A Guide to Residential Rooftop Photovoltaic Panel Systems
Bulletin #83
For 2018 International Codes

This bulletin is designed to provide guidance when applying for a residential rooftop installation of Photovoltaic (PV) Panels on a dwelling, garage, shop, or any other residential structure. It is not intended to address all aspects or requirements for a project and should serve as a starting point for your project.

General Information
1. The PV system shall be designed and installed in accordance with the 2018 IRC, Section R324 as amended by Washington State, the NFPA 70, UL 1741 and the International Fire Code, Section R104.11 & 1204.
2. The PV system shall be designed for the wind speed of the local area and installed per the manufacturer’s installation specifications.
3. Supports for solar panels shall spread the dead load across as many roof-framing members as needed to ensure that no point loads greater than 50 lbs. are created.
4. Panels shall be mounted no higher than 18” above the surface of the roofing they are affixed to.
5. When proposing a solar water heating system, a Pierce County Plumbing permit is required in addition to solar array permit.
6. Solar panels may not cover existing plumbing vents without review and approval by Pierce County. A plumbing alteration permit may be necessary.
7. A minimum 36” unobstructed pathway from roof edge to ridge shall be provided in accordance with IFC 1204.2.1.1.
8. For PV arrays occupying 33% or less of the total roof area, a setback of not less than 18” wide is required on both sides of a horizontal ridge. A setback of not less than 36” wide on both sides of horizontal ridges is required for arrays occupying more than 33% of the total roof area.
9. Buildings with rapid shutdown solar photovoltaic systems shall have permanent labels in accordance with IFC Section 1204.5.1 through 1204.5.3.

Permits Required
A building permit is required through Pierce County and a separate electrical permit is required from Washington State Department of Labor and Industries or Tacoma Public Utilities.

Submittal Requirements
To process your building permit application, the following information must be submitted:
1. A completed Residential Building Permit Application
2. Construction Plans shall include:
   a. Roof PV panel layout with solar AC disconnect panel shown and applicable details all dimensioned and drawn to scale
   b. Information showing the total dead load of panels, supports, mountings, raceways, and all other accessories weigh no more than 4 lbs. per square foot and no point loads greater than 50lbs are created.
   c. Manufactures specifications and listing information for all photovoltaic panels and for attachment and racking of all mounting hardware shall be provided.
   d. PV systems connected to the utility grid shall use inverters listed for utility interaction, manufactures specifications and listing information will be required.
   e. Installation procedures with details demonstrating protection from moisture intrusion and a positive connection to the roof of the structure.

When is Engineering Required?
- Dead load of the system exceeds 4 lbs. per square foot or a point load greater than 50 lbs. is created.
- The ground snow load is 70 lbs. per square foot or greater.