

PROJECT DETAILS	
PV Modules	29 x SOLARIA POWERX 400R
Optimizers	29 x P505
Inverter	1 x SE10000H-US (RGM)
Roof Type	Asphalt Shingles
Racking	PSR-B84 Rails (Black)
Mounting Type	CompMount Flashing (Black)
DC SIZE	11.6 kW
AC SIZE	10.0 kVA

DRAWING INDEX			
Item	Drawing #	Rev	Description
1	22224BB00-0	A	Drawing Index
2	22224BB00-1	A	Site Layout
3	22224BB00-2	A	String Mapping
4	22224BB00-3	A	Electrical One Line Diagram
5	22224BB00-4	A	Detailed Electrical Wiring Schematic
6	22224BB00-5	A	PV Labels
7	22224BB00-6	A	Bill of Materials
8	22224BB00-7	A	PV Dead Load



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PHOTOVOLTIC NOTES

- 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
- ROOFTOP MOUNTED PHOTOVOLTAIC PANELS AND MODULES SHALL BE TESTED, LISTED AND IDENTIFIED BY RECOGNIZED ELECTRICAL TESTING LABORATORY.
- SOLAR SYSTEM SHALL NOT COVER ANY PLUMBING OR MECHANICAL VENTS
- MODULES AND SUPPORT STRUCTURES SHALL BE GROUNDED
- SOLAR INVERTER SHALL BE LISTED TO UL1741
- ALL CONDUCTORS SHALL BE COPPER AND SHOULD BE 75 AND 90 DEG RATED
- 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.
- 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.
- ALL PV MODULES AND ASSOCIATED EQUIPMENT AND WIRING SHALL BE PROTECTED FROM PHYSICAL DAMAGE.



A 06/28/2022

Customer's Signature

JOB NUMBER
22-224-BB00

PROJECT STATUS
PERMITTING

SHEET
DRAWING INDEX

BB
22224BB00-0

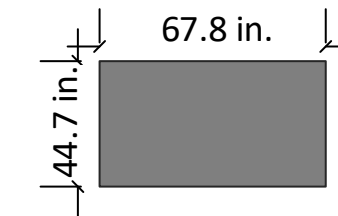
There is one layer of shingles
Roofing material is asphalt shingles

The roof is located in 116mph wind zone



Utility
Meter

Module
Dimension



Roofs

Pitch

Azimuth

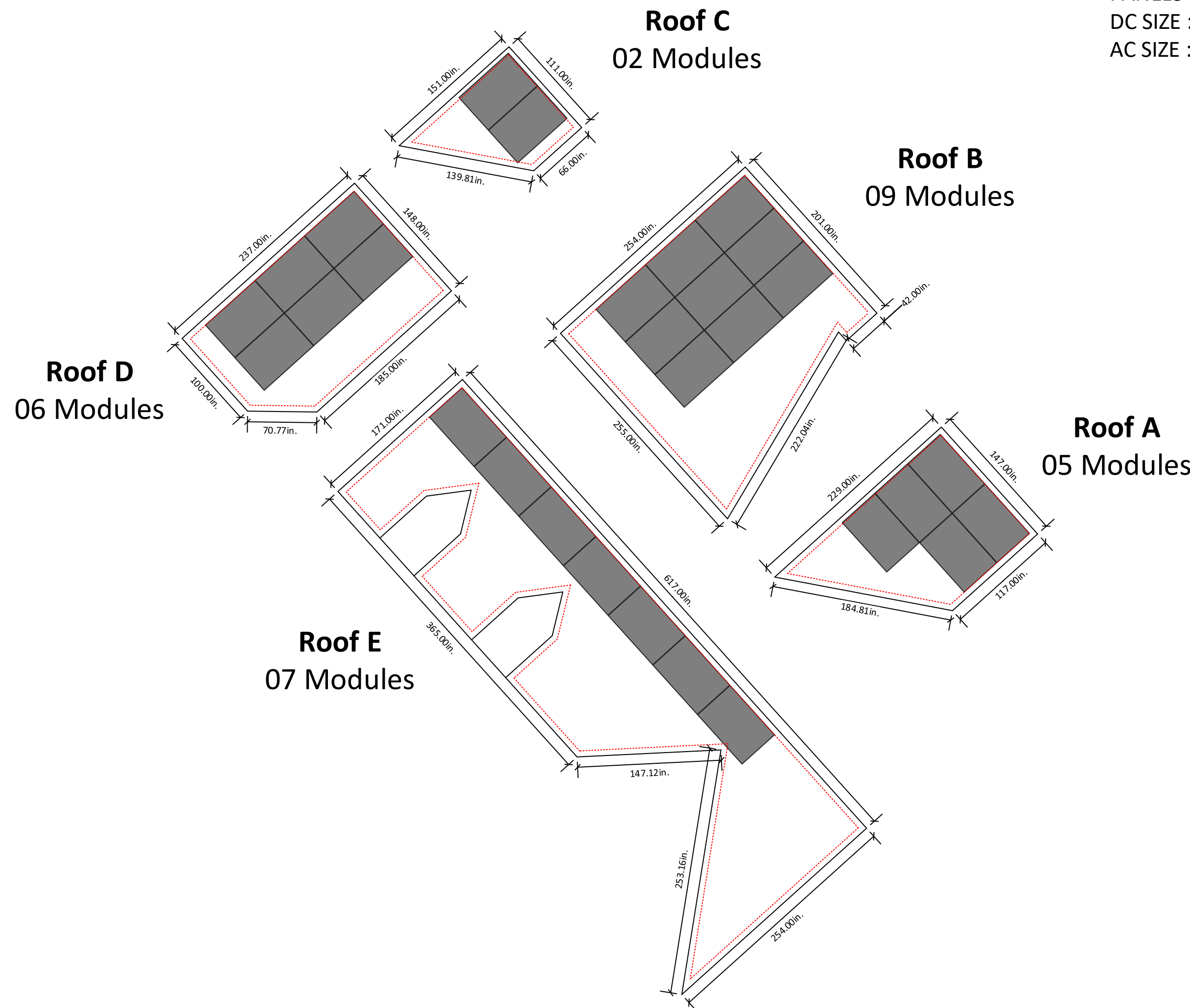
Roofs	Pitch	Azimuth
A	36°	136°
B	23°	46°
C	37°	136°
D	39°	226°
E	39°	226°



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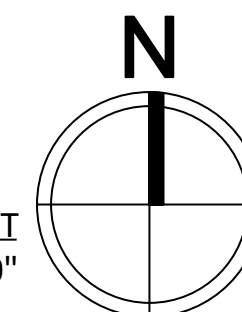
SYSTEM DETAILS

NUMBER OF PANELS : 29
PANELS MODEL : SOLARIA POWERX 400R
DC SIZE : 11.6 kW
AC SIZE : 10.0 kVA



6" clearance from
each side of the
roof

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



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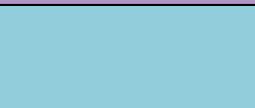
Customer's Signature

JOB NUMBER
22-224-BB00

PROJECT STATUS
PERMITTING

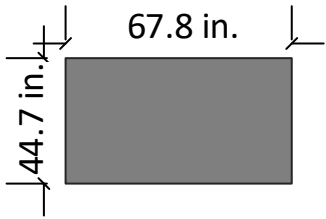
SHEET
SITE LAYOUT

BB
22224BB00-1

String Layout					
Inverter SE10000H-US (RGM)					
Strings #	No. of Modules	Color Code	Strings #	No. of Modules	Color Code
String 1	15				
String 2	14				
					



Utility Meter

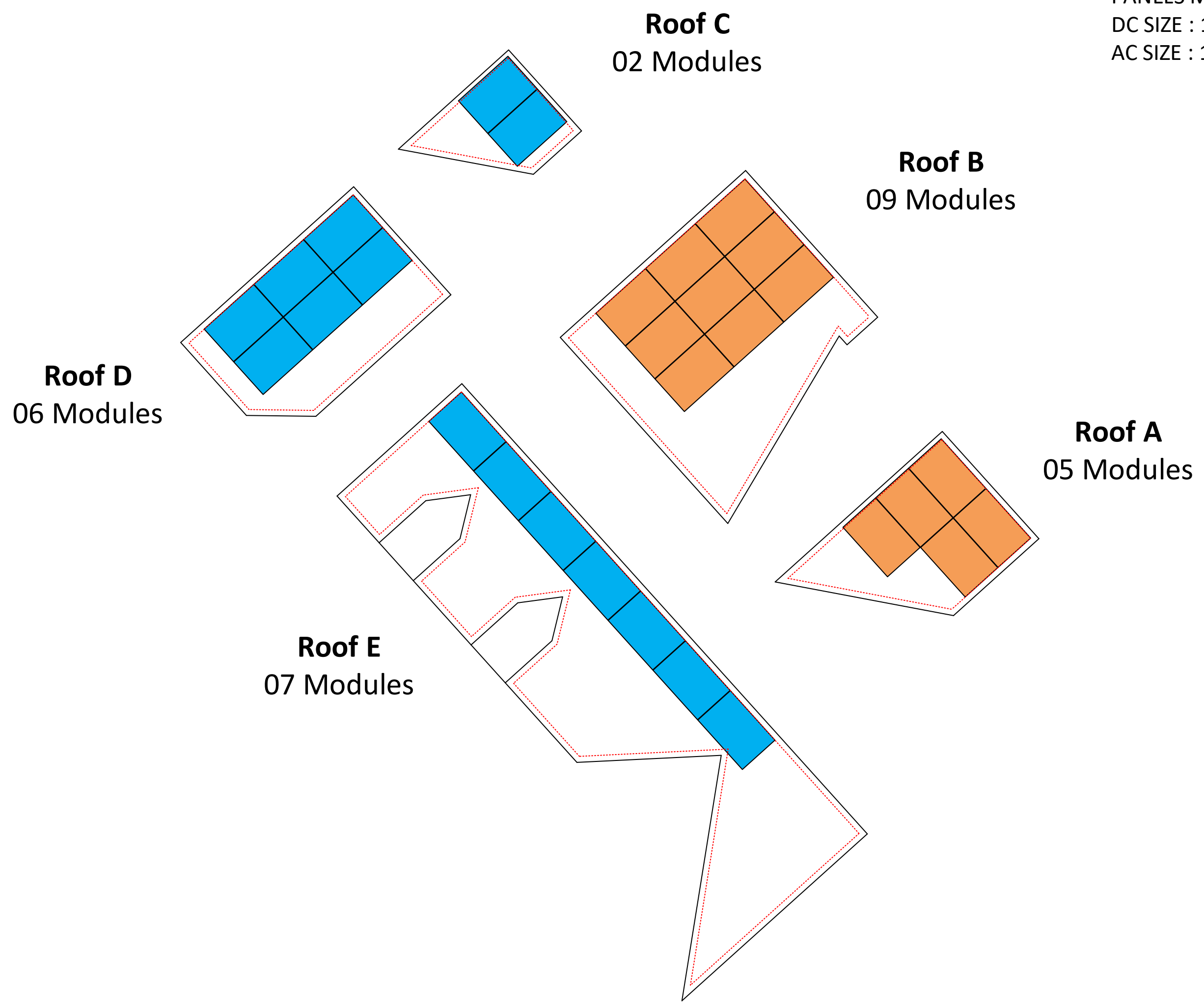
Module Dimension		
	Roofs	Pitch
A	36°	136°
B	23°	46°
C	37°	136°
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6" clearance from each side of the roof

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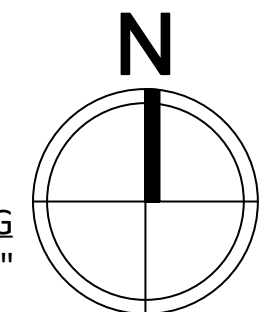
JOB NUMBER
 22-224-BB00

PROJECT STATUS
 PERMITTING

SHEET
 STRING MAPPING

BB
 22224BB00-2

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



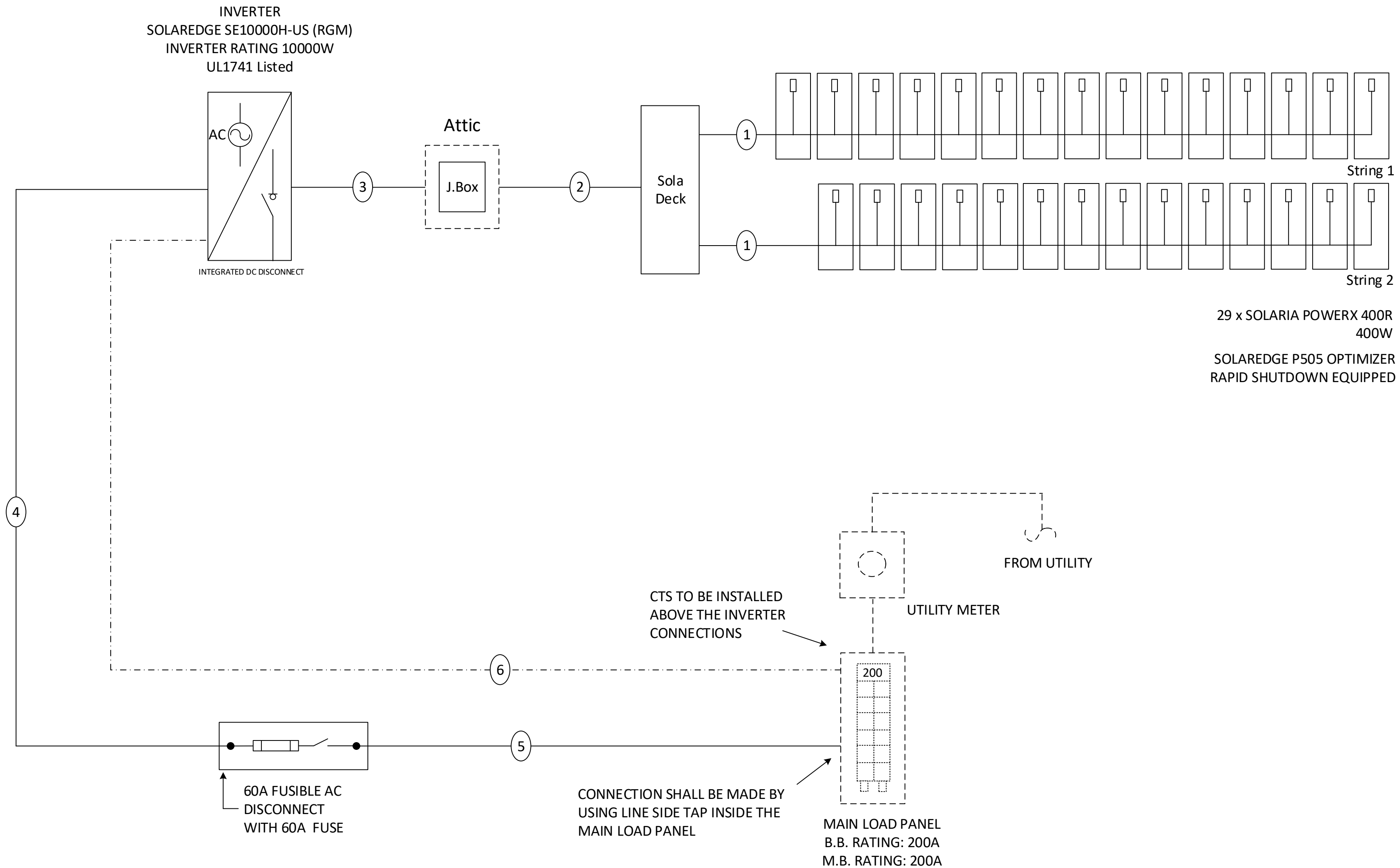
Customer's Signature

JOB NUMBER
22-224-BB00

PROJECT STATUS
PERMITTING

SHEET
ELECTRICAL ONE LINE DIAGRAM

BB
22224BB00-3



ELECTRICAL NOTES

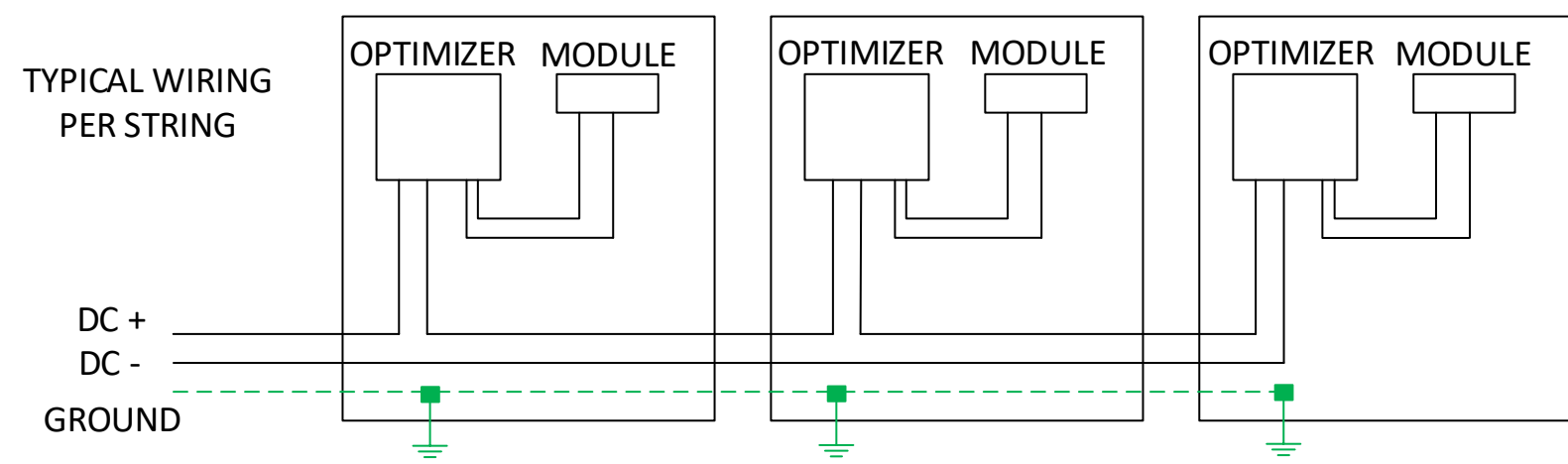
- System Size: 11,600W DC
- (29) SOLARIA POWERX 400R
- (29) SOLAREEDGE P505 OPTIMIZERS
- (01) SOLAREEDGE SE10000H-US (RGM)
- Output: 42A max @ 240 VAC
- 10.0 kVA AC output max

- Grounding will be done via Pegasus grounding lugs, 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:
15 x 400W = 6,000W ea
I mpp = 15 Adc
I max = 23.4 Adc
V mpp = 400 Vdc
V oc = 15 Vdc

STRING 2:
14 x 400W = 5,600W ea
I mpp = 14 Adc
I max = 23.4 Adc
V mpp = 400 Vdc
V oc = 14 Vdc

Sr.No	#Wire	Conduit Size	Ground Wire	Amperage
1	2 x #10 PV		#10 Bare CU	23.4A
2	2 x #10 MC Cable			
3	4 x #10 THHN Cu	3/4" EMT	#10 Green	52.5A
4	3 x #6 THHN Cu	3/4" EMT	#8 Green	
5	3 x #6 THHN Cu	3/4" EMT		52.5A
6	Shielded CAT5e			



Line 1	
Line 2	
Neutral	
Ground	

DIP SWITCH CONFIGURATION

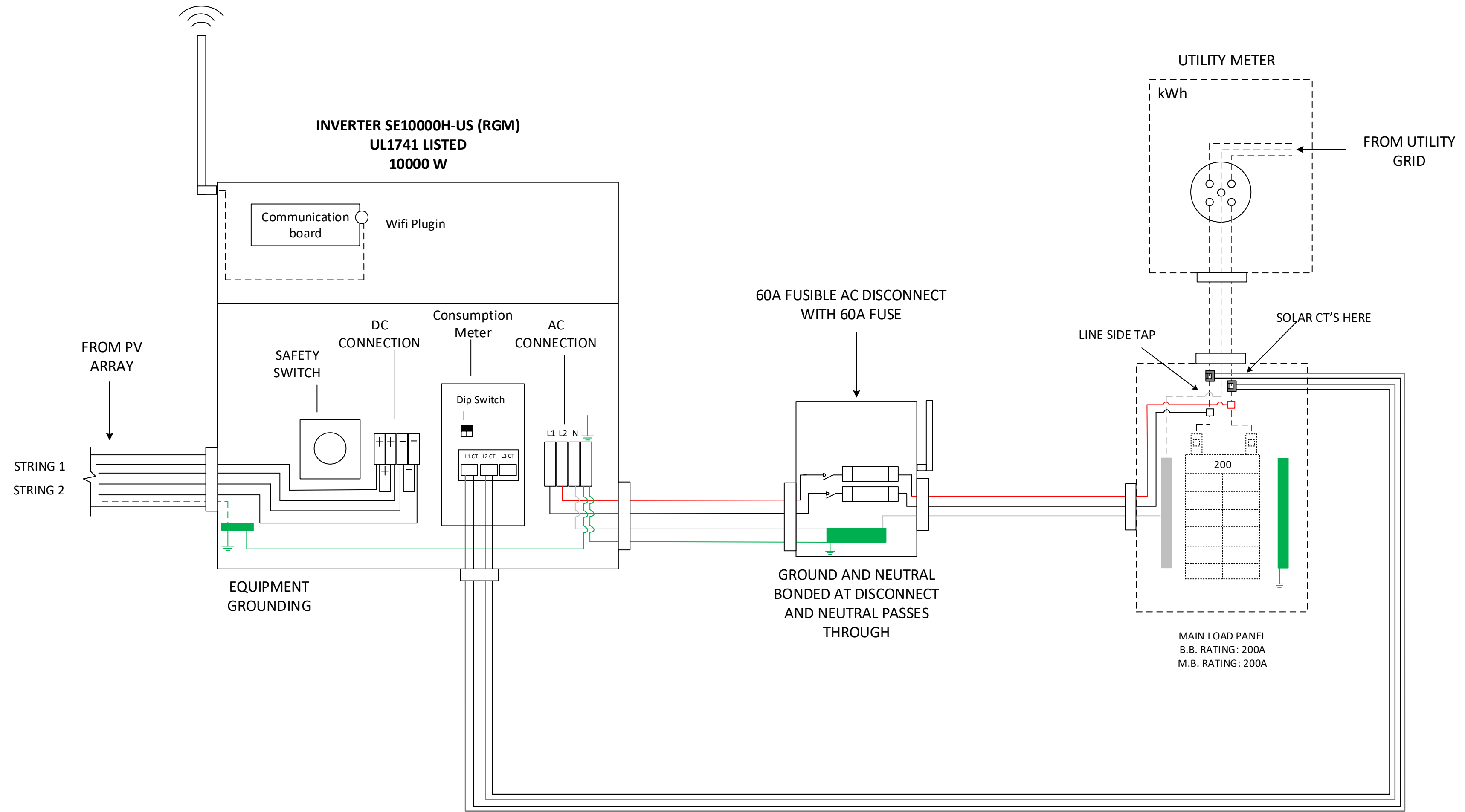
	0	OFF
	1	ON

- Note**
- The arrow on the 225A CTs should face the grid.
- Note**
- Dip switch settings are factory set to address 1



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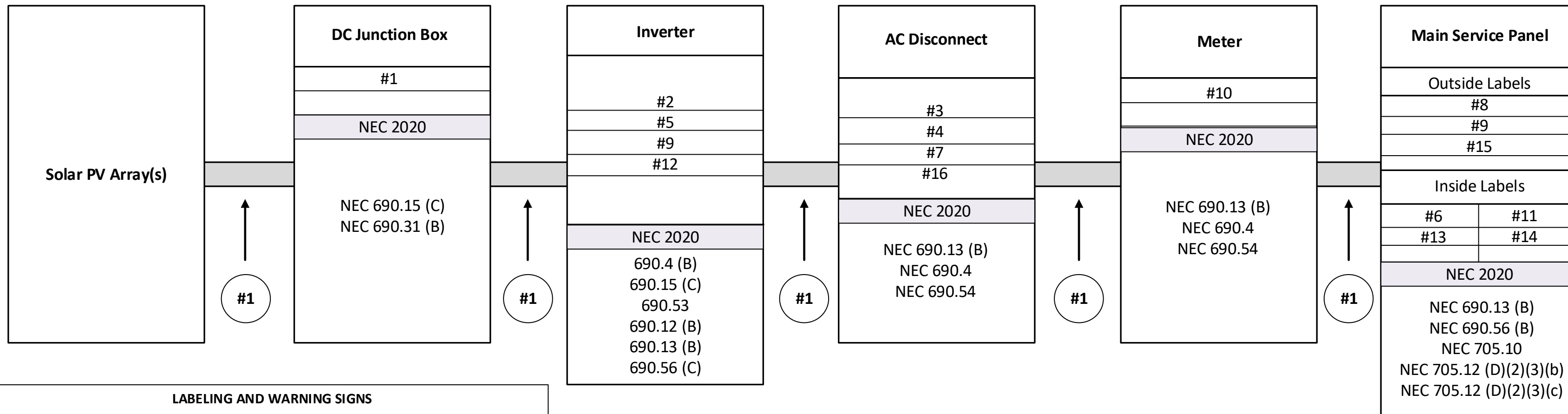
PROJECT STATUS

PERMITTING

SHEET

DETAILED ELECTRICAL DIAGRAM

BB
 22224BB00-4



LABELING AND WARNING SIGNS

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 DISCONNECT CLEARLY 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 **WARNING: PHOTOVOLTAIC POWER SOURCE**

#2 **PHOTOVOLTAIC DC DISCONNECT**

#3 **PHOTOVOLTAIC AC DISCONNECT**

#4 **RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM**

#5 **MAXIMUM VOLTAGE**
MAXIMUM CIRCUIT CURRENT
MAX. RATED OUTPUT CURRENT OF THE CHARGE CONTROLLER OR DC-TO-DC CONVERTER (IF INSTALLED)

#6 **PHOTOVOLTAIC POWER SOURCE**
OPERATING AC VOLTAGE [] V
MAXIMUM OPERATING AC OUTPUT CURRENT [] A

#7 **AC DISCONNECT PHOTOVOLTAIC SYSTEM POWER SOURCE**
RATED AC OUTPUT CURRENT [] AMPS
NOMINAL OPERATING AC VOLTAGE [] VOLTS

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

#9 **WARNING**
DUAL POWER SUPPLY
SOURCES: UTILITY GRID AND PV SOLAR ELECTRIC SYSTEM

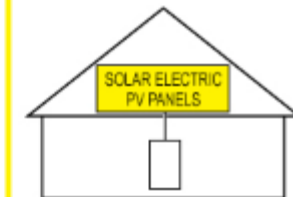
#10 **WARNING**
THIS SERVICE METER IS ALSO SERVED BY A PHOTOVOLTAIC SYSTEM

#11 **WARNING**
TURN OFF PHOTOVOLTAIC AC DISCONNECT PRIOR TO WORKING INSIDE PANEL

#12 **WARNING**
BIPOLAR PHOTOVOLTAIC ARRAY
DISCONNECTION OF NEUTRAL GROUNDED CONDUCTORS MAY RESULT IN OVERVOLTAGE ON ARRAY OR INVERTER

#13 **WARNING**
THIS EQUIPMENT FED BY MULTIPLE SOURCES. TOTAL RATING OF ALL OVERCURRENT DEVICES, EXCLUDING MAIN SUPPLY OVERCURRENT DEVICE, SHALL NOT EXCEED AMPACITY OF BUSBAR.

#14 **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



#15 **SOLAR AC DISCONNECT LOCATED AT SOUTH-EAST SIDE WALL OF THE HOUSE BESIDE THE UTILITY METER**

#16 **SERVICE DISCONNECT LOCATED IN MAIN LOAD PANEL INSIDE THE HOUSE**

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 116mph wind zone



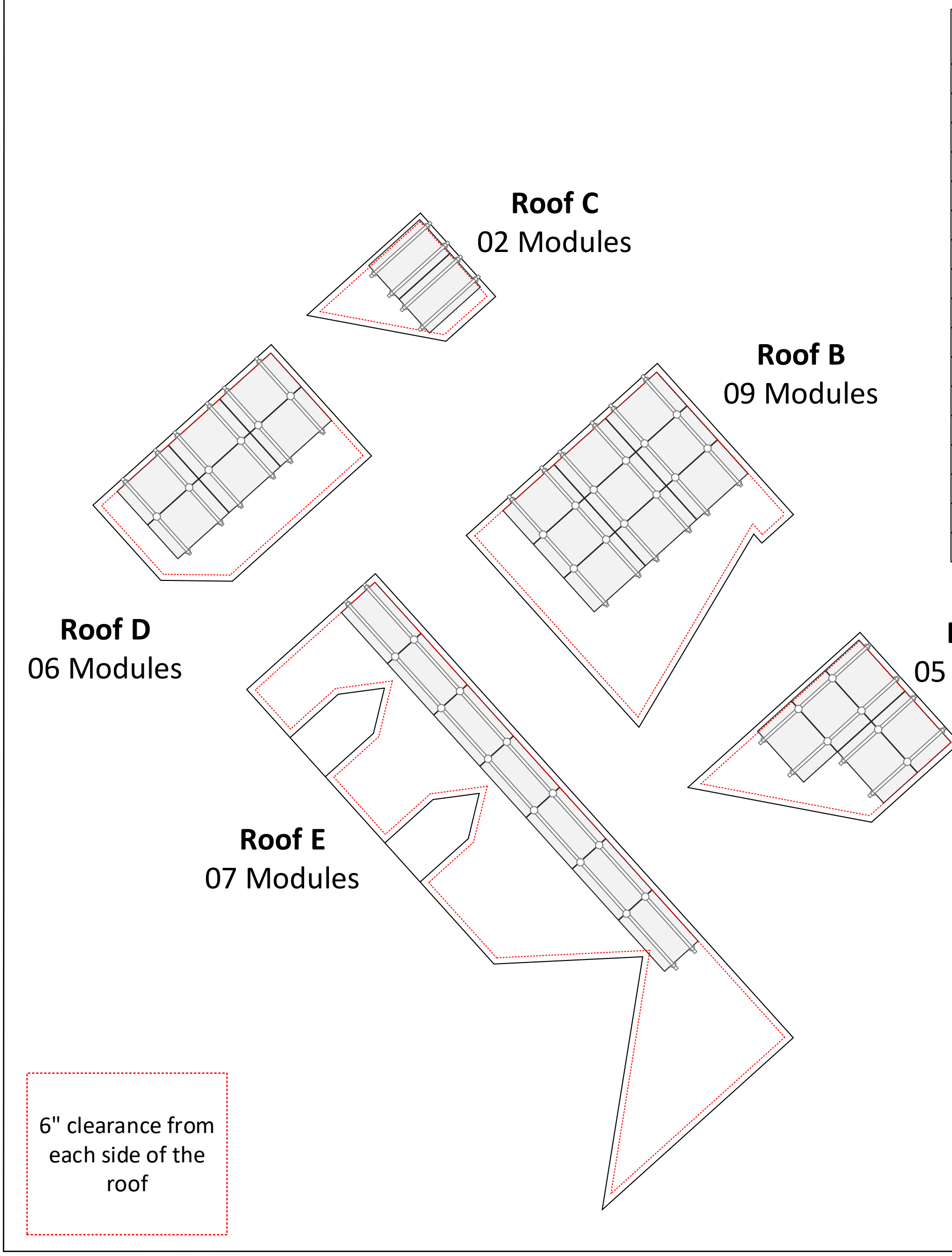
Utility Meter

Module Dimension		
	Roofs	Pitch
A	36°	136°
B	23°	46°
C	37°	136°
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E	39°	226°



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6" clearance from each side of the roof

PV LABELS		
Sr No	Code	Qty
01	02-314	15
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	07-359	01
11	05-372	01
12	05-103	01
13	05-108	01
14	07-111	01
15	8M-001	01
16	8M-002	01

- 48 x PSR-B84: Pegasus Rail, Black, 84" (7 Feet)
- 26 x PSR-SPL: Pegasus - Bonded, Structural Splice
- 36 x PSR-MCB: Pegasus - Multiclamp, Mid/End, 30 to 40 mm, Black
- 44 x PSR-HEC: Pegasus - Hidden End Clamp
- 29 x PSR-MLP: Pegasus - MLPE Mount
- 08 x PSR-LUG: Pegasus - Grounding Lug
- 12 x PSR-NSJ: Pegasus - N-S Bonding Jumper
- 44 x PSR-WMC: Pegasus - Wire Management Clip
- 05 x PSR-CBG: Pegasus - Cable Grip
- 44 x PSR-CAP: Pegasus - End Cap
- 78 x PSCR-UBBDT: Pegasus Comp Mount - Open Slot, Black L Foot, Black Flashing, Dovetail 3/8" T-Bolt
- 58 x Heyco Wire Clips

- SOLAR MODULES**
- 29 x SOLARIA POWERX 400R
- INVERTER & SUPPORTING ITEMS**
- 01 x SolarEdge SE10000H-US US000BNI4 (RGM)
 - 29 x SolarEdge Power Optimizer P505
 - 01 x SE-WFGW-B-S1-NA with Antenna kit
 - 02 x SolarEdge 225A CTs
- WIRE**
- 500 ft x #10 PV WIRE BLK (Cu)



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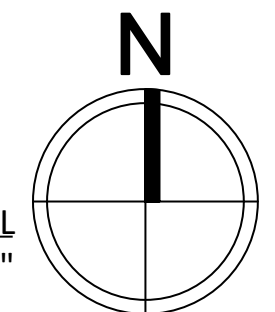
Customer's Signature

JOB NUMBER
22-224-BB00

PROJECT STATUS
PERMITTING

SHEET
BILL OF MATERIAL

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



BB
22224BB00-6

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

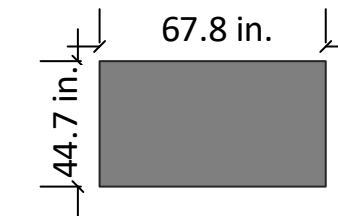
The roof is located in 116mph wind zone

There is one layer of shingles
 Roofing material is asphalt shingles



Utility
Meter

Module
Dimension



Roofs	Pitch	Azimuth
A	36°	136°
B	23°	46°
C	37°	136°
D	39°	226°
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ROOF A

PV System Dead Load
(Panel + Racking weight) / PV System Area
 (05 panels x 48.7 lbs./panel + 38 ft. of racking x 1.17 lb.ft) /
 (05 panels x 5.65' x 3.72') = 2.73 psf

ROOF B

PV System Dead Load
(Panel + Racking weight) / PV System Area
 (09 panels x 48.7 lbs./panel + 60 ft. of racking x 1.17 lb.ft) /
 (09 panels x 5.65' x 3.72') = 2.73 psf

ROOF C

PV System Dead Load
(Panel + Racking weight) / PV System Area
 (02 panels x 48.7 lbs./panel + 23 ft. of racking x 1.17 lb.ft) /
 (02 panels x 5.65' x 3.72') = 2.94 psf

ROOF D

PV System Dead Load
(Panel + Racking weight) / PV System Area
 (06 panels x 48.7 lbs./panel + 45 ft. of racking x 1.17 lb.ft) /
 (06 panels x 5.65' x 3.72') = 2.73 psf

ROOF E

PV System Dead Load
(Panel + Racking weight) / PV System Area
 (07 panels x 48.7 lbs./panel + 80 ft. of racking x 1.17 lb.ft) /
 (07 panels x 5.65' x 3.72') = 2.94 psf



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Customer's Signature

JOB NUMBER
 22-224-BB00

PROJECT STATUS
 PERMITTING

SHEET
 PV DEAD LOAD

BB
 22224BB00-7