Richland Fire & Emergency Services
1000 George Washington Way
Richland, WA 99352

Solar Photovoltaic (PV) Power Systems

Standard

2018 International Fire Code (IFC)
Richland Municipal Code Title 20.02.010
National Fire Protection Association (NFPA) 70

Practice

Other Than R-3 Occupancies (Commercial)

The purpose of this standard is to ensure that all Solar Photovoltaic Power Systems *other than R-3 buildings constructed in accordance with the International Residential Code* are installed in accordance with International Fire Code Sections 1204.3.1 through 1204.3.3, the International Building Code and NFPA 70

Perimeter Pathways: There shall be a minimum 6' wide clear perimeter around the edges of the roof.

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' throughout the length and width of the roof.
2. A pathway of not less than 4' wide in a straight line shall be provided to any roof standpipes or ventilation hatches.
3. A pathway of not less than 4' wide shall be provided around roof access hatches, with not fewer than one pathway to a parapet or roof edge.

Rapid Shutdown: All Solar PV Systems listed here shall be Rapid Shutdown Solar PV Systems.

1. For Solar PV Systems that shut down the array and the conductors leaving the array, the flowing label shall be provided.

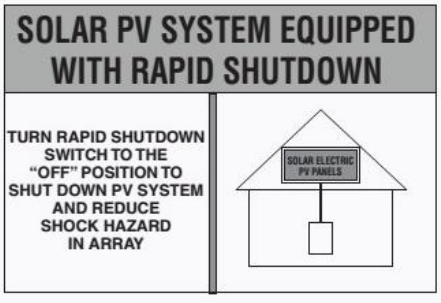

FIGURE 1204.5.1(1)

2. For Solar PV Systems that only shut down the conductors leaving the array, the following label shall be provided.

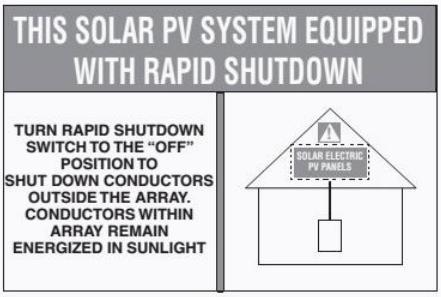

FIGURE 1204.5.1(2)

Rapid Shutdown Switch: Solar PV Systems 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. This shall be clearly posted at the rapid shut down switch. A rapid shutdown switch shall also 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

Marking Identification: Solar PV Systems components must be clearly marked. Marking shall be provide for emergency responders with appropriate warning and guidance with respect to working around and isolating the solar electric system. This includes all potentially energized electrical lines that connect the solar modules to the charge controller, inverter, breaker panel and energy storage systems, as these should not be cut during firefighting operations. Materials used for marking must be weather resistant and consist of 3/8" white letters with red background reading **"CAUTION: SOLAR ELECTRIC SYSTEM"**. This warning must be permanently affixed to all exposed conduit, raceways, enclosures, cable assemblies, junction boxes, charge controller, inverters breaker panel and energy storage system at no more than 10' intervals, at turns and on both sides of all penetrations.

R-3 Occupancies (Residential)

R-3 occupancies built under the International Residential Code shall follow R324 and include all Solar PV System component marking identifications listed above.

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

Setback at Ridge: For photovoltaic arrays occupying not more than 33 percent of the plan view total roof area, not less than an 18-inch (457 mm) clear setback is required on both sides of a horizontal ridge. For photovoltaic arrays occupying more than 33 percent of the plan view total roof area, not less than a 36-inch (914 mm) clear setback is required on both sides of a horizontal ridge. Alternate ridge setbacks listed in IRC, R324.6.2.1 do not apply.

Emergency Escape and Rescue Openings: Panels and modules installed on dwellings shall not be placed on the portion of a roof that is below an emergency escape and rescue opening (to include dormer escape openings). A pathway not less than 36 inches (914 mm) wide shall be provided to the emergency escape and rescue opening.

Guide

Modifications of this standard may be made with the approval of the Chief or designee.