



SUTTER COUNTY

DEVELOPMENT SERVICES DEPARTMENT

Building Inspection
Code Enforcement
Planning

Environmental Health
Emergency Management
Fire Services

Engineering
Road Maintenance
Water Resources

Solar Permit Checklist for Residential Roof mounted systems **10 KW or less**

Plans submitted must be in compliance with Assembly Bill 2188 and Sutter County Ordinance Chapter 1300-073 through 1300-079

1. Submit two (2) sets of plans (minimum 8.5"x11" & maximum 24"x36") which are drawn to scale (or fully dimensioned). Please keep in mind all plans, notes and details shall be clear and legible.
2. Cover sheet with the following information: project address, owners name/address/phone number, name/address and phone number of contractor and person preparing plans, clear scope of work, sheet index, legend of symbols, abbreviations and notations used in the drawings.
3. Basic roof layout plan showing the location of the structure, North arrow, equipment, disconnects, inverters and any other related components of the PV system. (Cover sheet and roof layout plan may be part of the same sheet if complete and legible; common for small residential lots)
4. Array configuration indicating placement of equipment and modules on the roof including junction boxes and other related electrical equipment. Configuration shall also show required fire clearances per the 2016 CA Fire and Residential Codes (*see back of checklist for complete requirements*).
5. Electrical single line diagram including:
 - Amperage size and location of the main electrical panels and subpanels
 - Grounding/bonding conductor sizes/types for structure (main ground, water bonding, gas bonding, etc)
 - Equipment grounding conductor size, type and location for circuits and module/rack grounding
 - Combiner/junction box locations
 - AC/DC disconnect types, sizes and locations
 - Conduit sizes/types from the array to the power source
 - Inverter string sizing or micro inverter branch circuit details
 - Conductor wiring types and sizes, system and solar panel
6. Required signage for panels, disconnects, conduits, junction boxes, etc. Permanent labels with red background and white lettering resistant to fading pursuant to CA Electrical Code Article 690.
7. Provide cut sheets for all PV equipment and mounting systems including but not limited to: PV modules, rack mounting system with complete details, mounting brackets, grounding hardware, module fire rating and inverters.
8. **Panel Attachment:** Mounting details from manufacture. Roof jacks or approved flashing with a minimum 2" standoff is required. Wiring shall be secured to rack to prevent contact with roof surface and lag screws shall penetrate structural members a minimum of 2".

Access & Pathways:

9. Residential structures shall be designed with a maximum PV array axis of 150ft x 150ft.
 - Residential Hip Roof Layouts: Minimum **3ft clear walkway** from eave to ridge on side of roof mounted PV modules.
 - Residential with Single Ridge: Minimum of **two (2) 3ft clear walkways** from the eave to the ridge or each roof slope.
 - Residential with Hips & Valleys: Modules installed **no closer than 18” to the hip or valley** when modules are installed on each side of the hip/valley.
 - All Residential Roofs: Modules **shall not be installed within 3ft of the ridge for fire dept. ventilation.**

Exceptions: Roofs with a slope of less than or equal to 2:12 or when the Fire Chief approves alternative ventilation methods or determines vertical ventilation techniques will not be used.

10. Roof access shall be available that doesn't require placement of ladders over windows, doors, etc and located at strong points of the building construction that allow unobstructed access.

Solar PV Requirements in the 2016 California Fire, Electrical & Residential Codes

Wiring/Circuit Installations:

11. Direct current (DC) conduit, enclosures, raceways, cable assemblies, junction boxes, combiner boxes and disconnects shall be labeled per the following:
 - Labels shall be reflective, water resistant and can withstand the environment; lettering shall be a minimum 3/8” in height with white on red background.
 - Labels shall state, **“WARNING: PHOTOVOLTAIC POWER SOURCE”**.
 - Labels shall be placed at every service disconnect; also on every DC conduit, raceways, enclosures, etc at **10ft o.c. and within 1ft of turns, bends and penetrations.**
12. Conduit, raceways and wiring systems shall be run as close as possible to ridges, hips, valleys, etc; they shall also be installed in such a manner to limit trip hazards and maximize ventilation opportunities. DC wiring in enclosed spaces shall be installed in metallic conduit; conduit shall be run along the bottom of load bearing members.
13. PV source and output circuits inside a building shall be routed along building structural members where the members can be observed (accessible attics, etc). If circuits are embedded in areas (not accessible) that are not covered by PV modules, those areas shall be clearly marked indicating their locations.
14. DC circuits ran inside a building 80 volts or greater shall be protected by a listed arc-fault circuit interrupter.
15. Where multiple inverters are installed and not grouped a clear location directory shall be provided at each AC & DC disconnect location.
16. FMC ¾” or smaller, MC conduit 1” or smaller or exposed wiring installed across ceiling joists or floor joists shall be protected by guard strips.
17. Disconnecting means per the CEC 690.12 for “Rapid shutdowns” and in accordance with 690.12(1) through (5).