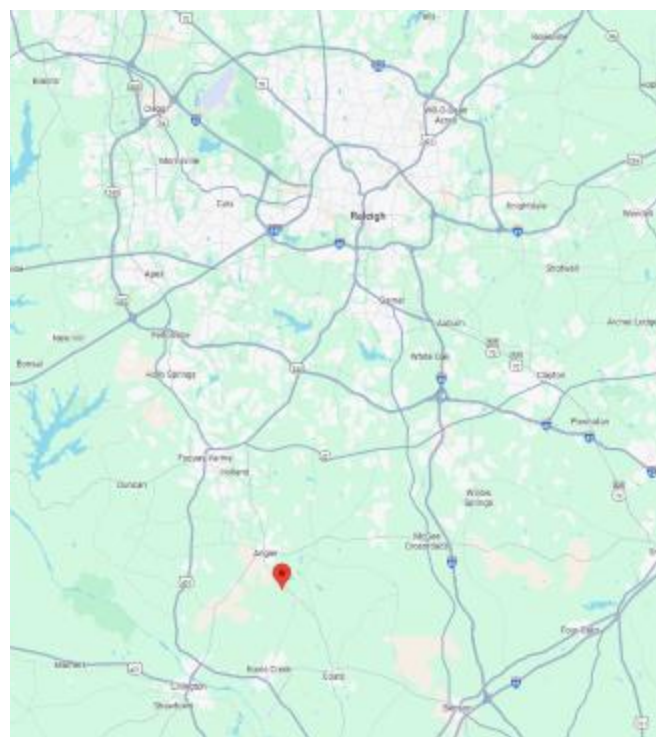




PHOTOVOLTAIC ROOF MOUNT SYSTEM			SR.#	PROJECT INFORMATION	
<b>CODE AND STANDARDS</b>  THE INSTALLATION OF SOLAR ARRAYS AND PHOTOVOLTAIC POWER SYSTEMS SHALL COMPLY WITH THE FOLLOWING CODES: <ul style="list-style-type: none"><li>2020 NATIONAL ELECTRICAL CODE</li><li>2018 NORTH CAROLINA RESIDENTIAL CODE</li><li>2018 NORTH CAROLINA BUILDING CODE</li><li>ALL OTHER ORDINANCE ADOPTED BY THE LOCAL GOVERNING AGENCIES</li></ul> <b>SITE NOTES / OSHA REGULATION</b> <ol style="list-style-type: none"><li>A LADDER SHALL BE IN PLACE FOR INSPECTION IN COMPLIANCE WITH OSHA REGULATIONS.</li><li>THE SOLAR PV INSTALLATION SHALL NOT OBSTRUCT ANY PLUMBING, MECHANICAL, OR BUILDING ROOF VENTS.</li><li>ROOFTOP MOUNTED PHOTOVOLTAIC PANELS AND MODULES SHALL BE TESTED, LISTED AND IDENTIFIED BY RECOGNIZED ELECTRICAL TESTING LABORATORY.</li><li>MODULES AND SUPPORT STRUCTURES SHALL BE GROUNDED</li><li>SOLAR INVERTER SHALL BE LISTED TO UL1741</li><li>ALL CONDUCTORS SHALL BE COPPER AND SHOULD BE 75 AND 90 DEG RATED</li><li>REMOVAL OF AN INTERACTIVE INVERTER OR OTHER EQUIPMENT SHALL NOT DISCONNECT THE BONDING CONNECTION BETWEEN THE GROUNDING ELECTRODE CONDUCTOR, THE PHOTOVOLTAIC SOURCE AND OUTPUT CIRCUIT GROUNDED CONDUCTORS.</li><li>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.</li><li>ALL PV MODULES AND ASSOCIATED EQUIPMENT AND WIRING SHALL BE PROTECTED FROM PHYSICAL DAMAGE.</li></ol> <b>SOLAR CONTRACTOR</b> <ol style="list-style-type: none"><li>MODULE CERTIFICATIONS INCLUDE UL1703, IEC61646, IEC61370.</li><li>IF APPLICABLE, MODULE GROUNDING LUGS MUST BE INSTALLED AT THE MARKED GROUNDING LUG HOLES PER THE MANUFACTURERS INSTALLATION REQUIREMENTS.</li><li>AS INDICATED BY DESIGN, OTHER NRTL LISTED MODULE GROUNDING DEVICES MAY BE USED IN PLACE OF STANDARD GROUNDING LUGS AS SHOWN IN MANUFACTURER DOCUMENTATION AND APPROVED BY THE AHJ.</li><li>ALL MICROINVERTERS, PHOTOVOLTAIC MODULES, AC COMBINERS, DC-AC CONVERTERS AND SOURCE CIRCUIT COMBINERS INTENDED FOR USE IN A PHOTOVOLTAIC POWER SYSTEM WILL BE IDENTIFIED AND LISTED FOR THE APPLICATION PER NEC690.4(B).</li><li>ALL SIGNAGE TO BE INSTALLED IN ACCORDANCE WITH LOCAL BUILDING CODE.</li><li>TERMINALS AND LUGS WILL BE TIGHTENED TO MANUFACTURER TORQUE SPECIFICATIONS (WHEN PROVIDED) IN ACCORDANCE WITH NEC CODE 110.14(D) ON ALL ELECTRICAL CONNECTIONS.</li><li>MAX DC VOLTAGE CALCULATED USING MANUFACTURER PROVIDED TEMP COEFFICIENT FOR VOC UNLESS NOT AVAILABLE.</li></ol>			1	PV MODULES	25 x Canadian Solar CS6.1-54TM-460H
			2	INVERTER + BATTERY	01 X POWERWALL 3
			3	ROOF TYPE	ASPHALT SHINGLES
			4	RACKING	PSR-B84 RAILS (BLACK)
			5	MOUNTING TYPE	INSTAFLASH2 (BLACK)
			6	DC SIZE	11.5 KW
			7	AC SIZE	11.5 KVA
			SR.#	PROJECT INFORMATION	
			1	PV1	DRAWING INDEX
			2	PV2	SITE LAYOUT
			3	PV3	STRING MAPPING
			4	PV4	ELECTRICAL ONE LINE DIAGRAM
			5	PV5	DETAILED ELECTRICAL WIRING SCHEMATIC
			6	PV6	PV LABELS
			7	PV7	BILL OF MATERIALS
			8	PV8	ATTACHMENT DETAILS
					
			<b>VICINITY MAP</b>		<b>TOP VIEW OF THE BUILDING</b>
<b>DESIGN CRITERIA</b> WIND SPEED: 120 MPH GROUND SNOW LOAD: 15 PSF WIND EXPOSURE FACTOR: B	<b>UTILITY COMPANY:</b> DUKE ENERGY  <b>PERMIT ISSUER (AHJ):</b> HARNETT COUNTY	<b>SCOPE OF WORK</b> INSTALLATION OF UTILITY INTERACTIVE PHOTOVOLTAIC SOLAR SYSTEM.			



5112 Departure Drive,  
Raleigh NC 27616  
O: 919.948.6474  
E: info@8msolar.com

**Customer Information:**  
  
Sai Kumar Kotagiri  
  
40 Bering Cir.  
Angier, NC 27501

**Customer Signature:**

**Sheet Name:**  
  
Drawing Index


**JOB NUMBER:**  
  
25-655-SK

**Date:**  
  
11/07/2025

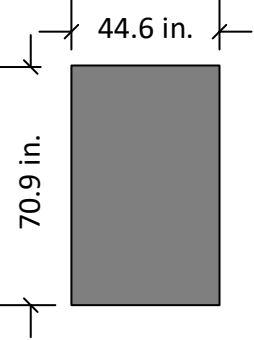
**Revision:**  
  
A

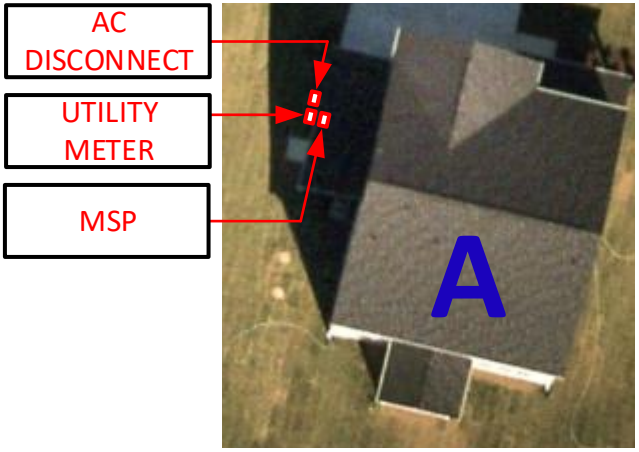
**Sheet Size:**  
  
ANSI C  
17" X 22"

**Sheet Number:**  
  
PV1

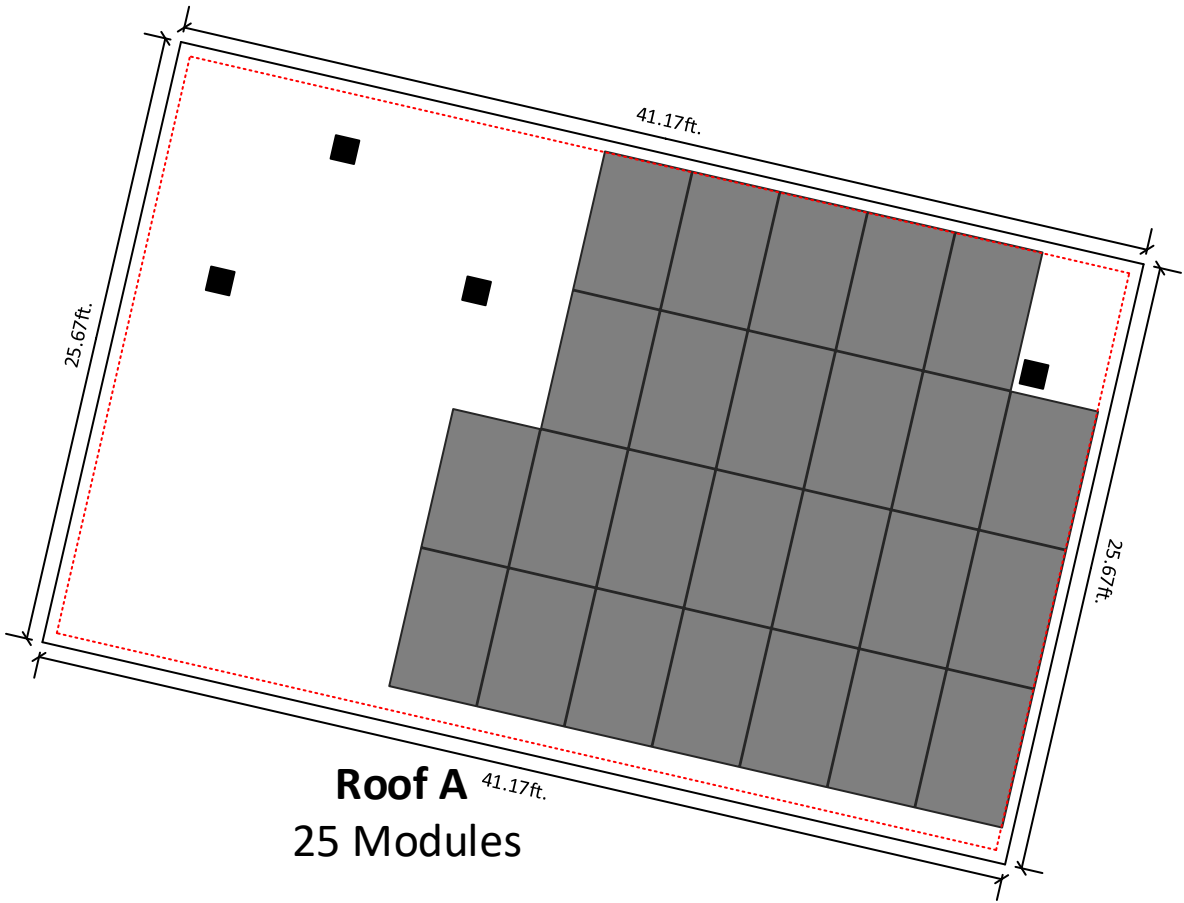


PV Installation  
Professional  
  
Ali Buttar  
PVIP #031310-32

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			
A	27°	193°	25		DEAD LOAD (PSF)	2.67			

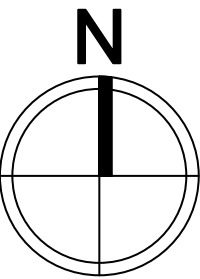


Vent		No vent will be covered by PV modules during the installation.	<b>SYSTEM DETAILS</b> NUMBER OF PANELS : 25 PANELS MODEL : CANADIAN SOLAR CS6.1-54TM-460H DC SIZE : 11.5 KW AC SIZE : 11.5 KVA						
------	---	--	--	--	--	--	--	--	--



6in setback from  
sides of the roof

SITE LAYOUT  
SCALE: 1/8" - 1'





5112 Departure Drive,  
Raleigh NC 27616  
O: 919.948.6474  
E: info@8msolar.com

Customer Information:

Sai Kumar Kotagiri  
  
40 Bering Cir.  
Angier, NC 27501

Customer Signature:

Sheet Name:

Site Layout

JOB NUMBER:

25-655-SK

Date:

11/07/2025

Revision:

A

Sheet Size:

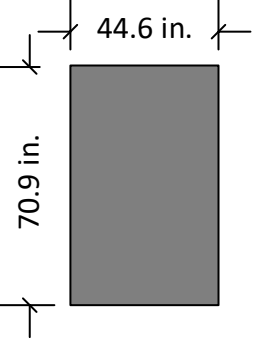

ANSI C  
17" X 22"

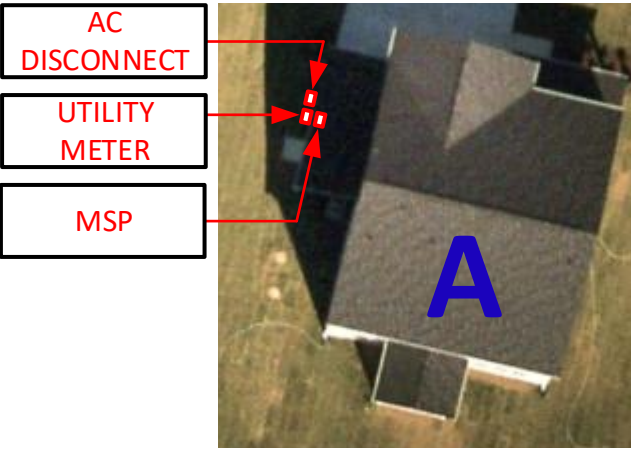
Sheet Number:

PV2





ROOF DESCRIPTION				MODULE DIMENSIONS	STRING LAYOUT					
ROOF	PITCH	AZIMUTH	NO. OF MODULES		TESLA POWERWALL3					
A	27°	193°	25		Strings #	No. of Modules	Color	Strings #	No. of Modules	Color
					String 1	11				
					String 2	09				
					String 3	05				
Tesla MCI (Mid Circuit Interrupter)										



**SYSTEM DETAILS**  
NUMBER OF PANELS : 25  
PANELS MODEL : CANADIAN SOLAR CS6.1-54TM-460H  
DC SIZE : 11.5 KW  
AC SIZE : 11.5 KVA



5112 Departure Drive,  
Raleigh NC 27616  
O: 919.948.6474  
E: info@8msolar.com

**Customer Information:**  
  
Sai Kumar Kotagiri  
  
40 Bering Cir.  
Angier, NC 27501

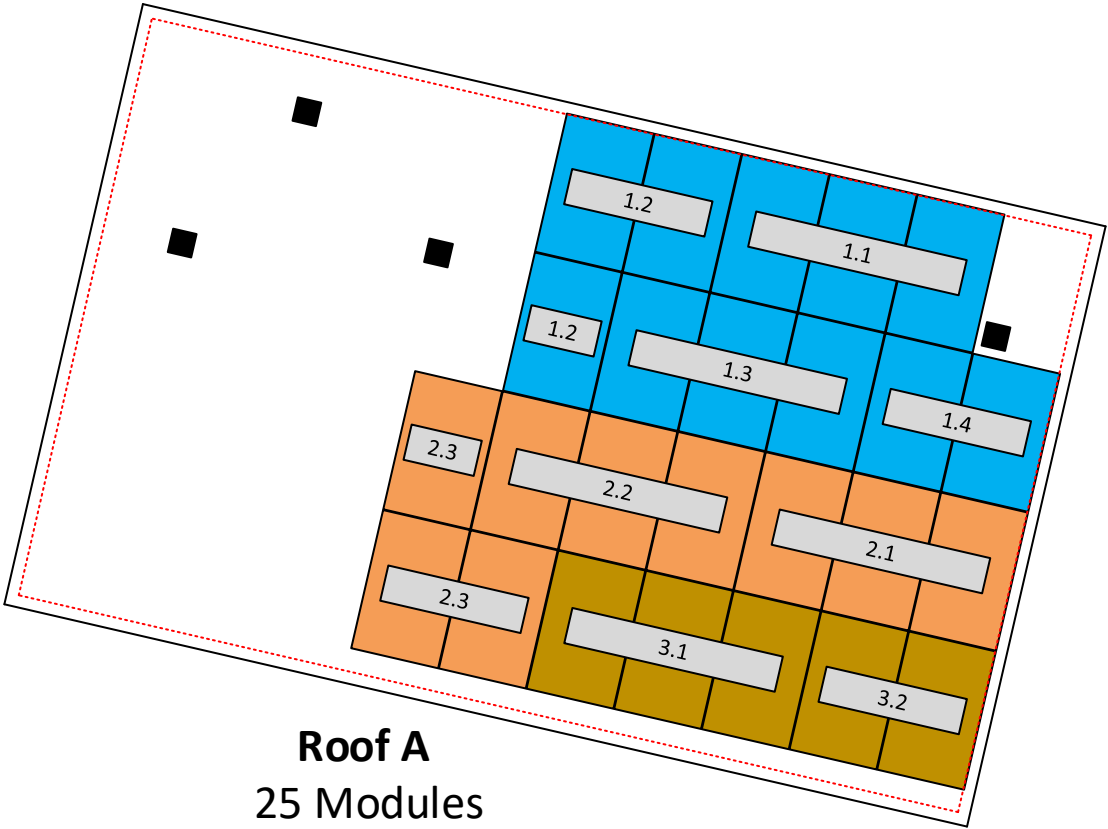
**Customer Signature:**

**Sheet Name:**  
  
String Mapping

**JOB NUMBER:**  
  
25-655-SK

<b>Date:</b>	<b>Revision:</b>
11/07/2025	A

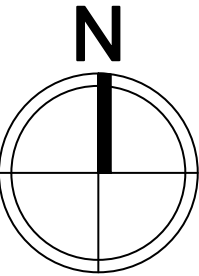
<b>Sheet Size:</b>	<b>Sheet Number:</b>
ANSI C 17" X 22"	PV3



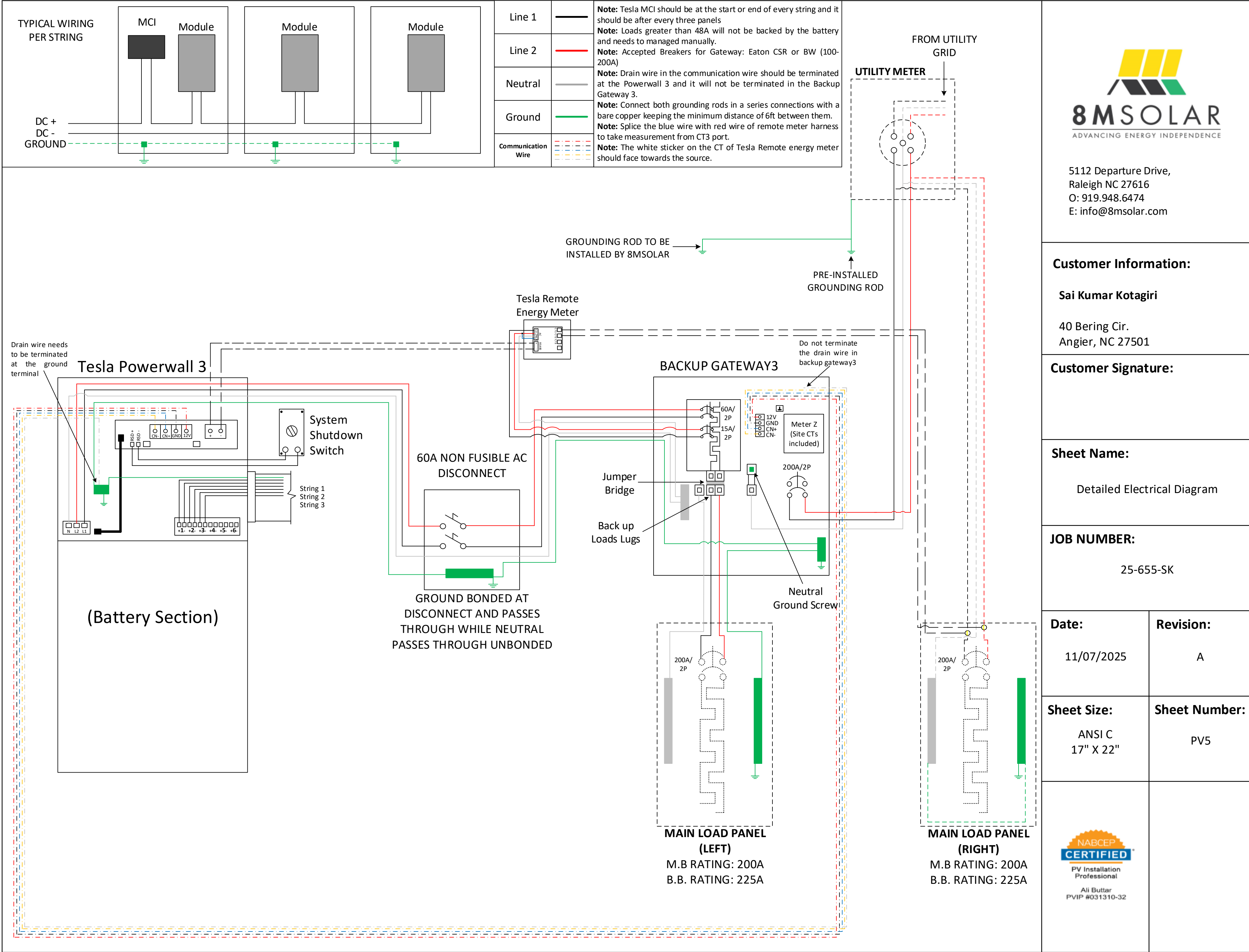
Roof A  
25 Modules

STRING MAPPING

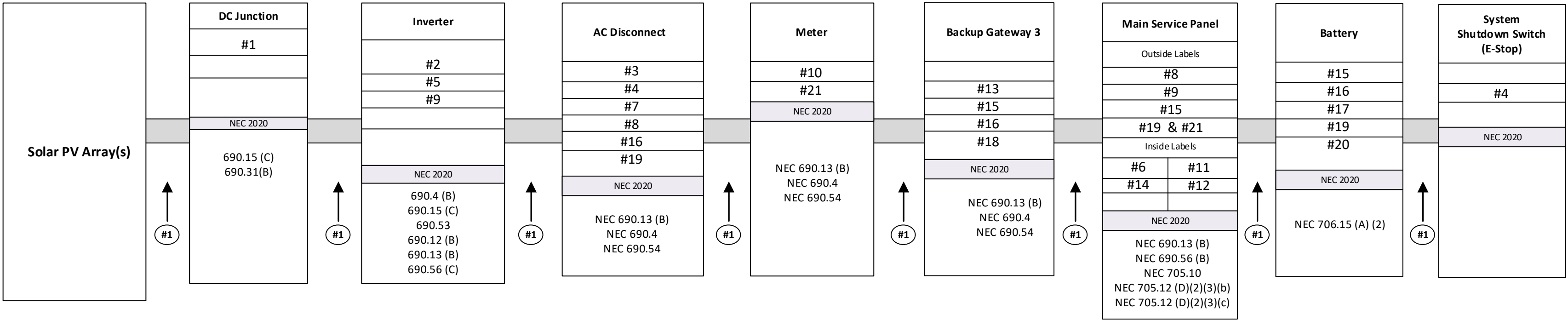
SCALE: 1/8" - 1'











5112 Departure Drive,  
Raleigh NC 27616  
O: 919.948.6474  
E: info@8msolar.com

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 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

550Vdc

  
MAX. RATED CIRCUIT CURRENT

13.78Adc

  
OF THE CHARGE CONTOLLER OR  
DC-TO-DC CONVERTER (IF INSTALLED)

#6

PHOTOVOLTIVC POWER SOURCE

OPERATING AC VOLTAGE

240

 V  
MAXIMUM OPERATING  
AC OUTPUT CURRENT

48

 A

#7

AC DISCONNECT  
PHOTOVOLTAIC SYSTEM  
POWER SOURCE

RATED AC  
OUTPUT CURRENT

48

 AMPS  
NOMINAL OPERATING  
AC VOLTAGE

240

 VOLTS

#8

!

WARNING

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

#9

!

WARNING

THREE POWER SOURCES  
SOURCES: UTILITY GRID, BATTERY AND  
PV SOLAR ELECTRIC SYSTEM

#10

!

WARNING

!

THREE POWER SOURCES  
  
SOURCES: UTILITY GRID, BATTERY AND  
PV SOLAR ELECTRIC SYSTEM

#11

!

WARNING

TURN OFF PHOTOVOLTAIC  
AC DISCONNECT PRIOR TO  
WORKING INSIDE PANEL

#12

!

WARNING

POWER SOURCE  
OUTPUT CONNECTION  
DO NOT RELOCATE THIS  
OVERCURRENT DEVICE

#13

!

WARNING

SOLAR ELECTRIC  
CIRCUIT BREAKER  
IS BACKFEED

#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

SOLAR ELECTRIC  
SYSTEM

#15

SOLAR AC DISCONNECT  
LOCATED AT NORTH-WEST SIDE  
WALL OF THE HOUSE BESIDE  
THE UTILITY METER

#16

SERVICE DISCONNECT LOCATED  
IN THE BACKUP GATEWAY 3  
PANEL

#17

BATTERY

#18

MAIN BATTERY  
SYSTEM DISCONNECT

#19

BATTERY DISCONNECT LOCATED  
IN THE BACKUP GATEWAY 3  
PANEL

#20

ENERGY STORAGE  
SYSTEM DISCONNECT

NOMINAL ESS AC VOLTAGE

240V

  
NOMINAL ESS DC VOLTAGE

550V

  
AVAILABLE FAULT CURRENT  
DERIVED FROM THE ESS

160A

  
DATE CALCULATION PERFORMED

09/17/2025

Customer Information:

Sai Kumar Kotagiri

40 Bering Cir.  
Angier, NC 27501

Customer Signature:

Sheet Name:

PV Labels

JOB NUMBER:

25-655-SK

Date:

11/07/2025

Revision:

A

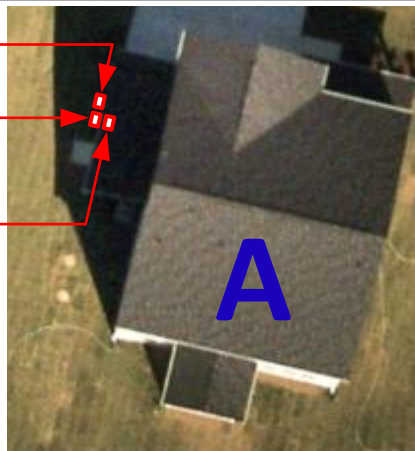
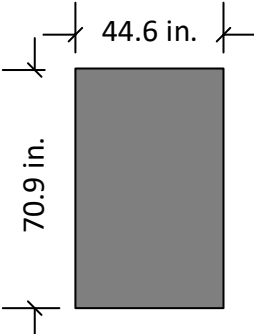
Sheet Size:

ANSI C  
17" X 22"

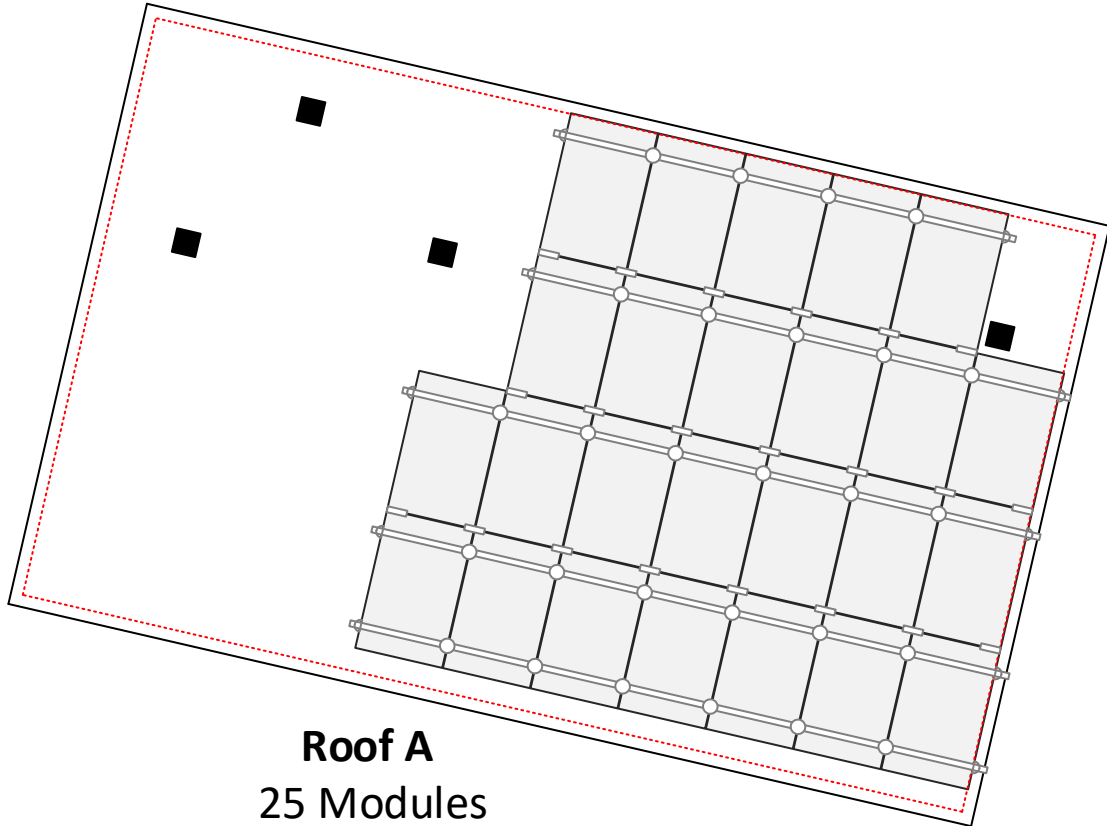
Sheet Number:

PV6



ROOF DESCRIPTION				MODULE DIMENSIONS	Rails and Splices : PSR-B84 (BLACK)	Roof Attachment: InstaFlash 2	<div><div>AC DISCONNECT</div><div>UTILITY METER</div><div>MSP</div></div> 	
ROOF	PITCH	AZIMUTH	NO. OF MODULES			There is one layer of shingles Roofing material is asphalt shingles		
A	27°	193°	25			Attachment Span: 4 ft.		The roof is located in 120mph wind zone

PV LABELS		
Sr. No	Code	Qty
01	02-314	12
02	03-301	01
03	03-302	01
04	02-316	02
05	03-308	01
06	03-390	01
07	03-306	01
08	05-215	02
09	05-230	02
10	03-230	01
11	05-372	01
12	05-216	01
13	05-342	01
14	07-111	01
15	8M-001	03
16	8M-002	03
17	03-395	01
18	04-304	01
19	8M-004	03
20	03-511	01



Roof A  
25 Modules

RAILS AND MOUNTING SYSTEM

- 19 x PSR-B84: Pegasus Rail, Black, 84" (7 Feet)
- 14 x PSR-SPLS: Pegasus - Bonded, Structural Splice
- 27 x PSR-MCB: Pegasus - Multiclamp, Mid/End, 30 to 40 mm, Black
- 10 x PSR-HEC: Pegasus - Hidden End Clamp
- 21 x PSR-SRC: Pegasus – SkipRail Clamp
- 06 x PSR-LUG: Pegasus - Grounding Lug
- 63 x PSR-WMC: Pegasus - Wire Management Clip
- 05 x PSR-CBG: Pegasus - Cable Grip
- 10 x PSR-CAP: Pegasus - End Cap
- 43 x PIF2-BDT: Pegasus InstaFlash2 – Deck or Rafter Attach – with Dovetail T-Bolt
- 106 x PF-DRW85: Pegasus Fastener - Deck-Rafter 85mm
- 50 x S6405: Heyco Wire Clips
- 03 x GEOC GC66100: SEALANT 2300 10.3OZ CLEAR (20) GEOCEL 230 TRIPOLY CLEAR
- 15 x MULTI 32.0017P0001-UR: PV MC4 MALE (10) [1000]
- 15 x MULTI 32.0016P0001-UR: PV MC4 FEMALE (10) [1000]

Critter Guard

- 200 x BIRDx SOLAR CLIP: NYLON CLIPS 100PK
- 02 x BIRDx SOLAR MESH-P-6: PREMIUM SOLAR MESH 6"X100' (124ft.)

SOLAR MODULES

- 25 x Canadian Solar CS6.1-54TM-460H

INVERTER & SUPPORTING ITEMS

- 01 x 1707000-00-J :Tesla Powerwall 3
- 09 x 1879359-15-B: Tesla MCI-2 High Current
- 01 x 1841000-01-C: Backup GateWay 3
- 01 x 1549184-00-X: 02" Conduit Hub Kit
- 01 x 2045796-xx-y: Tesla Remote Energy Meter Kit
- 02 x 2060713-xx-y CT Extension Wire
- 01 x 2045794-xx-y:RS485 Harness Remote Energy Meter

WIRE

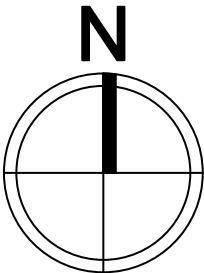
- 01 x WIRPV 2KVPV10STRBLK500: #10 PV WIRE BLK (Cu) 500ft

ELECTRICAL ITEMS

- 01 x BW2200: Gateway Main Breaker-Eaton BW2200
- 01 x BR260: Eaton BR 60/2 for Backup Gateway 3
- 01 x BR215: Eaton BR 15/2
- 01 x DG222URB: 250volt/60amp/2pole non fusible disconnect (NEMA 3R)
- 01 x EATON M22PVK01: 22.5MM PB EMG STOP W/ CONTACTOR
- 01 x Eaton M22I1PG: SFC MTG ENC Emergency Stop Enclosure
- 01 x EZSLR JB-1.2: SolaDeck

6in setback from  
sides of the roof

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



5112 Departure Drive,  
Raleigh NC 27616  
O: 919.948.6474  
E: info@8msolar.com

Customer Information:

Sai Kumar Kotagiri

40 Bering Cir.  
Angier, NC 27501

Customer Signature:

Sheet Name:

Bill of Material

JOB NUMBER:

25-655-SK

Date:

11/07/2025

Revision:

A

Sheet Size:

ANSI C  
17" X 22"

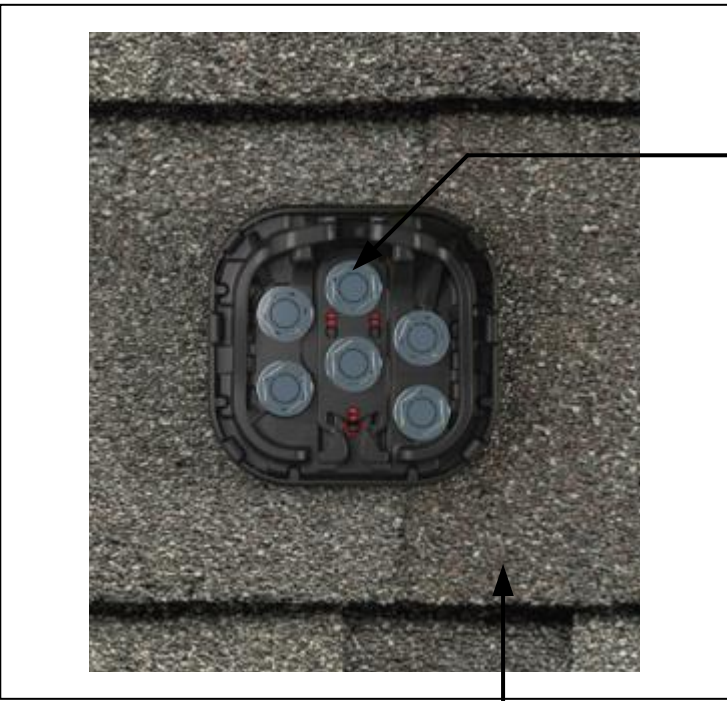
Sheet Number:

PV7



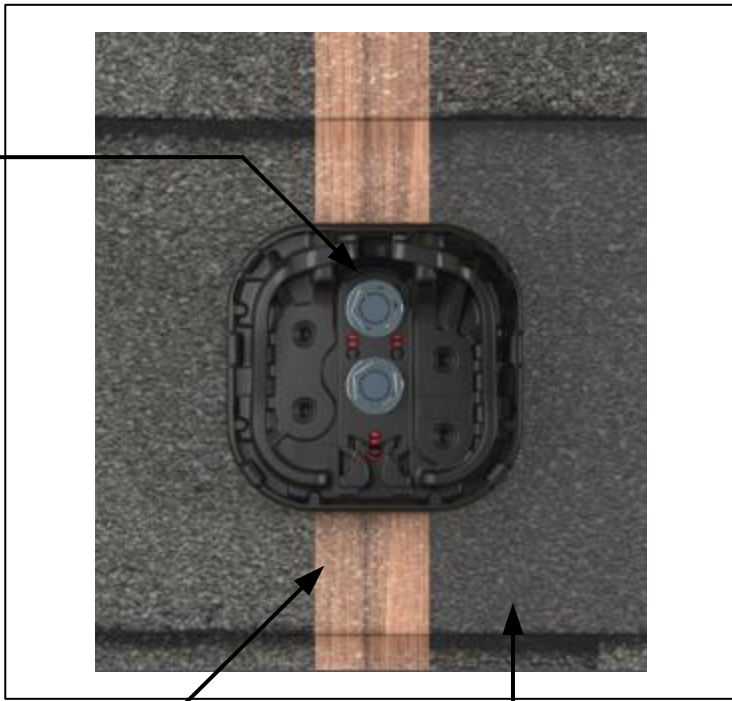


Deck Attach – 6 Fasteners



Asphalt  
Shingle Roof

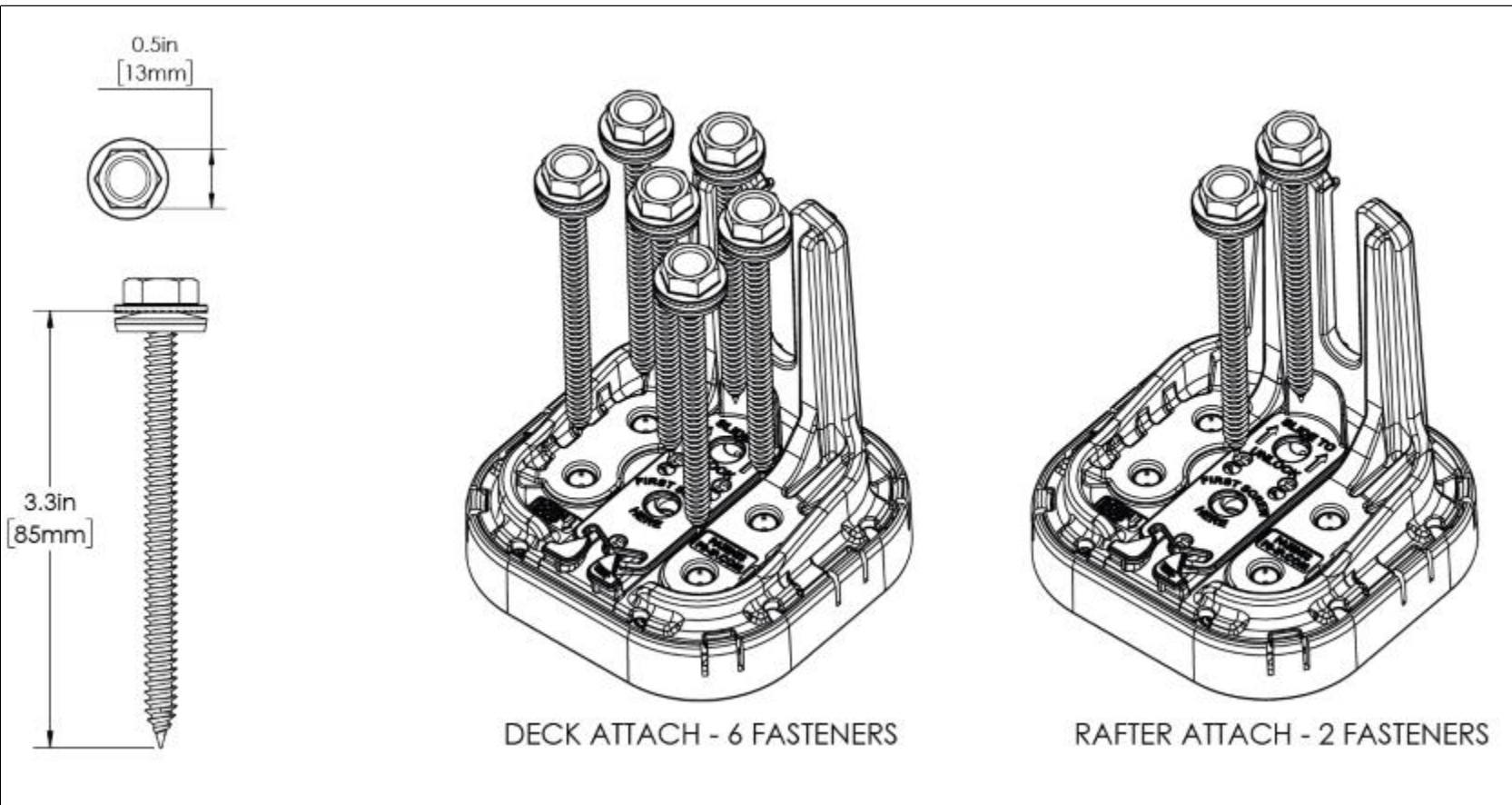
Rafter Attach – 2 Fasteners



Rafter

Asphalt  
Shingle Roof

Screw



DECK ATTACH - 6 FASTENERS

RAFTER ATTACH - 2 FASTENERS



5112 Departure Drive,  
Raleigh NC 27616  
O: 919.948.6474  
E: info@8msolar.com

Customer Information:

Sai Kumar Kotagiri

40 Bering Cir.  
Angier, NC 27501

Customer Signature:

Sheet Name:

Attachment Details

JOB NUMBER:

25-655-SK

Date:

11/07/2025

Revision:

A

Sheet Size:

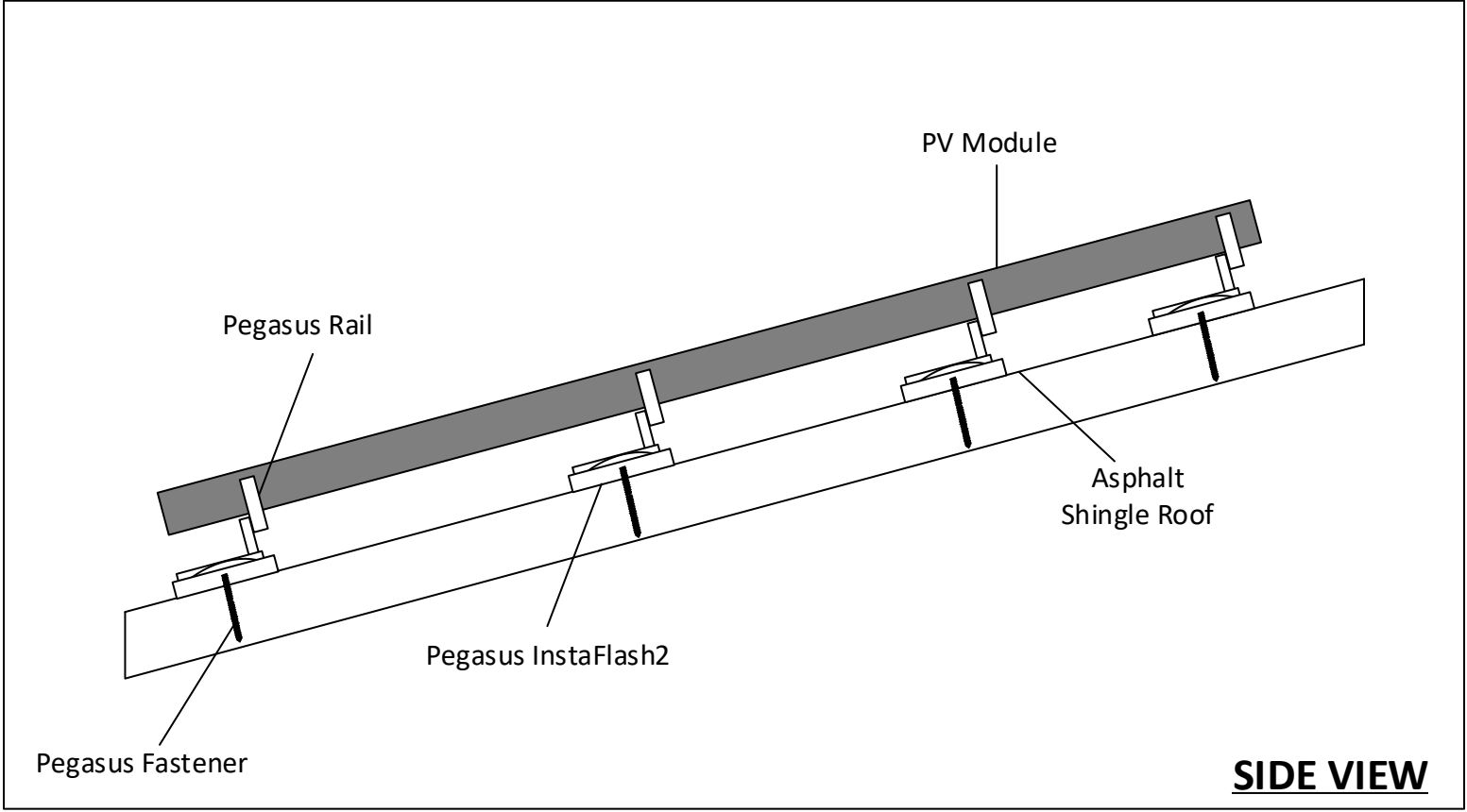
ANSI C  
17" X 22"

Sheet Number:

PV8



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	<b>PV System Dead Load</b> <b>(Panel + Racking weight) / PV System Area</b> (25 panels x 50.7lbs./panel + 188 ft. of racking x 1.17 lb.ft) / (25 panels x 5.9' x 3.71') = 2.67 psf