

SHEET INDEX		SCOPE OF WORK		GENERAL NOTES																																					
PAGE #	DESCRIPTION	SYSTEM SIZE: 5200W DC, 23000W AC MODULES: (13) LONGI GREEN ENERGY TECHNOLOGY CO LTD: LR5-54HBB-400M INVERTERS: (1) TESLA: POWERWALL 3 1707000-XX-Y, (1) TESLA: POWERWALL 3 1707000-XX-Y RACKING: ULTRA RAIL ATTACHMENT DETAIL, UMBRELLA L FOOT TO FRAMING, SNR-DC-00339 ENERGY STORAGE SYSTEM: (2) TESLA: POWERWALL 3 1707000-XX-Y WITH INTEGRATED INVERTER: 13.5 kWh PER PW3 TOTAL ENERGY CAPACITY (IN kWh): 27kWh RAPID SHUTDOWN: (5) TESLA MID CIRCUIT INTERRUPTER (MC) ROOFTOP MODULE LEVEL RAPID SHUTDOWN DEVICE POWER CONTROLLED SYSTEM (PCS) ENABLED EQUIPMENT INSTALLED, SEE PV-4.0 FOR INTERCONNECTION DETAILS BUILDING TYPE: [SINGLE FAMILY HOME] R-3 OCCUPANCY CONSTRUCTION TYPE: V-B INSTALL THE BACKED UP LOAD CONDUCTORS AND THE GATEWAY BREAKER CONDUCTORS IN TWO SEPARATE CONDUITS BACKUP GATEWAY: (1) 200A TESLA, 1841000-01-C, ENERGY GATEWAY 3		ALL WORK SHALL GENERALLY CONFORM WITH 2022 CRC/CBC/CBC/CFC, MUNICIPAL CODE, AND ALL MANUFACTURERS' LISTINGS AND INSTALLATION INSTRUCTIONS. PHOTOVOLTAIC SYSTEM WILL COMPLY WITH CEC 2022. ELECTRICAL SYSTEM GROUNDING WILL COMPLY WITH CEC 2022. PHOTOVOLTAIC SYSTEM IS FUNCTIONALLY GROUNDED. NO CONDUCTORS ARE SOLIDLY GROUNDED IN THE INVERTER. SYSTEM COMPLIES WITH 690.41(A). MODULES CONFORM TO AND ARE LISTED UNDER UL 61730. INVERTER CONFORMS TO AND IS LISTED UNDER UL 1741. RACKING CONFORMS TO AND IS LISTED UNDER UL 2703. SNAPRACK RACKING SYSTEMS, IN COMBINATION WITH TYPE I, OR TYPE II MODULES, ARE CLASS A FIRE RATED. RAPID SHUTDOWN SYSTEM IN COMPLIANCE WITH CEC 2022 690.12(B)(1) WHERE CONDUCTORS OUTSIDE OF THE ARRAY ARE LIMITED TO LESS THAN 30V IN 30 SECONDS AND CEC 2022 690.12(B)(2) WHERE CONDUCTORS INSIDE THE ARRAY BOUNDARY IS LIMITED TO LESS THAN 80V IN 30 SECONDS CONSTRUCTION FOREMAN TO PLACE CONDUIT RUN PER 690.31(D). ARRAY DC CONDUCTORS ARE SIZED FOR DERATED CURRENT. 14.88 AMPS MODULE SHORT CIRCUIT CURRENT. 23.25 AMPS DERATED SHORT CIRCUIT CURRENT (690.8 (A)(1) & 690.8 (B)). ADDITIONAL ELECTRICAL NOTES: THIS PROJECT SHALL COMPLY WITH THE 2022 CALIFORNIA BUILDING CODE WHICH ADOPTS THE 2021 IBC, 2021 UMC, 2021 UPC, AND THE 2020 NEC. AND WORKING SPACES PER UMC 305 AND NEC 110.26. THIS SYSTEM WILL NOT BE INTERCONNECTED UNTIL APPROVAL FROM THE LOCAL JURISDICTION AND THE UTILITY IS OBTAINED. THE SOLAR PHOTOVOLTAIC INSTALLATION SHALL NOT OBSTRUCT ANY PLUMBING, MECHANICAL, OR BUILDING ROOF VENTS. A LADDER SHALL BE SECURED IN PLACE FOR INSPECTION IN COMPLIANCE WITH CAL-OSHA REGULATIONS. PROPER ACCESS AND WORKING CLEARANCE WILL BE PROVIDED PER SECTION 110.26 CEC. EXPOSED NON-CURRENT CARRYING METAL PARTS OF MODULE FRAMES, EQUIPMENT, AND CONDUCTOR ENCLOSURES SHALL BE GROUNDED IN ACCORDANCE WITH 250.134 OR 250.138(A) REGARDLESS OF VOLTAGE. EACH MODULE SHALL BE GROUNDED USING THE SUPPLIED CONNECTION POINT IDENTIFICATION ON THE MODULE AND THE MANUFACTURER INSTRUCTIONS. IF THE EXISTING GROUNDED ELECTRODE SYSTEM CANNOT BE VERIFIED OR IS ONLY METALLIC WATER PIPING, IT IS THE CONTRACTORS RESPONSIBILITY TO INSTALL A SUPPLEMENTAL GROUNDING ELECTRODE. MODULE INTERCONNECTIONS WILL BE MADE WITH 10AWG PV RHWUSE-2 WIRE. ARRAY CONDUCTORS ARE SIZED FOR DERATED CURRENT PER STRING. INVERTER PROVIDES NECESSARY FAULT PROTECTION AS REQUIRED BY 2020 NEC 680.5 GROUND FAULT PROTECTION. PHOTOVOLTAIC SYSTEM HAS CONDUCTOR BONDED TO GROUND IN INVERTER AS REQUIRED BY 2020 NEC 690.41 SYSTEM GROUNDING, AND 690.42 POINT OF SYSTEM GROUNDING CONNECTION. USE UL APPROVED BONDING FITTINGS AT ALL CONDUIT/BOX JUNCTIONS. MODULES CONFORM TO AND ARE LISTED UNDER UL 1703 AND INVERTER CONFORMS TO AND IS LISTED UNDER UL 1741. THE PV CONNECTION IN THE PANEL BOARD SHALL BE POSITIONED AT THE OPPOSITE (LOAD) END FROM THE INPUT FEEDER LOCATION OR MAIN CIRCUIT LOCATION AS REQUIRED BY NEC 705.12(B)(3)(2). ENERGY STORAGE SYSTEM CONFORMS TO AND IS LISTED UNDER UL 9540. ENERGY STORAGE SYSTEM LIVE PARTS ARE NOT ACCESSIBLE DURING ROUTINE MAINTENANCE. SYSTEM VOLTAGE IN ACCORDANCE WITH NEC 690.7 AND EXCEPTION 1 NEC 690.71(B)(1). ADDITIONAL DISCONNECTING MEANS SHALL BE INSTALLED WHERE ENERGY STORAGE DEVICE INPUT AND OUTPUT TERMINALS ARE MORE THAN 5 FT FROM CONNECTED EQUIPMENT, OR WHERE THE CIRCUITS FROM THESE TERMINALS PASS THROUGH A WALL OR PARTITION PER NEC 690.71(H) OR 706.7(E). LISTED, COMBINATION TYPE AFCI SHALL BE INSTALLED WHERE BACKED UP CIRCUIT WIRING IS EXTENDED MORE THAN 6 FT AND DOES NOT INCLUDE ANY ADDITIONAL OUTLETS OR DEVICES PER NEC 201.12(B). ENERGY STORAGE SYSTEM CONFORMS TO AND IS LISTED UNDER UL 9540. ENERGY STORAGE SYSTEM LIVE PARTS ARE NOT ACCESSIBLE DURING ROUTINE MAINTENANCE. SYSTEM VOLTAGE IN ACCORDANCE WITH CEC 706.20 AND EXCEPTION 1 CEC 706.20 (B). ADDITIONAL DISCONNECTING MEANS SHALL BE INSTALLED WHERE THE CIRCUITS FROM THESE TERMINALS PASS THROUGH A WALL OR PARTITION PER 706.15(D). LISTED, COMBINATION TYPE AFCI SHALL BE INSTALLED WHERE THE CIRCUITS FROM THESE TERMINALS PASS THROUGH A WALL OR PARTITION PER 706.15(D). ALL PASS-THROUGH CONDUCTORS MUST COMPLY WITH CEC 312.8 THE CAPACITY OF THE STANDALONE SYSTEM SUPPLY SHALL BE EQUAL TO OR GREATER THAN THE LOAD POSED BY THE SINGLE LARGEST UTILIZATION EQUIPMENT CONNECTED TO THE SYSTEM PER CEC ARTICLE 710.15(A)																																					
VICINITY MAP																																									
ABBREVIATIONS		<table><thead><tr><th>ABBREVIATIONS</th><th>DESCRIPTION</th></tr></thead><tbody><tr><td>AMP</td><td>AMPERE</td></tr><tr><td>AC</td><td>ALTERNATING CURRENT</td></tr><tr><td>AFC</td><td>ARC FAULT CIRCUIT INTERRUPTER</td></tr><tr><td>AZIM</td><td>AZIMUTH</td></tr><tr><td>COMP</td><td>COMPOSITION</td></tr><tr><td>DC</td><td>DIRECT CURRENT</td></tr><tr><td>EX</td><td>EXISTING</td></tr><tr><td>ESS</td><td>ENERGY STORAGE SYSTEM</td></tr><tr><td>MSP</td><td>MAIN SERVICE PANEL</td></tr><tr><td>NEW</td><td>NEW</td></tr><tr><td>PRE-FAB</td><td>PRE-FABRICATED</td></tr><tr><td>PSF</td><td>POUNDS PER SQUARE FOOT</td></tr><tr><td>PV</td><td>PHOTOVOLTAIC</td></tr><tr><td>RSD</td><td>RAPID SHUTDOWN DEVICE</td></tr><tr><td>TL</td><td>TRANSFORMERLESS</td></tr><tr><td>V</td><td>VOLTS</td></tr><tr><td>W</td><td>WATTS</td></tr></tbody></table>		ABBREVIATIONS	DESCRIPTION	AMP	AMPERE	AC	ALTERNATING CURRENT	AFC	ARC FAULT CIRCUIT INTERRUPTER	AZIM	AZIMUTH	COMP	COMPOSITION	DC	DIRECT CURRENT	EX	EXISTING	ESS	ENERGY STORAGE SYSTEM	MSP	MAIN SERVICE PANEL	NEW	NEW	PRE-FAB	PRE-FABRICATED	PSF	POUNDS PER SQUARE FOOT	PV	PHOTOVOLTAIC	RSD	RAPID SHUTDOWN DEVICE	TL	TRANSFORMERLESS	V	VOLTS	W	WATTS		
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Exp. 12/31/2024
Signature: [Signature]
No. C 73567
State of California



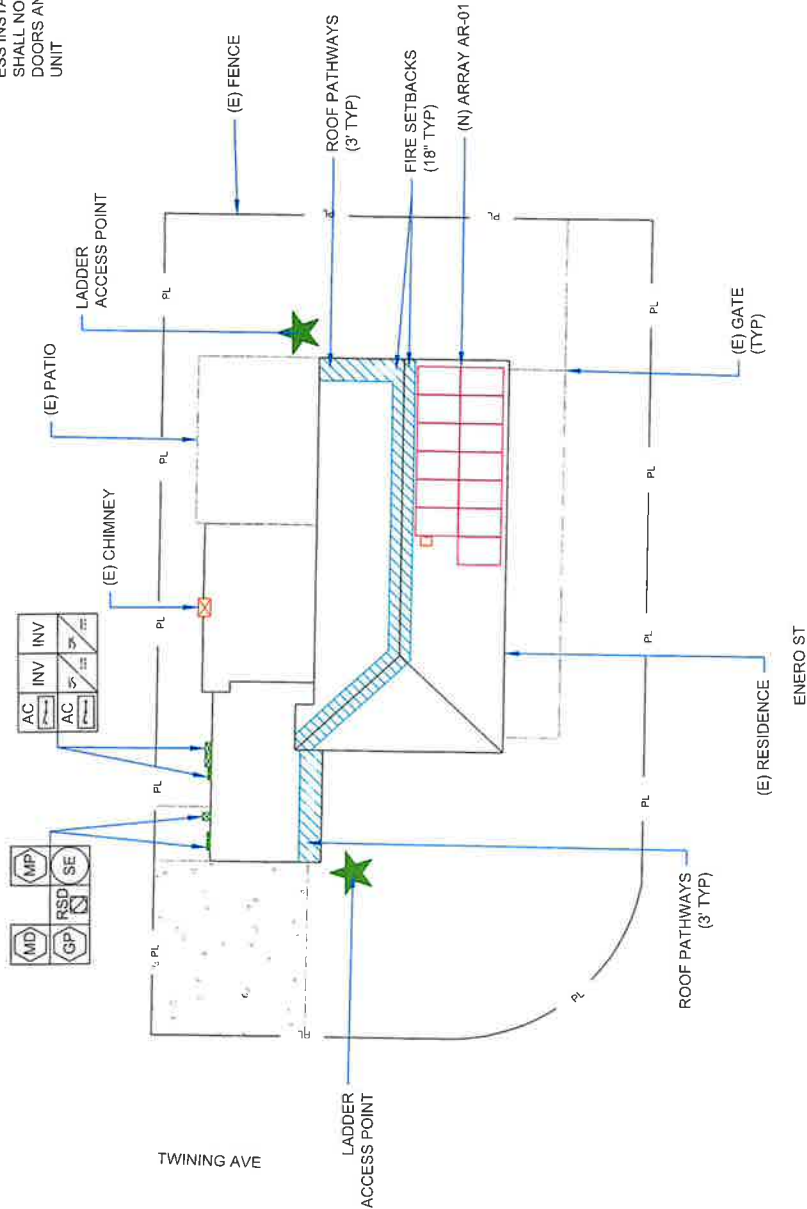
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GILBERT CORREIA, C10, C46

CUSTOMER RESIDENCE:	1255 TWINING AVE, SAN DIEGO, CA, 92154
PROJECT NUMBER:	116R-255RASK
DESIGNER:	(415) 580-6920 ex3 JOHNPAUL JOSH
SHEET	COVER SHEET
REV: A	11/20/2024
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ESS SHALL BE INSTALLED IN COMPLIANCE WITH 328.4
ESS INSTALLED ON THE EXTERIOR OF A DWELLING UNIT
SHALL NOT BE INSTALLED LESS THAN THREE (3) FEET FROM
DOORS AND WINDOWS DIRECTLY ENTERING THE DWELLING
UNIT.



LESS UNITS SHALL BE SEPARATED FROM EACH OTHER BY NOT LESS THAN 3 FEET EXCEPT WHERE SMALLER SEPARATION DISTANCES ARE DOCUMENTED TO BE ADEQUATE BASED ON LARGE/SCALE FIRE TESTING.

NOTES:

- NOTES:
- RESIDENCE DOES NOT CONTAIN ACTIVE FIRE SPRINKLERS.

ARRAY DETAILS:

- TOTAL ROOF SURFACE AREA: 1756 SQFT.
- TOTAL PV ARRAY AREA: 273.3 SQ FT.
- PERCENTAGE PV COVERAGE:
(TOTAL PV ARRAY AREA/TOTAL ROOF SURFACE AREA) * 100 = 15.6%

	ARRAY PITCH	TRUE AZIM	MAG AZIM	PV AREA (SQFT)
AR-01	15°	181°	169°	273.3

ROOFTOP MODULE LEVEL RAPID SHUTDOWN DEVICE
INSTALLED PER CEC 690.12

LEGEND

SCALE NYS
NOTE: NOT ALL ITEMS IN LEGEND
WILL APPEAR IN SITE PLAN



Exp 12/31/2024
Signed On 11/25/2024



CA CL #750184

CUSTOMER RESIDENCE:

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APN: 631-190-22-00

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SHEET
SITE PLAN

REV: A 11/20/2024

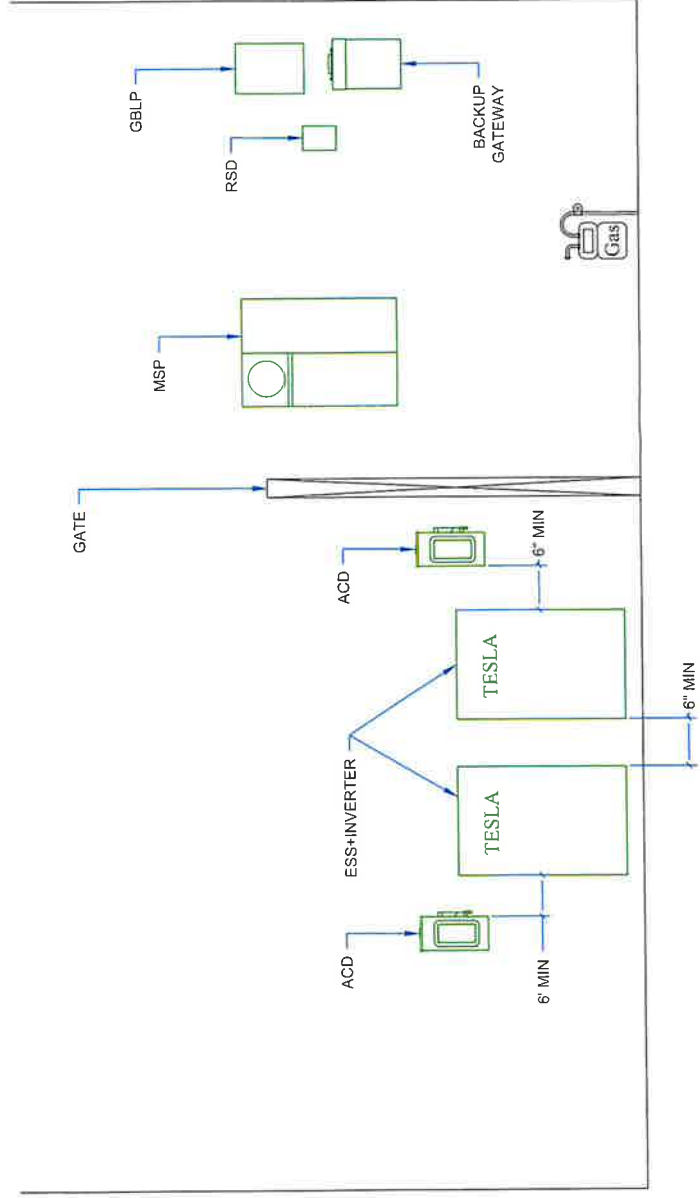
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1

ESS ELEVATION VIEW

EXTERIOR NORTH WALL

ESS ELEVATION - SCALE = 3/8" = 1'-0"



NO WINDOWS AND DOORS INTO DWELLING UNIT LOCATED ON THIS WALL



Exp: 12/31/2024
Signed On: 11/25/2024

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SHEET
ESS ELEVATION VIEW

REV: A 11/20/2024

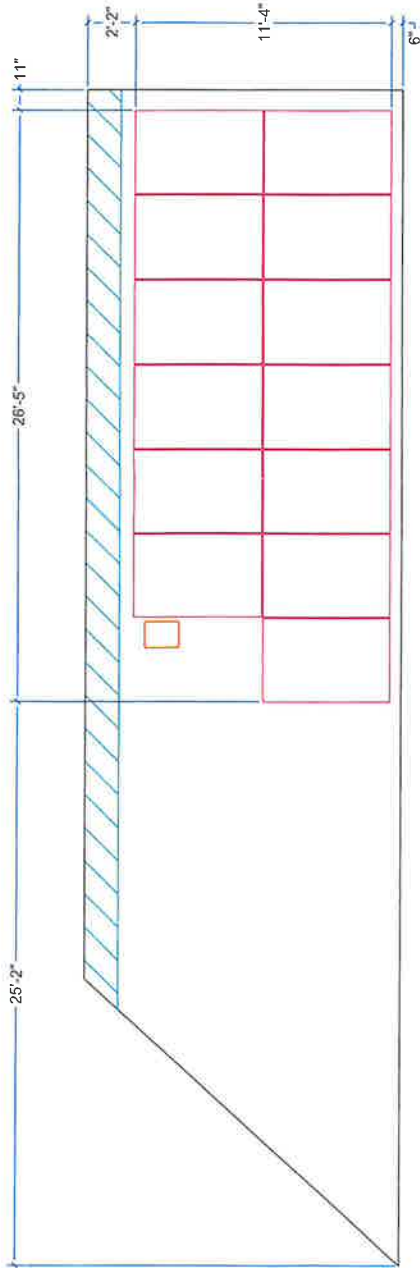
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ROOF INFO			ATTACHMENT INFORMATION					
Name	Type	Height	Detail	Max Landscape OC Spacing	Max Landscape Overhang	Max Portrait OC Spacing	Max Portrait Overhang	Configuration
AR-01	COMP SHINGLE - UR - UMBRELLA L FOOT	1-Story	ULTRA RAIL, ATTACHMENT DETAIL, UMBRELLA L FOOT TO FRAMING. SNR-DC-00339	6'-0"	2'-4"	6'-0"	2'-3"	STAGGERED

D1 - AR-01 - SCALE: 3/16" = 1'-0"

AZIM: 181°

PITCH: 15°

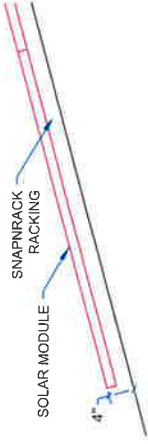


INSTALLERS SHALL NOTIFY ENGINEER OF ANY POTENTIAL STRUCTURAL ISSUES OBSERVED PRIOR TO PROCEEDING W/ INSTALLATION.

* IF ARRAY (EXCLUDING SKIRT) IS WITHIN 12" BOUNDARY REGION OF ANY ROOF PLANE EDGES (EXCEPT VALLEYS), THEN ATTACHMENTS NEED TO BE ADDED AND OVERHANG REDUCED WITHIN THE 12" BOUNDARY REGION ONLY AS FOLLOWS:
•• ALLOWABLE ATTACHMENT SPACING INDICATED ON PLANS TO BE REDUCED BY 50%.
•• ALLOWABLE OVERHANG INDICATED ON PLANS TO BE 1/5TH OF ALLOWABLE ATTACHMENT SPACING INDICATED ON PLANS.

* EXISTING STRUCTURE IS ASSUMED TO BE A LIGHT-FRAME WOOD ROOF AND FREE FROM DAMAGE, DETERIORATION, OR MODIFICATION THAT WOULD COMPROMISE ITS ORIGINAL DESIGN INTEGRITY. CONTACT ENGINEER OF RECORD IF FOLLOWING MINIMUM REQUIREMENTS ARE NOT SATISFIED IN COMPLIANCE WITH THE STATED RACKING DESIGN:
•• 2X WOOD FRAMING (NOMINAL)
•• FRAMING SPACING AT 24" O.C. MAX
•• 7/16" MIN SHEATHING (OSB/PLY)

MODULE ELEVATION DETAIL - SCALE: NTS



PV SYSTEM DOES NOT EXTEND ABOVE THE HIGHEST ROOF RIDGE

DESIGN CRITERIA

MAX DISTRIBUTED LOAD: 3 PSF

SNOW LOAD: 0 PSF

WIND SPEED: 97 MPH 3-SEC GUST

FASTENERS:
(1) 5/16" DIA S.S. UMBRELLA SCREW: 2.5" MIN EMBEDMENT INTO FRAMING



Exp: 12/31/2024

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LAYOUT

REV: A 11/20/2024

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Matthew W. Smith, C.E. 00010723

SNAPNRACK ULTRA RAIL UMBRELLA L FOOT WITH UMBRELLA FLASHING
FOR COMPOSITION ROOF MOUNTING

REFER TO SNAPNRACK ENGINEERING CHARTS FOR APPLICABLE RAIL
SPANS. "BIN" NUMBER ON CHART SHOULD MATCH "BIN" NUMBER ON
THIS DRAWING

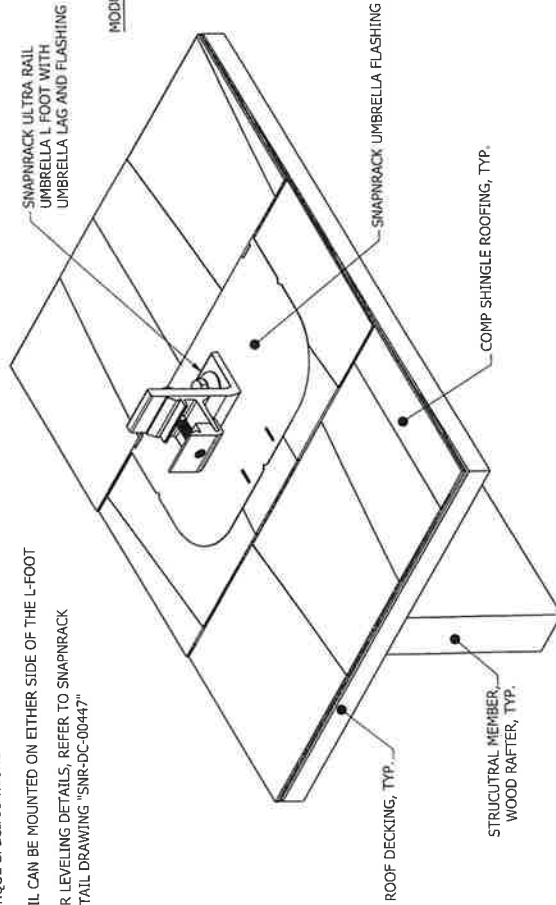
5/16" S.S. UMBRELLA LAG SCREW MUST EMBED A MIN. OF 2 1/2" INTO
STRUCTURAL MEMBER TO UTILIZE STANDARD SNAPNRACK ENGINEERING.
REACH OUT TO SNAPNRACK IF THIS IS NOT POSSIBLE

REFER TO SNAPNRACK INSTALLATION MANUAL FOR 5/16" HARDWARE
TORQUE SPECIFICATIONS

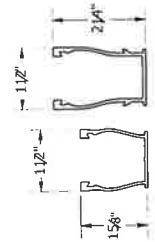
RAIL CAN BE MOUNTED ON EITHER SIDE OF THE L-FOOT
FOR LEVELING DETAILS, REFER TO SNAPNRACK
DETAIL DRAWING "SNR-DC-00447"

REVISION:	NEW DETAIL
1	5/18/2023
2	6/13/2023
3	6/13/2023
4	6/13/2023
5	6/13/2023
6	6/13/2023
7	6/13/2023
8	6/13/2023

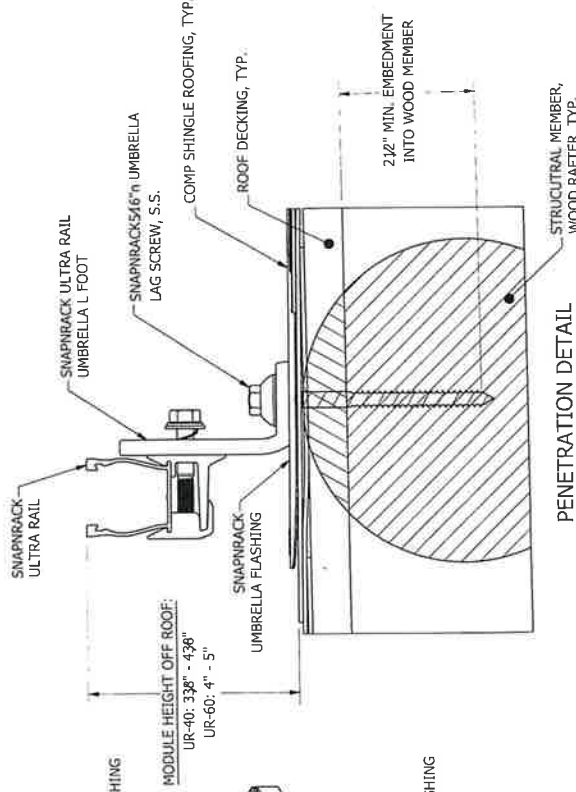
BIN: 8



INSTALLED SECTION VIEW



UR-40 RAIL | UR-60 RAIL
FOR USE WITH SNAPNRACK ULTRA SERIES RAILS



PENETRATION DETAIL



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Signed On: 11/23/2024

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PROJECT NUMBER:
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JOHNPAUL JOSH

SHEET

MOUNTING DETAIL

REV: A 11/20/2024

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DESCRIPTION: ULTRA RAIL, ATTACHMENT DETAIL, UMBRELLA
L FOOT TO RAFTER

DRAWING NUMBER:
SNR-DC-00339

SCALE: DNS
DATE: 6 22 2023

DESIGNER: M. AFFENTRANGER
DRAFTER: M. AFFENTRANGER
APPROVED BY: E. FERGUSON

Sunrun South LLC
SUNRUN SOUTH LLC
17000 JARDINS DR. SAN DIEGO, CA 92128
SUNRUN SOUTH LLC
17000 JARDINS DR. SAN DIEGO, CA 92128

SnapNrack
Solar Mounting Solutions

SYSTEM INFORMATION

5.2 KW DC PHOTOVOLTAIC SYSTEM

(7) LONGI GREEN ENERGY TECHNOLOGY CO LTD: LR5-54HAB-400M, TESLA: POWERWALL 3 1707000-XX-Y
(6) LONGI GREEN ENERGY TECHNOLOGY CO LTD: LR5-54HAB-400M, TESLA: POWERWALL 3 1707000-XX-Y

SYSTEM OCPD SIZE

(COMBINED MAX CURRENT) X (CONTINUOUS LOAD) =
96 A X 1.25 = 120 A → 70 A OVERCURRENT PROTECTION USING PCS

GATEWAY SYSTEM AC WIRE SIZING

MAX AC OUTPUT CURRENT = 70 A
ADJUSTED CONDUCTOR AMPACITY = (HIGH TEMP) [TABLE 310.15(B)(1)] X (CONDUIT FILL) [TABLE 310.15(C)(1)] X
(CONDUCTOR AMPACITY) [TABLE 310.16] =
1 X 1 X 95A = 95A

TERMINAL RATING [110.14(C)] =

85A < 95A → TERMINAL RATING GOVERNS CONDUCTOR SIZING
70A < 85A → 4 AWG AMPACITY OK

THEREFORE 4 AWG IS SUFFICIENT.

ALLOWABLE BACKFEED

MAX ALLOWED TOTAL GENERATION BACKFEED OCPD = MAIN BREAKER RATING =
100A

70A ≤ 100A → INTERCONNECTION MEETS CEC 2022: 705.13 REQUIREMENTS.

INVERTER INFORMATION

2800 KW DC PHOTOVOLTAIC SYSTEM

(7) LONGI GREEN ENERGY TECHNOLOGY CO LTD: LR5-54HAB-400M, TESLA: POWERWALL 3 1707000-XX-Y

INVERTER OVERCURRENT PROTECTION

(INVERTER MAX CURRENT) X (CONTINUOUS LOAD) =
48 A X 1.25 = 60 A → 60 A OVERCURRENT PROTECTION PER MANUFACTURER

DC WIRE SIZING

MAX CIRCUIT CURRENT = (MODULE ISC) X (HIGH IRRADIANCE) [690.8(A)(1)] X (CONTINUOUS LOAD) [690.8(B)(1)] =
14.88A X 1.25 X 1.25 = 23.25 A

ADJUSTED CONDUCTOR AMPACITY = (HIGH TEMP) [TABLE 310.15(B)(1)] X (CONDUIT FILL) [TABLE 310.15(C)(1)] X
(CONDUCTOR AMPACITY) [TABLE 310.16] =

1 X 1 X 40A = 40A

TERMINAL RATING [110.14(C)] =

35A < 40A → TERMINAL RATING GOVERNS CONDUCTOR SIZING.

23.25A < 35A → 10 AWG AMPACITY OK
THEREFORE 10 AWG IS SUFFICIENT.

AC WIRE SIZING

MAX AC OUTPUT CURRENT = (MAX INVERTER OUTPUT) X (CONTINUOUS LOAD) [210.19(A)(1)] =
48 A X 1.25 = 60 A

ADJUSTED CONDUCTOR AMPACITY = (HIGH TEMP) [TABLE 310.15(B)(1)] X (CONDUIT FILL) [TABLE 310.15(C)(1)] X
(CONDUCTOR AMPACITY) [TABLE 310.16] =

1 X 1 X 75A = 75A

TERMINAL RATING [110.14(C)] =

65A < 75A → TERMINAL RATING GOVERNS CONDUCTOR SIZING

60A < 65A → 6 AWG AMPACITY OK
THEREFORE 6 AWG IS SUFFICIENT.

SYSTEM CHARACTERISTICS

MAX OPEN CIRCUIT VOLTAGE = [(TEMP COEF VOC) X (VOC)] / 100] X [LOW TEMP - STC TEMP] + VOC X (# MODULES /
STRING) =

[(0.26 %/°C X 37.05 V) / 100] X [5 °C - 25 °C] + 37.05 V X 7 = 272.83 V

SHORT CIRCUIT CURRENT = 1.25 X (MODULE ISC) X (# STRINGS)

1.25 X 14.88 A X 1 = 18.6A

INVERTER INFORMATION

2400 KW DC PHOTOVOLTAIC SYSTEM

(6) LONGI GREEN ENERGY TECHNOLOGY CO LTD: LR5-54HAB-400M, TESLA:
POWERWALL 3 1707000-XX-Y

INVERTER OVERCURRENT PROTECTION

(INVERTER MAX CURRENT) X (CONTINUOUS LOAD) =
48 A X 1.25 = 60 A → 60 A OVERCURRENT PROTECTION PER MANUFACTURER

DC WIRE SIZING

MAX CIRCUIT CURRENT = (MODULE ISC) X (HIGH IRRADIANCE) [690.8(A)(1)] X
(CONTINUOUS LOAD) [690.8(B)(1)] =

14.88A X 1.25 X 1.25 = 23.25 A

ADJUSTED CONDUCTOR AMPACITY = (HIGH TEMP) [TABLE 310.15(B)(1)] X (CONDUIT
FILL) [TABLE 310.15(C)(1)] X (CONDUCTOR AMPACITY) [TABLE 310.16] =

1 X 1 X 40A = 40A

TERMINAL RATING [110.14(C)] =

35A < 40A → TERMINAL RATING GOVERNS CONDUCTOR SIZING.

23.25A < 35A → 10 AWG AMPACITY OK
THEREFORE 10 AWG IS SUFFICIENT.

AC WIRE SIZING

MAX AC OUTPUT CURRENT = (MAX INVERTER OUTPUT) X (CONTINUOUS
LOAD) [210.19(A)(1)] =

48 A X 1.25 = 60 A

ADJUSTED CONDUCTOR AMPACITY = (HIGH TEMP) [TABLE 310.15(B)(1)] X (CONDUIT
FILL) [TABLE 310.15(C)(1)] X (CONDUCTOR AMPACITY) [TABLE 310.16] =

1 X 1 X 75A = 75A

TERMINAL RATING [110.14(C)] =

65A < 75A → TERMINAL RATING GOVERNS CONDUCTOR SIZING

60A < 65A → 6 AWG AMPACITY OK

THEREFORE 6 AWG IS SUFFICIENT.

SYSTEM CHARACTERISTICS

MAX OPEN CIRCUIT VOLTAGE = [(TEMP COEF VOC) X (VOC)] / 100] X [LOW TEMP -
STC TEMP] + VOC X (# MODULES / STRING) =

[(0.26 %/°C X 37.05 V) / 100] X [5 °C - 25 °C] + 37.05 V X 6 = 233.85 V

SHORT CIRCUIT CURRENT = 1.25 X (MODULE ISC) X (# STRINGS)

1.25 X 14.88 A X 1 = 18.6A

sunrun

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116R-255RASK

DESIGNER: (415) 580-6920 ex3

JOHNPAUL JOSH Y

SHEET

ELECTRICAL CALCS

REV: A 11/20/24

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RESIDENTIAL LOAD CALCCS

Article 220 - Dedicated Backup Panel Calculation	Service Voltage 240	Job Code 1140-1556406
12355 Twining Ave San Diego, CA 92134		

Section 220.83 Existing Dwelling Unit

Part #1 - Section 220.83 (B)(1) General Lighting/Receptacles @ 3 VA per sq ft:

Building House	VA (watts) 3750	Box A (VA) 3750
Square Footage 1150.00		
Total for Part #1:		15.63

Amps 15.63	Box A (VA) 3750
---------------	--------------------

Part #2 - Section 220.83(B)(2), (3), & c.d., Appliances and Dedicated Circuits:

Dedicated circuit	Size in VA	Dedicated circuit	Size in VA
Laundry	1500		
Appliance Circuit - 1	1500		
Appliance Circuit - 2	1500		
Dishwasher	1000		
Disposal	600		
Refrigerator	1000		
Microwave	1600		
Dryer	5760		
Other	5760		

Total VA 15970	Box A - Box (VA) 20220
First 8000 VA @ 100% Remaining VA = 15970	Amps 84.25

Total VA from Parts #1 and #2 combined:

Total VA 15970	Box A - Box (VA) 23970
First 8000 VA @ 100% Remaining VA = 15970	Amps 84.25

Remaining VA @ 40% 15970 x 40% = 6388	VA 6388
Adding First 8000 VA, if possible Appliances & Dedicated circuits: 14388	VA 14388
Total VA for Gen. Lights/Recept. Appliances & Dedicated circuits: 15970	Amps 59.95

Part #3 - Section 220.83(B) Heating and A/C loads:

*Combine the largest load of either the heating or the A/C loads together

100% of all the Heating or A/C loads in VA:

100% of all the Heating or A/C loads in Amps:

Heating 0.00	VA 0.00
A/C 0.00	VA 0.00

Total VA from all Parts

Part #1 & #2 14388	VA 14388
Part #3 0	VA 0
Total VA for all Parts: 14388	

Total Service/feeder load	VA 14388
---------------------------	-------------

Article 220 - Service / Feeder calculation for (address):		Job Code	
1252 Twining Ave San Diego, CA 92134		116R-250A5K	

Section 220.83 (b) Existing Dwelling Unit			
Part #1 - Section 220.83 (b)(1) General Lighting/Receptacles @ 3 VA per sq. ft.:			
Building	Square Footage	VA (Watts)	Amps
House	1250	3750	15.625
		Total for Part #1:	15.63
		Box A (VA)	
		3750	

Part #2 - Section 220.83 (b)(2) A, B, C, D - Appliances and Dedicated Circuits:			
Dedicated circuit	Size in VA	Dedicated circuit	Size in VA
Laundry	1500	Water Heater	N/A
Appliance Circuits(s)	3000		N/A
Dishwasher(s)	2000		N/A
Refrigerator(s)	1000		N/A
Refrigerator(s)	1000		N/A
Microwave(s)	1600		N/A
Dryer	5760		N/A
Other	5760		N/A
Oven	N/A		N/A
Cooktop	N/A		N/A
Pool Equipment	N/A		N/A
		Totals for Part #2:	84.15
		Box B (VA)	
		202.60	

Total VA from Part #1 and #2 combined:		Box A + Box B = 23970	
Total VA	32925		
First 8,000 VA @ 100%	8000		
Remaining VA =	15970		
		Remaining VA @ 40%	6388 VA
		15970 x 40% =	6388 VA
		Adding First 8,000 VA	8000 VA
Total VA for Gen. Lights/Recep. Appliances & Dedicated Circuits:		14388 VA	
Total AMP for Gen. Lights/Recep. Appliances & Dedicated Circuits:		59.95 Amps	

Part #3 - Section 220.83 (b) Heating and A/C loads:			
*Consider and/or tag loads or either air heating or air/c loads together			
100% of all the heating or A/C loads in VA:		0 VA	
100% of all the heating or A/C loads in amps:		0.00 A	
Totals from all Parts			
Part #1	Part #2	VA	Amps
15.63	84.15	240	59.95
Part #3	0	240	0.00
Total VA for all Parts:		143,988	
Totals Service/Feeder Load		59.95	

[illegible]

sunrun


GILBERT CORREIA, C10, C46
CA CL #750184

CUSTOMER RESIDENCE:	1255 TWINING AVE, SAN DIEGO, CA, 92154
PROJECT NUMBER:	116R-255RASK
DESIGNER:	(415) 560-6920 ex33 JOHN PAUL JOSHY
SHEET RESIDENTIAL LOAD CALCS	
REV: A	11/20/2024
PAGE	PV-4.2

WARNING
ELECTRICAL SHOCK HAZARD

TERMINALS ON LINE AND LOAD
SIDES MAY BE ENERGIZED IN
THE OPEN POSITION

LABEL LOCATION:
INVERTER(S), AC/DC DISCONNECT(S),
AC COMBINER PANEL (IF APPLICABLE),
PER CODE(S): NEC 2020: 690.13(B), CEC
2022: 690.13(B)

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

LABEL LOCATION:
UTILITY SERVICE METER AND MAIN
SERVICE PANEL
PER CODE(S): NEC 2020: 705.12(C), CEC
2022: 705.12(C)

WARNING
POWER SOURCE OUTPUT CONNECTION
DO NOT RELOCATE THIS
OVERCURRENT DEVICE

LABEL LOCATION:
ADJACENT TO PV BREAKER AND ESS
OCPD (IF APPLICABLE)
PER CODE(S): NEC 2020: 705.12(B)(3)(2),
CEC 2022: 705.12(B)(3)(2)

PV SYSTEM DISCONNECT
MAXIMUM AC OPERATING CURRENT: 48 AMPS
NOMINAL OPERATING AC VOLTAGE: 240 VAC

LABEL LOCATION:
AC DISCONNECT(S), PHOTOVOLTAIC SYSTEM POINT OF
INTERCONNECTION
PER CODE(S): NEC 2020: 690.54, CEC 2022: 690.54

INVERTER 1

PHOTOVOLTAIC DC DISCONNECT
MAXIMUM SYSTEM VOLTAGE: 550 VDC

LABEL LOCATION:
INVERTER(S), DC DISCONNECT(S),
PER CODE(S): NEC 2020: 690.53, CEC 2022: 690.53

**RAPID SHUTDOWN SWITCH
FOR SOLAR PV SYSTEM**

LABEL LOCATION:
3' OF RAPID SHUT DOWN
SWITCH PER CODE(S): NEC 2020: 690.56(C)(2),
CEC 2022: 690.56(C)(2), IFC 2018: 1204.5.3

**WARNING: PHOTOVOLTAIC
POWER SOURCE**

LABEL LOCATION:
INTERIOR AND EXTERIOR DC CONDUIT EVERY 10 FT,
AT EACH TURN, ABOVE AND BELOW PENETRATIONS,
ON EVERY JIB/PULL BOX CONTAINING DC CIRCUITS,
PER CODE(S): NEC 2020: 690.31(D)(2), CEC 2022:
690.31(D)(2)

ENERGY STORAGE SYSTEM DISCONNECT
NOMINAL ESS VOLTAGE 120/240 VAC
MAXIMUM ESS DC VOLTAGE 60 VDC

LABEL LOCATION:
ENERGY STORAGE SYSTEM
PER CODE(S): NEC 706.15(C), CEC 706.15(C)

**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.

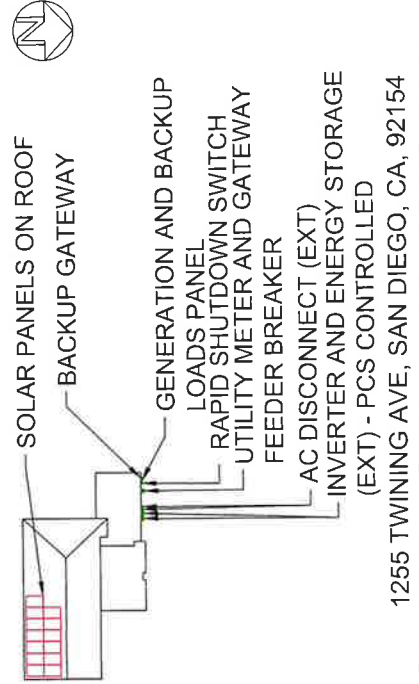
LABEL LOCATION:
ON OR NO MORE THAN 1 M (3 FT) FROM THE SERVICE
DISCONNECTING MEANS TO WHICH THE PV SYSTEMS
ARE CONNECTED.
PER CODE(S): NEC 2020: 690.56(C), CEC 2022: 690.56(C)

CAUTION
ENERGY STORAGE SYSTEM
PREMISES WIRING MAY REMAIN
ENERGIZED AFTER LOSS OF
UTILITY POWER

LABEL LOCATION:
AC/DC DISCONNECT(S), AC COMBINER PANEL (IF APPLICABLE),
INVERTER(S),
PER CODE(S): CEC 2022: 706.15(C), NEC 2020: 706.15(C)

LABEL LOCATION:
INVERTER(S), AC/DC DISCONNECT(S), AC COMBINER PANEL (IF APPLICABLE),
INVERTER(S),
PER CODE(S): CEC 2022: 706.15(C), NEC 2020: 706.15(C)

CAUTION:
POWER TO THIS BUILDING IS
ALSO SUPPLIED FROM THE
FOLLOWING SOURCES WITH
DISCONNECTS AS SHOWN



PER CODE(S): NEC 2020: 705.10, 710.10, CEC 2022: 705.10, 710.10

Sunrun
CA CL #750184
GILBERT CORREIA, C10, C46
8099 ARLINGS DR. SAN DIEGO, CA 92126
PHONE 619.251.9419
FAX 619.259.3966

CUSTOMER RESIDENCE:
1255 TWINING AVE, SAN DIEGO,
CA, 92154

APN: 631-190-22-00
PROJECT NUMBER:
116R-255RASK

DESIGNER: (415) 580-6920 Ex3
JOHN PAUL JOSH

SHEET SIGNAGE

REV: A 11/20/2024

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INVERTER 2

PHOTOVOLTAGE DC DISCONNECT

MAXIMUM SYSTEM VOLTAGE

550 VDC

LABEL LOCATION:
INVERTER(S) DC DISCONNECT(S)
PER CODE(S): NEC 2020: 690.53, CEC 2022: 690.53

PV SYSTEM DISCONNECT

MAXIMUM AC OPERATING CURRENT: 48 AMPS
NOMINAL OPERATING AC VOLTAGE: 240 VAC

LABEL LOCATION:
AC DISCONNECT(S), PHOTOVOLTAGE SYSTEM POINT OF
INTERCONNECTION
PER CODE(S): NEC 2020: 690.54, CEC 2022: 690.54

PV SYSTEM DISCONNECT
FOR UTILITY OPERATION

LABEL LOCATION:
UTILITY DISCONNECT

INVERTER 1

PCS CONTROLLED CURRENT SETTING: 56 A
THE MAXIMUM OUTPUT CURRENT FROM THIS
SYSTEM IS CONTROLLED ELECTRONICALLY.
REFER TO THE MANUFACTURER'S
INSTRUCTIONS FOR MORE INFORMATION.

LABEL LOCATION:
REQUIREMENT: UL 1741, SECTION 206.1 AND 206.4
LOCATION: MAIN PANEL
SIZE: 4.25" X 1.25"

WARNING: THIS SENSOR IS PART
OF A POWER CONTROL SYSTEM.
DO NOT REMOVE. REPLACE ONLY
WITH THE SAME TYPE AND RATING.

WARNING: THIS SENSOR IS PART
OF A POWER CONTROL SYSTEM.
DO NOT REMOVE. REPLACE ONLY
WITH THE SAME TYPE AND RATING.

REQUIREMENT: UL 1741, SECTION 206.3
LOCATION: AROUND THE CT WIRE BY CLAMP
SIZE: 4.25" X 0.75"

SUNRUN

GILBERT CORREIA C10, C46

CA CL #750184

8055 ARBONS DR. SAN DIEGO CA 92126
PHONE 858.791.9018
FAX 858.550.7966

CUSTOMER RESIDENCE:

1255 TWINING AVE, SAN DIEGO,
CA, 92154

APN: 631-190-22-00

PROJECT NUMBER:
116R-255RASK

DESIGNER: (415) 580-6920 ex3
JOHNPAUL JOSH Y

SHEET

SIGNAGE

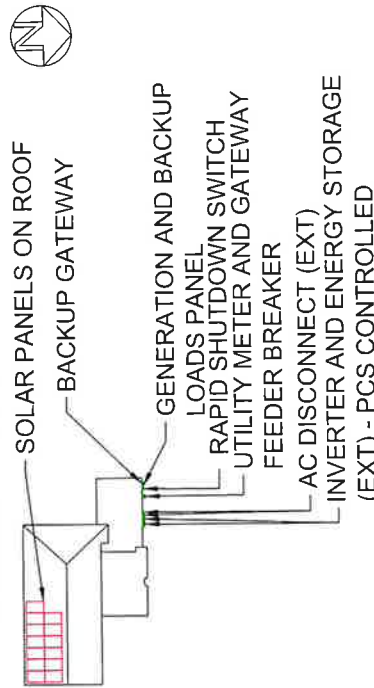
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CAUTION:

POWER TO THIS BUILDING IS
ALSO SUPPLIED FROM THE
FOLLOWING SOURCES WITH
DISCONNECTS AS SHOWN



1255 TWINING AVE, SAN DIEGO, CA, 92154

PER CODE(S): NEC 2020 : 705.10, 710.10, CEC 2022: 705.10, 710.10

PV SYSTEM DISCONNECT
FOR UTILITY OPERATION

SUNRUN

GILBERT CORREIA C10, C46
CA CL #750184

8490 ARJONES DR. SAN DIEGO CA 92126
SAN DIEGO, CA 92126
SAN DIEGO, CA 92126

CUSTOMER RESIDENCE:

1255 TWINING AVE, SAN DIEGO,
CA, 92154

APN: 631-190-22-00

PROJECT NUMBER:
116R-255RASK

DESIGNER: (415) 580-6920 ex3
JOHNPAUL JOSHY

SHEET SITE PLAN
PLACARD

REV: A 11/20/2024

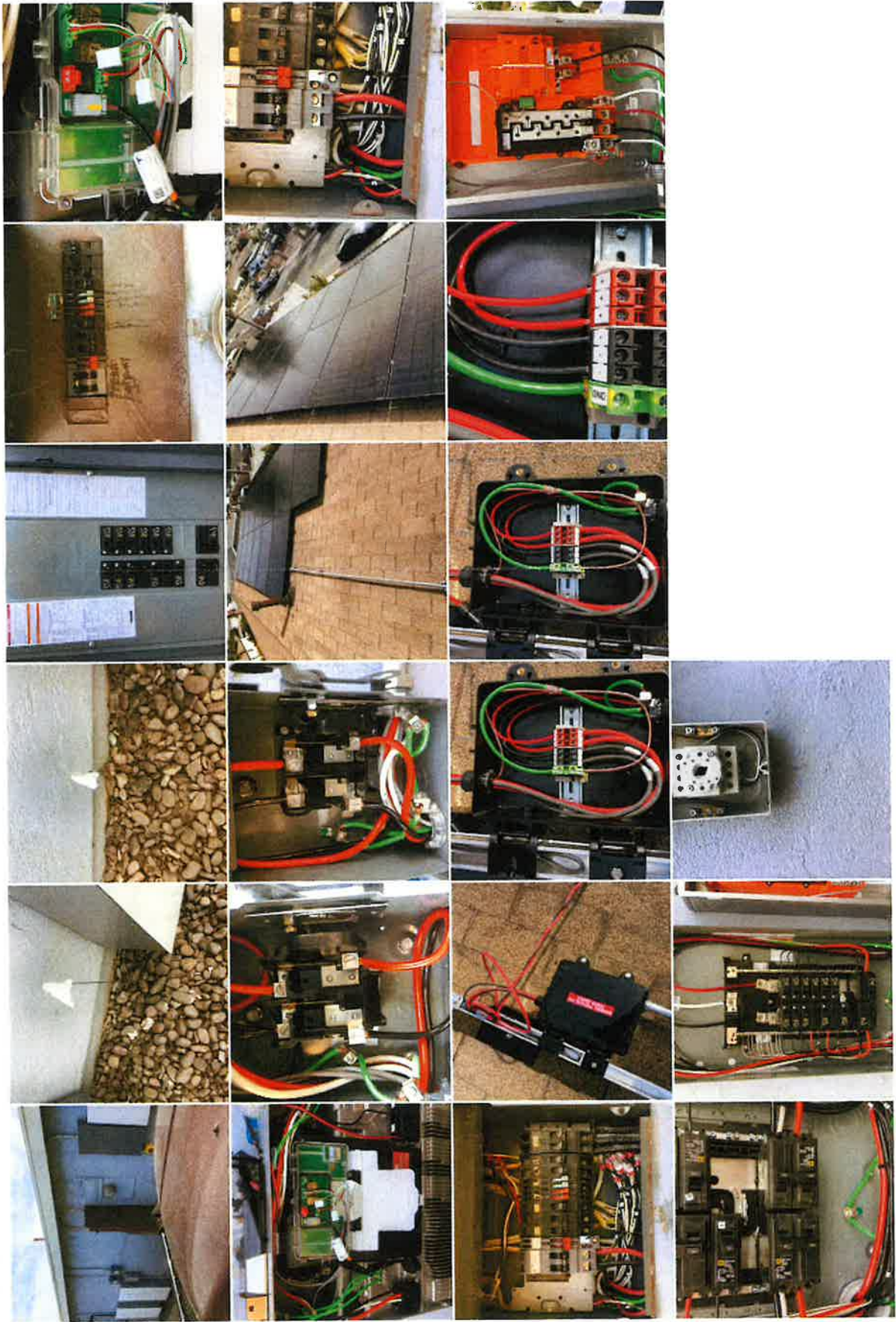
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12/3/24, 12:00 PM

Approval

Project Information

Project Nbr: PMT-3324844

Title: Photovoltaic - SB 379:1255/Twining



Project Mgr:

Approval Information

Approval Nbr: PMT-3324844

Type: Photovoltaic - SB 379

Status: Issued

Issued: 11/25/2024

Issued By:

Issued To: Sunrun

Completed:

Completed By:

Expiration Date: 05/24/2025

Owner Occupied: ☐

Extension Qty:

Extended By:

Cancel Reason:

Overridden: ☐

Precancel Status:

Scope: Residential roof mount solar PV
3.60 KW
9 of modules
2 of inverters
2 of batteries

Land Doc Type:

Recorded Map No:

Recorded Date:

Job Location

Address

1255 Twining Av, San Diego, CA 92154

Description

Photovoltaic - SB 379:1255/Twining

Assessor Parcel

631-190-2200

Fee

Commercial School Charge:

School Charge:

Residential School Charge:

Fee Worksheet

<u>Fee</u>	<u>Quantity</u>	<u>Unit</u>	<u>Category</u>
PVS-Template SDU/DUP/TH (I)	1.00	EA	ISSUANCE FEES