

## **Chapter 2 Definitions:**

**Roof Access Points-** An area that does not require ladders to be placed over openings (i.e. windows, vents, or doors) that are located at strong points of building construction and in locations where ladders will not be obstructed by tree limbs, wires, signs or other overhead obstructions.

**Ridge, Hip, and Valley-** Roof designations with 2/12 pitch or greater, measured to centerlines.

**Non-Habitable Buildings-** Non-habitable structures include but are not limited to parking shade structures, carports, solar trellises, etc.

## **Chapter 3: Fire Fighter Safety/Access Requirements**

Access, Pathways and Smoke Ventilation- Access and spacing requirements shall be observed in order to:

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

Exceptions to this requirement may be requested where access, pathway or ventilation requirements are reduced due to:

- Unique site specific limitations
- Alternative access opportunities (e.g. adjoining roofs)
- Ground level access to the roof area in question
- Other ventilation opportunities when approved by the Fire Marshal or their designee
- Ventilation opportunities afforded by the panel set back from other rooftop equipment (e.g. shading or structural constraints may leave significant areas open for ventilation near HVAC equipment.
- Automatic ventilation systems
- New technologies or innovations that ensure adequate fire department access, pathways, and ventilation opportunities.

### **Residential Dwellings (Single and two unit)**

**Hip Roof Layout-** Modules shall be located in a manner that provides one 3 foot wide clear access pathway from the eave to the ridge on each roof slope where the panels are located. The access pathway shall be located at a structurally strong location on the building (e.g. bearing wall).

**Single Ridge-** Modules shall be located in a manner that provides two 3 foot wide access pathways from the eave to the ridge on each roof slope where panels are located.

**Hips & Valleys-** Modules shall be located no closer than 1-1/2 feet to a hip or valley if panels are to be placed on both sides of a hip or valley. If the panels are to be located on only 1 side of a hip or valley, that is of equal length then the panels may be placed directly adjacent to the hip or valley.

Ventilation- Modules shall be located no higher than 3 feet below the ridge.

**Examples (1-4) of these requirements are located \_\_\_\_\_**

**Commercial Buildings and Multi-Family Residential (3 or more units)**

Access- There shall be a minimum 6 foot wide clear perimeter around the edges of the roof

Exception: If either axis of the building is 250 feet or less, there shall be a minimum of 4 feet wide perimeter clearance around the edges of the roof.

Pathways- Pathways shall be established in the design of the solar installation. Pathways shall meet the following requirements:

- Shall be located over structural members
- Center line axis pathways shall be provided in both axes of the roof. Center line axis pathways shall run on structural members or over the next closest structural member nearest to the center lines of the roof.
- Pathway shall be in a straight line not less than four feet clear width to roof fire protection standpipe outlets.
- It shall provide not less than 4 feet clearance around roof access hatch with at least 1 pathway not less than 4 feet in clearance to parapet or roof edge.

Ventilation- Arrays shall be no greater than 150' x 150' in distance in either axis

Ventilation options between array sections shall be either:

- A pathway of 8 feet or greater in width
- A Pathway of 4 feet or greater in width and bordering on existing roof skylights or ventilation hatches
- A Pathway 4 feet or greater in width and bordering 4'x8' venting cutouts every 20 feet on alternating sides of the pathway

**Examples (5-8) of these requirements are located \_\_\_\_\_**

**Chapter 4: Electrical Requirements**

III. Disconnecting Means

- (A) Fire Fighting Disconnect- DC circuits shall be equipped with a means for remote disconnect located downstream from the photovoltaic array at the end of the point where the circuit enters the structure. Control of the remote disconnect shall be located within 5 feet of the building's main electrical panel. The remote disconnect shall be listed and meet the requirements of the OSEC.

Exceptions:

1. DC circuits contained in rigid or electrical metallic tubing running between the array combiner box and the main electrical panel which are entirely exterior to the building need not be equipped with a means of remote disconnect other than the disconnect intrinsic to the system.
2. DC circuits contained in a rigid or electrical metallic tubing running between the array combiner box and the main electrical panel that run through the interior of the building when installed a minimum of 18" below the roof assembly when measured parallel to the surface of the roof.
3. The system inverter may be used for remote disconnect when located immediately upstream of the room penetration where the circuit enter the structure.

**Location of DC Conductors-** Conduit, wiring systems, and raceways for photovoltaic circuits shall be located as close as possible to the ridge or hip valley as directly as possible to an outside wall to reduce trip hazards and maximize ventilation opportunities.

Conduit runs between sub arrays and to DC combiner boxes shall use the design that minimizes the total amount of conduit on the roof by taking the shortest path from the array to the DC combiner box. The DC combiner boxes are to be located such that conduit runs are minimized in the pathways between arrays.

To limit the hazard of cutting live conduit in venting operations, DC wiring shall be run in metallic conduit or raceways when located within enclosed spaces in a building and shall be run, to the extent possible, along the bottom of load bearing members.