Over-the-Counter PV and ESS Permit Application

Use this packet to submit rooftop photovoltaic (PV) and energy storage system (ESS) plans. The **PV & ESS Plan Checklist** details what your PV and ESS plans will have to show. The **PV & ESS Building Code Agreement** is a form you will need to sign before permit issuance. The **Significant 2023 Code Changes** describe new codes affecting PV and ESS installations that will take effect January 1st, 2023. Finally, the **Inspector Checklist** is used by your inspector during inspection.

Contents

PV & ESS Building Code Agreement

The following standards will apply to your proposed PV and ESS system.

- Roof Access and Pathways per CRC 324.6, CFC 1204.3
- Battery Location per CRC 328.4
- Electrical Equipment Spacing per CEC 110.26 and PG&E Greenbook
- Electrical Equipment shall be listed on the California Energy Commission's website (https://solarequipment.energy.ca.gov/Home/Index)
- Roof rafter spans and anchor spacing shall comply with Solar Toolkit 5 (https://solarequipment.energy.ca.gov/Home/Index) OR engineering specifications sheets
- PV modules max voltage per CEC 690.7
- PV source circuit current per CEC 690.8
- Disconnecting means per CEC 690.13 and CEC 690.15
- Max ungrounded conductor ampacity per CEC 310.15(B)
- Rapid shutdown function per CEC 690.12
- Busbar protection per CEC 705.12(B)(2)(3)
- Markings and directories per CEC 690.51 and CEC 705.10
- Battery installation per CRC 328, CFC 1206 (commercial), CEC 706, and CEC 480
- Underground installations per CEC 300.5
- Generators per CEC 445, CEC 705.130, CEC 702, and NFPA 37
- Line side taps CEC 705.12(A), CEC 230.82
- Load side taps CEC 705.12(B)(2)(2), CEC 240.21(B)
- Setbacks from equipment per the Humboldt County Code
- All equipment shall be listed as follows:
    - PV Modules – UL 1703 OR with both UL 61730-1 and UL 61730-2
    - Racking – UL 1703 OR UL 2703
    - Devices and Ground Lugs – UL 2703
    - Inverters, Converters, Controllers, Rapid Shutdown Devices – UL 1741
    - Energy Storage Systems – UL 9540

I have read this "Over-the-Counter PV & ESS Permit Application" packet and agree to supply the requested information, comply with Humboldt County Code and all current California Title 24 building codes including the standards listed above. I understand that in the event of a discrepancy between my approved construction plans and the current California Title 24 building codes my inspector may either.

- Write corrections to assure conformance with current California Title 24 building codes.
- Request you revise and resubmit your plans to the Humboldt County Building Department to reflect conformance with current California Title 24 building codes.

License #: _____ Classification*: _____

Owner/applicant signature: _____ Date: _____

**Only B, C-10, and C-46 license classifications may install PV systems.*

PV & ESS Plan Checklist

Use this form as a general checklist for your PV and ESS plans. Please provide the following plan views on separate sheets.

- ***Roof Plan View***
  - ☐ Provide birds eye view or **roof layout** showing ridges and valleys of roof.
  - ☐ Specify **roof assembly** including roof covering type, pitch, rafter span, and rafter type.
  - ☐ Show **PV modules arrangement** on roof clearly indicating count of modules.
  - ☐ Specify **racking system**, show location of all anchors, and indicate anchor spacing.
  - ☐ Show all required **roof access**, width of pathways, width of ridge setback.
  - ☐ Show location of all **electrical equipment** including panel enclosures, disconnects, inverters, batteries, and other electrical equipment.
    - Show **accessory structures** if electrical equipment is located on them.
    - If **underground raceways** are used provide a cross section of trench indicating trench depth, conduit size/type, conductor sheathing type, and backfill type.

- ***One-Line Diagram***
  - ☐ Show **all equipment** with their model numbers and required clearances.
  - ☐ Show number of **PV modules** per string and provide the following specifications.
    - PVUSA Test Conditions (PTC)
    - Open circuit voltage (Voc)
    - Short circuit current (Isc)
  - ☐ Show all **disconnects** and indicate AC or DC power.
  - ☐ Show **rapid shut down** device.
  - ☐ Show **conductor** size, sheathing type, temperature rating, ampacity, and metal type.
  - ☐ Show **conduit** size and type.
  - ☐ Show **grounding electrode** system and specify type.

- ***Sticker Layout***
  - ☐ Show **stickers** and location to be used.
  - ☐ Show **engraved placard** to be used.

- ***Data Sheets, Engineering, and Specifications***
  - ☐ Provide data sheets, engineering and/or specifications for the following equipment
    - All **electrical equipment** including PV Modules, racking/mounting system, inverter, batteries, combiner box, and transfer Switches.
    - Structural engineering for **ag-exempt structures** supporting PV modules and **over spanned rafters** per Solar Toolkit 5. (https://solarequipment.energy.ca.gov/Home/Index)

- ***Site Plan****
  - ☐ Using the Site Plan Checklist provide a site plan showing the entire parcel, size/use of all structures, property line setbacks, easements, wetlands, and flood zones, and the proposed **ground mount PV system**

*Only required for ground mount PV systems

Significant 2023 Code Changes

The following is a summary of significant code changes in the 2023 California Electric Code that may affect your installation.

- ***CRC 324 Solar Energy Systems***

  - CRC 324.3.1. Photovoltaic panels and modules shall be listed and labeled in accordance with UL 1703 or with both UL 61730-1 and UL 61730-2. Inverters shall be listed and labeled in accordance with UL 1741. Systems connected to the utility grid shall use inverters listed for utility interaction. Mounting systems listed and labeled in accordance with UL 2703 shall be installed in accordance with the manufacturer's installation instructions and their listings.
  - CRC 324.8. A new section was added to address elevated PV support structures. The primary purpose of this section is to establish appropriate fire testing and listing criteria for overhead photovoltaic (PV) support structures that could have people or vehicles in the space beneath them.

- ***CRC 328 Energy Storage Systems***

  - Existing code sections for protection from impact have been amended and new code sections have been added to the CRC to provide specific requirements for vehicle impact protection for Energy Storage Systems (ESS) and protection options within a garage. See Figure 1 below.

- ***CEC 225 Outside Branch Circuit and Feeders***

  - CEC 225.30(B). Where feeder conductors originate in the same panelboard, switchboard, or other distribution equipment, and each feeder terminates in a single disconnecting means, not more than six feeders shall be permitted. Where more than one feeder is installed in accordance with this section, all feeder disconnects supplying the building or structure shall be grouped in the same location, and the requirements of 225.33 shall not apply. Each disconnect shall be marked to indicate the load served.

- ***CEC 230 Services*** (service panel replacements shall comply with Article 230)

  - CEC 230.62(C). Barriers shall be placed in service equipment such that no uninsulated, ungrounded service busbar or service terminal is exposed to inadvertent contact by persons or maintenance equipment while servicing load terminations.
  - CEC 230.67(A). All services supplying dwelling units shall be provided with a surge-protective device (SPD).
  - CEC 230.85. For one- and two-family dwelling units, all service conductors shall terminate in disconnecting means having a short-circuit current rating equal to or greater than the available fault current, installed in a readily accessible outdoor location. If more than one disconnect is provided, they shall be grouped.
    - Note: This section continues to describe new labeling requirements.

- ***CEC 408 Switchboards, Switchgear, and Panelboards***

  - CEC 408.6. Switchboards, switchgear, and panelboards shall have a short-circuit current rating not less than the available fault current.

- ❖ Note: Contact utility provider for available fault current.

- ***CEC 690 Solar Photovoltaic (PV) Systems***

  - CEC 690.13(A). Where PV disconnecting means (above 30 volts) are readily accessible to unqualified persons, any enclosure door or hinged cover that exposes live parts when open is now required to be locked or require a tool to open.

  - CEC 690.56(C). Buildings with PV systems shall have a permanent label located at each service equipment location to which the PV systems are connected or at an approved readily visible location and shall indicate the location of rapid shutdown initiation devices.

- ***CEC 706 Energy Storage Systems (ESS)***

  - CEC 706.1. This article applies to all energy storage systems (ESS) having a capacity greater than 3.6 MJ (1 kWh) that may be stand-alone or interactive with other electric power production sources.

  - CEC 706.4. Each ESS shall be provided with a nameplate plainly visible after installation and marked with the following; manufacturer's name, trademark, or other descriptive marking by which the organization responsible for supplying the ESS can be identified, rated frequency, number of phases if AC, rating (kW or KVA), available fault current derived by the ESS at the output terminals, maximum output and input current of the ESS at the output terminals, maximum output and input voltage of the ESS at the output terminals, and utility-interactive capability

  - CEC 706.15(A). For one-family and two-family dwellings, a disconnecting means, or its remote control (for ESS's) shall be located at a readily accessible location outside the building.

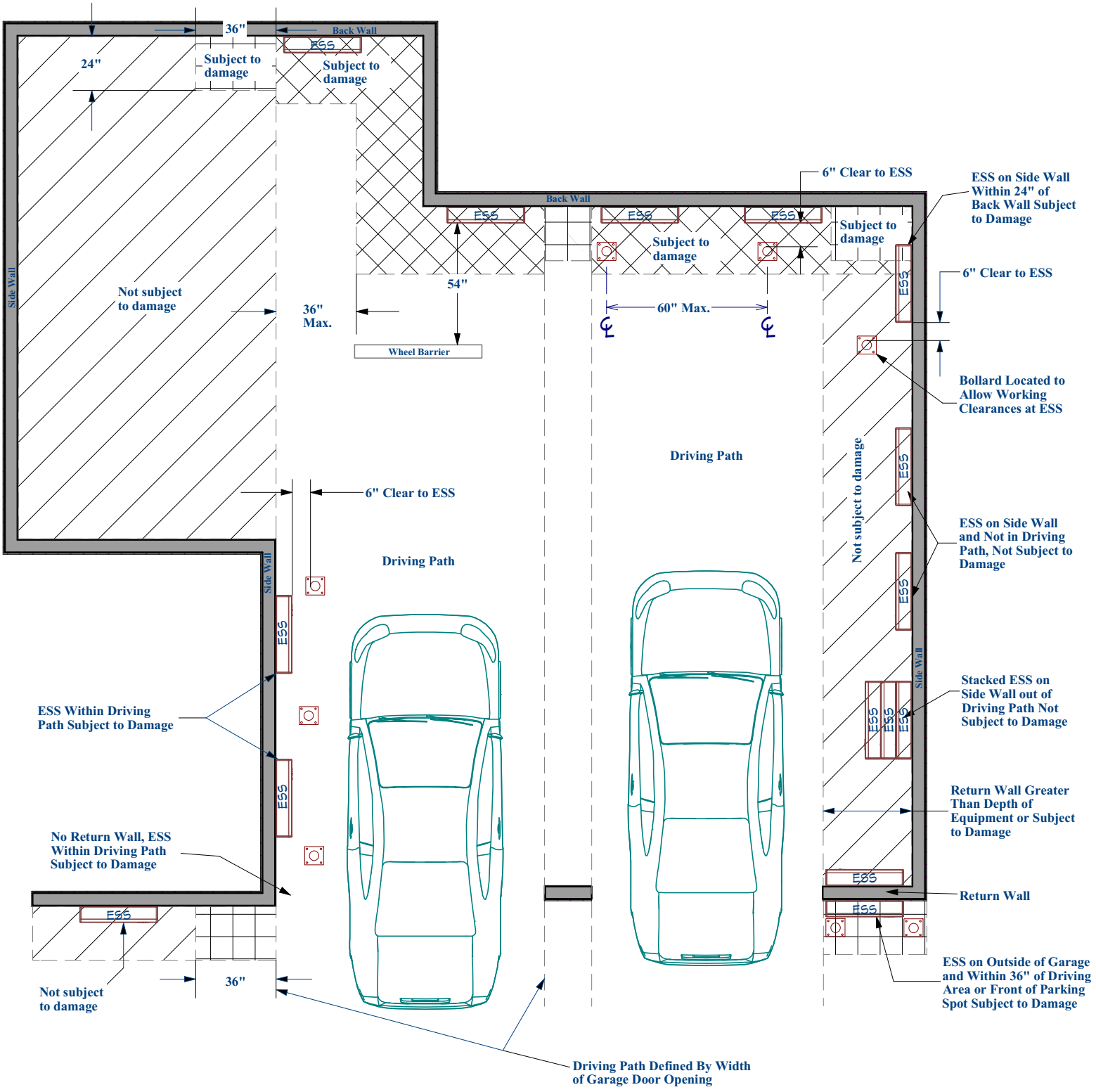


FIGURE 1

CRC 328.8.1 VEHICLE IMPACT PROTECTION

COUNTY OF HUMBOLDT
PLANNING AND BUILDING DEPARTMENT

3015 H Street • Eureka CA 95501
Phone: (707) 445-7245 • Fax: (707) 445-7446

Rooftop Photovoltaic General Inspection Checklist

PV Array Configuration

- ☐ Module manufacturer, make, model, and number of modules match the approved plans. (CEC 690.4(B)).
- ☐ PV modules are listed to UL 1703. (CRC R324.3.1, CEC 110.3, & CBC 1510.7.2) NOTE: AC modules need to be listed to UL 1703 and UL 1741.
- ☐ DC modules are properly marked and labeled. (CEC 690.53, CEC 110.3(B), CEC 690.4(D), CEC 705.10, & CEC 110.21(B)).
- ☐ AC modules are properly marked and labeled. (CEC 690.52, CEC 110.3(B), CEC 690.4(D), CEC 705.10, & 110.21(B)).
- ☐ Modules are attached to the mounting structure according to the manufacturer's instructions and the approved plans. (CRC R324.4.1, CBC 1510.7.2.1, & CEC 110.3(B))
- ☐ Roof penetrations are flashed, and counter flashed. (CBC 1503.2 & CRC R903.2)
- ☐ PV modules are in good condition (i.e., no broken glass or cells, no discoloration, frames not damaged, etc.). (CEC 110.12(B)).
- ☐ Residential one- and two-family dwelling limited to maximum PV system voltage of 600 volts. Other types of buildings are limited to maximum PV system voltage of 1000 volts. (CEC 690.7)
- ☐ Rooftop systems are designed in accordance with the CBC. (CBC 1501.1)
- ☐ Roof access points, paths and clearances need to comply with the CRC and CFC. (CRC 324.6 & CFC 1204.2.)

Grounding

- ☐ A complete grounding electrode system is installed. (CEC 690.47(A) & (B))

- ☐ Modules are grounded in accordance with manufacturer's installation instructions using the supplied hardware or listed equipment specified in the instructions and identified for the environment and using the grounding point identified on the module and in the manufacturer's instructions. (CEC 690.42 & 110.3(B))

- ☐ Properly sized equipment grounding conductor is routed with the circuit conductors. (CEC 690.45, 250.134(B) & 300.3(B))

- ☐ AC and DC grounding electrode conductors are properly connected. Separate electrodes, if used, are bonded together. (CEC 690.47, 250.50 & 250.58)

- ☐ Bonding fittings are used on concentric/eccentric knockouts with metal conduits for circuits over 250 volts. (CEC 250.97) (*see also* exceptions 1 through 4)

- ☐ Bonding fittings are used for ferrous metal conduits enclosing grounding electrode conductors. (CEC 250.64(E))

Wire Management

- ☐ Wires are secured by staples, cable ties, straps, hangers, or similar fittings at intervals that do not exceed 4.5 feet. (CEC 334.30 & 338.12(A)(3)).

- ☐ Wires are secured within 12 inches of each box, cabinet, conduit body or other termination. (CEC 334.30 & 338.12(A)(3)).

- ☐ Cable closely follows the surface of the building finish or of the running boards. (CEC 334.15(A), CEC 690.31, CEC 300.11, & CEC 110.27). NOTE: see Section 12 below for additional guidance on routing of conductors for fire fighter safety concerns.

- ☐ Exposed single conductors, where subject to physical damage, are protected. (CEC 230.50(B), 300.4(D), & CEC 110.27).

Conductors

- ☐ Exposed single conductor wiring is a 90C, wet rated and sunlight resistant type USE-2 or listed PV wire. (CEC 690.31(C)) If the wiring is in a conduit, it is 90C, wet rated type RHW-2, THWN-2, or XHHW-2. (CEC 310.15)
- ☐ Conductor insulation is rated at 90C to allow for operation at 70C+ near modules. (CEC 310.15)

- ☐ Where conductors or cables are installed in conduits exposed to direct sunlight on

or above rooftops, correction factors for ambient temperature adjustments are applied. (CEC 310.15(B)(2)).

- Grounded conductor is identified white or grey. (CEC 200.6)
- Open conductors are secured and protected. (CEC 300.4)
- Conductors are not in contact with the roof surface. (CEC 334.30)
- DC conductors inside a building are in a metal raceway or MC metal-clad cable that complies with CEC 250.118(10), or metal enclosures. (CEC 690.31(G))
- If more than one nominal voltage system conductor is installed in the raceway, permanent identification and labeling is required. (CEC 200.6(D) & 210.5(C))
- For underground conductor installations, the burial depth is appropriate and warning tape is in place. (CEC 300.5 & Table 300.5)
- Aluminum is not placed in direct contact with concrete. (CEC 250.120(B) & 110.11).
- The max current for DC source circuit conductors is calculated by the sum of parallel-connected PV modules rated short circuit currents (ISC) multiplied by 1.25. (CEC 690.8(A)(1) & (B)(1)).
- PV circuit and premises wiring are separated. (CEC 690.31(B))
- PV system conductors shall be grouped and identified. (CEC 690.31(B))

Overcurrent Protection

- Overcurrent devices in the DC circuits are listed for DC operation. (CEC 110.3(C), & 690.9).
- Inverter output circuit overcurrent protection device (point of connection to AC system breaker) is sized based on the maximum inverter output current x 125%. (CEC 690.8(A)(3) & 690.8(B)(1))
- Overcurrent protection is required for the PV source circuit (modules and parallel connected modules), PV output circuit (conductors between source circuits and inverter), inverter output circuit, battery circuit conductors and equipment. (CEC 690.9(A))
- Where three or more strings are combined, a listed combiner box (UL1741) is

used, and fuses are required. When DC source circuits (strings) are connected in parallel, the current through a failed circuit can be the sum of the current connected from the other strings, therefore special consideration must be taken to ensure the sum of the total number of strings minus one does not exceed the module manufacturers series fuse rating, or conductor ampacity. (CEC 110.3(B), 690.9(A)) NOTE: there are a few exceptions where the module has a higher series fuse rating and a low ISC rating.

- When a back-fed breaker is used as a utility interconnection means, a permanent warning label shall be applied to the distribution equipment adjacent to the back-fed breaker from the power source that displays the following or equivalent wording: "POWER SOURCE OUTPUT CONNECTION – DO NOT RELOCATE THIS OVERCURRENT DEVICE." (CEC 705.12(B)(2)(3)(B))

- Where two sources, one a primary power source and the other another power source, are located at opposite ends of a busbar that contains loads, the sum of 125 percent of the power source(s) output circuit current and the rating of the overcurrent device protecting the busbar shall not exceed 120 percent of the ampacity of the busbar. (CEC 705.12(B)(2)(3)(B)).

Electrical Connections

- Crimp on terminals is listed and installed using a listed tool specified for use in crimping those specific crimps. (CEC 110.3(B) & 110.14)

- Pressure terminals are listed for the environment and tightened to manufacturer recommended torque specifications. (CEC 110.11, 110.3(B) & 110.14)

- Connectors are listed for the voltage of the system and have appropriate temperature and ampere ratings. (CEC 110.3(B) & 110.4)

- Twist on wire connectors is listed for the environment (i.e., wet, damp, direct burial, etc.) and installed per manufacturer's instructions. (CEC 110.11, 110.3(B), 110.14 & 300.5(B))

- Power distribution blocks are listed. (CEC 690.4 & 314.28(E))

- Terminals containing more than one conductor are listed for multiple conductors. (CEC 110.14(A) & CEC 110.3(B))

- Connectors and terminals used for fine strand conductors are listed for use with such conductors. (CEC 110.14(A) & 110.3(B))

- Connectors that are readily accessible and operating at over 30 volts require a tool

for opening. (CEC 690.33(C))

- Module connectors are tight and secure. (CEC 110.3(B) & 110.12)

- Wiring and connections of inverters, PV source circuits, battery connections, etc., and all interconnections are performed by qualified personnel. (CEC 690.4(C)).

Charge Controllers

- Charge controller is listed to UL Standard 1741. (CEC 110.3 & 690.4(B))

- Exposed energized terminals are not readily accessible. (CEC 110.27)

- Diversion charge controllers that are used as the sole means of regulating charging of batteries have a second independent means of control to prevent overcharging. (CEC 706.23(B)(1)).

Disconnects

- Disconnects used in DC circuits are listed for DC operation. (CEC 110.3)

- Disconnects are installed for all current carrying conductors of the PV source. (CEC 690.13)

- Disconnects are installed for the PV equipment. NOTE: For inverters and other equipment that are energized from more than one source, the disconnecting means must be grouped and identified. (CEC 690.15)

- Disconnects and overcurrent protection are installed for all ungrounded conductors in ungrounded (transformerless) PV power systems. (CEC 240.15 & 690.15(D))

Inverters

- Inverters are listed to UL 1741. (CEC 705.6 & CEC 110.3). NOTE: grid-tied system inverters need to be identified for use in interactive power systems.

- Point of connection is at a dedicated breaker or disconnect. (CEC 705.12(B))

- Total rating of the overcurrent devices supplying equipment does not exceed 120% of the equipment rating. (CEC 705.12(B)(2)(3)(C))

- Listed AC and DC disconnects, and overcurrent protection are grouped and

identified. (CEC 690.15)

- No multi-wire branch circuits are installed where single 120-volt inverters are connected to 120/240-volt load centers. (CEC 710.15)

Batteries

- An ESS for dwelling units shall not exceed 100 volts between conductors or to ground. Exception: Where live parts are not accessible during routine ESS maintenance, an ESS voltage exceeding 100 volts shall be permitted. (CEC 706.30(A)).

- Live parts of battery systems for dwellings are guarded to prevent accidental contact by persons or objects. (CEC 706.10(B)).

- Flexible battery cables are listed RHW or THW, 2/0 minimum for battery cell connections. (CEC 706.32) NOTE: welding cables, marine, locomotive (DLO), and automotive cables do not meet the current Electrical Code requirements. (CEC 110.3(A) & (B))

- Flexible battery cables do not leave the battery enclosure. (CEC 706.32)

- Flexible, fine strand cables are only be used with terminals, lugs, devices, and connectors that are listed and marked for such use. (CEC 706.32, CEC 110.3(B) & CEC 110.14)

- High interrupt, listed, DC rated fuses or circuit breakers are used in battery circuits. The AIC is at least 20,000 amps. (CEC 110.9)

- Cables to inverters, DC load centers, and/or charge controllers are in a conduit. (CEC 690.31(A) & CEC 690.31(E))

- Conduits enter the battery enclosure below the tops of the batteries. NOTE: this is to avoid accidental ventilation of gases into electrical equipment where sparks may occur. Follow battery enclosure manufacturer's instructions for venting and conduit locations. (CEC 110.3(B), CEC 480.10(A) & CEC 480.11).

- A disconnecting means shall be provided for all ungrounded conductors derived from a stationary battery system with a voltage over 60 volts dc. (CEC 480.7(A))
- Area is well ventilated, and the batteries are not installed in living areas. (CEC 480.10(A) & CEC 408.10)

Signs and Labels

- PV system circuit conductors shall be identified at all accessible points of termination, connection, and splices. (CEC 690.31(B)(1)).

- The markings on the conduits, raceways and cable assemblies are every 10 feet, within one foot of all turns or bends and within one foot above and below all penetrations of roof/ceiling assemblies, walls, and barriers. (CEC 110.21, CEC 358.120, CEC 690.53)

- All interactive system(s) points of interconnection with other sources shall be marked at an accessible location at the disconnecting means as a power source and with the rated ac output current and the nominal operating ac voltage. (CEC 690.54).

- A permanent plaque or directory denoting the location of all electric power source disconnecting means on or in the premises shall be installed at each service equipment location and at the location(s) of the system disconnect(s) for all electric power production sources capable of being interconnected. The marking shall comply with CEC 110.21(B). (CEC 705.10).

- The PV system output circuit conductors shall be marked to indicate the polarity where connected to energy storage systems. (CEC 690.55).

- The following wiring methods and enclosures that contain PV system dc circuit conductors shall be marked with the wording WARNING: PHOTOVOLTAIC POWER SOURCE by means of permanently affixed labels or other approved permanent marking: (1) Exposed raceways, cable trays, and other wiring methods. (2) Covers or enclosures of pull boxes and junction boxes. (3) Conduit bodies in which any of the available conduit openings are unused. (CEC 690.31(G)(3)).

Fire Safety

- Rooftop rack-mounted photovoltaic panel systems shall be tested, listed, and identified with a fire classification in accordance with UL 1703 and UL 2703. The fire classification shall comply with Table 1505.1 based on the type of construction of the building. (CBC 1505.9)

- Conduit, wiring systems, and raceways for photovoltaic circuits shall be located as close as possible to the ridge or hip or valley and from the hip or valley as directly as possible to an outside wall to reduce trip hazards and maximize ventilation opportunities. Conduit runs between sub arrays and to DC combiner boxes shall be installed in a manner that minimizes the total amount of conduit on the roof by taking the shortest path from the array to the DC combiner box. The DC combiner

boxes shall be located such that conduit runs are minimized in the pathways between arrays. DC wiring shall be installed in metallic conduit or raceways when located within enclosed spaces in a building. Conduit shall run along the bottom of load bearing members. (CFC 1204.2.3)

- Where circuits are embedded in built-up, laminate, or membrane roofing materials in roof areas not covered by PV modules and associated equipment, the location of circuits shall be clearly marked using a marking protocol that is approved as being suitable for continuous exposure to sunlight and weather. (CEC 690.31(G)(1).

- Panels and modules installed on Group R-3 buildings shall not be placed on the portion of a roof that is below an emergency escape and rescue opening. A pathway of not less than 36 inches (914 mm) wide shall be provided to the emergency escape and rescue opening. (CFC 1204.2.2).

- Exterior doors and openings required by this code, or the California Building Code shall be maintained readily accessible for emergency access by the fire department. An approved access walkway leading from fire apparatus access roads to exterior openings shall be provided where required by the fire code official. (CFC 504.1).

- Not fewer than two pathways, on separate roof planes from lowest roof edge to ridge and not less than 36 inches (914 mm) wide, shall be provided on all buildings. Not fewer than one pathway shall be provided on the street or driveway side of the roof. For each roof plane with a photovoltaic array, a pathway not less than 36 inches wide (914 mm) shall be provided from the lowest roof edge to ridge on the same roof plane as the photovoltaic array, on an adjacent roof plane, or straddling the same and adjacent roof planes. Pathways shall be over areas capable of supporting fire fighters accessing the roof. Pathways shall be in areas with minimal obstructions such as vent pipes, conduit, or mechanical equipment. (CRC R324.6.1).

- For photovoltaic arrays occupying not more than 33 percent of the plan view total roof area, not less than an 18-inch (457 mm) clear setback is required on both sides of a horizontal ridge. For photovoltaic arrays occupying more than 33 percent of the plan view total roof area, not less than a 36-inch (914 mm) clear setback is required on both sides of a horizontal ridge. (CRC R324.6.2).

LOAD SIZE SOURCE CONNECTIONS CEC 705.12

Inverter Output OCPD – Max Size

(Max inverter output amps x 1.25) = Ampacity value to use with Table 310.15(B)(16)

Minimum Inverter Output OCPD and Circuit Conductor Size*									
Inverter Continuous Output Current Rating (Amps)	12	16	20	24	28	32	36	40	48
Minimum OCPD Size (Amps)	15	20	25	30	35	40	45	50	60
Minimum Conductor Size (AWG, 75°C, Copper)**	14	12	10	10	8	8	8	8	6

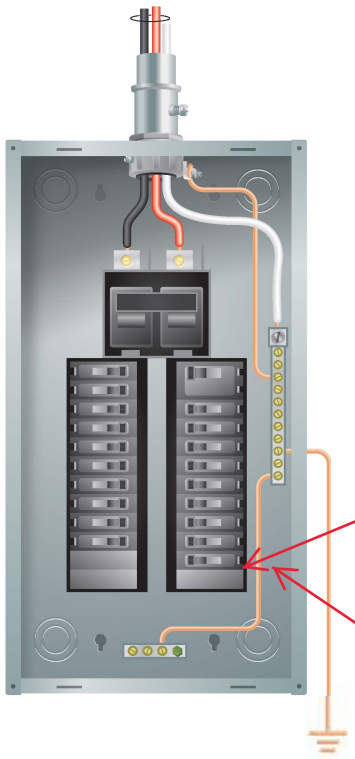
*Calculation based on CEC 690.8(A)(1) and CEC 690.9(B)(1)(e).
**Use CEC Table 310.15(B)(16) for sizing conductor and OCPD.

Back-fed OCPD – Max Size

(Bus bar size x 1.2) - Main OCPD size = Max back-fed OCPD size

Maximum Combined Supply OCPD's Based on Bus Bar Rating (Amps) per CEC 705.12(B)(3)(2)									
Bus Bar Rating (Amps)	100	125	125	200	200	200	225	225	225
Main OCPD (Amps)	100	100	125	150	175	200	175	200	225
Max Combined PV System OCPD(s) at 120% of Bus Bar Rating	20	50	25	60*	60*	40	60*	60*	45

*This value has been lowered to 60A from the calculated value to reflect 10 kW AC size maximum.



- The sum of the ampere ratings of all overcurrent devices on panelboards, both load and supply devices, excluding the rating of the overcurrent device protecting the busbar, shall not exceed the ampacity of the busbar.
- The rating of the overcurrent device protecting the busbar shall not exceed the rating of the busbar.
- Permanent warning labels shall be applied to distribution equipment displaying the following or equivalent wording:

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

Fastening. If a battery is the source of back-fed power then the back-fed circuit breakers shall be fastened to the enclosure per CEC 408.36(D).

Label. Adjacent to the back-fed breaker shall be a label with the following wording: WARNING: POWER SOURCE OUTPUT CONNECTION - DO NOT RELOCATE THIS OVERCURRENT DEVICE