

Solar Photovoltaic Installation

2025 California Fire Code §1205 - Solar photovoltaic power systems

Purpose. Solar photovoltaic systems must maintain firefighter access, ventilation opportunities, emergency escape openings and electrical hazard identification. This handout summarizes key CFC fire-safety provisions; structural and electrical design remain subject to the California Building/Residential and Electrical Codes.

1. Applicable Codes

- Solar PV systems are installed in accordance with the California Building Code or California Residential Code.
- Electrical portions of the system must comply with the California Electrical Code.
- Rooftop systems follow CFC §§1205.2-1205.4.3; ground-mounted systems follow §1205.5.
- Approved plans should show modules, pathways, ridges, roof access, emergency escape openings, rapid-shutdown equipment and required labels.

Code reference: 2025 CFC §1205.1

2. General Roof Access and Pathways

Required pathways must be over roof areas capable of supporting firefighters and should be located where obstructions such as vents, conduit and mechanical equipment are minimized. The CFC contains exceptions for certain detached nonhabitable Group U structures, approved no-rooftop-operation conditions and qualifying BIPV systems.

Code reference: 2025 CFC §1205.2

3. Group R-3 Pathways to Ridge

- Provide at least two 36-inch-wide pathways on separate roof planes from the lowest roof edge to the ridge.
- At least one pathway must be on the street or driveway side of the roof.
- For each roof plane containing a PV array, provide at least one 36-inch pathway from the lowest roof edge to the ridge on that plane, an adjacent plane or straddling the two as permitted.
- The CFC Group R-3 pathway provisions contain exceptions, including qualifying California Residential Code structures and roofs with slopes 2:12 or less.

Code reference: 2025 CFC §§1205.2.1 and 1205.2.1.1

4. Group R-3 Ridge Setbacks

Ridge setbacks depend on the percentage of the total roof plan-view area occupied by PV arrays and whether the dwelling is sprinklered under the applicable residential sprinkler standard.

Code reference: 2025 CFC §§1205.2.1.2-1205.2.1.3

Condition	Minimum setback on both sides of horizontal ridge
PV arrays occupy 33% or less of total roof plan-view area	18 inches
PV arrays occupy more than 33%	36 inches
Sprinklered dwelling: arrays occupy 66% or less	18 inches
Sprinklered dwelling: arrays occupy more than 66%	36 inches

5. Emergency Escape and Rescue Openings

PV panels/modules on Group R-3 buildings may not be installed on the roof area directly below an emergency escape and rescue opening. A pathway at least 36 inches wide must be provided to the opening.

Code reference: 2025 CFC §1205.2.2

6. Buildings Other Than Group R-3

- Provide a 6-foot clear perimeter around roof edges as the general rule.
- Where either building axis is 250 feet or less, the perimeter can be reduced to 4 feet under the CFC exception.
- Interior pathways are required at intervals not greater than 150 feet through the length and width of the roof.
- Provide a pathway at least 4 feet wide in a straight line to roof standpipes or ventilation hatches.
- Provide at least 4 feet of clear pathway around roof access hatches and a pathway from the hatch to a parapet or roof edge.
- Smoke/heat-vent locations require additional 4-foot or 8-foot pathways depending on the vent arrangement.

Code reference: 2025 CFC §§1205.3.1-1205.3.3

7. DC Conductors and Rooftop Routing

DC conductors, conduit and raceways must be routed to minimize trip hazards and maximize ventilation opportunities. The CFC directs routing close to ridges, hips or valleys and then as directly as practical to an outside wall; enclosed-building DC wiring must use metallic conduit/raceway as required by the section.

Code reference: 2025 CFC §§1205.2.4 and 1205.3.4

8. Rapid Shutdown Labels

- Buildings with rapid-shutdown PV systems require permanent labels identifying the type of rapid shutdown provided.
- The required rapid-shutdown label is located not more than 3 feet from the service disconnecting means to which the PV system is connected.
- The label identifies the location of rapid-shutdown switches when they are not at the same location.
- A rapid-shutdown switch has a label located not more than 3 feet from the switch identifying it as the rapid shutdown switch for the solar PV system.
- Systems containing different shutdown types can require a detailed roof diagram showing areas that remain energized.

Code reference: 2025 CFC §§1205.4-1205.4.3

9. Ground-Mounted PV

Ground-mounted PV arrays require a 10-foot clear, brush-free area around the perimeter. A maintained vegetative surface or approved noncombustible base must be installed and maintained under the arrays and associated electrical equipment.

Code reference: 2025 CFC §§1205.5-1205.5.1

10. Plan / Inspection Checklist

- Roof plan shows array dimensions and percentage of roof coverage.
- Required firefighter pathways and ridge setbacks are dimensioned.
- Emergency escape and rescue openings are identified and kept clear.
- Roof hatches, standpipes, smoke vents and mechanical obstructions are shown.
- Rapid-shutdown equipment and labels are identified.
- DC conductor routing is shown.
- Ground-mounted systems show 10-foot vegetation-control perimeter.
- System matches approved CBC/CRC/CEC design and equipment listings.

Primary References

- 2025 California Fire Code §1205 - Solar Photovoltaic Power Systems
- 2025 California Building Code / California Residential Code
- 2025 California Electrical Code
- UL 3741 provisions where the CFC BIPV/rapid-shutdown exceptions apply

This handout is an informational summary. It does not replace the adopted code, approved plans, permit conditions, State licensing requirements, or determinations of the fire code official. Project-specific requirements may vary.