

SUMMARY OF THE 2012 IFC CHANGES RELATED TO PV SYSTEMS

Presented by
Bill Brooks, PE
Brooks Engineering



ORIGIN OF THE 2012 IFC CHANGES

- CalFire Solar Photovoltaic Installation Guideline is the basis for the requirements.
- Initial version did not pass the hearing stage.
- Initial proposal was revised with assistance from members of the solar industry and resubmitted.
- Revised version was passed and slight revisions were made in the final printed version.



2012 IFC PV-Related Content

- **605.11.1 Marking**
- **605.11.2 Locations of DC conductors**
- **605.11.3 Access and pathways**
- **605.11.4 Ground-mounted photovoltaic arrays**



605.11.1 Marking

- **605.11.1.1 Materials.** Reflective, withstand environment, red w/ white letters.
- **605.11.1.2 Marking content.** “Warning: Photovoltaic Power System”—matches NEC.
- **605.11.1.3 Main service disconnect.** Sign visible from location
- **605.11.1.4 Location of marking.** Every 10’ , at turns, in and out of partitions.



605.11.2 Locations of DC conductors

- Located close to ridge or hip or valley and from the hip or valley as directly as possible to an outside wall to reduce trip hazards and maximize ventilation opportunities.
- Minimizes the total amount of conduit on the roof by taking the shortest path from the array to the DC combiner box.
- DC combiners located so conduit runs are minimized in the pathways between arrays.
- DC wiring installed in metallic conduit or raceways when located within enclosed spaces in a building.
- Run along the bottom of load bearing members.



605.11.3 Access and pathways.

- **Exceptions:**
- 1. Residential structures: each photovoltaic array is no greater than 150 feet by 150 feet.
- “2. Panels/modules shall be permitted to be located up to the roof ridge where an alternative ventilation method approved by the fire chief has been provided or where the fire chief has determined vertical ventilation techniques will not be employed.”



605.11.3.1 Roof access points.

- Roof access points shall be located in areas that do not require the placement of ground ladders over openings such as windows or doors, and located at strong points of building construction in locations where the access point does not conflict with overhead obstructions such as tree limbs, wires, or signs.

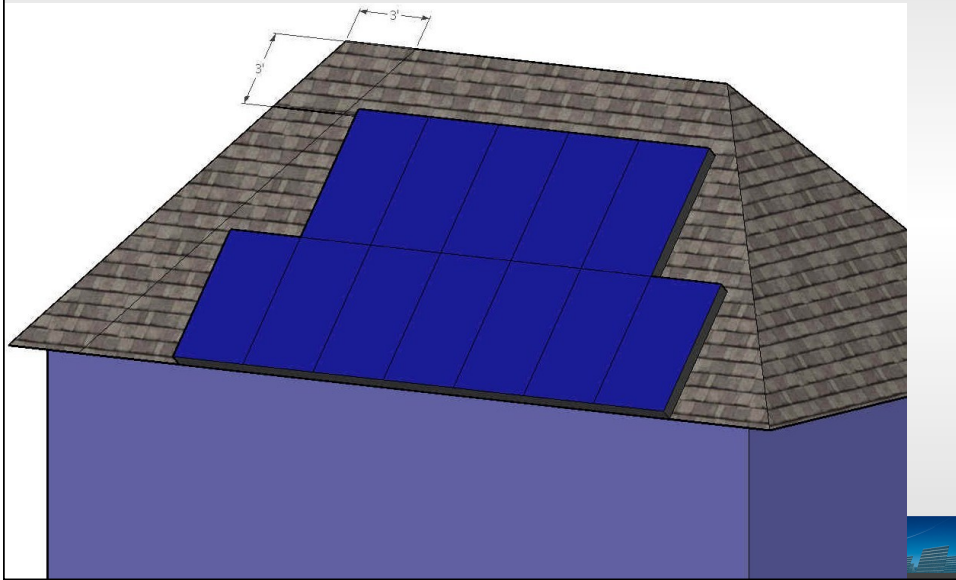


605.11.3.2 Residential systems for one- and two family dwellings.

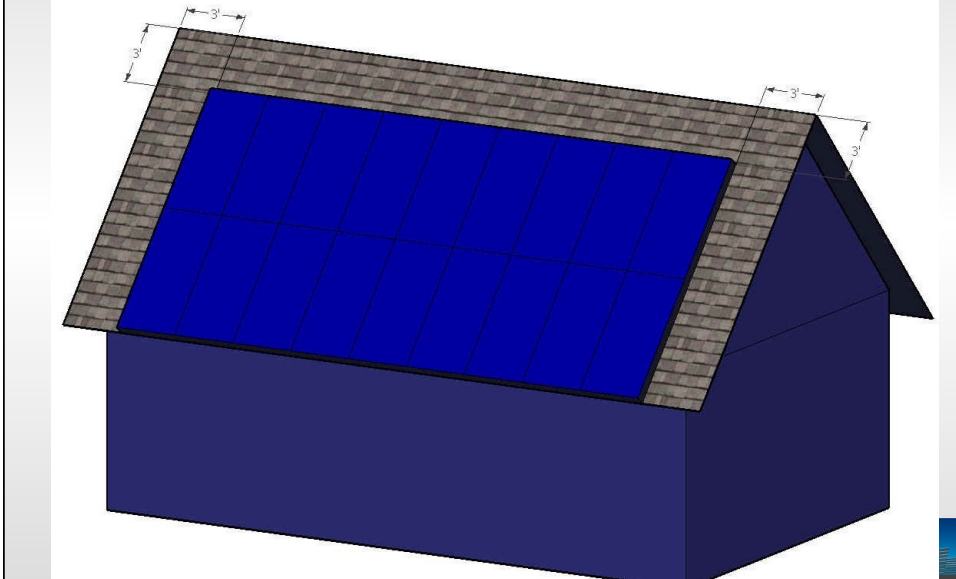
- **Exception:** These requirements shall not apply to roofs with slopes of two units vertical in 12 units horizontal (2:12) or less.
- Hip Roof
- Single Ridge
- Roof hips and valleys



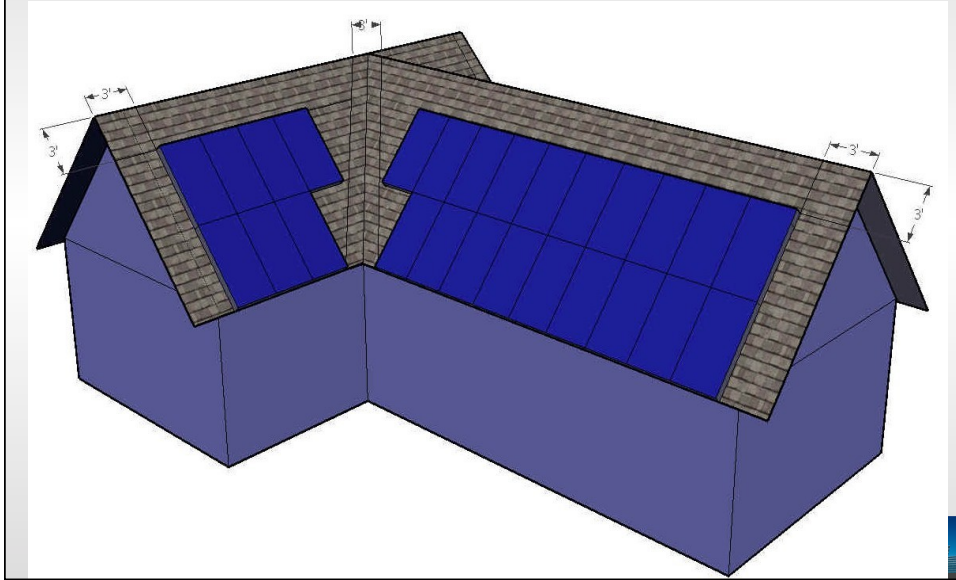
Full Hip



Single Ridge



Roof Hips and Valleys



605.11.3.2.4 Residential building smoke ventilation

- Panels/modules installed no higher than 3 feet below the ridge to allow for smoke ventilation operations.

605.11.3.3 Other than residential buildings.

- **Exception:** Where it is determined by the fire code official that the roof configuration is similar to that of a one- or two-family dwelling, the residential access and ventilation requirements in Sections 605.11.3.2.1 through 605.11.3.2.4 shall be permitted to be used.



605.11.3.3.1 Access

- minimum 6-foot-wide clear perimeter around the edges of the roof.
- **Exception:** Where either axis of the building is 250 feet or less, there shall be a minimum 4-foot-wide clear perimeter around the edges of the roof.



605.11.3.3.2 Pathways.

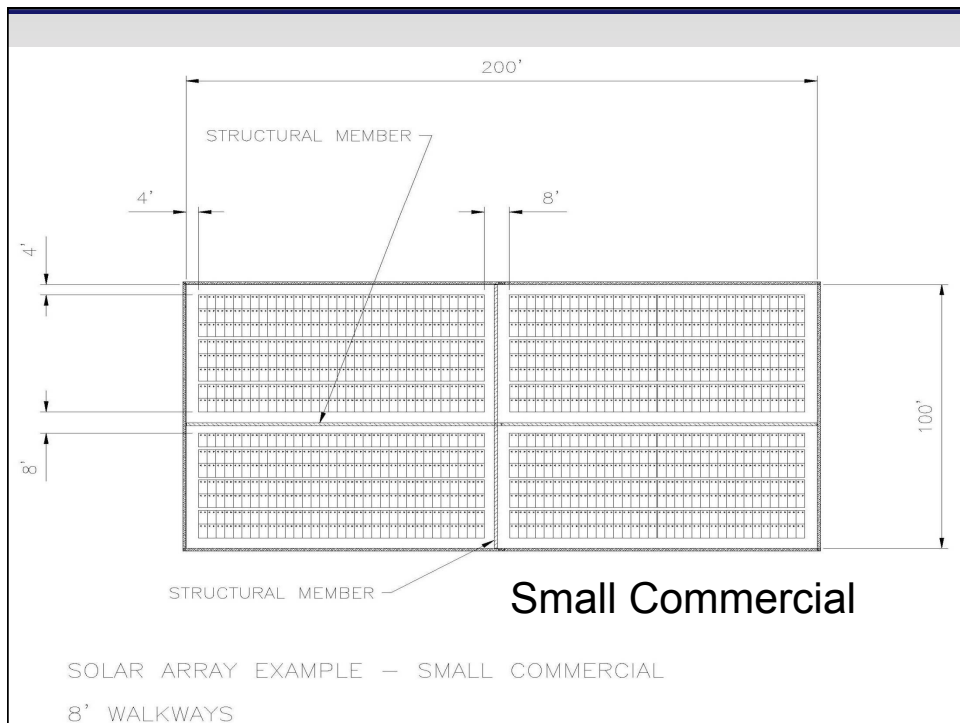
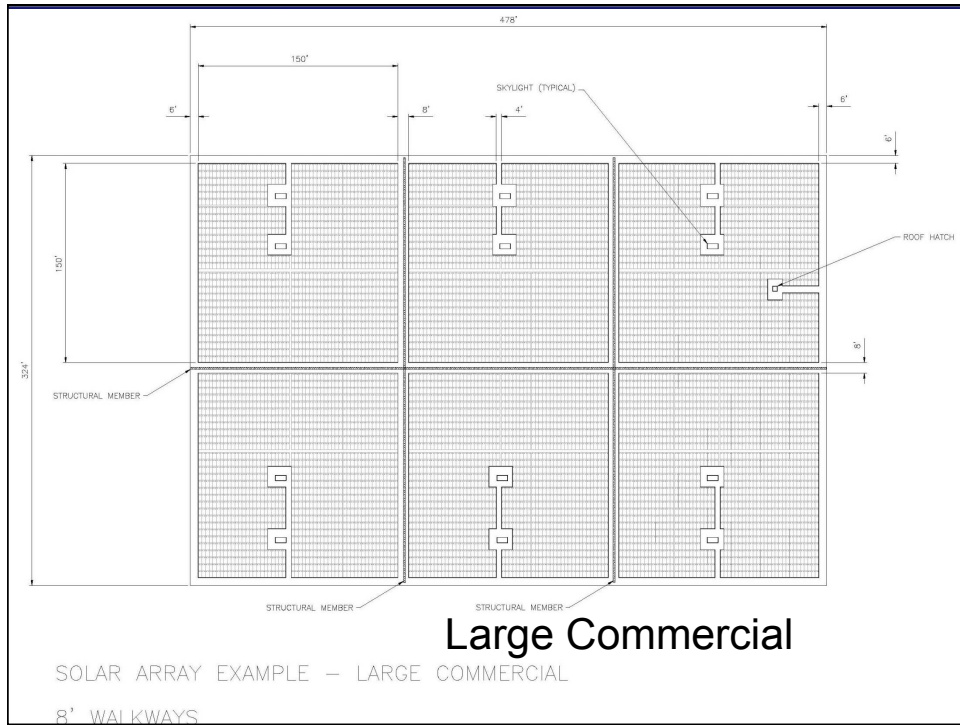
1. support live load of fire fighters
2. centerline pathways provided in both axes of the roof.
3. straight line not less than 4 feet clear to skylights, ventilation hatches, or standpipes.
4. not less than 4 feet clear around roof access hatch with one 4 feet clear pathway to parapet or roof edge.



605.11.3.3.3 Smoke ventilation.

1. Arrays shall be no greater than 150 feet by 150 feet in either axis
2. ventilation options between arrays:
 1. A pathway 8 feet or greater in width.
 2. A 4-foot pathway and bordering roof skylights or smoke and heat vents.
 3. A 4-foot pathway and bordering 4-foot by 8-foot "venting cutouts" every 20 feet on alternating sides of the pathway.





605.11.4 Ground-mounted photovoltaic arrays.

- comply with Sections 605.11 through 605.11.2
- Setback requirements shall not apply to ground-mounted, free-standing photovoltaic arrays.
- A clear, brush-free area of 10 feet shall be required for ground-mounted photovoltaic arrays.

