

## RESIDENTIAL SOLAR ARRAY ROOF LAYOUT

### Access, Pathways and Smoke Ventilation

Rooftop modules should be located at least three feet (36”) below the ridge. For smaller arrays, reductions down to eighteen inches (18”) may be allowed. Access and spacing requirements should be observed in order to:

- Ensure adequate access to the roof
- Provide pathways to specific areas of the roof
- Provide areas for fire service smoke ventilation
- Provide emergency egress from the roof

### 2021 International Residential Code Excerpt

**324.6 Roof access and pathways.** Roof access, pathways and setback requirements shall be provided in accordance with Sections R324.6.1 through R324.6.2.1. Access and minimum spacing shall be required to provide emergency access to the roof, to provide pathways to specific areas of the roof, provide for smoke ventilation opportunity areas, and to provide emergency egress from the roof.

**Exceptions:**

1. Detached, non-habitable structures, including but not limited to detached garages, parking shade structures, carports, solar trellises, and similar structures, shall not be required to provide roof access.
2. Roof access, pathways and setbacks need not be provided where the code official has determined that rooftop operations will not be employed.
3. These requirements shall not apply to roofs with slopes of two units vertical in 12 units horizontal (17-percent slope) or less.
4. BIPV systems *listed* in accordance with Section 690.12(B)(2) of NFPA 70, where the removal or cutting away of portions of the BIPV system during fire-fighting operations has been determined to not expose a fire fighter to electrical shock hazards.

**R324.6.1 Pathways.** Not fewer than two pathways, on separate roof planes from lowest roof edge to ridge and not less than 36 inches 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 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.

**R324.6.2 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 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 clear setback is required on both sides of a horizontal ridge.

**R324.6.2.1 Alternative setback at ridge.** Where an automatic sprinkler system is installed within the dwelling in accordance with NFPA 13D or Section P2904, setbacks at ridges shall comply with one of the following:

1. For photovoltaic arrays occupying not more than 66 percent of the plan view total roof area, not less than an 18-inch clear setback 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, not less than a 36-inch clear setback is required on both sides of a horizontal ridge.

**R324.6.3 Emergency escape and rescue opening.**

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. A pathway not less than 36 inches wide shall be provided to the emergency escape and rescue opening.

**Exception:** BIPV systems *listed* in accordance with Section 690.12(B)(2) of NFPA 70, where the removal or cutting away of portions of the BIPV system during fire-fighting operations has been determined to not expose a fire fighter to electrical shock hazards.

## **Poudre Fire Authority Amendments**

***These requirements only apply within Poudre Fire Authority's jurisdiction around Fort Collins***

PFA has determined that roof top operations for fighting a fire will not be deployed. As such, for one- and two-family dwellings with panels installed on one side of the ridge allowing access to opposite side, access pathways are not required. Setback from ridge is allowed to be reduced to one foot (12") minimum.

If panels are on both sides of ridge, then the general code requirements apply.