



## PV SYSTEM INSTALLATION NOTES

The following information is also contained in the coversheet supplied with approved plans for Photovoltaic (PV) systems. With plans certain items will be checked to direct attention where it might be needed for a particular plan. All work shall comply with current code cycle and all applicable city, county, state and local codes, rules and regulations.

Here the information is offered as a guideline for installers. Not every item will be applicable to every installation, but becoming familiar with these general requirements may assist installers with achieving a compliant installation.

### **STRUCTURAL:** SEE ALSO CALIFORNIA FIRE CODE 605.11

- (1) THREE (3) FOOT WIDE (MINIMUM) CLEAR PATHS OVER STRONG STRUCTURAL MEMBERS REQUIRED ON ALL RESIDENTIAL ROOFTOPS REGARDLESS OF PITCH:
  - (A) TWO PATHS REQUIRED FROM EAVE TO RIDGE OR ONE PATH FOR EACH SLOPE CONTAINING ARRAYS ON ROOF WITH HIPS:
  - (B) AT HIPS OR VALLEYS MAY PROVIDE PATH EITHER SIDE OR SPLIT PATH: NO MODULE CLOSER THAN EIGHTEEN (18) INCHES TO HIP OR VALLEY
  - (C) NO MODULE CLOSER TO RIDGE THAN THREE (3) FEET
  - (D) FLAT ROOF ONE PATH ALONG STREET SIDE AND AT LEAST ONE PATH TO REAR OR FOR CORNER LOTS PATHS ALONG BOTH STREET SIDES
  - (E) PARAPETS REGARDLESS OF HEIGHT ABOVE ROOF ARE NOT PART OF ROOFTOP AND ARE NOT CONSIDERED AS ANY PART OF REQUIRED CLEARANCES
- (2) SIX (6) FOOT WIDE (MINIMUM) CLEAR PATHS OVER STRONG STRUCTURAL MEMBERS REQUIRED AROUND ENTIRE PERIMETER ON ALL NON-RESIDENTIAL ROOFTOPS:
  - (A) EXCEPTION ALLOWS REDUCTION TO FOUR (4) FOOT WIDE CLEAR PERIMETER IF LENGTH OR WIDTH OF BUILDING IS LESS THAN 250 FEET
  - (B) PROVIDE STRAIGHT CROSS-ROOF ACCESS PATHWAYS CLOSE TO CENTERLINE OF ROOF OVER STRONG STRUCTURAL MEMBERS
  - (C) MAINTAIN NOT LESS THAN FOUR (4) FOOT CLEARANCE TO SKYLIGHTS, STANDPIPES, ROOF ACCESS HATCHES, AND VENTILATION HATCHES

### **GROUNDING:** SEE ALSO SAN FRANCISCO ELECTRICAL CODE

- (3) VERIFY ADEQUACY OF GROUNDING ELECTRODE SYSTEM WHETHER NEW OR EXISTING AND CORRECT ANY DEFICIENCIES:
  - (A) BOND GAS PIPING AT GAS METERS ON THE LOAD SIDE (BUILDING SIDE NOT UTILITY MANIFOLD OR ENTRANCE SIDE) UNLESS ENCLOSED – INQUIRE FOR ALTERNATE LOCATION
  - (B) CONNECT GROUNDING ELECTRODE CONDUCTOR (GEC) TO COLD WATER PIPING WITHIN FIVE (5) FEET OF ITS ENTRANCE TO BUILDING
  - (C) BOND CONCRETE ENCASED ELECTRODE (UFER), AND/OR BUILDING STEEL, OR IF NEITHER AVAILABLE PROVIDE TWO (2) GROUND RODS SPACED AT LEAST 6 FEET APART
  - (D) PROTECT EXPOSED GROUNDING CONDUCTORS: SOLID METAL CONDUIT REQUIRED WHEN EXTERIOR – NO. 6 CONDUCTOR BELOW 5 FEET MUST ALSO BE PROTECTED INTERIOR
  - (E) EQUIPMENT GROUND ARRAYS AND TRANSFORMERLESS INVERTERS: COMPLIANT WITH CEC 250.122
  - (F) GROUND TO GEC TRANSFORMER-BASED INVERTERS: COMPLIANT WITH CEC 250.66

**ELECTRICAL:** SEE ALSO SAN FRANCISCO ELECTRICAL CODE

- (4) SUPPLY-SIDE CONNECTION REQUIREMENTS:
  - (A) KEEP CONDUCTORS BETWEEN MAIN SERVICE TAP LOCATION AND SOLAR SYSTEM AC DISCONNECT AS SHORT AS PRACTICABLE
  - (B) EXISTING TAP PROVISIONS MAY USED IF PRESENT
  - (C) TAP PROVISIONS THAT REQUIRE FIELD DRILLING FOR INSTALLATION MUST BE APPROVED WITH INSTRUCTIONS FROM SWITCHGEAR MANUFACTURER OR FROM A FIELD EVALUATION BODY ON THE LIST APPROVED BY THE ELECTRICAL INSPECTION DIVISION OF THE DEPARTMENT OF BUILDING INSPECTION
  - (D) SERVICE-ENTRANCE CONDUCTORS SHALL BE INSTALLED IN ACCORDANCE WITH THE APPLICABLE REQUIREMENTS OF SAN FRANCISCO ELECTRICAL CODE COVERING THE TYPE OF WIRING METHOD USED AND LIMITATION. REFER TO 230.43 SAN FRANCISCO ELECTRICAL CODE AMENDMENTS
- (5) REQUIREMENT FOR STRING INVERTER(S): WHEN MORE THAN 6 FEET AWAY FROM OR NOT IN SIGHT OF SERVICE PANEL PROVIDE ADDITIONAL AC DISCONNECT UNLESS INVERTER(S) HAVE INTEGRAL AC DISCONNECT WITH LOCKING MEANS THAT REMAINS IN PLACE WHEN NOT LOCKED
- (6) ALL REQUIREMENTS FOR FIELD-APPLIED LABELS STRICTLY ENFORCED UNDER CALIFORNIA ELECTRICAL CODE (CEC) 690
- (7) MAINTAIN SPACES ABOUT ELECTRICAL EQUIPMENT PER CEC 110.26
- (8) WHEN EQUIPMENT MFG. SPECS SHOW MAX OUTPUT OCPD RATING – THEN OCPD AMPERAGE MUST NOT EXCEED EQUIPMENT SPECIFICATION REGARDLESS OF CEC 240.4(B)
- (9) AC DISCONNECTS CONNECTING SOURCE TO SERVICE MUST BE LOCKABLE – DEAD FRONT PULL-OUT SWITCH WITH LOCKABLE COVER OR NEMA SWITCH WITH LOCKABLE HANDLE OR CIRCUIT BREAKER WITH LOCKING MEANS THAT REMAINS IN PLACE WHEN NOT LOCKED
- (10) 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% OF THE POWER SOURCE(S) OUTPUT CIRCUIT CURRENT AND THE RATING OF THE OVERCURRENT DEVICE PROTECTING THE BUSBAR DOES NOT EXCEED 120% OF THE CURRENT RATING OF THE BUSBAR. FOR BUS OR CONDUCTOR AMPERE RATING, REFER TO CEC 705.12(D)(2)
- (11) PV SYSTEM CIRCUITS INSTALLED ON OR IN BUILDINGS SHALL INCLUDE A RAPID SHUTDOWN FUNCTION AND BE LABELED CLEARLY FOR INSPECTION. REFER TO CEC 690.12 AND 690.56(C)

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