SPOKANE COUNTY

Permitting of Solar Photovoltaic Systems in Washington State

BP-16

Department of Building and Planning

Emergency Rule Regarding Rooftop Solar Photovoitaic Installations

- On June 13, 2014 the Washington State Building Code Council approved an emergency rule-making order to allow installation of residential rooftop solar photovoltaic (PV) systems without the need for engineering. The effective date of the emergency rule is July 1, 2014. The rule identifies the minimal structural characteristics that PV systems must satisfy in order to be deemed to comply with engineering requirements. The rule is meant to apply to **simple residential rooftop** PV systems that are commonly installed in Washington State.

- The permitting requirements for PV systems in Washington State currently vary from jurisdiction to jurisdiction, and this inconsistency negatively impacts the residential rooftop PV market. Requirements for full engineering reports and stamped drawings for simple systems can result in an additional $500 to $2,500 per system for engineering-related expenses. 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. Under the rule, the following section is added to the Washington amendments to the International Residential Code (IRC).

IRC, 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.

M2302.1 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.

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.

How do I apply for a permit?

This brochure may be used to apply for roof-mounted photovoltaic installations by **completing the enclosed application/checklist,** answering the questions contained in the application and providing the necessary information and specifications. Those applications that can answer "YES" to all the questions are eligible for over-the-counter (OTC) permitting.

What if my photovoltaic system doesn't qualify for OTC permitting?

Those roof-mounted photovoltaic installations **not** eligible for "OTC" permitting (70+ ground snow load, more than 18" above roof surface, etc.) and **all** "Ground-mounted" photovoltaic installations, will be subject to the standard review and permitting processes. These types of installations will generally require additional information entailing design review and calculations provided by a professional engineer licensed to practice in Washington State.

In case of the ground mounted systems, the development of site plan for zoning code review, and elevation drawings detailing the support structure will be necessary. In some cases, the panel support structure(s) and their foundations may require design and calculations provided by a professional engineer licensed to practice in Washington State. **Special inspection** may be necessary for high strength bolting, concrete, or fabrication/ welding.

In both instances you may use the enclosed **application/checklist** to provide much of the preliminary information necessary to complete the permit application process.

Design Criteria - Spokane County

- Wind Load: 85 mph
- Snow Load: *Minimum* Ground Snow Load 39 lbs./ft^2.
- Spokane County has snow loads in excess of 100 lbs./ft^2 (roof live load) in areas. To assist in determining the ground snow load for a specific property, you can access snow load maps through the following link: http://www.spokanecounty.org/bp/. Click on the "Snow Load Maps" icon and search by address or parcel number.

What other information/specifications are required?

In all cases, and in addition to the information/plans discussed in this brochure, it will be necessary to provide:

- Manufacturer's specifications and listing infformation for the photovoltaic panels.
- Manufacturer's specifications and listing information for attachment of all roof-mounting hardware, or detailed drawings of same attachments and their flashing when manufacturer's information is not available.
- Details and listing of the PV panel support structure (rack).
- Electrical equipment schematic and listings identifying all circuitry, grounds and electrical system components, including storage battery locations and venting if used (For L&I review).

Are there other permits required?

Electrical permits are required and may be obtained from Labor & Industries - Electrical Division. They may be contacted at (509) 324-2640 or by visiting their website: http://www.lni.wa.gov/.

What Inspections are required?

- Footing/foundation/setbacks prior to concrete placement (ground mount systems).
- Special inspection as outlined in this brochure.
- Attachment of roof mounting hardware
- Final approval

Other Brochures that may be helpful:

BP-4 Fee Schedule
BP-8 Sign Permits
BP-31 Rules, Regulations, and Red Tape

For more information or an appointment contact:
Spokane County
Department of Building and Planning
1026 W. Broadway Avenue
Spokane, WA 99260-0050
(509) 477-3675 bp@spokanecounty.org
http://www.spokanecounty.org/bp

BUILDING PERMIT APPLICATION/CHECKLIST FOR RESIDENTIAL SOLAR PHOTOVOLTAIC SYSTEMS: ROOFTOP MOUNTED

Contractors can apply for an Over-The-Counter (OTC) permit where the PV system meets the requirements listed in this Checklist. All project plans and supporting documentation must be provided at the time of application and on site for the inspector.

--------TO BE COMPLETED BY APPLICANT-------

1 Project Information

Property Owner Name:			
Project Address:		Parcel #	
	City:	State:	ZIP:
Day Phone:			
Contractor Name			
Contractor License #:			
Contractor Day Phone:			
PV system description (include manufacturer and model # of PV modules and inverters):			

2 Determine if your project qualifies for expedited permitting:

	Yes	No
1. PV system is designed and proposed for a detached one- or two-family dwelling or townhouse not more than three stories above grade or detached accessory structure that is code compliant to setbacks and height, or code allows expansion of nonconformity for solar modules. [IRC 101.2]	◯	◯
2. Modules on pitched roofs do not exceed the highest point of the roof unless approved by the local jurisdiction.	◯	◯
3. Rooftop is made from lightweight material such as a single layer of composition shingles, metal roofing, lightweight masonry, or cedar shingles.	◯	◯
4. The installation shall comply with the manufacturer's instructions. [IRC M2302.2]	◯	◯
5. The installation shall meet the requirements of NFPA 70 National Electric Code, and all required electrical permit(s) must be obtained from the Authority Having Jurisdiction to administer the electrical code. [IRC M2302.2]	◯	◯
6. The installation shall meet the requirements of the International Fire Code as amended by WA State. [IRC M2302.2]	◯	◯
7. The PV system is designed for the wind speed of the local area, and will be installed per the manufacturer's specifications. [IRC M2302.2.1(1)]	◯	◯
8. The ground snow load does not exceed 70 pounds per square foot. [IRC M2302.2.1(2)]	◯	◯
9. Total dead load of modules, supports, mountings, raceways and all other appurtenances weigh no more than four pounds per square foot. [IRC M2302.2.1(3)] Enter total dead load of system (lbs/ft^2): _____	◯	◯
10. To address uplift, modules are mounted no higher than 18" above the surface of the roofing to which they are affixed. [IRC M2302.2.1(4)]	◯	◯

11. Supports for solar modules are installed to spread the dead load across as many roof-framing members as needed to ensure that no point load exceeds fifty (50) pounds. [IRC M2302.2.1(5)]	◯	◯
12. The photovoltaic modules and supporting structure shall be constructed of noncombustible materials or fire-retardant treated wood equivalent to that required for the roof construction. [IRC M2302.2.1]	◯	◯
13. Roof and wall penetrations shall be flashed and sealed to prevent entry of water, rodents, and insects. [IRC M2302.2.2]	◯	◯
14. PV modules are listed and labeled with a fire classification in accordance with UL 1703. [IRC M2302.2.3]	◯	◯
Comments:		

If you answered yes to all of the above questions, the project qualifies for the over-the-counter permitting process.

3 Submit this Application/Checklist, Site Plan, and other required information to:

Spokane County Building & Planning Department
1026 W Broadway Avenue
Spokane, WA 99260
www.spokanecounty.org/bp (509) 477-3675

As the property owner or authorized representative of the above listed property, I attest that all information in this checklist is accurate to the best of my knowledge.

Applicant Signature:	Date:
Applicant Name (Please Print):	

--------TO BE COMPLETED BY COUNTY STAFF------

Qualifies for OTC Building Permit? ☐Yes ☐No Staff Initials _____ Date:	Permit Application #: