

Code Change Alert:

Permitting of Solar Photovoltaic Systems in Washington State

Background

Historically, the permitting requirements for rooftop solar photovoltaic (PV) systems in Washington State have varied widely from jurisdiction to jurisdiction. Requirements for full engineering reports and stamped drawings for simple systems has resulted in an additional \$500 to \$2,500 per system for engineering-related expenses, construction delays of up to 8 weeks, and a deterrent to solar installations in some jurisdictions. In an effort to reduce unnecessary permitting costs and to support the growing solar industry in Washington, the Northwest Solar Communities, a coalition of industry stakeholders, jurisdictions, non-profits, and state entities, developed an expedited process for standard rooftop mounted, residential PV systems. The objective was to establish a permit process that is simple, fast, and cost effective for both reviewing jurisdictions and permit applicants, and several jurisdictions across the state have taken steps to implement streamlined processes. In order to implement a standard, predictable process statewide, the Washington State University Energy Program worked with the Northwest Solar Communities team to develop and submit an amendment to the International Residential Code for solar photovoltaic systems. The amended code was approved as an emergency rule as described below.

Emergency Rule Regarding Rooftop Solar Photovoltaic Installations

On June 13, 2014 the Washington State Building Code Council approved an emergency rule-making order to allow installation of standard solar photovoltaic systems on residential rooftops without the need for an engineering report. The effective date of the emergency rule is July 1, 2014. Under the rule, the [following section](#) is added to the Washington amendments to the International Residential Code:

WAC 51-51-2300 Section M2302—Photovoltaic solar energy systems.

M2302.2 Requirements. The installation, inspection, maintenance, repair and replacement of photovoltaic systems and all system components shall comply with the manufacturer's instructions, sections M2302.2.1 through M2302.2.3, NFPA 70, and the IFC as amended by Washington State.

M2302.2.1 Roof-mounted panels and modules. Where photovoltaic panels and modules are installed on roofs, the roof shall be constructed to support the loads imposed by such modules.

EXCEPTION: The roof structure shall be deemed adequate to support the load of the rooftop solar photovoltaic system if all of the following requirements are met:

1. The solar photovoltaic panel system shall be designed for the wind speed of the local area, and shall be installed per the manufacturer's specifications.
2. The ground snow load does not exceed 70 pounds per square foot.
3. The total dead load of modules, supports, mountings, raceways, and all other appurtenances weigh no more than four pounds per square foot.

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4. Photovoltaic modules are not mounted higher than 18 inches above the surface of the roofing to which they are affixed.
5. Supports for solar modules are to be installed to spread the dead load across as many roof-framing members as needed, so that no point load exceeds 50 pounds.

Roof-mounted photovoltaic panels and modules that serve as roof covering shall conform to the requirements for roof coverings in Chapter 9. Where mounted on or above the roof coverings, the photovoltaic panels and modules and supporting structure shall be constructed of noncombustible materials or fire-retardant treated wood equivalent to that required for the roof construction.

Recommended Building Permit Process – Over the Counter

To support implementation of the emergency rule, a checklist template is available for adoption by jurisdictions having authority throughout the state. This checklist is provided as an example process that complies with the new code change requirements and is not required for jurisdictions to adopt. The checklist identifies the minimal structural characteristics that the proposed solar photovoltaic system must satisfy in order to be deemed to comply with engineering requirements. If all of the checklist criteria are met and a site plan is provided, the building permit can be issued over-the-counter (on-line or in person) without providing an engineer's stamped drawing, and the inspector in the field can easily verify the system design.

As an alternative to the over-the-counter process, jurisdictions may opt to exempt solar photovoltaic systems that satisfy the checklist criteria from building permit requirements. For example, the City of Bellevue passed an ordinance amending the Bellevue City Code to eliminate the permit requirement for standard rooftop solar PV installations. See:

<http://www.bellevuewa.gov/Ordinances/Ord-6113.pdf> and
http://www.ci.bellevue.wa.us/solar_photovoltaic_systems_permitting.htm

Recommended Building Permit Fees

Jurisdictions should establish fees that are reasonably necessary to cover the costs of administering and enforcing the provision of this rule. In order to obtain statewide consistency, the following methods are provided as a suggestion in developing the cost structure for a local jurisdiction.

1. **Fixed fee.** For systems that qualify for the over-the-counter building permit process, it is recommended that a flat fee be charged for the permit. The amount of the fee should be calculated so that it is sufficient to cover the cost of checklist review and a single inspection. For example, the City of Edmonds has implemented a flat fee of \$135 for over-the-counter residential solar installations. (<http://edmondswa.gov/additional-links/rooftop-solar-installations.html>)
2. **Valuation based fee.** For systems that do not qualify for the over-the-counter building permit process, it is recommended that a valuation-based fee be charged for the permit. Costs for building permits are often based on the total project cost, assuming that the

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cost of the project accurately represents the scale of the project and the level of permit review required. However, with a rooftop solar photovoltaic installation, the equipment costs are much higher than with conventional projects of similar scope. It is therefore recommended that the permit fee for a rooftop solar photovoltaic system be calculated based on a valuation of the structural components and labor only. The value of the electrical components, including the solar modules and inverters, is subtracted from the overall valuation because these elements are not looked at as part of the structural inspection.

Recommended Electrical Permit Process

In addition to building permit requirements, solar photovoltaic systems will require some level of electrical permitting in order to be installed. For jurisdictions that use their own electrical reviewers and inspectors, a checklist is available to use in determining when a solar photovoltaic system qualifies for an over-the-counter electrical permit. The over-the-counter checklist includes a set of electrical one-line diagram templates and is intended to simplify the application process and minimize the need for detailed plan review. If all of the checklist criteria are met and one-line diagrams are provided, the electrical permit can be issued over-the-counter (on-line or in person) and the inspector in the field can easily verify the system design. The checklist and templates are provided as an example process and are not required for jurisdictions to adopt. The Department of Labor and Industries will also accept the electrical diagram templates for their review and the over-the-counter process created here does not change their authority.

For more information

To obtain electronic versions of the templates that can be modified for jurisdiction use or for questions related to the code change, contact:

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