



Town of Camp Verde

Community Development Department – Building Division

♦ 473 S. Main Street, Suite 108 ♦ Camp Verde, Arizona 86322 ♦

♦ Telephone: 928.554.0050 ♦ www.campverde.az.gov ♦

Solar Photovoltaic Applicants,

On October 17th, 2019 the Copper Canyon Fire & Medical District adopted the 2018 International Fire Code (IFC). All solar photovoltaic permit applications located within the Copper Canyon Fire & Medical District must comply with the new regulations. In addition, all solar photovoltaic plans submitted to the Building Department will be reviewed by the Fire Marshal for code compliance.

Please contact the Building Department at 928-554-0062 for additional information, questions, comments or concerns.

2018 INTERNATIONAL FIRE CODE (IFC) **SOLAR PHOTOVOLTAIC REQUIREMENTS**

2018 IBC PART 1 – SCOPE AND APPLICATION:

[A] 101.2 Scope.

The provisions of this code shall apply to the construction, *alteration*, relocation, enlargement, replacement, *repair*, equipment, use and occupancy, location, maintenance, removal and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures.

[A] 105.1 Required.

Any *owner* or owner's authorized agent who intends to construct, enlarge, alter, *repair*, move, demolish or change the occupancy of a building or structure, or to erect, install, enlarge, alter, *repair*, remove, convert or replace any electrical, gas, mechanical or plumbing system, the installation of which is regulated by this code, or to cause any such work to be performed, shall first make application to the building official and obtain the required *permit*.

2018 IFC SECTION 1204 - SOLAR PHOTOVOLTAIC POWER SYSTEMS

1204.1 General.

Solar photovoltaic systems shall be installed in accordance with Sections 1204.2 through 1204.5, and the *International Building Code* or *International Residential Code*. The electrical portion of solar PV systems shall be installed in accordance with NFPA 70.

NOTE: Please refer to Section 3111 of the 2018 IBC for the prevailing code.

1204.2 Access and pathways.

Roof access, pathways, and spacing requirements shall be provided in accordance with Sections 1204.2.1 through 1204.3.3. Pathways shall be over areas capable of supporting fire fighters accessing the roof. Pathways shall be located in areas with minimal obstructions, such as vent pipes, conduit or mechanical equipment.

Exceptions:

1. Detached, non-habitable Group U structures including, but not limited to, detached garages serving Group R-3 buildings, parking shade structures, carports, solar trellises and similar structures.
2. Roof access, pathways and spacing requirements need not be provided where the *fire code official* has determined that rooftop operations will not be employed.

1204.2.1 Solar photovoltaic systems for Group R-3 buildings.

Solar photovoltaic systems for Group R-3 buildings shall comply with Sections 1204.2.1.1 through 1204.2.1.3.

Exceptions:

1. These requirements shall not apply to structures designed and constructed in accordance with the *International Residential Code*.
2. These requirements shall not apply to roofs with slopes of 2 units vertical in 12 units horizontal or less.

1204.2.1.1 Pathways to ridge.

Not fewer than two 36-inch-wide (914 mm) pathways on separate roof planes, from lowest roof edge to ridge, 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, not fewer than one 36-inch-wide (914 mm) pathway from lowest roof edge to ridge shall be provided on the same roof plane as the photovoltaic array, on an adjacent roof pane or straddling the same and adjacent roof planes.

1204.2.1.2 Setbacks at ridge.

For photovoltaic arrays occupying 33 percent or less of the plan view total roof area, a setback of not less than 18 inches (457 mm) wide is required on both sides of a horizontal ridge. For photovoltaic arrays occupying more than 33 percent of the plan view total roof area, a setback of not less than 36 inches (914 mm) wide is required on both sides of a horizontal ridge.

1204.2.1.3 Alternative setback at ridge.

Where an automatic sprinkler system is installed within the dwelling in accordance with Section 903.3.1.3, setbacks at the ridge shall conform to one of the following:

1. For photovoltaic arrays occupying 66 percent or less of the plan view total area, a setback of not less than 18 inches (457 mm) wide is required on both sides of a horizontal ridge.
2. For photovoltaic arrays occupying more than 66 percent of the plan view total roof area, a setback of not less than 36 inches (914 mm) wide is required on both sides of a horizontal ridge.

1204.2.2 Emergency escape and rescue openings.

Panels and modules installed on Group R-3 building 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.

1204.3 Other than Group R-3 buildings.

Access to systems for buildings, other than those containing Group R-3 occupancies, shall be provided in accordance with Sections 1204.3.1 through 1204.3.3.

Exception: Where it is determined by the *fire code official* that the roof configuration is similar to that of a Group R-3 occupancy, the residential access and ventilation requirements in Sections 1204.2.1.1 through 1204.2.1.3 are a suitable alternative.

1204.3.1 Perimeter pathways.

There shall be a minimum 6-foot-wide (1829 mm) clear perimeter around the edges of the roof.

Exception: Where either axis of the building is 250 feet (76 200 mm) or less, the clear perimeter around the edges of the roof shall be permitted to be reduced to a minimum width of 4 feet (1219 mm).

1204.3.2 Interior pathways.

Interior pathways shall be provided between array sections to meet the following requirements:

1. Pathways shall be provided at intervals not greater than 150 feet (45 720 mm) throughout the length and width of the roof.
2. A pathway not less than 4 feet (1219 mm) wide in a straight line to roof standpipes or ventilation hatches.
3. A pathway not less than 4 feet (1219 mm) wide around roof access hatches, with not fewer than one such pathway to a parapet or roof edge.

1204.3.3 Smoke ventilation.

The solar installation shall be designed to meet the following requirements:

1. Where nongravity-operated smoke and heat vents occur, a pathway not less than 4 feet (1219 mm) wide shall be provided bordering all sides.
2. Smoke ventilation options between array sections shall be one of the following:
 - 2.1 A pathway not less than 8 feet (2438 mm) wide.
 - 2.2 Where gravity-operated dropout smoke and heat vents occur, a pathway not less than 4 feet (1219 mm) wide on not fewer than one side.
 - 2.3 A pathway not less than 4 feet (1219 mm) wide bordering 4-foot by 8-foot (1219 mm by 2438 mm) venting cutouts every 20 feet (6096 mm) on alternating sides of the pathway.

1204.4 Ground-mounted photovoltaic panel systems.

Ground-mounted photovoltaic panel systems shall comply with Section 1204.1 and this section. Setback requirements shall not apply to ground-mounted, free-standing photovoltaic arrays. A clear, brush-free area of 10 feet (3048 mm) shall be required for ground-mounted photovoltaic arrays.

1204.5 Buildings with rapid shutdown.

Buildings with rapid shutdown solar photovoltaic systems shall have permanent labels in accordance with Sections 1204.5.1 through 1204.5.3.

1204.5.1 Rapid shutdown type.

The type of solar photovoltaic system rapid shutdown shall be labeled with one of the following:

1. For solar photovoltaic systems that shut down the array and the conductors leaving the array, a label shall be provided. The first two lines of the label shall be uppercase characters with a minimum height of 3/8 inch (10 mm) in black on a

yellow background. The remaining characters shall be uppercase with a minimum height of 3/16 inch (5 mm) in black on a white background. The label shall be in accordance with Figure 1204.5.1(1) and state the following:

SOLAR PV SYSTM EQUIPPED WITH
RAPID SHUTDOWN. TURN RAPID
SHUTDOWN SWITCH TO THE "OFF"
POSITION TO SHUT DOWN PV SYSTEM
AND REDUCE SHOCK HAZARD IN
ARRAY.

- For photovoltaic systems that only shut down conductors leaving the array, a label shall be provided. The first two lines of the label shall be uppercase characters with a minimum height of 3/8 inch (10 mm) in white on a red background and the remaining characters shall be capitalized with a minimum height of 3/16 inch (5 mm) in black on a white background. The label shall be in accordance with Figure 1204.5.1(2) and state the following:

THIS SOLAR PV SYSTM EQUIPPED WITH
RAPID SHUTDOWN. TURN RAPID
SHUTDOWN SWITCH TO THE "OFF"
POSITION TO SHUT DOWN CONDUCTORS
OUTSIDE THE ARRAY. CONDUCTORS
WITHIN ARRAY REMAIN
ENERGIZED IN SUNLIGHT.

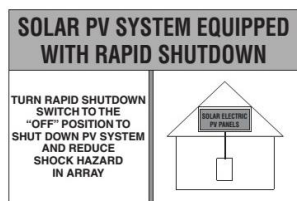


FIGURE 1204.5.1(1)

LABEL FOR SOLAR PV SYSTEMS THAT REDUCE SHOCK HAZARD WITHIN ARRAY AND SHUT DOWN CONDUCTORS LEAVING ARRAY

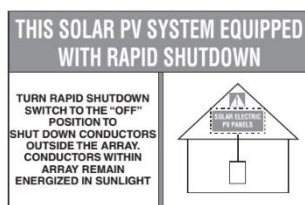


FIGURE 1204.5.1(2)

LABEL FOR SOLAR PV SYSTEMS THAT ONLY SHUT DOWN CONDUCTORS LEAVING THE ARRAY

1204.5.1.1 Diagram.

The labels in Section 1204.5.1 shall include a simple diagram of a building with a roof. Diagram sections in red signify sections of the solar photovoltaic system that are not shut down when the rapid shutdown switch is turned off.

1204.5.1.2 Location.

The rapid shutdown label in Section 1204.5.1 shall be located not greater than 3 feet (914 mm) from the service disconnecting means to which the photovoltaic systems are connected, and shall indicate the location of all identified rapid shutdown switches if not at the same location.

1204.5.2 Buildings with more than one rapid shutdown type.

Solar photovoltaic systems that contain rapid shutdown in accordance with both items 1 and 2 of Section 1204.5.1 or solar photovoltaic systems where only portions of the systems on the building contain rapid shutdown, shall provide a detailed plan view diagram of the roof showing each different photovoltaic system and a dotted line around areas that remain energized after the rapid shutdown switch is operated.

1204.5.3 Rapid shutdown switch.

A rapid shutdown switch shall have a label located not greater than 3 feet (914 mm) from the switch that states the following:

RAPID SHUTDOWN SWITCH
FOR SOLAR PV SYSTEM

