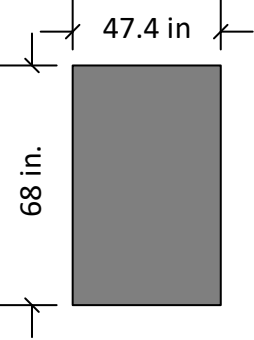

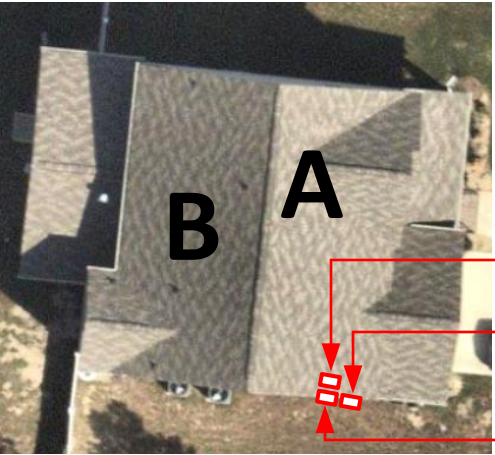


ROOF DESCRIPTION				MODULE DIMENSIONS	PV System Dead Load (Panel + Racking weight) / PV System Area (No. of panels x Weight of panel(lbs.) +Length of racking(ft.) x 1.15 lb.ft) / (No. of panels x Height x Width) = Total psf			
ROOF	PITCH	AZIMUTH	NO. OF MODULES		ROOF	A	B	
A	33°	96°	20		DEAD LOAD (PSF)	2.69	2.68	
B	33°	276°	20					
Vent		<ul style="list-style-type: none">Roof A has no ventsNo vents will be covered by PV modules during the installation						



MSP
AC DISCONNECT
UTILITY METER



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SYSTEM DETAILS

NUMBER OF PANELS : 40
PANELS MODEL : REC460AA PURE-RX
DC SIZE : 18.4 KW
AC SIZE : 15.2 KVA

Customer Information:

Bonnes John

97 Sunnybrook Lane
Lillington, NC 27546

Customer Signature:

Sheet Name:

Site Layout

JOB NUMBER:

24-762-JB

Date:

12/17/2024

Revision:

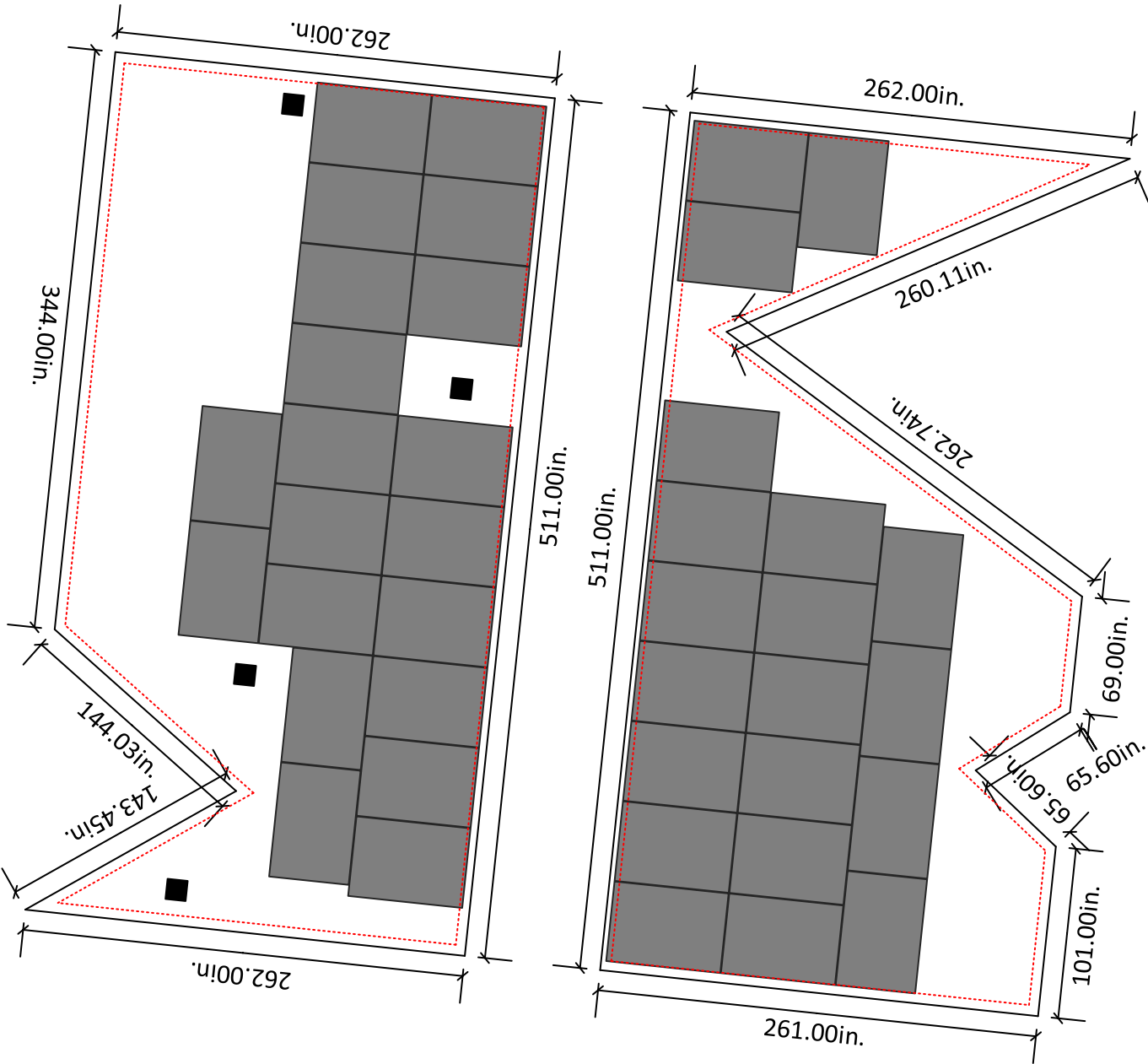
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Sheet Size:

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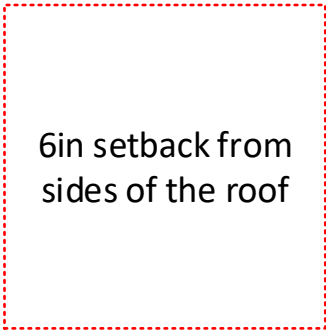
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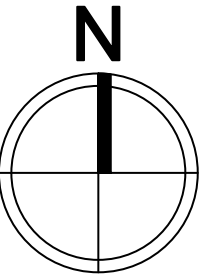


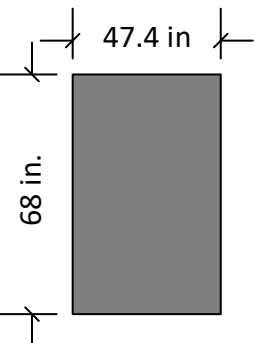
Roof B
20 Modules

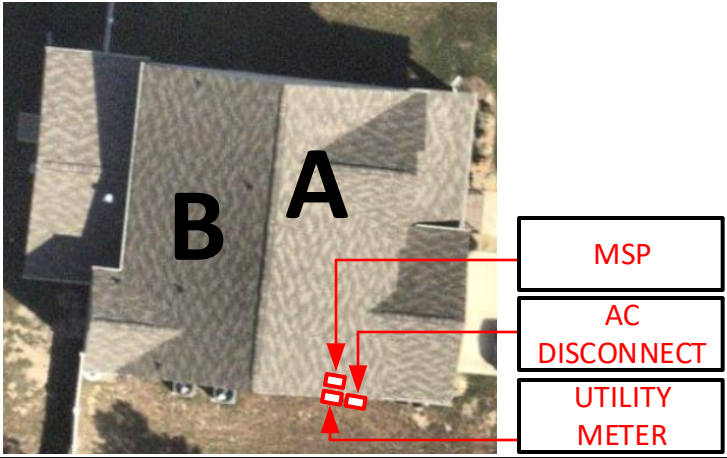
Roof A
20 Modules



SITE LAYOUT
SCALE: 1/8" - 1'



ROOF DESCRIPTION				MODULE DIMENSIONS	STRING LAYOUT					
ROOF	PITCH	AZIMUTH	NO. OF MODULES		ENPHASE IQ COMBINER 5C					
					Strings #	No. of Modules	Color	Strings #	No. of Modules	Color
A	33°	96°	20		String 1	10		String 4	10	
B	33°	276°	20		String 2	10				
					String 3	10				



SYSTEM DETAILS

NUMBER OF PANELS : 40
PANELS MODEL : REC460AA PURE-RX
DC SIZE : 18.4 KW
AC SIZE : 15.2 KVA



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Customer Signature:

Sheet Name:

String Mapping

JOB NUMBER:

24-762-JB

Date:

12/17/2024

Revision:

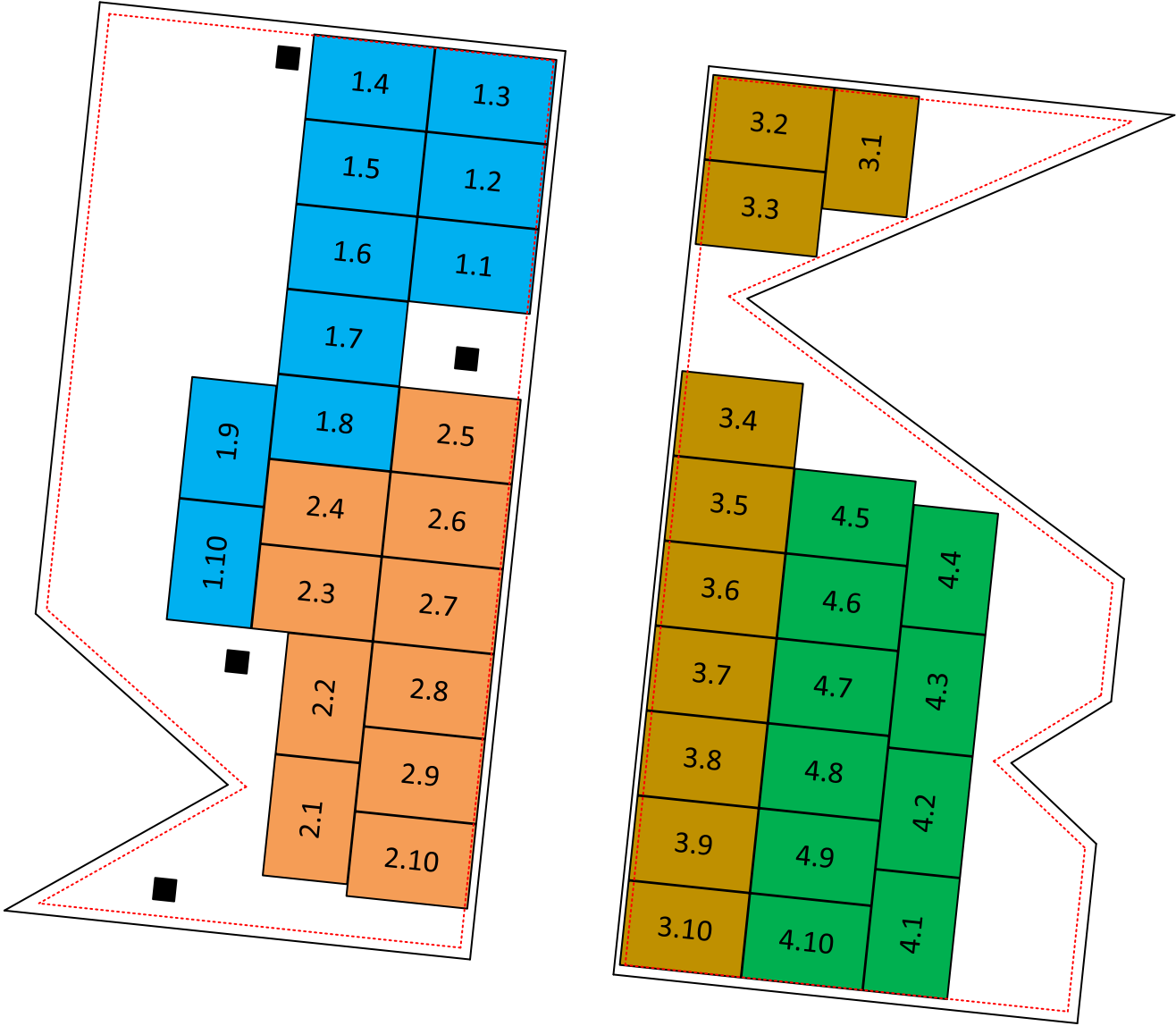
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PV3

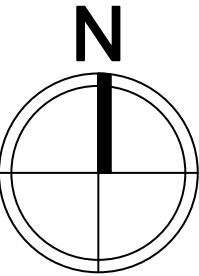


Roof B
20 Modules

Roof A
20 Modules

6in setback from
sides of the roof

STRING MAPPING
SCALE: 1/8" - 1'



STRING CALCULATION

String #	No of Modules	Estimated Power	I _{max}	V _{oc}	V _{mpp}	V _{rise} (<= 2%)
1	10	4,600 W	19.75 AC	<30	240V AC	1.35+0.62 = 1.97
2	10	4,600 W	19.75 AC	<30	240V AC	1.18+0.62 = 1.8
3	10	4,600 W	19.75 AC	<30	240V AC	1.24+0.62 = 1.86
4	10	4,600 W	19.75 AC	<30	240V AC	1.18+0.62 = 1.8

40 X REC460AA PURE-RX
460W
ENPHASE IQ8X-80-M-US MICROINVERTERS
380VA
RAPID SHUTDOWN EQUIPPED

Diagram showing solar strings (String 1-4) connected to a Sola Deck, passing through an Attic, and connecting to an IQ Combiner 5. The combiner feeds into an IQ Controller 3, which is connected to a 100A Non-Fusible AC Disconnect, a Span Remote Meter Kit, and a Main Load Panel. The Main Load Panel is connected to three IQ Batteries (5p (1), 5p (2), 5p (3)). A Utility Meter is also shown connected to the system.

Following new branch breakers will be installed by 8MSolar in the Span Panel

Sr.No	Amperage	Feeding
1	45A/2P	2
2	40A/2P	1
3	35A/2P	1
4	30A/2P	2
5	25A/2P	1
6	15A/2P	1
7	20A/1P	8
8	15A/1P	8

WARNING: The drain wire should only be terminated on one end of the control wiring between the system components, to prevent ground loops.

WARNING: The drain wire should not be be terminated in IQ Battery 5P (1).

• System Size: 18,400W DC

• Battery Total Energy: 15.0 kWh

• (40) REC460AA Pure-RX

• (40) ENPHASE IQ8X-80-M-US MICROINVERTERS

• 03 x IQBATTERY-5P-1P-NA: IQ Battery 5P

• Inverter Output: 1.58A max @ 240 VAC (each microinverter)

• 380 VA AC output max (each micro inverter)

• 15.2 kVA AC output max

NEC Code (2020) and UL Standard References

Rapid Shut Down	NEC 690.12 (A-D), UL1741	Grounding	NEC Article 250.30(A)
Disconnecting Means	NEC 690.13	Conduit Fill	NEC Table C.9, 310.15(B)(3)(a)
Feeder Sizing	NEC Table 310, 15(B)(16, 17)	Interconnection	NEC 705.12
Over current Protection	NEC 690.9		

Service Side Work: Power Drop Required

Customer Information:

Bonnes John

97 Sunnybrook Lane
Lillington, NC 27546

Customer Signature:

Sheet Name:

Electrical One Line Diagram

JOB NUMBER:

24-762-JB

Date:

12/17/2024

Revision:

A

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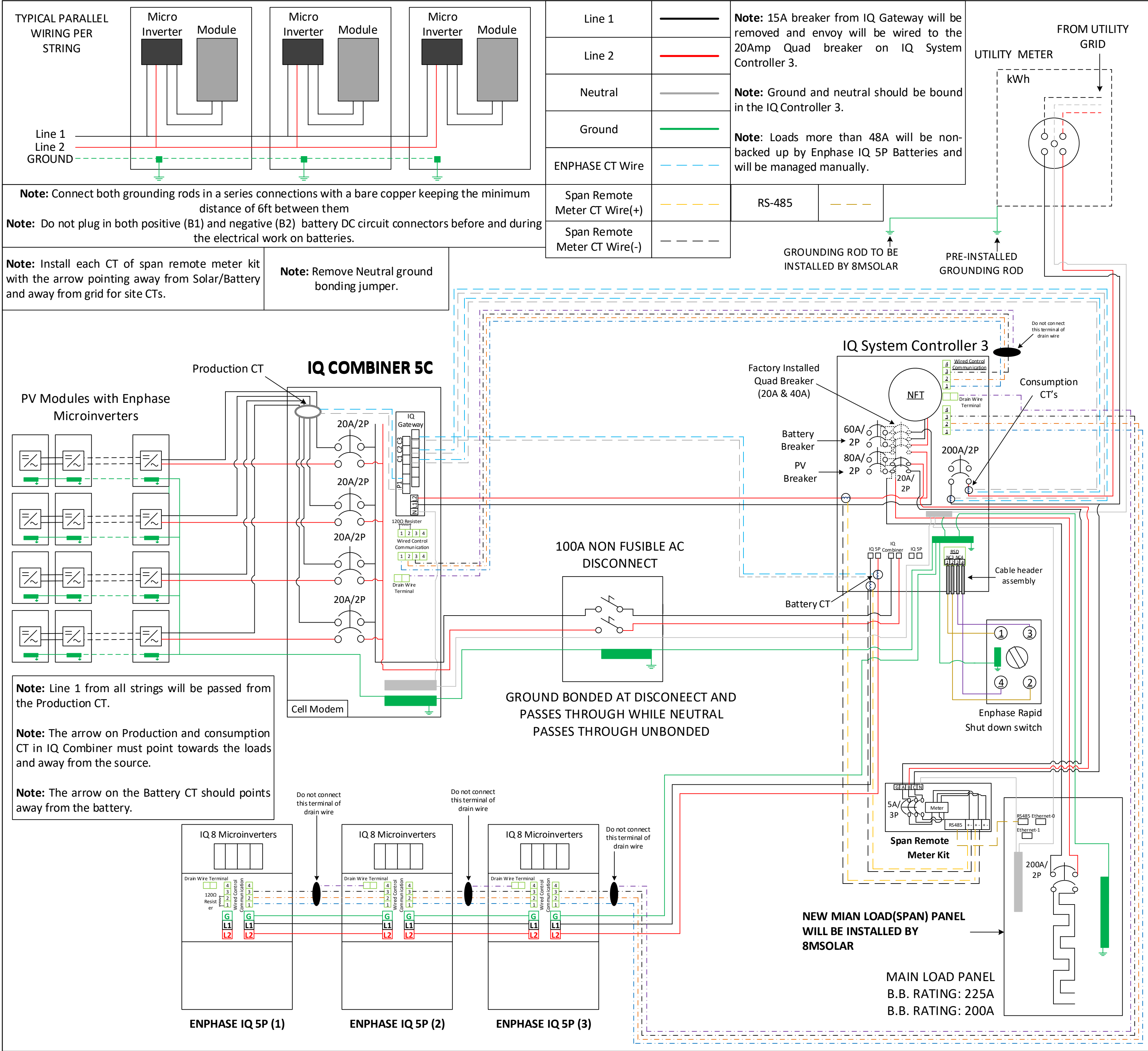
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PV4

NABCEP
CERTIFIED

PV Installation
Professional

Ali Buttar
PVIP #031310-32



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Customer Signature:

Sheet Name:

Detailed Electrical Diagram

JOB NUMBER:

24-762-JB

Date:

12/17/2024

Revision:

A

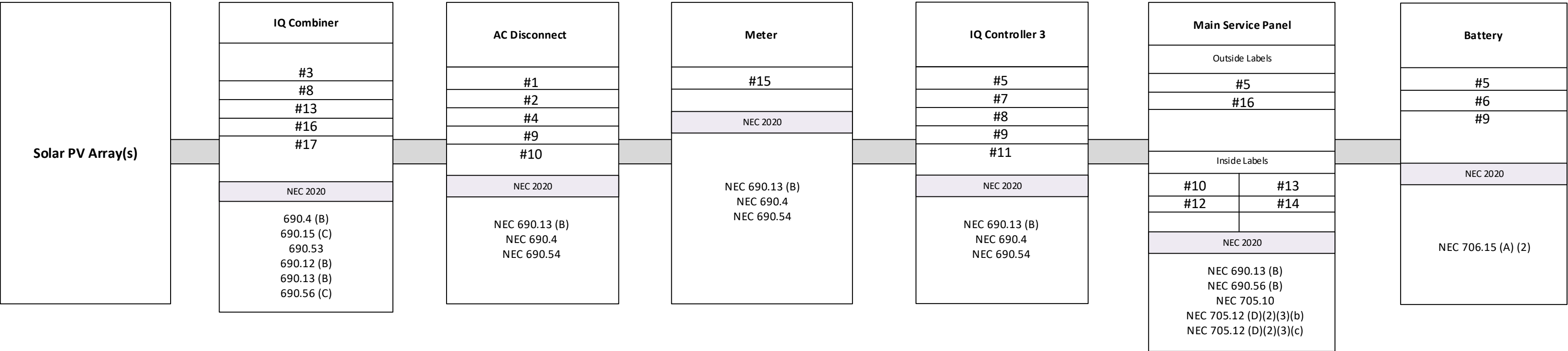
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PV5





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**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 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 CONDUIT, RACEWAYS, ENCLOSURES, CABLE ASSEMBLIES, 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 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

PHOTOVOLATIC

AC DISCONNECT

#6

BATTERY

#12

WARNING

TURN OFF PHOTOVOLTAIC
AC DISCONNECT PRIOR TO
WORKING INSIDE PANEL

#2

RAPID SHUTDOWN
SWITCH FOR
SOLAR PV SYSTEM

#7

MAIN BATTERY
SYSTEM DISCONNECT

#13

WARNING

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

#3

PHOTOVOLTVIC POWER SOURCE

OPERATING AC VOLTAGE 240 V

MAXIMUN OPERATING
AC OUTPUT CURRENT 63.2 A

#8

WARNING

THREE POWER SOURCES

SOURCES: UTILITY GRID, BATTERY AND
PV SOLAR ELECTRIC SYSTEM

#14

WARNING

POWER SOURCE
OUTPUT CONNECTION
DO NOT RELOCATE THIS
OVERCURRENT DEVICE

#4

AC DISCONNECT
PHOTOVOLTAIC SYSTEM
POWER SOURCE

RATED AC
OUTPUT CURRENT 63.2 AMPS

NOMINAL OPERATING
AC VOLTAGE 240 VOLTS

#9

SERVICE DISCONNECT LOCATED
IN THE IQ CONTROLLER 3

#15

WARNING

THIS SERVICE METER
IS ALSO SERVED BY A PHOTOVOLTAIC
SYSTEM

#5

SOLAR AC DISCONNECT
LOCATED AT SOUTH SIDE WALL
OF THE HOUSE BESIDE THE
UTILITY METER

#10

BATTERY DISCONNECT LOCATED
IN THE IQ CONTROLLER 3

#16

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

#11

WARNING

SOLAR ELECTRIC CIRCUIT BREAKER IS
BACKFEED

#17

PHOTOVOLTAIC SYSTEM
COMBINER PANEL
DO NOT ADD LOADS

Customer Information:

Bonnes John

97 Sunnybrook Lane
Lillington, NC 27546

Customer Signature:

Sheet Name:

PV Labels

JOB NUMBER:

24-762-JB

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Revision:

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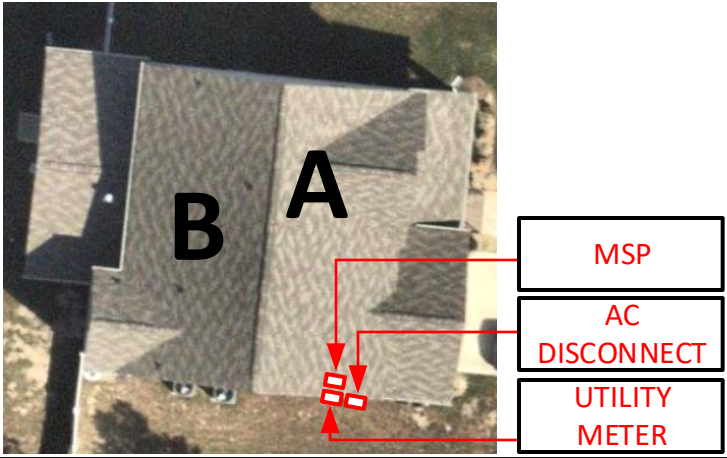
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PV6



ROOF DESCRIPTION				MODULE DIMENSIONS	Rails and Splices : PSR-B84 (BLACK)	Roof Attachment : Pegasus Comp Mount
ROOF	PITCH	AZIMUTH	NO. OF MODULES			
A	33°	96°	20		Rafter Spacing : 24 in	There is one layer of shingles Roofing material is asphalt shingles
B	33°	276°	20		Attachment Span: 4ft	The roof is located in 120mph wind zone



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Customer Signature:

Sheet Name:

Bill of Material

JOB NUMBER:

24-762-JB

Date:

12/17/2024

Revision:

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PV7



PV LABELS		
Sr No	Code	Qty
01	03-302	01
02	02-316	01
03	03-390	01
04	03-306	01
05	8M-001	05
06	03-395	03
07	03-304	01
08	03-230	02
09	8M-002	05
10	8M-004	02
11	05-342	01
12	05-372	01
13	05-215	02
14	05-216	01
15	07-359	01
16	07-111	02
17	03-355	01

RAILS AND MOUNTING SYSTEM

- 62 x PSR-B84: Pegasus Rail, Black, 84" (7 Feet)
- 42 x PSR-SPLS: Pegasus - Bonded, Structural Splice
- 60 x PSR-MCB: Pegasus - Multiclamp, Mid/End, 30 to 40 mm, Black
- 40 x PSR-HEC: Pegasus - Hidden End Clamp
- 40 x PSR-MLP: Pegasus - MLPE Mount
- 12 x PSR-LUG: Pegasus - Grounding Lug
- 60 x PSR-WMC: Pegasus - Wire Management Clip
- 08 x PSR-CBG: Pegasus - Cable Grip
- 40 x PSR-CAP: Pegasus - End Cap
- 104 x PSCR-UBBDT: Pegasus Comp Mount - Open Slot, Black L Foot, Black Flashing, Dovetail 3/8" T-Bolt
- 80 x Heyco Wire Clips
- 03 x S6466 EdgeScreen 6" x 100' (236ft Heyco SunScreen)
- 03 x S6438 EdgeScreen BLK - Heyco SunScreen Clips (Per Bag)

SOLAR MODULES

- 40 x REC460AA Pure-RX

INVERTER & SUPPORTING ITEMS

- 40 x ENPHASE IQ8X-80-M-US MICROINVERTERS
- 01 x X-IQ-AM1-240-5C: IQ Combiner 5C
- 01 x SC200D111C240US01: IQ System Controller 3
- 03 x IQBATTERY-5P-1P-NA: IQ Battery 5P
- 01 x CTRL-SC3-NA-01: Enphase Control Cable (150 ft.)

ENPHASE CABLES AND ACCESSORIES

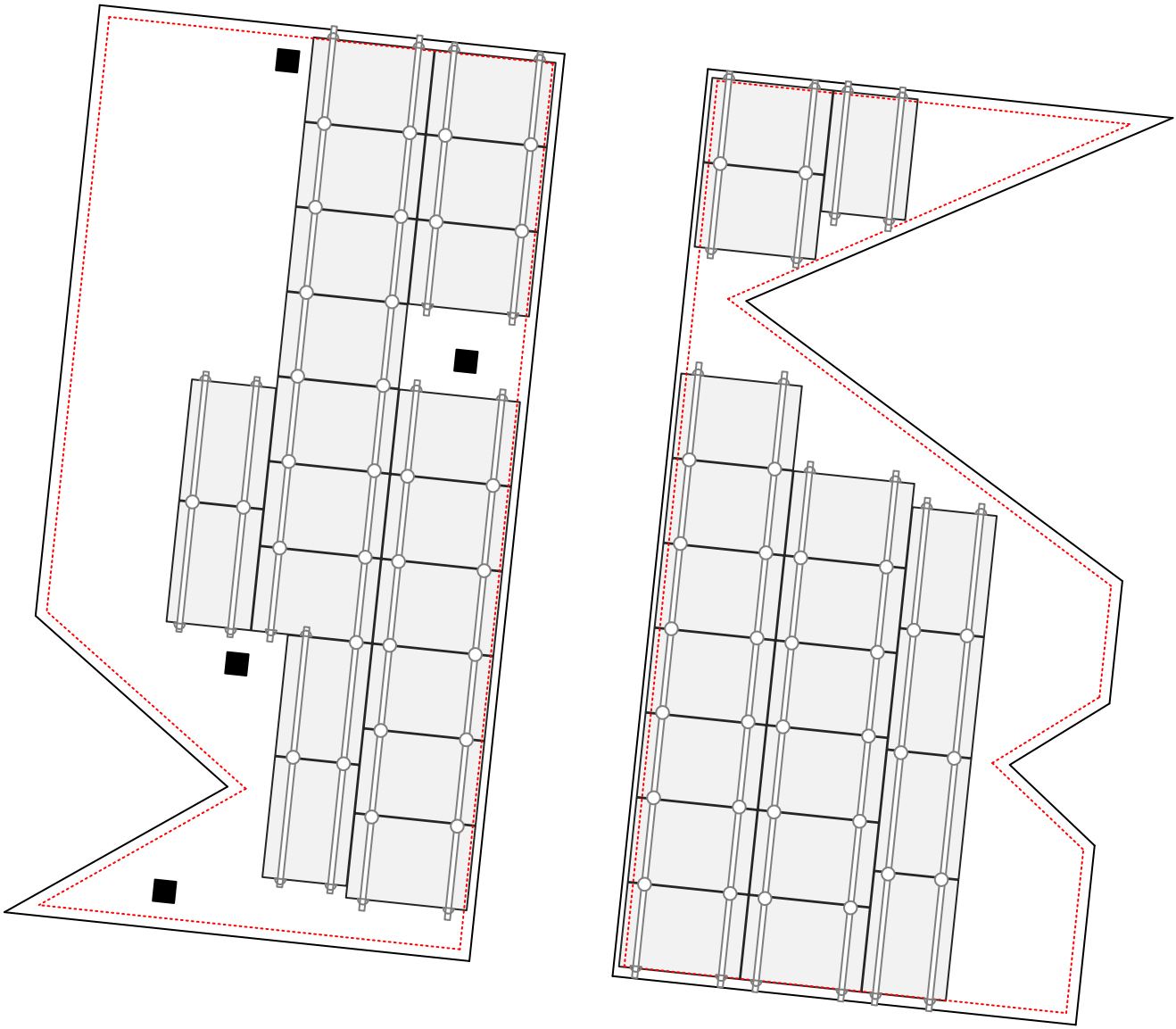
- 30 x Q-12-10-240: Q Cable
- 08 x Q-12-20-200: Q Cable
- 01 x Q-12-RAW-300:Q Cable, 12 AWG (50ft)
- 09 x Q-CONN-10M Male Field-wireable connector
- 09 x Q-CONN-10F Female Field-wireable connector
- 04 x Q-TERM-10: Terminator Cap
- 03 x Q-SEAL-10: Female Sealing Cap
- 01 x Q-CLIP-100: Q Cable rail mount cable management clip (Pack of 100)
- 01 x Q-DISC-10: Disconnect tool

ELECTRICAL ITEMS

- 04 x Eaton BR220B with hold down kit support (Circuit breaker, 2 pole, 20A)
- 01 x X-IQ-NA-HD-125A: Hold down kit for Eaton circuit breaker with screws
- 01 x BRK-200A-2P-240V: Main Breaker, 2-Pole, 200Amps(Eaton CSR2200N)
- 01 x BRK-80A-2P-240V: Circuit Breaker, 2 pole, 80A (Eaton BR280B)
- 01 x BRK-60A-2P-240V: Circuit Breaker, 2 pole, 60A (Eaton BR260B)
- 01 x DG223URB: 250volt/100amp/2pole non fusible disconnect (NEMA 3R)
- 03 x EZSLR JB-1.2: SolaDeck
- 03 x PSCA-OMB0: Roof Flashing Conduit Supports
- 03 x BPT 921S: 3/4" 1H EMT Pipe Strap Steel

SPAN Panel and Breakers

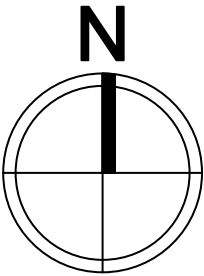
- 01 x SPN-1-00800: 200amp Span Smart Electric Panel GEN2
- 01 x SPN 1-01046: SPAN Flush Mount Trim Kit
- 01 x SPN 1-02111-01: Span Remote Meter Kit
- 03 x IPC-4/0-6: KUP-L-Tap Insulation Piercing Copper Connector
- 02 x BR245: BR 45amp 2 pole breaker
- 01 x BR240: BR 40amp 2 pole breaker
- 01 x BR235: BR 35amp 2 pole breaker
- 02 x BR230: BR 30amp 2 pole breaker
- 01 x BR225: BR 25amp 2 pole breaker
- 01 x BR215: BR 15amp 2 pole breaker
- 07 x BR120: :BR 20amp 1 pole breaker
- 01 x BRN120DF: Dual function 20amp single pole combination ground fault and arc-fault protection(Pigtail Neutrals)
- 01 x BR115: BR 15amp 1 pole breaker
- 01 x BRN115DF: Dual function 15amp single pole combination ground fault and arc-fault protection(Pigtail Neutrals)
- 06 x BRACAF115: 15amp 1 pole Combination arc fault circuit interrupter (AFCI)(Pigtail Neutrals)



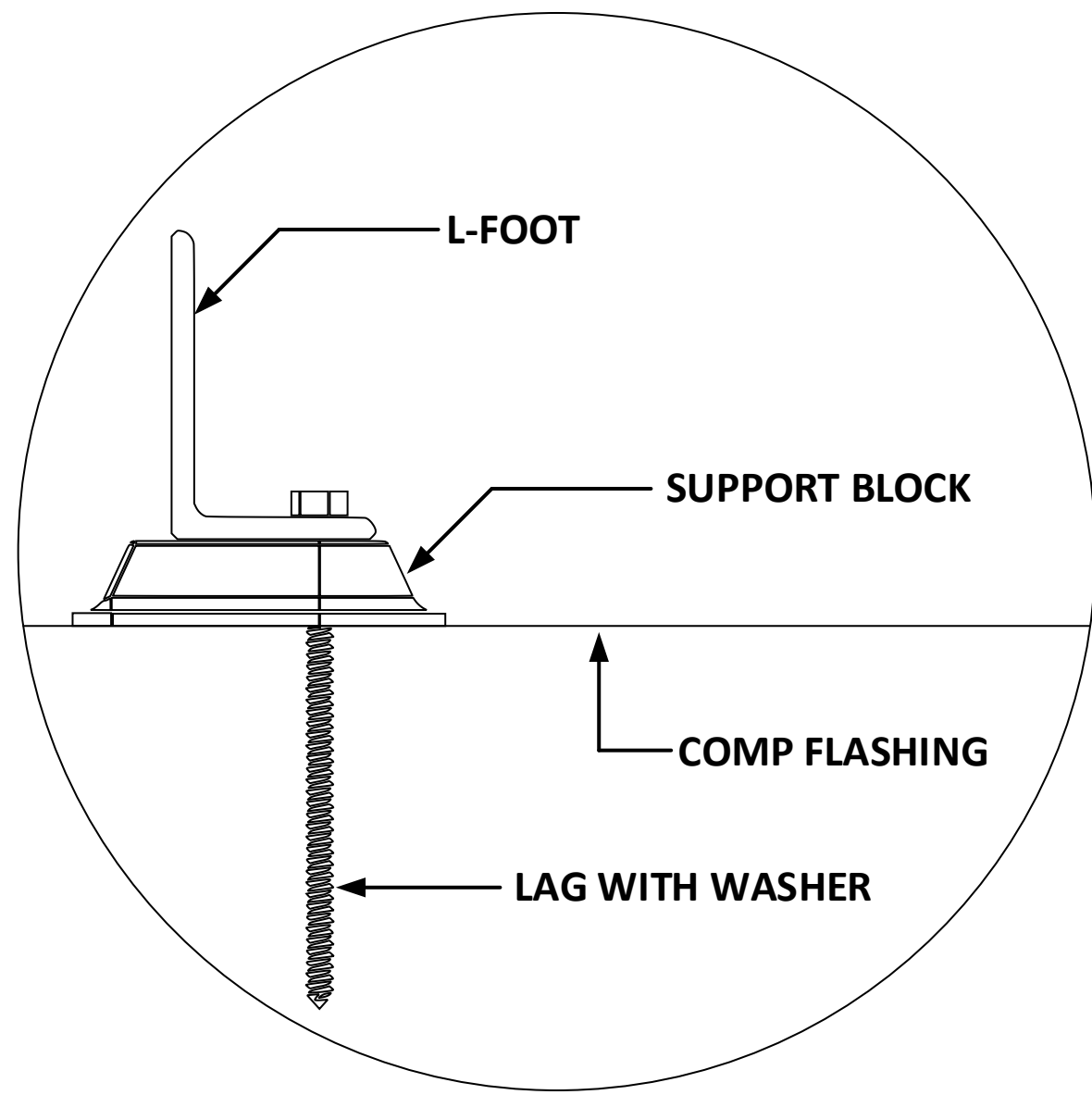
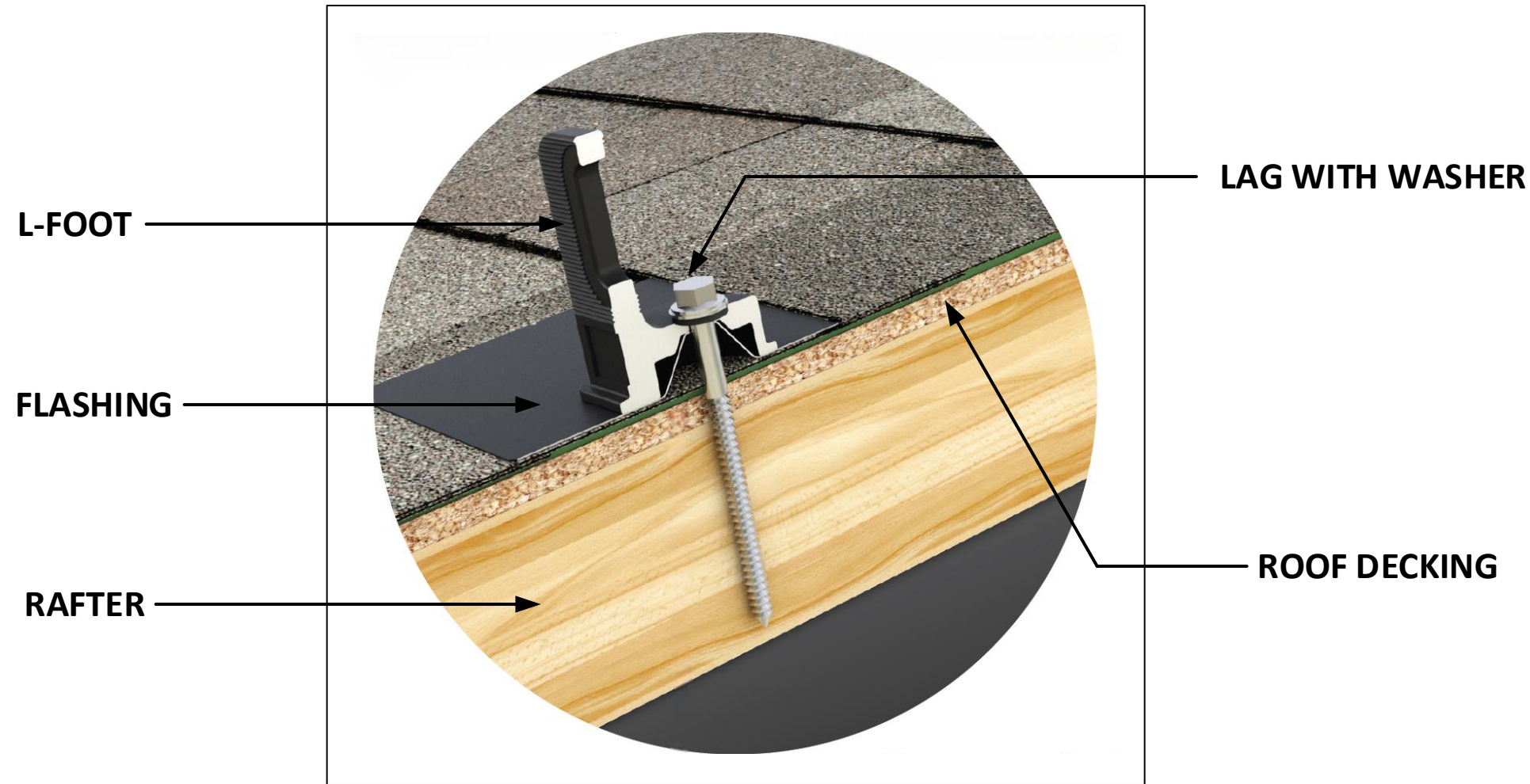
Roof B
20 Modules







Roof A
20 Modules

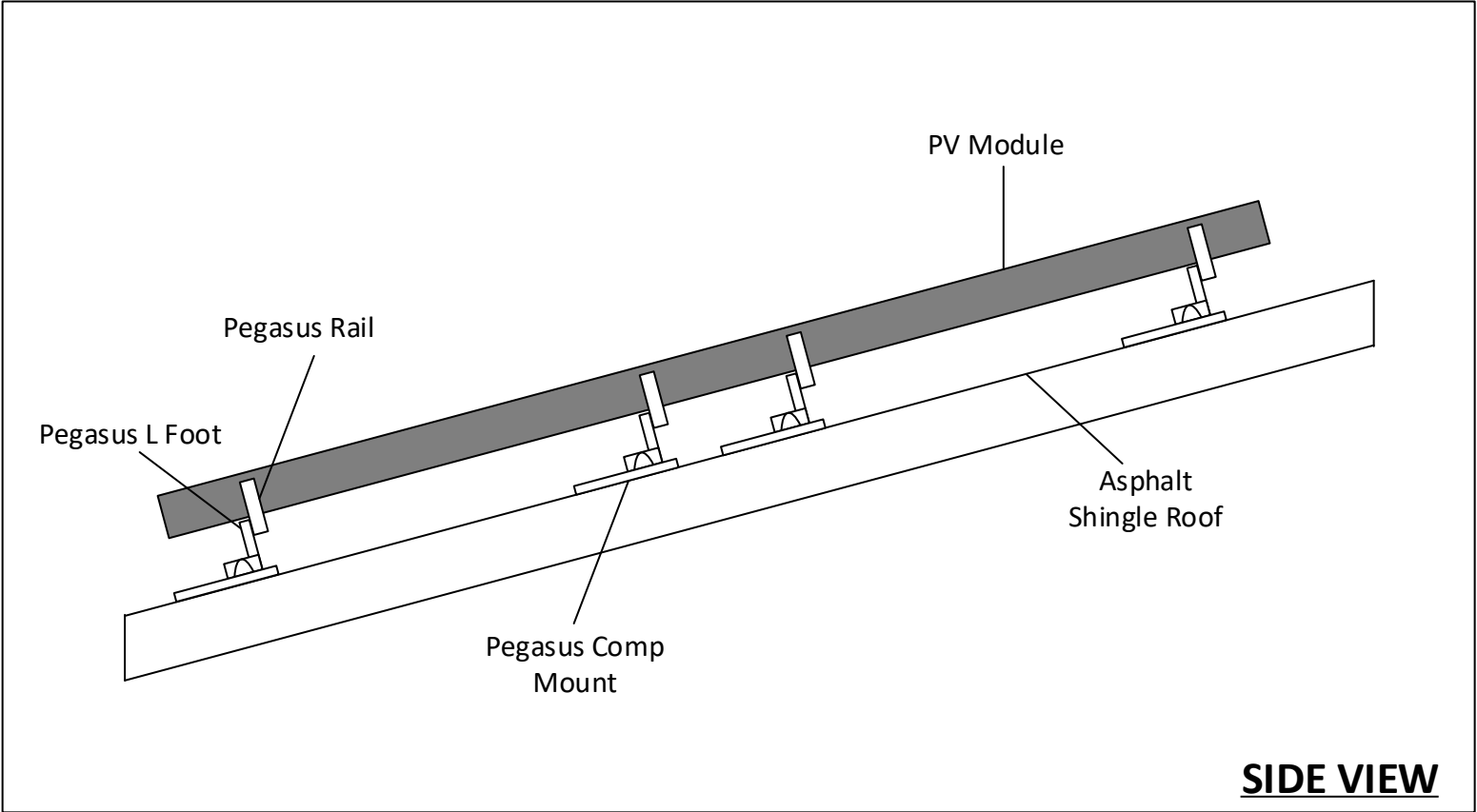
BILL OF MATERIAL
SCALE: 1/8" - 1'



6in setback from
sides of the roof



					
Multi-Clamp	Hidden End Clamp	MLPE Mount	Dovetail T-Bolt	Ground Lug	Cable Grip
Torque Value 100 in-lbs.	Torque Value 135 in-lbs.	Torque Value 135 in-lbs.	Torque Value 300 in-lbs.	Torque Value 135 in-lbs.	Torque Value 135 in-lbs.



PV Dead Load	
Roof A	PV System Dead Load (Panel + Racking weight) / PV System Area (20 panels x 48.7 lbs./panel + 177 ft. of racking x 1.17 lb.ft) / (20 panels x 6.11' x 3.37') = 2.69 psf

PV Dead Load	
Roof B	PV System Dead Load (Panel + Racking weight) / PV System Area (20 panels x 48.7 lbs./panel + 173 ft. of racking x 1.17 lb.ft) / (20 panels x 6.11' x 3.37') = 2.68 psf



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Sheet Name:

Attachment Details

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PV8

