



Butte County Department of Development Services

PERMIT CENTER

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FORM NO

DBP-69

Photovoltaic Inspection Guidelines

Residential Interactive Systems

In General

- Customer/Installer shall provide Approved Plans on site for inspector.
- Photovoltaic module number and location of installation must match Approved Site Plan.
- Customer/Installer shall provide access to all areas needed for inspection.
- On Roof, if Tile – Installer shall provide properly supported temporary walking surface to access all connections of all modules. If two story – Installer shall provide a proper and secured ladder(s) to access all areas.
- In House – If wiring in attic and/or garage area, the customer/installer shall ensure access to attic and/or garage.

On Roof

- Verify all structural supports are properly installed per listing and properly sealed.
- Verify all metallic raceways, J-boxes, supports and modules are properly grounded. Modules shall be grounded separately to allow removal of a single module and without disrupting the grounding of other modules by means of properly installed wires, lugs, screws, bolts or other listed methods. (Sheet Metal Screws are not allowed – 250.8). 2016 CEC, Article 690.43
- Verify all exposed wiring is listed Sunlight Resistant. 2016 CEC, Article 690.31
- Verify all module interconnections connectors require a tool for opening. 2016 CEC, Article 690.33

DC Disconnect

- Verify proper location. DC Disconnect shall be readily accessible, within sight of inverter, and properly listed for 600 volt DC power. 2016 CEC, Article 690.13
- If DC wiring is run through the building, a DC Disconnect shall be installed prior to the conductors entering the building or the conductors shall be installed in metallic raceways or metallic enclosures from the point of entrance to the DC Disconnect and all J-boxes shall be labeled “DC Source Circuits”. 2016 CEC, Article 690.31(G)
- Verify proper and permanent labeling with the following information; “PHOTOVOLTAIC DC DISCONNECT” and “WARNING ELECTRIC SHOCK HAZARD – DO NOT TOUCH TERMINALS – TERMINALS ON BOTH THE LINE AND LOAD SIDE MAY BE ENERGIZED IN THE OPEN POSITION”. 2016 CEC, Article 690.17
- The DC disconnect shall also be properly and permanently labeled with the following Installed System Information: (1) Rated Maximum Power-Point Current (2) Rated Maximum Power-Point Voltage (3) Maximum System Voltage & (4) Short Circuit Current. 2016 CEC, Article 690.53

Note: Rooftop Micro-Inverter Systems have no DC Disconnect Switches. AC Disconnect shall be installed on the roof or at the Utility panel and be capable of being locked OFF. Installed System Information shall be installed on Utility Service Panel.

Grounding

- ❑ Photovoltaic systems with voltage over 50 volts shall be solidly grounded. 2016 CEC, Article 690.41
- ❑ The Utility Service Panel shall have a grounding electrode system. 2016 CEC, Article 690.47(A)
- ❑ Both the DC system and the AC system shall have a minimum of a # 8 copper grounding electrode conductor and both electrode conductors shall be solidly bonded to the Utility Service Panel electrode system as well as any new grounding electrodes. 2016 CEC, Article 690.47(B,C)
- ❑ Additional electrode(s) shall be installed for all arrays and as close as possible. The electrode conductor(s) shall have no other use. 2016 CEC, Article 690.47(D)

AC Disconnect and Utility Panel

- ❑ The AC Disconnect shall be permanently identified with (1) Maximum AC Output, and (2) Operating AC Voltage. 2016 CEC, Article 690.54
- ❑ If DC Disconnect, Inverter, and/or AC Disconnect are not in the same location as the Utility Service Panel is located, a permanent Plaque shall be installed on the Utility Panel identifying the location(s) of the other equipment. 2016 CEC, Article 690.56
- ❑ Photovoltaic interconnection circuit breaker at the Utility Service Panel shall not exceed 20% of the bussing rating and **shall** be positioned at the opposite end of the bussing from the main input circuit location (i.e. 20 amp for 100 amp panel). 2016 CEC, Article 690.64

Rapid Shutdown

- ❑ Photovoltaic systems located on or in a building shall include a Rapid Shutdown system. 2016 CEC, Article 690.12
- ❑ Rapid Shutdown Equipment shall be listed and identified.
- ❑ Controlled Conductors are limited to maximum 30 Volts and 240 Volt-Amps within 10 seconds of Rapid Shutdown initiation.
- ❑ Volt and Power shall be measured between any two conductors and any conductor and ground.
- ❑ Verify permanent plaque or directory located at Utility Service "PHOTOVOLTAIC SYSTEM EQUIPPED WITH RAPID SHUTDOWN". 2016 CEC, Article 690.56(C)

Testing

- ❑ Verify Installer has installed meter jumpers, if so equipped, at PV meter socket.
- ❑ Energize system and check display for output (wait time could be up to 5 min).
- ❑ Once output observed, turn off AC power at PV interconnection circuit breaker and verify inverter output drops to 0 watts. 2016 CEC, Article 690.61

Note: Rooftop Micro-inverter Systems have LED lights to show conditions or a Voltage tester can be used at load terminals of the circuit breaker/disconnect at the service panel.