NEW PHOTOVOLTAIC ROOF MOUNTED SYSTEM - 16.000 KW DC/1441.420 KW CEC AC 560 HESTER CREEK RD, LOS GATOS, CA 95033

DAY ONE SOLAR

CONTRACTOR

387 CORAL ST, SANTA CRUZ, CA 95060

LIC. NO. - 987896

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INSTALLATION RESOURCE **EQUIPMENT DATASHEETS ATTACHED**

LEGEND

- PROPERTY LINE - FENCE LINE

County of Santa Cruz Community Development & Infrastructure

Reviewed for Code Compliance

By: RAI

Date: 11/15/2023 Permit: B-237270 CCD/DEF:

PROJECT NAME & ADDRESS

ROBERT AND TAMMY ESTES

560 HESTER CREEK RD. LOS GATOS, CA 95033 APN #: 09723135

AHJ: COUNTY OF SANTA CRUZ UTILITY: PG&E

SYSTEM DETAILS

DC SIZE: 16.000 KW DC-(STC) CEC AC SIZE: 1441.420 KW AC (40) Q CELLS Q.PEAK DUO BLK ML-G10 400W (40) ENPHASE IQ8A-72-2-US [240V] [SI1-SB]

REVISIONS

REV	DESCRIPTION	DATE

SHEET TITLE

COVER PAGE

	DRAWN DATE	10/27/2023
á	DRAWN BY	PCAD

SHEET NUMBER

PV-01

NEW PV SYSTEM SPECIFICATIONS

SYSTEM SIZE: DC SIZE: 16.000 KW DC-(STC) CEC AC SIZE: 1441.420 KW AC

(40) Q CELLS Q.PEAK DUO BLK ML-G10 400W MODULE: (40) ENPHASE IQ8A-72-2-US [240V] [SI1-SB] INVERTER:

APPLICABLE CODES

ALL WORK SHALL CONFORM TO THE FOLLOWING CODES:

2022 CALIFORNIA BUILDING CODE 2022 CALIFORNIA RESIDENTIAL CODE

2022 CALIFORNIA ENERGY CODE 2022 CALIFORNIA HISTORICAL BUILDING CODE

2022 CALIFORNIA EXISTING BUILDING CODE

2022 CALIFORNIA GREEN BUILDING STANDARDS CODE

2022 CALIFORNIA FIRE CODE

2022 CALIFORNIA ELECTRICAL CODE

AS ADOPTED BY COUNTY OF SANTA CRUZ

DESIGN CRITERIA

ROOF SURFACE TYPE: COMPOSITE SHINGLE ROOF FRAMING: 2"X6" TRUSS @ 24" OC

BUILDING STORY: TWO STORY

GROUND SNOW LOAD: 0 PSF

WIND SPEED: 91 MPH

WIND EXPOSURE: C

RISK CATEGORY: II

PROJECT NOTES

1.1.1 THIS PHOTOVOLTAIC (PV) SYSTEM SHALL COMPLY WITH THE RELEVANT YEAR OF THE CALIFORNIA ELECTRIC CODE (CEC), ALL MANUFACTURER'S LISTING AND INSTALLATION INSTRUCTIONS. AND THE RELEVANT CODES AS SPECIFIED BY THE AUTHORITY HAVING JURISDICTION'S (AHJ) APPLICABLE CODES.

1.1.2 THE UTILITY INTERCONNECTION APPLICATION MUST BE APPROVED AND THE PV SYSTEM MUST BE INSPECTED PRIOR TO **OPERATION**

1.1.3 ALL PV SYSTEM COMPONENTS; MODULES,

UTILITY-INTERACTIVE INVERTERS, AND SOURCE CIRCUIT COMBINER BOXES ARE IDENTIFIED AND LISTED FOR USE IN PHOTOVOLTAIC SYSTEMS AS REQUIRED BY CEC AND OTHER **GOVERNING CODES**

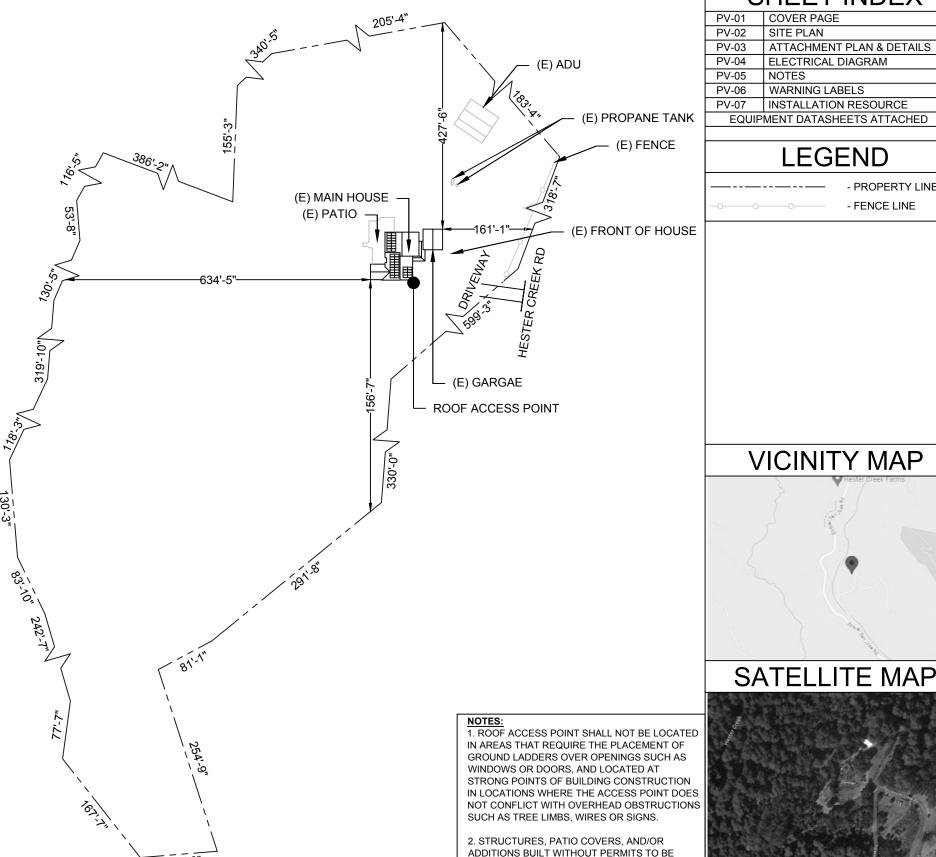
1.1.4 ALL SIGNAGE TO BE PLACED IN ACCORDANCE WITH LOCAL BUILDING CODE. IF EXPOSED TO SUNLIGHT, IT SHALL BE UV RESISTANT. ALL PLAQUES AND SIGNAGE WILL BE INSTALLED AS REQUIRED BY THE CEC AND AHJ.

SCOPE OF WORK

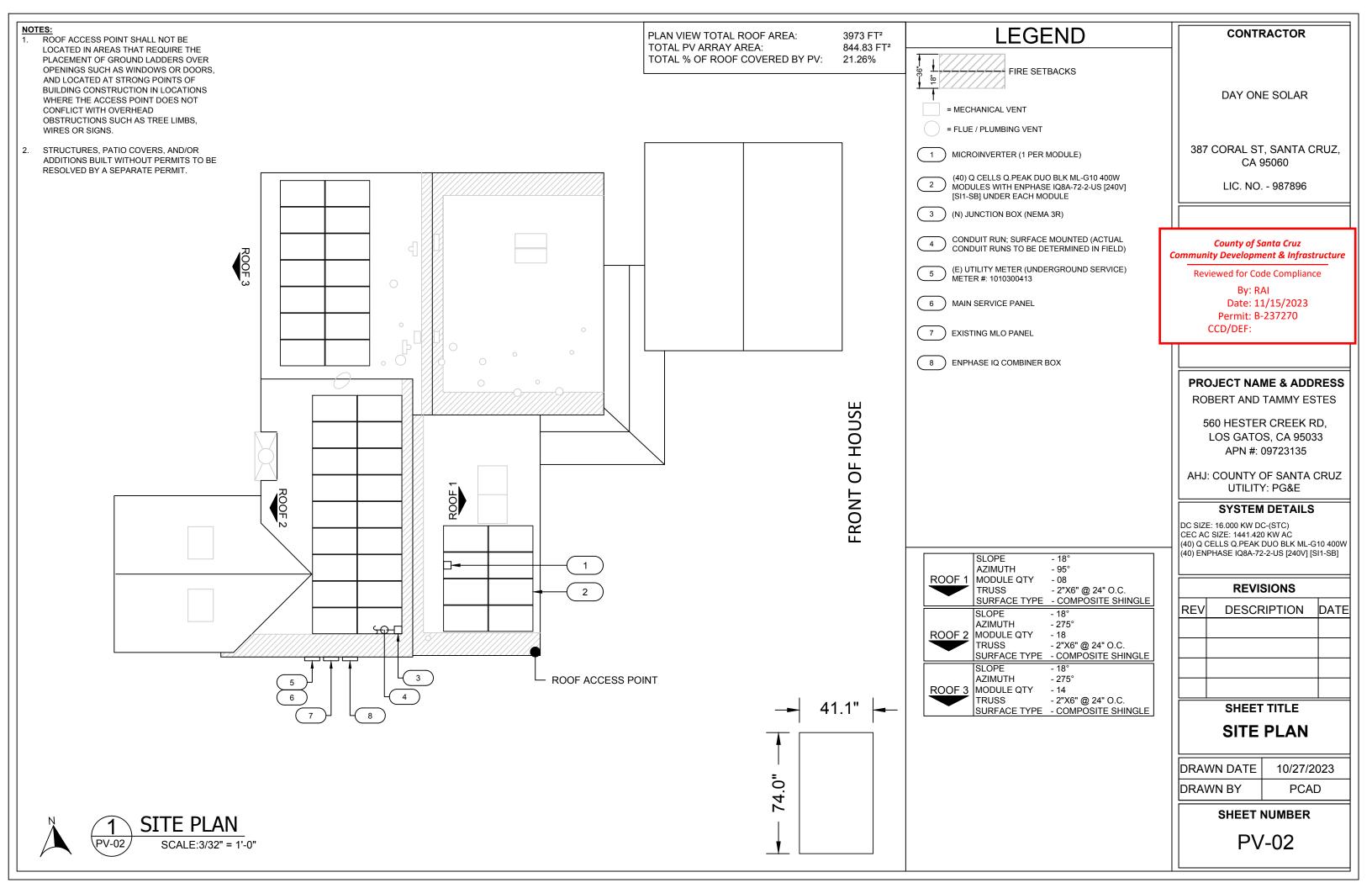
1.2.1 CONTRACTOR IS RESPONSIBLE FOR THE DESIGN AND SPECIFICATIONS OF THE GRID-TIED PHOTOVOLTAIC SYSTEM. THE CONTRACTOR WILL BE RESPONSIBLE FOR COLLECTION OF EXISTING ONSITE CONDITIONS TO DESIGN, SPECIFY, AND INSTALL THE ROOF-MOUNTED PHOTOVOLTAIC SYSTEM **DETAILED IN THIS DOCUMENT**







RESOLVED BY A SEPARATE PERMIT.



DISTRIBUTED LOAD CALCULATIONS			
MODULE	Q CELLS Q.PEAK DUO BLK ML-G10 400W	1	
MODULE WEIGHT	48.50 LBS	1	
MODULE DIMENSIONS (L" x W")	74.0" x 41.1"	1	
TOTAL QTY. OF MODULES	40	1	
TOTAL WEIGHT OF MODULES	1940.00 LBS	1	
TYPE OF RACKING	IRONRIDGE XR-100 RAIL	1	
TYPE OF ATTACHMENT	IRONRIDGE FLASHFOOT2 ATTACHEMTNS	1	
DISTRIBUTED WEIGHT OF RACKING	0.5 PSF	1	
TOTAL WEIGHT OF ARRAY	2362.42 LBS]-	
AREA OF MODULE	21.12 SQFT.]	
TOTAL ARRAY AREA	844.83 SQFT.]	
DISTRIBUTED LOAD	2.80 PSF	1	

- CONTRACTOR/INSTALLER TO VERIFY COMPATIBILITY OF ANY BRANDS OR PRODUCTS SUBSTITUTED OR USED AS ALTERNATES WITHIN ANY BRAND-SPECIFIC SYSTEMS. CONTRACTOR SHALL SUPPLY AND PRESENT CERTIFICATES OF COMPATIBILITY TO THE BUILDING OFFICIAL UPON INSPECTION AS NEEDED.
- 2. REFER TO PV MODULE MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR RAIL SPACING SPECIFICATIONS

L	E	G	E	N	D



- RAIL - STRUCTURAL MEMBER

CONTRACTOR

DAY ONE SOLAR

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LIC. NO. - 987896

County of Santa Cruz **Community Development & Infrastructure**

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PROJECT NAME & ADDRESS ROBERT AND TAMMY ESTES

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SYSTEM DETAILS

REVISIONS

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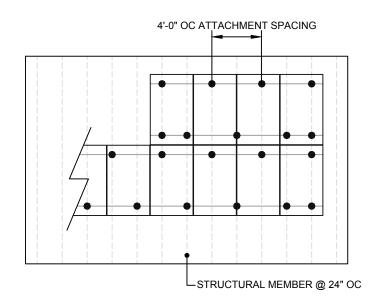
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& DETAILS DRAWN DATE 10/27/2023

DRAWN BY **PCAD**

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PV-03



4'-0" OC ATTACHMENT SPACING LSTRUCTURAL MEMBER @ 24" OC

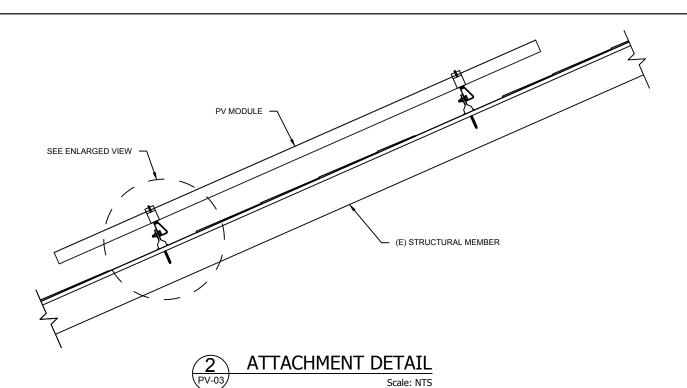
TYPICAL ATTACHMENT PLAN (LANDSCAPE)

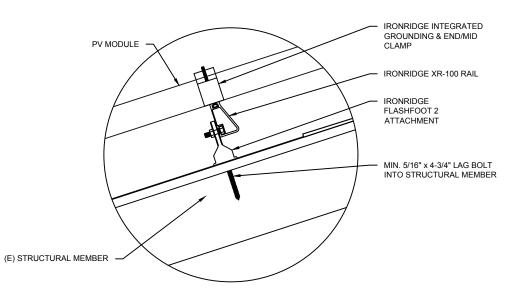
SCALE: NTS



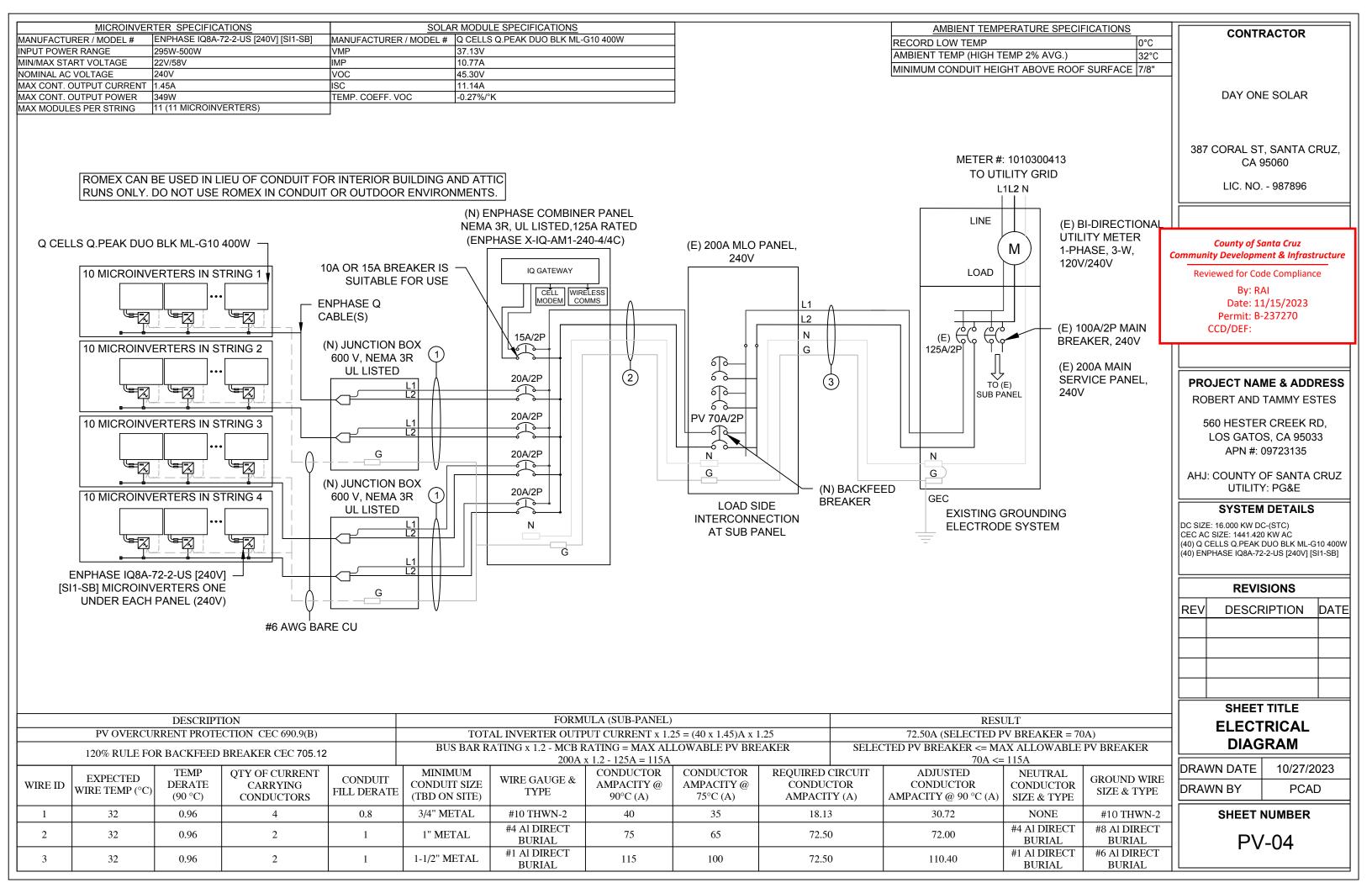
TYPICAL ATTACHMENT PLAN (PORTRAIT)

SCALE: NTS





ENLARGED VIEW Scale: NTS



GENERAL NOTES

- 1. EXISTING PLUMBING VENTS, SKYLIGHTS, EXHAUST OUTLETS, VENTILATION INTAKE AIR OPENINGS SHALL NOT BE COVERED BY THE SOLAR PHOTOVOLTAIC SYSTEM.
- 2. EQUIPMENT, INVERTERS, MOTOR GENERATORS, PHOTOVOLTAIC MODULES, PHOTOVOLTAIC PANELS, AC PHOTOVOLTAIC MODULES, SOURCE-CIRCUIT COMBINERS, AND CHARGE CONTROLLERS INTENDED FOR USE IN PHOTOVOLTAIC POWER SYSTEMS SHALL BE IDENTIFIED AND LISTED FOR THE APPLICATION. [CEC 690.4(B)]
- 3. ALL OUTDOOR EQUIPMENT SHALL BE NEMA 3R RATED, INCLUDING ALL ROOF MOUNTED TRANSITION BOXES AND NON ROOF SWITCHES. ROOF SWITCHES TO BE NEMA 3R RATED.
- 4. ALL EQUIPMENT SHALL BE PROPERLY GROUNDED AND BONDED IN ACCORDANCE WITH CEC ARTICLE 250.

 5. PROTECTION DEVICES FOR PV SOURCE CIRCUITS AND PV OUTPUT CIRCUITS ALSO CONNECTED TO SOURCES HAVING SIGNIFICANTLY HIGHER CURRENT AVAILABILITY (E.G., PARALLEL STRINGS OF MODULES, UTILITY POWER), SHALL BE PROTECTED AT THE SOURCE FROM OVERCURRENT [CEC 690.9(A)]

 6. PV SYSTEM CIRCUITS INSTALLED ON OR IN BUILDINGS SHALL INCLUDE A RAPID SHUTDOWN FUNCTION [CEC 690.12]
- 7. THE UTILITY INTERACTIVE INVERTERS SHALL AUTOMATICALLY DE-ENERGIZE ITS OUTPUT TO THE CONNECTED ELECTRICAL PRODUCTION AND DISTRIBUTION NETWORK UPON LOSS OF VOLTAGE IN THE SYSTEM AND SHALL REMAIN IN THAT STATE UNTIL THE ELECTRICAL PRODUCTION AND DISTRIBUTION NETWORK VOLTAGE HAS BEEN RESTORED. [CEC 705.41]
- 8. ALL CONDUCTOR EXPOSED TO WEATHER SHALL BE LISTED AND IDENTIFIED FOR USE IN DIRECT SUNLIGHT. [CEC 310.10(D)(1)]
- 9.THE MODULE CONDUCTORS MUST BE TYPE USE-2 OR LISTED FOR PHOTOVOLTAIC (PV) WIRE [CEC 690.31(C)] 10. ALL CONDUCTORS SHALL BE MARKED ON EACH END FOR UNIQUE IDENTIFICATION.
- 11. AN INSULATED GROUNDED CONDUCTOR OF 6 AWG OR SMALLER SHALL BE IDENTIFIED AS A CONTINUOUS WHITE FINISH [CEC 200.6]
- 12. THE OUTPUT OF AN INTERCONNECTED ELECTRICAL POWER SOURCE SHALL BE PERMITTED TO BE CONNECTED TO THE LOAD SIDE. INTERCONNECTING PROVISIONS FOR OTHER POWER SOURCES SHALL COMPLY WITH CEC 705.12.

- 13. EACH SOURCE INTERCONNECTION OF ONE OR MORE POWER SOURCES INSTALLED IN ONE SYSTEM SHALL BE MADE AT A DEDICATED CIRCUIT BREAKER OR FUSIBLE DISCONNECTING MEANS IN ACCORDANCE WITH CEC 705.12.
- 14. THE SUM OF THE AMPERE RATING OF THE OVERCURRENT PROTECTION DEVICES IN CIRCUITS SUPPLYING POWER TO THE BUSBAR OR CONDUCTOR SHALL NOT EXCEED 120% OF THE RATING OF BUSBAR OR CONDUCTOR IN ACCORDANCE WITH CEC 705.12 15. A CONNECTION AT EITHER END, BUT NOT BOTH ENDS. OF A CENTER-FED PANEL BOARD IN DWELLINGS SHALL BE PERMITTED WHERE THE SUM OF 125 PERCENT OF THE POWER SOURCE(S) OUTPUT CIRCUIT CURRENT AND THE RATING OF THE OVERCURRENT DEVICE PROTECTING THE BUSBAR DOES NOT EXCEED 120 PERCENT OF THE CURRENT RATING OF THE BUSBAR IN ACCORDANCE WITH CEC 705.12. 16. EQUIPMENT CONTAINING OVERCURRENT PROTECTION DEVICES IN CIRCUITS SUPPLYING POWER TO A BUS BAR OR CONDUCTOR SHALL BE MARKED TO INDICATE THE PRESENCE OF ALL SOURCES IN ACCORDANCE WITH CEC 705.12.
- 17. CIRCUIT BREAKER, IF BACKFED, SHALL BE SUITABLE FOR SUCH OPERATION IN ACCORDANCE WITH CEC 705.12.
- 18. TO MINIMIZE OVERHEATING OF THE BUSBAR IN ELECTRICAL ENCLOSURE, THE MAIN CIRCUIT BREAKER AND THE PV POWER SOURCE CIRCUIT BREAKER SHALL BE PHYSICALLY LOCATED AT THE OPPOSITE END OF THE BUSBAR.
- 19. ALL THE CEC REQUIRED WARNING SIGNS, MARKINGS, AND LABELS SHALL BE POSTED ON EQUIPMENT AND DISCONNECTS PRIOR TO ANY INSPECTIONS.
- 20. WHERE PV SYSTEM DC CIRCUIT'S RUN INSIDE A BUILDING, THEY SHALL BE CONTAINED IN METAL RACEWAYS TYPE MC METAL CLAD CABLE OR METAL ENCLOSURES FROM POINT OF PENETRATION OF THE SURFACE OF THE BUILDING TO THE FIRST READILY ACCESSIBLE DISCONNECTING MEANS [CEC 690.31(G)]. 21. FLEXIBLE, FINE-STRANDED CABLES SHALL BE TERMINATED ONLY WITH TERMINALS, LUGS, DEVICES OR CONNECTORS THAT ARE LISTED IN ACCORDANCE WITH CEC 110.14.
- 22. CONNECTORS SHALL BE OF LATCHING OR LOCKING TYPE. CONNECTORS THAT ARE READILY ACCESSIBLE AND OPERATING AT OVER 30V DC OR 15V AC SHALL REQUIRE TOOL TO OPEN AND MARKED "DO NOT DISCONNECT UNDER LOAD" OR "NOT FOR CURRENT INTERRUPTING"[CEC 690.33(C) & (E)(2)].

- 23. EQUIPMENT GROUNDING CONDUCTOR FOR PV MODULES SMALLER THAN 6 AWG SHALL BE PROTECTED FROM PHYSICAL DAMAGE BY A RACEWAY OR CABLE ARMOR. [CEC 690.46 & 250.120(C)]
- 24. AN EQUIPMENT GROUNDING CONDUCTOR SHALL NOT BE SMALLER THAN 14 AWG [CEC 690.45]
- 25. GROUNDING ELECTRODE CONDUCTOR(S) SHALL BE INSTALLED IN ONE CONTINUOUS LENGTH WITHOUT A SPLICE OR JOINT. IF NECESSARY, SPLICES OR CONNECTIONS SHALL BE MADE AS PERMITTED [CEC 250.64 C)]
- 26. ALL SMOKE ALARMS, CARBON MONOXIDE ALARMS AND AUDIBLE NOTIFICATION DEVICES SHALL BE LISTED AND LABELED IN ACCORDANCE WITH UL 217 AND UL 2034. THEY WILL BE INSTALLED IN ACCORDANCE WITH NFPA 72 AND NFPA 720 [IRC 2019 R314 & R315]
- 27. SMOKE ALARMS AND CARBON MONOXIDE ALARMS WILL BE RETROFITTED INTO THE EXISTING DWELLING. THESE SMOKE ALARMS ARE REQUIRED TO BE IN ALL BEDROOMS, OUTSIDE EACH BEDROOM, AND AT LEAST ONE ON EACH FLOOR OF THE HOUSE CARBON MONOXIDE ALARMS ARE REQUIRED TO BE RETROFITTED OUTSIDE EACH BEDROOM AND AT LEAST ONE ON EACH FLOOR OF THE HOUSE. THESE ALARMS MAY BE SOLELY BATTERY OPERATED IF THE PHOTOVOLTAIC PROJECT DOES NOT INVOLVE THE REMOVAL OF INTERIOR WALL AND CEILING FINISHES INSIDE THE HOME, OTHERWISE, THE ALARMS MUST BE HARD WIRED AND INTERCONNECTED.
- 28. LISTED OR LABELED EQUIPMENT SHALL BE INSTALLED AND USED IN ACCORDANCE WITH ANY INSTRUCTIONS INCLUDED IN THE LISTING OR LABELING PER NEC

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NOTES

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PV-05



ELECTRICAL SHOCK HAZARD

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

LABEL LOCATION: COMBINER PANEL, AC DISCONNECT, POINT OF INTERCONNECTION PER CODE: CEC 706.15(C)(4), CEC 690.13(B)



TURN OFF PHOTOVOLTAIC AC DISCONNECT PRIOR TO WORKING INSIDE PANEL

LABEL LOCATION: COMBINER PANEL(S), MAIN SERVICE DISCONNECT PER CODE: CEC 110.27(C), OSHA 1910.145(f)(7)

PHOTOVOLTAIC POWER SOURCE

LABEL LOCATION: DC CONDUIT/RACEWAYS
PER CODE: CEC 690.31(D)(2)

SOLAR PV DC CIRCUIT

LABEL LOCATION: DC CONDUIT/RACEWAYS
PER CODE: CEC 690.31(D)(2)

PHOTOVOLTAIC SYSTEM AC DISCONNECT RATED AC OUTPUT CURRENT: 58.00 A

240 V

NOMINAL OPERATING AC VOLTAGE:

LABEL LOCATION: AC DISCONNECT/POINT OF INTERCONNECTION PER CODE: CEC 690.54

AWARNING DUAL POWER SOURCE SECOND SOURCE IS PHOTOVOLTAIC SYSTEM

LABEL LOCATION: MAIN SERVICE DISCONNECT, PRODUCTION/NET METER PER CODE: CEC 690.59, 705.12(C)

PV SYSTEM

DISCONNECT

LABEL LOCATION: AC DISCONNECT PER CODE: CEC 690.13(B)



THIS EQUIPMENT FED BY MULTIPLE
SOURCES:
TOTAL RATING OF ALL OVERCURRENT
DEVICES EXCLUDING MAIN POWER
SUPPLY SHALL NOT EXCEED
AMPACITY OF BUSBAR

LABEL LOCATION: AC DISCONNECT PER CODE: CEC 705.12(B)(3)(3)

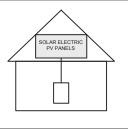
!WARNING

POWER SOURCE OUTPUT CONNECTION. DO NOT RELOCATE THIS OVERCURRENT DEVICE.

LABEL LOCATION: POINT OF INTERCONNECTION PER CODE: CEC 705.12(B)(3)(2)

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: MAIN SERVICE DISCONNECT PER CODE: CEC 690.56(C)

MAIN PHOTOVOLTAIC SYSTEM DISCONNECT

LABEL LOCATION: MAIN SERVICE DISCONNECT, UTILITY METER PER CODE: CEC 690.13/B)

RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM

LABEL LOCATION: RSD INITIATION DEVICE, AC DISCONNECT PER CODE: CEC 690.56(C)(2)

A CAUTION

PHOTOVOLTAIC SYSTEM CIRCUIT IS BACKFED

LABEL LOCATION: MAIN SERVICE DISCONNECT PER CODE: CEC 705.12(D), CEC 690.59

DO NOT DISCONNECT UNDER LOAD

LABEL LOCATION: MAIN SERVICE DISCONNECT PER CODE: CEC 690.15(B) & CEC 690.33(D)(2)

MAXIMUM DC VOLTAGE

OF PV SYSTEM

LABEL LOCATION: DC DISCONNECT/INVERTER/PV DIST. EQUIPMENT
PER CODE: CEC 690.53

AWARNING

ELECTRICAL SHOCK HAZARD

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

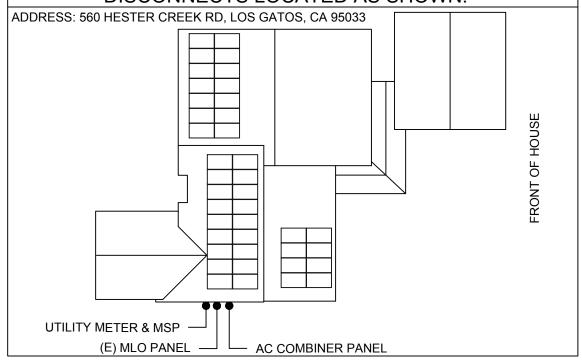
DC VOLTAGE IS ALWAYS PRESENT WHEN SOLAR MODULES ARE EXPOSED TO SUNLIGHT

LABEL LOCATION: DC DISCONNECT PER CODE: CEC 690.13(B)

CAUTION

MULTIPLE SOURCES OF POWER.

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



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WARNING LABELS

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PV-06

