



# Prescriptive Rooftop-Mounted Solar Photovoltaic Installation Checklist — Residential

**Please note - "Prescriptive" only applies to the attachment to the structure. It does not change the life safety and egress (pathways) requirements.**

**For use with the Oregon City Building Division**

Use this checklist to demonstrate compliance with the **prescriptive** rooftop-mounted photovoltaic (PV) system installation requirements of the Oregon Residential Specialty Code. Separate electrical permits are required for these installations. Refer to OAR 918-050-0180.

## PART I – PROPERTY OWNER INFORMATION

Property owner name:	Phone number:	
Installation address:		
City:	State: Oregon	ZIP:
Structure description:		
Installer:	<input type="checkbox"/> Contractor	<input type="checkbox"/> Owner (If owner, skip to Part III)

## PART II – CONTRACTOR INFORMATION

Contractor's name:	Phone number:
Email address:	
BCD license #:	CCB license #:

## PART III – STRUCTURAL CRITERIA

*Check the appropriate boxes for each item as it applies to the project.*

**\*If "No" is selected for any item below, or if the supporting structure is a manufactured dwelling, the project **may not** be submitted using the prescriptive path.**

- PV panel system and attachments will be designed to withstand applicable gravity and wind loads at the site and installed in accordance with the manufacturer's installation instructions: .....  Yes  No
- Ground snow load at the site does not exceed 70 pounds per square foot (psf): .....  Yes  No
- Wind exposure for structure is limited to Wind Exposure Category B or C: .....  Yes  No
- Structure is of conventional light-frame construction .....  Yes  No
- Supporting roof framing is one of the following: .....  Yes  No  
(check one)
  - Pre-engineered trusses are spaced less than or equal to 24 inches on center (o.c.); **or**
  - Rafters are spaced less than or equal to 24 inches o.c. and framing complies with R324.4.1 Exception 1.4 through 1.6
- Roofing materials are metal or single-layer-wood shingles or shakes, or not more than two layers of composition shingle: .....  Yes  No
- Total weight of the PV panel system, including modules and racking, will not exceed 4.5 psf: .....  Yes  No
- Module height will be no more than 18 inches from the top of the module to the roof surface and comply with Figures R324.4.1(2) and R324.4.1(3) accordingly: .....  Yes  No

*(continued)*

## PART III – STRUCTURAL CRITERIA (continued)

- PV modules or racking will be attached to the roof using one of the following methods: \_\_\_\_\_  Yes  No  
(check one)

### Attachment Method 1

1. Direct attachment to the **roof framing or blocking**; and
2. Attachment spacing
  - a. Less than or equal to 24 inches in any direction; **or**
  - b. Greater than 24 inches and less than or equal to 48 inches in any direction where all of the following exist:
    1. Ground snow load is less than or equal to 36 psf.
    2. Attachments are not located within 3 feet of a roof edge, hip, eave, or ridge.
    3. Basic design wind speed
      - a. Less than or equal to 120 mph in Wind Exposure Category B; **or**
      - b. Less than or equal to 110 mph in Wind Exposure Category C.

### Attachment Method 2

1. Direct attachment to **standing seam metal roofing panels**; and
2. Attachment clamps comply with all of the following requirements:
  - a. Allowable uplift capacity of the clamps is not less than:  
115 pounds, where clamp spacing is greater than or equal to 48 inches o.c.; **or**  
75 pounds, where clamp spacing is less than 48 inches o.c.
  - b. Clamp spacing along a panel seam will be greater than or equal to 24 and less than or equal to 60 inches o.c.
  - c. Parallel to seam clamp spacing multiplied by the perpendicular clamp spacing will be less than or equal to 10 square feet.
3. Metal roofing panels comply with all the following:
  1. Panel thickness is minimum 26-gauge steel.
  2. Panel width is less than or equal to 18 inches.
  3. Attached with minimum #10 screws at 24 inches o.c.
  4. Installed over minimum 1/2-inch nominal wood structural panel sheathing that is fastened to framing with 8d nails at 6 inches o.c. at panel edges and 12 inches o.c. field nailing.

## PART IV – PV MODULES

Manufacturer:

Model number:

Listing agency:

## PART V – LOCATIONS AND PATHWAYS

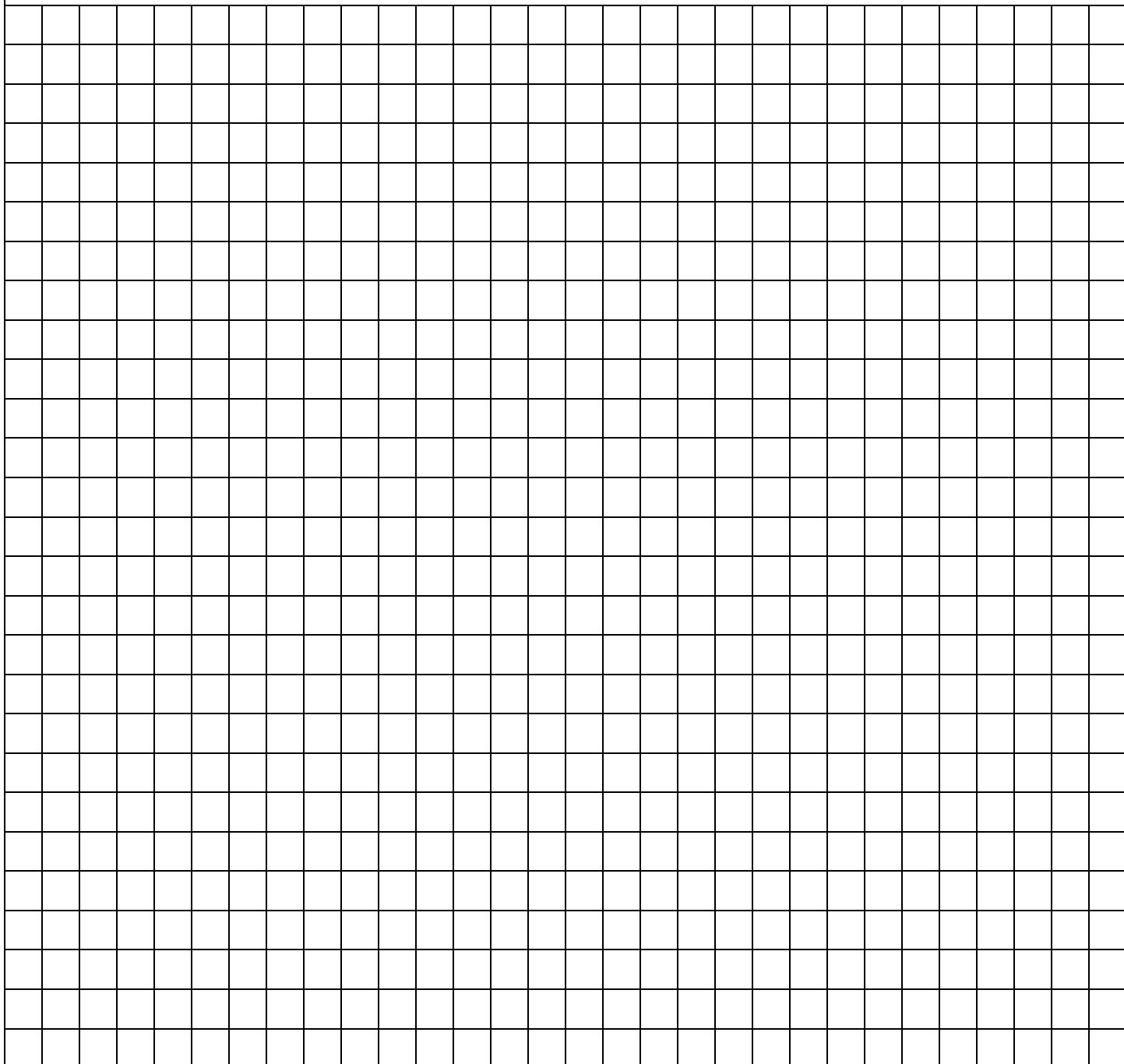
Provide and attach a site plan in accordance with the municipality's submission requirements, showing the location of the proposed PV array(s) on the building(s) and the required firefighter access and escape pathways. The proposed system must be shown in sufficient detail to assess whether the location and pathway requirements of Section R324.6 will be met.

Follow this link for a solar pathway technical bulletin from the Oregon Building Codes Division -  
<https://www.oregon.gov/bcd/codes-stand/Documents/techb-solarpv-pathways.pdf>

## PART VI – PATHWAYS AND CLEARANCES

### Pathway and clearance requirements

- Using the grid below or an attached 8.5-inch x 11-inch or larger paper, provide a simple drawing, indicating the location of the PV system in relation to buildings, structures, property lines, and, as applicable, flood hazard areas.
- The drawing must be shown in sufficient detail to assess whether the *pathway* requirements of Section 3111.3.4.8 or one of the exceptions have been met.



## Photovoltaic Pathways

### Detached One- and Two-Family Dwellings and Townhouses

#### Overview

The increase in demand for photovoltaic (PV) systems on rooftops created an awareness of the need for firefighter safety. Designated pathways on roofs with PV systems are necessary to provide safe unobstructed access for firefighting operations and to also provide escape routes.

This bulletin is intended to provide technical guidance on the requirements as they apply to PV systems installed on detached one- and two-family dwellings and townhouses and includes some examples illustrating common installations and roof types.

#### Where required

Designated pathways shall be provided for all rooftop-mounted PV systems installed on detached one- and two-family dwellings and townhouses, except as noted below. The required dimensions and locations of pathways vary based on the amount of roof area the PV system covers and the presence of adjacent roof planes, as uniquely defined.

Pathways are entirely exempted as follows:

- Nonoccupied accessory structures that are separated from occupied structures by not less than five feet or by a two-hour fire-resistance-rated assembly.
- Where pathways are deemed unnecessary for the specific building based on the fire official's recommendation, and approved by the building official.

#### Definitions

The following definitions are important to the application of the pathway provisions:

**Solar roof plane.** A roof plane on which a photovoltaic array is installed. A solar roof plane does not include building-integrated photovoltaic solar shingles.

**Photovoltaic array.** A mechanically integrated assembly of modules or panels with a support structure, foundation, tracker, and other components, as required to form a power-producing unit.

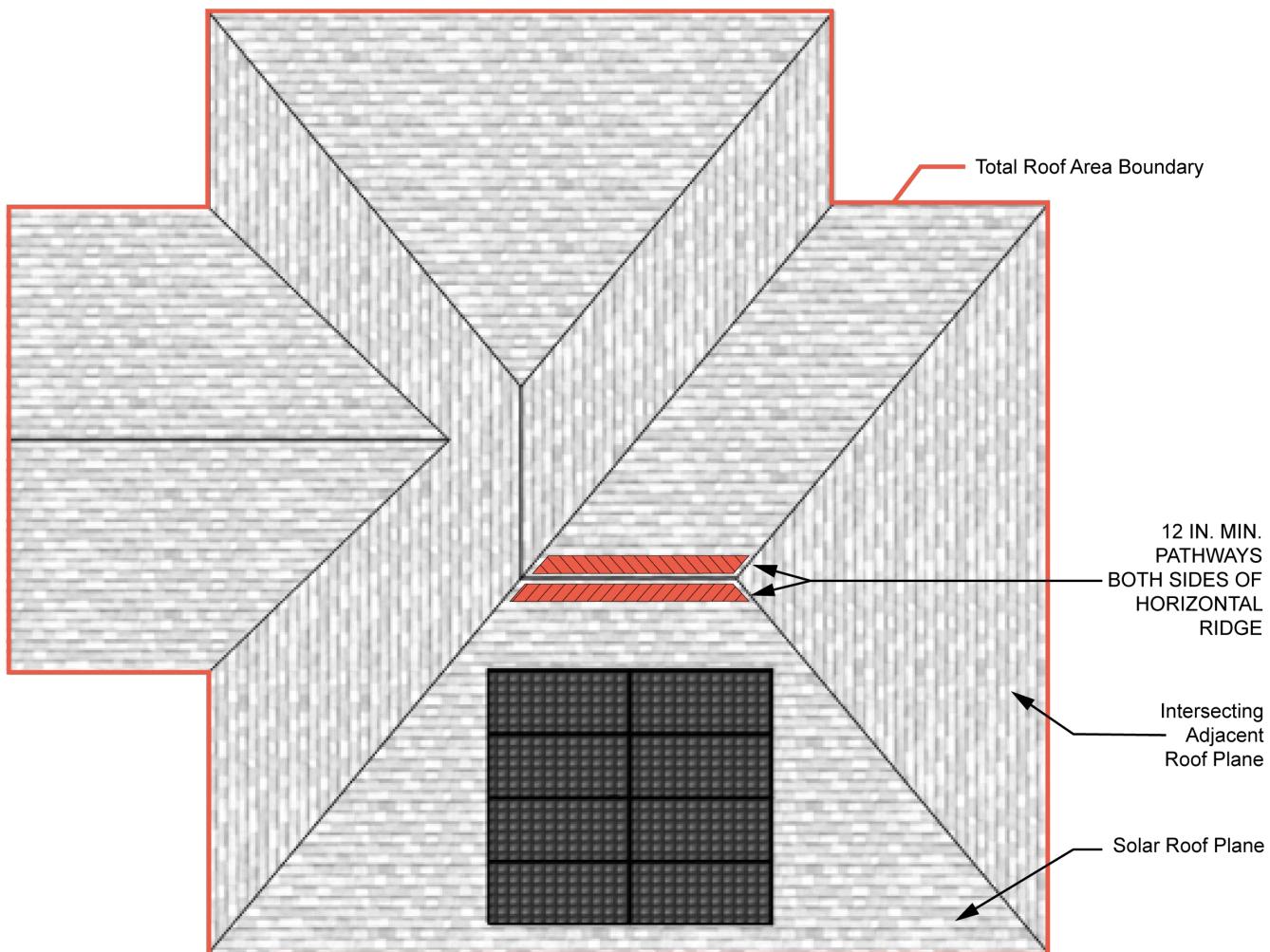
**Roof area.** The square footage of the roof, measured in plan view sharing a common attic below.

**Adjacent roof plane.** For the purposes of firefighter access and escape pathway provisions, the solar roof plane is contrasted with the adjacent roof plane. To be considered an adjacent roof plane, the roof plane adjacent to the photovoltaic array installation must be free of photovoltaic panels. In typical gable roof construction, the south-facing roof will generally be the preferred place for the installation of photovoltaic panels, and it will become the solar roof plane. Where the north-facing roof plane does not contain any photovoltaic panels, it would be considered the adjacent roof plane.

## Examples

The following examples are provided to illustrate compliance with the pathway requirements and exceptions for common installations and roof types. These examples are not exhaustive and are intended only to provide general guidance related to the intent of the pathway code provisions.

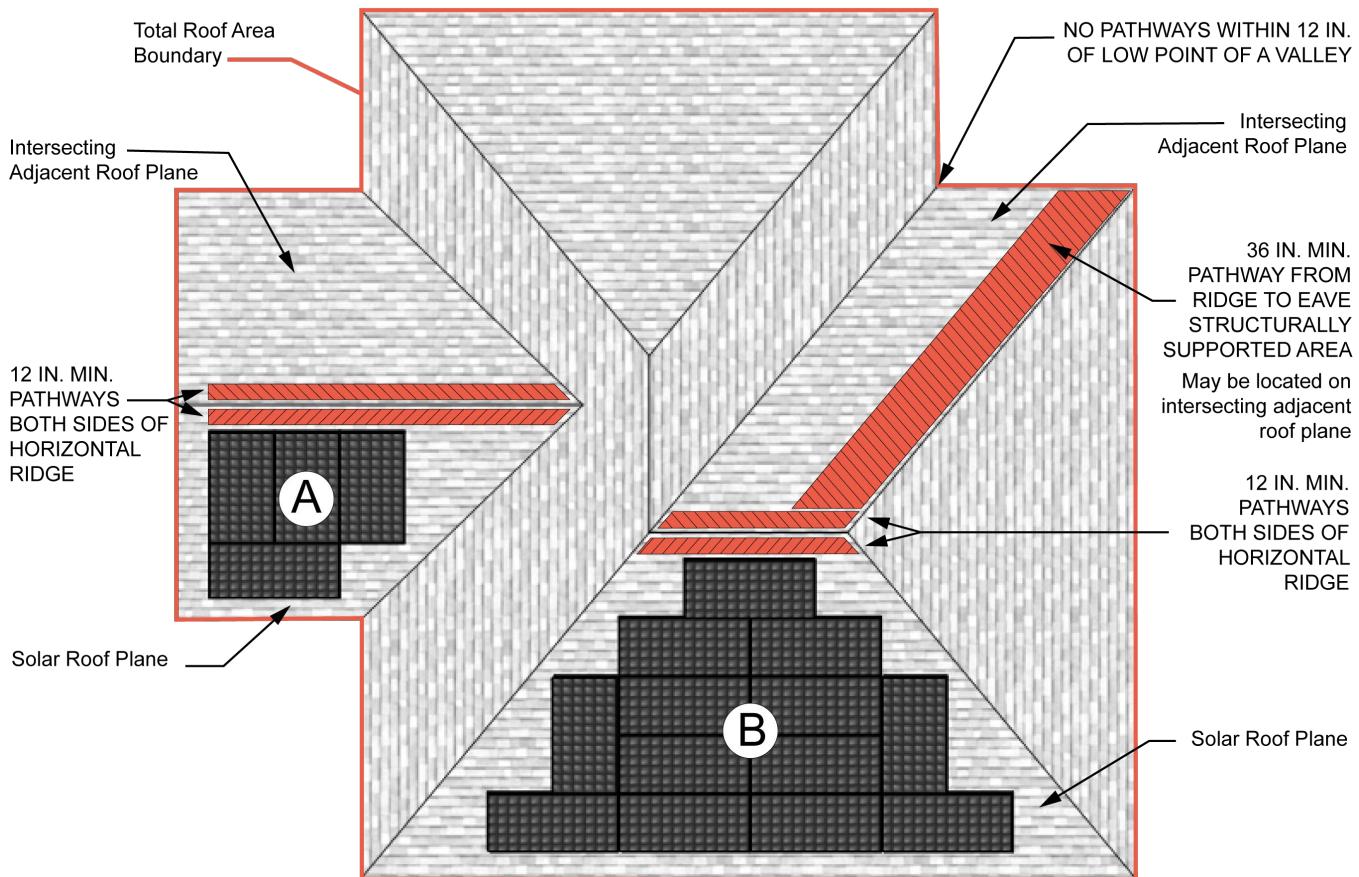
## FIGURE 1



### Details:

1. Roof slope exceeds 2 in 12.
2. Array is less than 150 ft in length and width.
3. Array is less than 1,000 ft<sup>2</sup> in area.
4. Intersecting adjacent roof planes are present.
5. Array area is less than 25% of the total roof area.
6. Attic spaces are not divided.

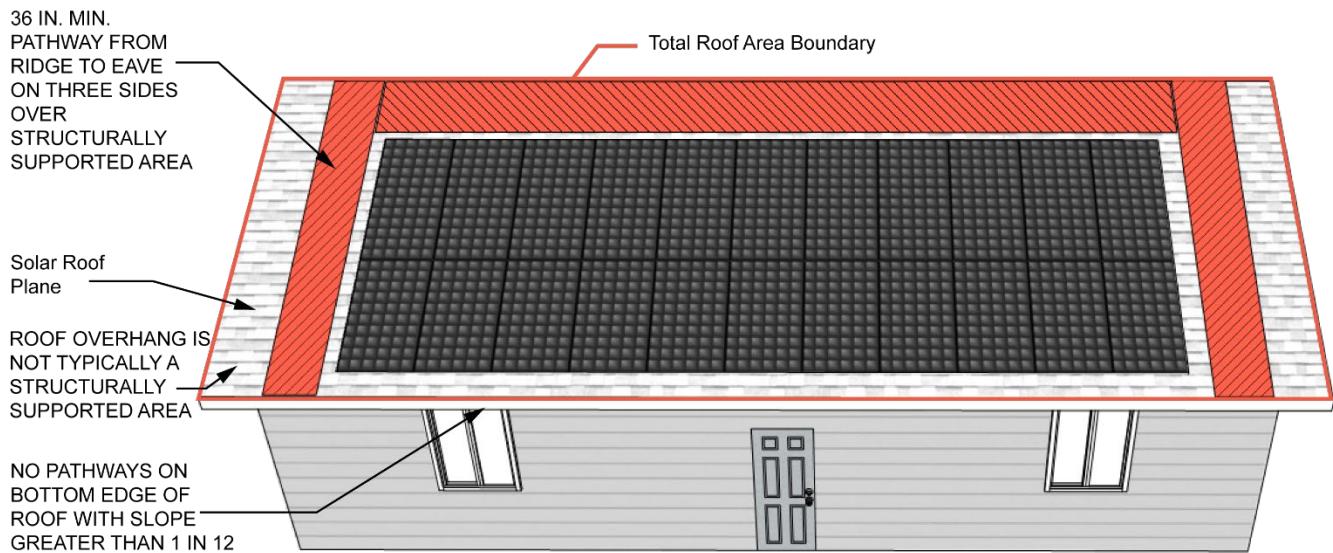
## FIGURE 2



### Details:

1. Roof slopes exceed 2 in 12.
2. Arrays (A) and (B) are each less than 150 ft in length and width.
3. Arrays (A) and (B) are each less than 1,000 ft<sup>2</sup> in area.
4. Intersecting adjacent roof planes are present.
5. Array (A) area is less than 25% of the total roof area.
6. Array (B) area is greater than 25% of the total roof area.
7. Attic spaces are not divided.

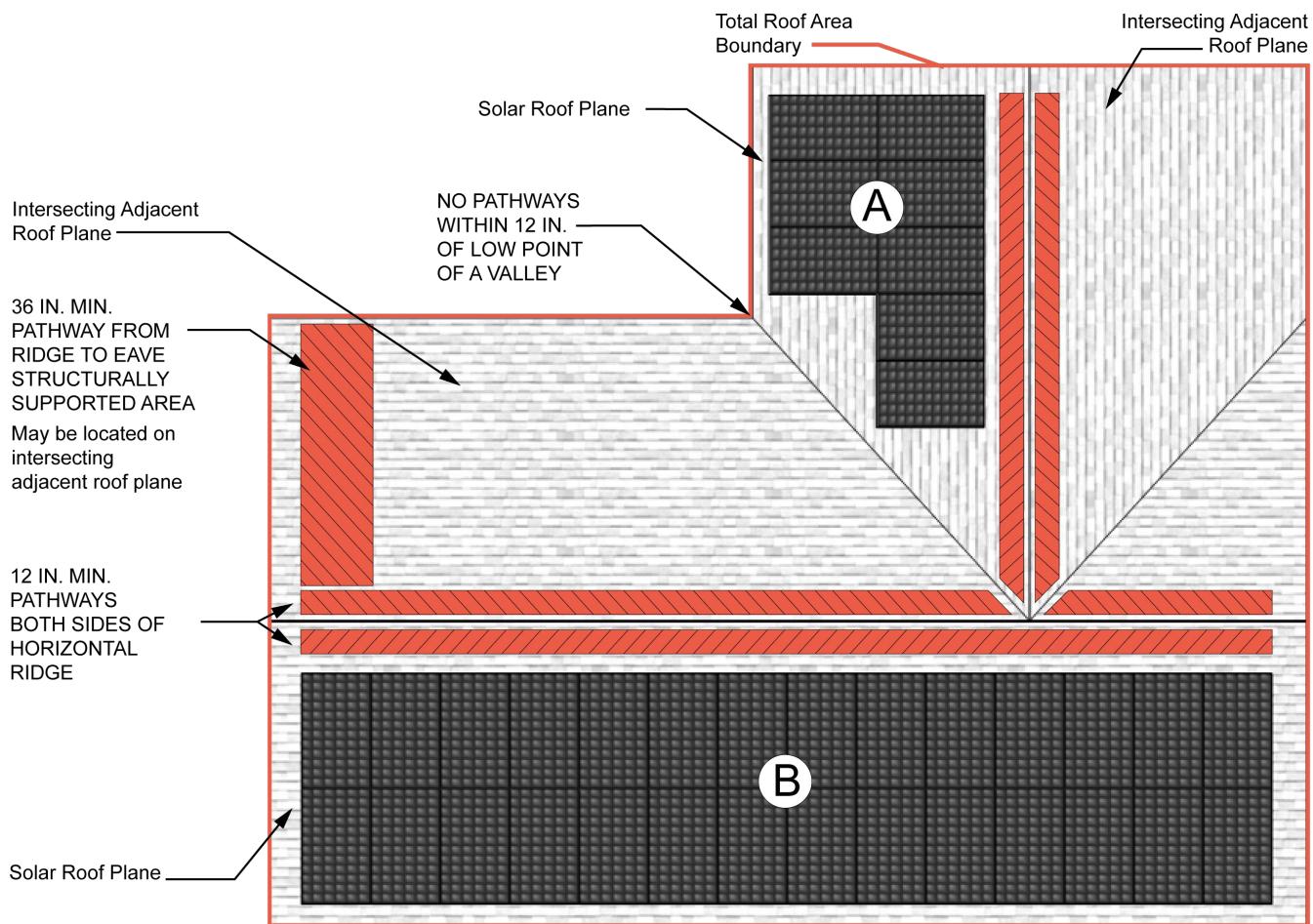
## FIGURE 3



### Details:

1. Roof slope exceeds 2 in 12.
2. Array is less than 150 ft in length and width.
3. Array is less than 1,000 ft<sup>2</sup> in area.
4. No intersecting adjacent roof planes are present.
5. Array area is greater than 25% of the total roof area.
6. Attic spaces are not divided.

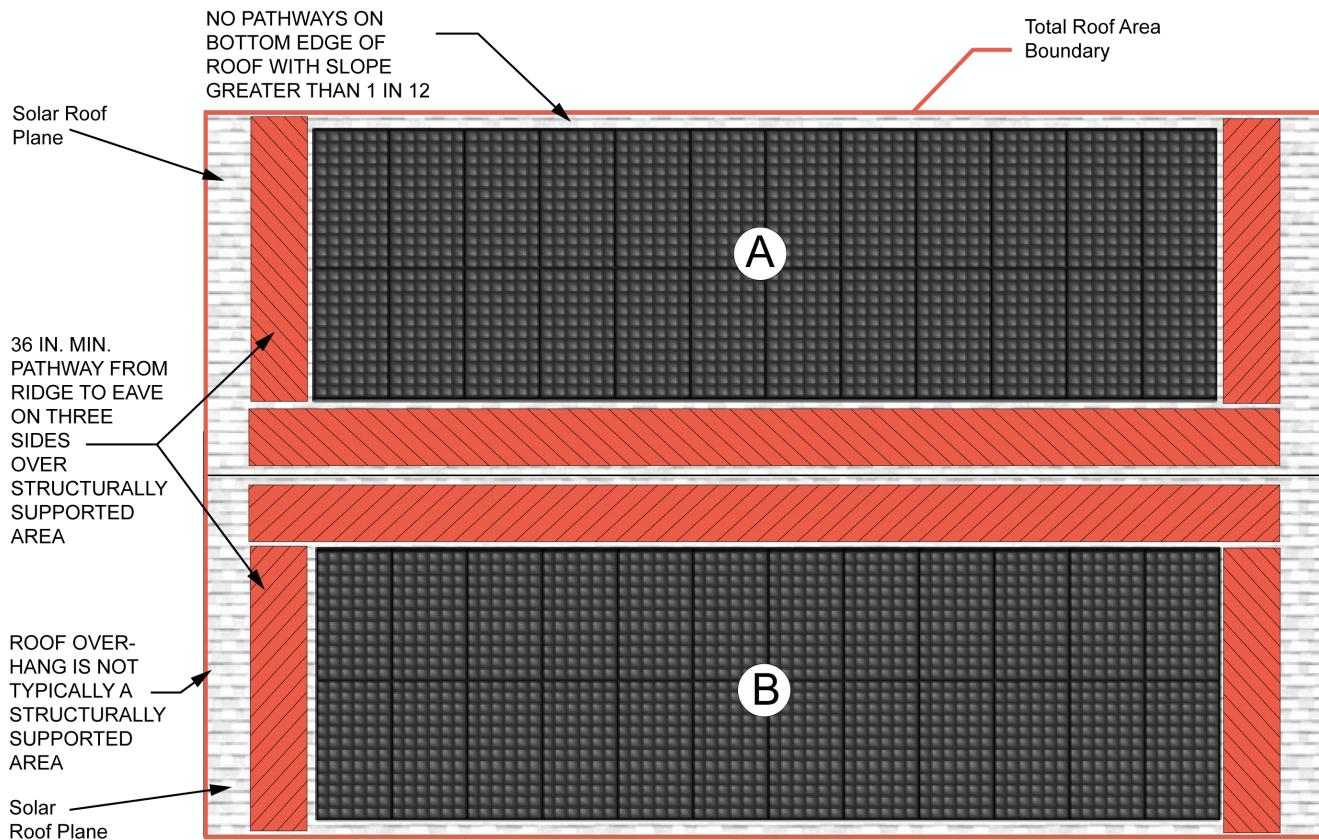
## FIGURE 4



### Details:

1. Roof slopes exceed 2 in 12.
2. Arrays (A) and (B) are each less than 150 ft in length and width.
3. Arrays (A) and (B) are each less than 1,000 ft<sup>2</sup> in area.
4. Intersecting adjacent roof planes are present.
5. Array (A) area is less than 25% of the total roof area.
6. Array (B) area is greater than 25% of the total roof area.
7. Attic spaces are not divided.

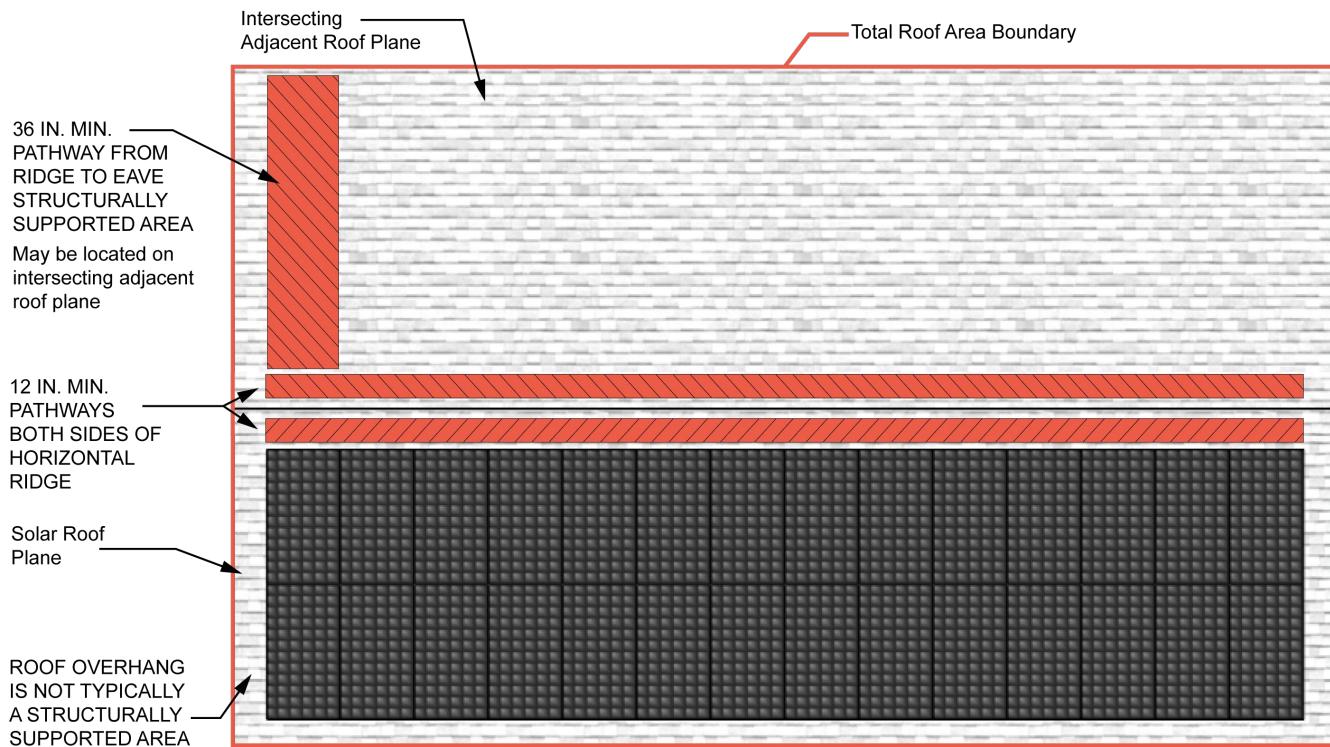
## FIGURE 5



### Details:

1. Roof slopes exceed 2 in 12.
2. Arrays (A) and (B) are each less than 150 ft in length and width.
3. Arrays (A) and (B) are each less than 1,000 ft<sup>2</sup> in area.
4. No intersecting adjacent roof planes are present.
5. Array (A) area is greater than 25% of the total roof area.
6. Array (B) area is greater than 25% of the total roof area.
7. Attic spaces are not divided.

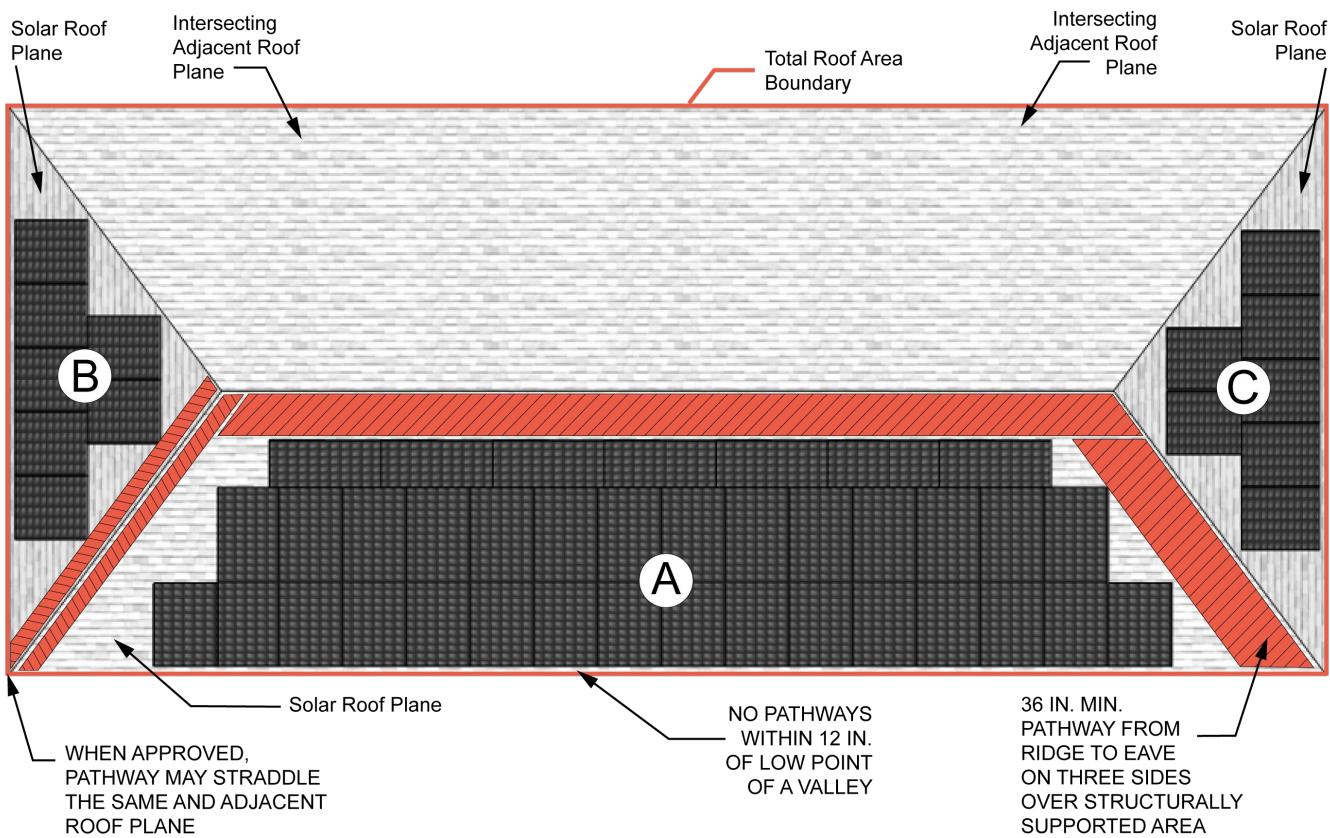
## FIGURE 6



### Details:

1. Roof slopes exceed 2 in 12.
2. Array is less than 150 ft in length and width.
3. Array is less than 1,000 ft<sup>2</sup> in area.
4. Intersecting adjacent roof plane is present.
5. Array area is greater than 25% of the total roof area.
6. Attic spaces are not divided.

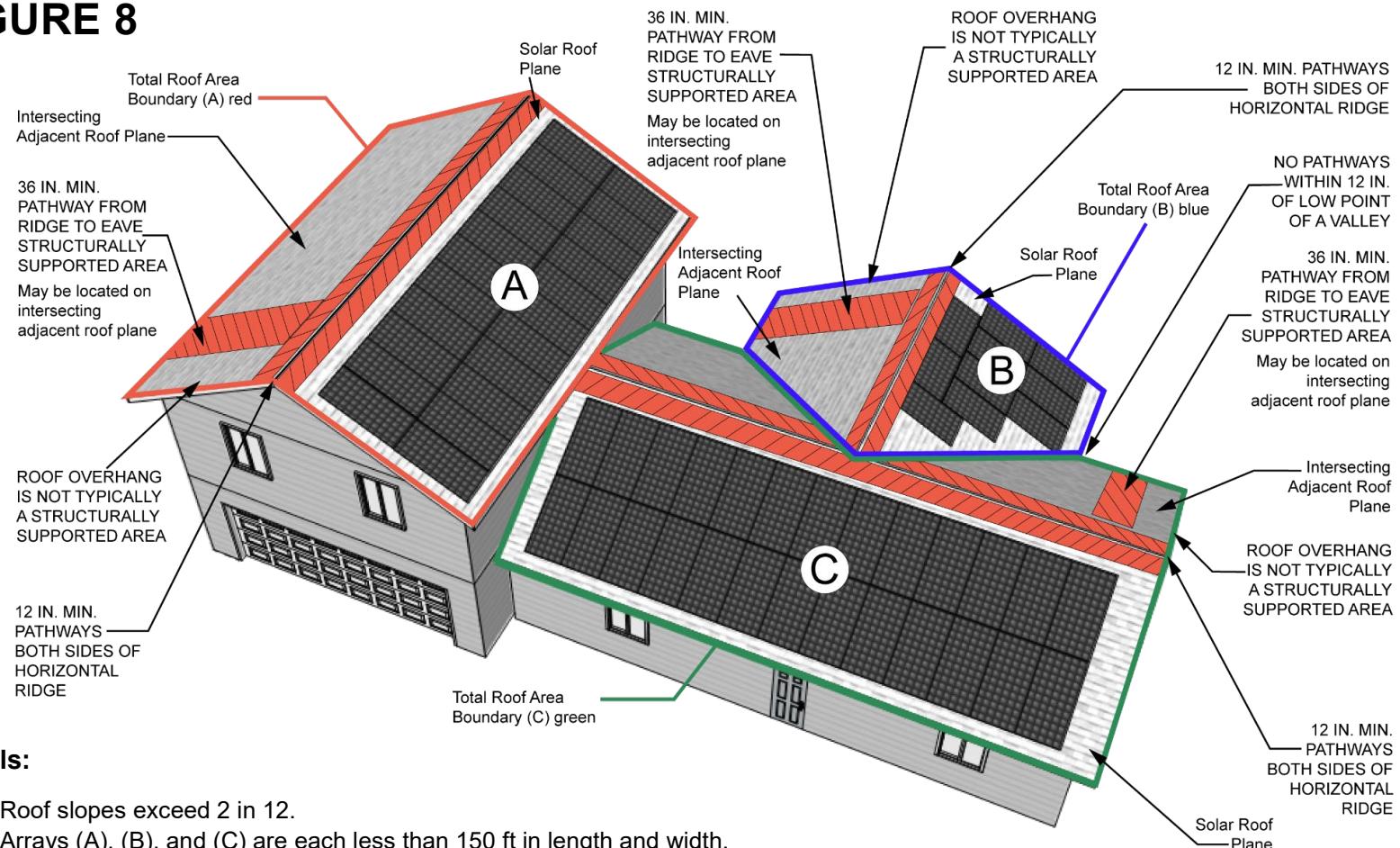
## FIGURE 7



### Details:

1. Roof slopes exceed 2 in 12.
2. Arrays (A), (B), and (C) are each less than 150 ft in length and width.
3. Array (A) is greater than 1,000 ft<sup>2</sup> in area.
4. Arrays (B) and (C) are each less than 1,000 ft<sup>2</sup> in area.
5. Intersecting adjacent roof planes are present.
6. Array (A) area is greater than 25% of the total roof area.
7. Arrays (B) and (C) areas are each less than 25% of the total roof area.
8. Attic spaces are not divided.

## FIGURE 8



### Details:

1. Roof slopes exceed 2 in 12.
2. Arrays (A), (B), and (C) are each less than 150 ft in length and width.
3. Intersecting adjacent roof planes are present for arrays (A), (B), and (C).
4. Array (A) area is less than 1,000 ft<sup>2</sup> and greater than 25% of the total red roof area.
5. Array (B) area is less than 1,000 ft<sup>2</sup> and greater than 25% of the total blue roof area.
6. Array (C) area is less than 1,000 ft<sup>2</sup> and greater than 25% of the total green roof area.
7. Attic spaces for the red, blue, and green roof areas are divided and are not contiguous.

### Questions?

For information about a specific project, contact the local building department: [Oregon.gov/bcd/lbdd](http://Oregon.gov/bcd/lbdd).