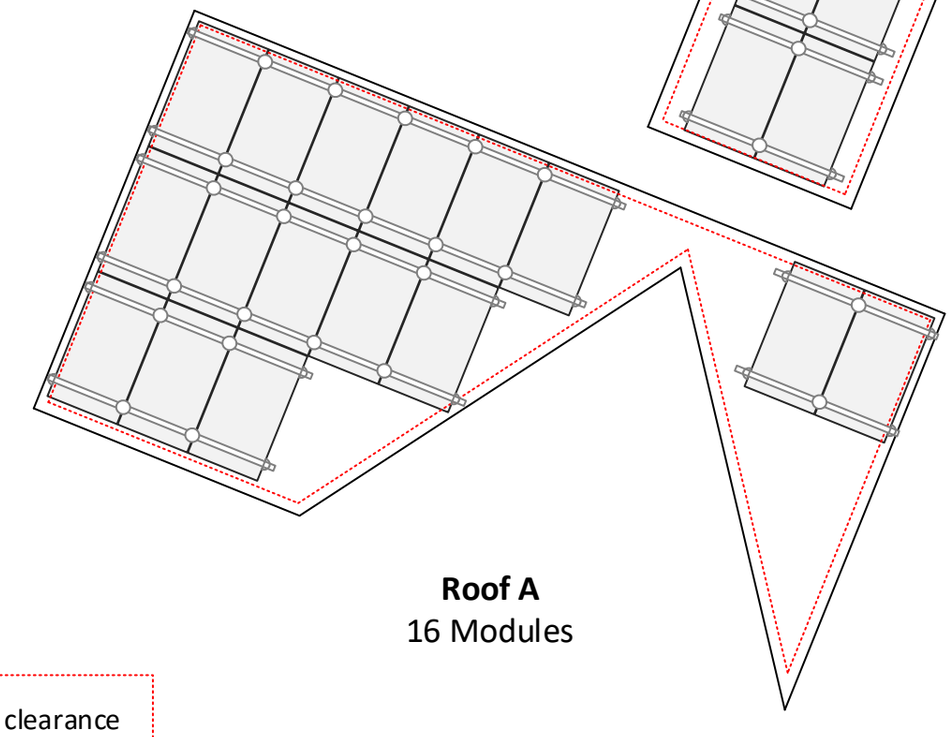
Roof B
04 Modules





Roof A
16 Modules

6" clearance from each side of the roof

PV LABELS

Sr No	Code	Qty
01	02-314	12
02	03-301	01
03	03-302	01
04	02-316	01
05	03-308	01
06	03-390	01
07	03-306	01
08	05-215	01
09	05-211	02
10	03-230	01
11	05-372	01
12	05-103	01
13	05-216	01
14	05-342	01
15	07-111	01
16	8M-001	01
17	8M-002	01
18	03-395	01
19	04-304	01

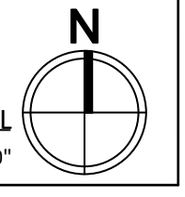
- 22 x PSR-B84: Pegasus Rail, Black, 84" (7 Feet)
- 10 x PSR-SPL: Pegasus - Bonded, Structural Splice
- 28 x PSR-MCB: Pegasus - Multiclamp, Mid/End, 30 to 40 mm, Black
- 24 x PSR-HEC: Pegasus - Hidden End Clamp
- 20 x PSR-MLP: Pegasus - MLPE Mount
- 14 x PSR-LUG: Pegasus - Grounding Lug
- 30 x PSR-WMC: Pegasus - Wire Management Clip
- 04 x PSR-CBG: Pegasus - Cable Grip
- 24 x PSR-CAP: Pegasus - End Cap
- 42 x PSCR-UBBDT: Pegasus Comp Mount - Open Slot, Black L Foot, Black Flashing, Dovetail 3/8" T-Bolt
- 40 x Heyco Wire Clips

SOLAR MODULES
- 20 x REC405AA Pure

INVERTER & SUPPORTING ITEMS
- 01 x SolarEdge SE7600H-US000BNU4
- 20 x SolarEdge Power Optimizer P401
- 01 x SE-WFGW-B-S1-NA with Antenna Kit

WIRE
- 500 ft x #10 PV WIRE BLK (Cu)

TESLA
- 01 x Powerwall2 & Ancillary Equipment
- 01 x US AC Goodie Bag
- 01 x PowerWall2 Mounting kit
- 01 x 02" Conduit Hub Kit
- 01 x 1.25" Conduit Hub Kit
- 01 x Backup GateWay 2
- 01 x Internal Panelboard Kit



BILL OF MATERIAL
SCALE: 1/8" - 1' 0"

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A	08/02/2022	

Customer's Signature

JOB NUMBER
22-301-DD00

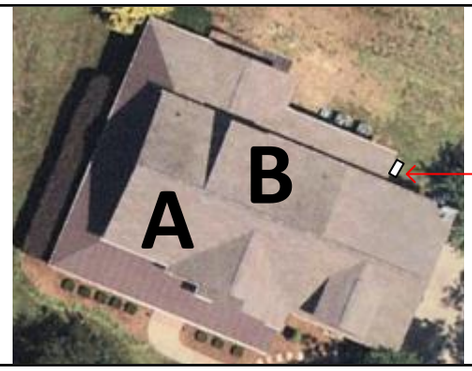
PROJECT STATUS
PERMITTING

SHEET
BILL OF MATERIAL

DD
22301DD00-6

PV System Dead Load
(Panel + Racking weight) / PV System Area
(No. of panels x Weight of panel(lbs.) +Length of racking(ft.) x 1.17 lb.ft) /
(No. of panels x Height x Width) = Total psf

The roof is located in 115mph wind zone	There is one layer of shingles Roofing material is asphalt shingles



Module Dimension	71.69in. / 40.00in.	
Roofs	Pitch	Azimuth
A	45°	202°
B	22°	22°

ROOF A

PV System Dead Load
(Panel + Racking weight) / PV System Area
(16 panels x 45 lbs./panel + 108 ft. of racking x 1.17 lb.ft) /
(16 panels x 5.97' x 3.33') = 2.65 psf

ROOF B

PV System Dead Load
(Panel + Racking weight) / PV System Area
(04 panels x 45 lbs./panel + 27 ft. of racking x 1.17 lb.ft) /
(04 panels x 5.97' x 3.33') = 2.65 psf

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JOB NUMBER
22-301-DD00

PROJECT STATUS
PERMITTING

SHEET
PV DEAD LOAD

DD
22301DD00-7