Code Amendment Proposal Application

OSSC 22-07
OSSC 22-11
OSSC 22-15

Department of Consumer & Business Services
Building Codes Division
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APPLICANT INFORMATION	
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Representing:	Structural Engineers Association of Oregon
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PROPOSAL INFORMATION	
Specialty code:	Oregon Structural Specialty Code (OSSC)
Code section(s):	1606.4.1 / 1613.3.1, 1613.3.2, 1613.3.2.1 / 3111.1
Briefly explain the subject of your proposal:	Code changes for Oregon solar ready requirement per executive order 17-20.

Code Review Committee Outcomes

OSSC 22-07 and OSSC 22-11

- Nov. 9, 2021 – Approved as revised by SEAO with BCD recommended edits for clarity and alignment.

OSSC 22-15

- Dec. 2, 2021 – Approved as revised by SEAO with BCD recommended edits for clarity and alignment.

Revised language.

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PART I – CODE AMENDMENT LANGUAGE

You must provide exact language for your code proposal. Failure to provide language will invalidate the application. Include all code sections that require changes and use the following format to show additions and deletions from the code — strikethrough for deleted text and underline and bold for new text.

Note: Where applicable, the proposed code language should show how the existing Oregon amendments will integrate with the base model code or if the proposal is rescinding an existing Oregon amendment. Any modification to the new model code should note or reflect any current Oregon amendments related to this language.

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1606.4 Photovoltaic panel systems

The weight of photovoltaic panel systems and their support system and ballast shall be considered a dead load.

1606.4.1 Solar Ready Roofs

Roofs required to be solar ready per Section 3111.1 shall be designed for a 5lbs/ft2 dead load.

1607.4.4 Photovoltaic panel systems

Roof structures that provide support for photovoltaic panel systems shall be designed in accordance with Sections 1607.14.4.1 through 1607.14.4.5 as applicable.

1607.14.4.1 Roof live load

Roof structures that support photovoltaic panel systems shall be designed to resist each of the following conditions:

1. Applicable uniform and concentrated roof loads with the photo voltaic panel system dead loads.

   Exception: Roof live load need not be applied to the area covered by the photovoltaic panels where the clear space between the panels and the roof surface is less than 24 inches (610mm) or less.

2. Applicable uniform and concentrated roof loads without the photo voltaic panel system dead loads.

1613.3 ~~Ballasted photovoltaic panel systems~~ photovoltaic panel systems

1613.3.1 Ballasted photovoltaic panel systems

Ballasted, roof-mounted photovoltaic panel systems need not be rigidly attached to the roof or support structure. Ballasted non-penetrating systems shall be designed and installed only on roofs with slopes not more than one unit vertical in 12 units horizontal. Ballasted nonpenetrating systems shall be designed to resists sliding and uplift resulting from lateral and vertical forces as required by section 1605, using a coefficient of friction determined by acceptable engineering principles. In structures assigned to seismic design category C, D, E or F, ballasted nonpenetrating systems shall be designed to accommodate seismic displacement determined by nonlinear response history or other approved analysis or shake table testing, using input motions constant with ASCE 7 lateral and vertical seismic forces for nonstructural components on roofs.

1613.3.2 Rigidly attached photovoltaic panel systems.

Non ballasted photovoltaic systems mass shall be considered in the seismic design of the supporting structure.

1613.3.2.1 Solar Ready Systems

For solar ready systems required per Section 3111.1 an allowance of 5psf mass shall be considered in the seismic design.

3111 SOLAR ENERGY SYSTEMS

3111.1 General

Solar energy systems shall comply with the requirements of this section. Systems required to be solar ready per executive order 17-20 shall be designed in accordance with Sections 1604.1 and 1613.2

3111.1.1 Wind resistance

Rooftop mounted photovoltaic (PV) panel systems and solar thermal collectors shall be designed in accordance with Section 1609

3111.1.2 Roof Live load

Roof structures that provide support for solar energy systems shall be designed in accordance with Section 1607.14.4

PART II – CODE AMENDMENT PROPOSAL REQUIREMENTS

Generally, proposals should only suggest amending the technical and scientific matters within the scope of the specialty code. Administrative matters are adopted and amended to align with statutes and rules governing the state building code.

Those administrative matters not regulated by a specialty code, include, but are not limited to:

- Licensing or certification requirements, or other qualifications and standards for businesses or workers;
- Structure or equipment maintenance requirements;
- Matters that conflict with federal or state law; and,
- Matters that conflict with other specialty codes or publications adopted by the division.

☒ **Review the statutes and rules governing the state building code and ensure that your proposal is enforceable by the specialty code for which you are proposing an amendment.**

PART III – CODE AMENDMENT PROPOSAL CRITERIA

Code amendment proposals must conform to the requirements in ORS 455.020, ORS 455.030, ORS 455.110, and OAR 918-008-0060. All proposals must provide justification and the particular circumstances requiring the amendments. View the proposal criteria on page 3 of this application.

Code Amendment Proposal Criteria

Proposal

1. Describe the concept and purpose of this proposal.

This proposal was written to address Oregon Executive Order 17-20 at the request of BCD. This proposal adds a statement 3111.1 that if roof is required to be solar ready then you need to comply with the structural requirements (1606.4.1 for gravity, and 1613.3 for seismic)

2. What problem in the existing Oregon code or national model code is this proposal solving? How does this amendment address the issue? If you have evidence demonstrating the problem, submit that information.
   a) If this proposal corrects any unforeseen or probable outcomes resulting from the application of a code section, explain how.
   b) If this proposal corrects inadequate application by a code section to a method, material or design, explain how.
   c) If this proposal eliminates conflicting, obsolete, or duplicative code provisions or standards between Oregon-adopted codes, statutes or regulations, explain why.
   d) If this proposal is for a fire or life safety matter, or is it otherwise needed to protect the health, safety, welfare, comfort and security of occupants and the public, explain why.
   e) If this proposal is necessary to address unique geographic or climatic conditions within Oregon, explain why.
   f) If there are alternatives to this proposal that solve the problem, explain why this proposal is the best or a necessary solution.
   g) If this proposal provides for the use of unique or emerging technologies, or promotes advances in construction methods, devices, materials and techniques, explain how.
   h) If this proposal meets any energy conservation or indoor air quality requirements, explain how.
   i) If this proposal involves the adoption of an electrical or plumbing building product, note if the appropriate advisory board approved the product.

This is addressing how an structural engineer should comply with an executive order which requires a roof to be designed for a future condition. Without this requirement plans examiners would have nothing to point to in the building code to enforces the structural requirements needed to comply with this EO.

3. Has this been proposed at the national model code level. If so, explain when it was proposed, what happened, and why it was not adopted. Provide all associated national model code hearing information and background.

No, this executive order applies to Oregon only

Implementation And Fiscal Impact

1. Explain how the proposed provisions would be enforced? Are additional inspections or permits required? Describe any necessary equipment, training, tests or special certifications.

This would be enforced by the plans examiner. No additional inspections, permits or training is required.

2. What is the fiscal impact of this proposal? Provide a cost benefit analysis and include the resources or methods you used to determine the fiscal impact.
   a) If this proposal adds to the cost of construction, explain how the added cost contributes to the health and safety of occupants, or is necessary to conserve scarce resources.
   b) If there are any other adverse fiscal impacts or cost savings passed on to the general public, the construction industry, local and state governments, and small businesses, an interested person must describe the added or reduced cost of a proposed code amendment, and describe the adverse fiscal impact or cost savings in relation to the current Oregon specialty code.
   c) If this proposal will affect the cost of development of a detached single-family dwelling, please indicate the cost. For the purposes of illustrating the change on the cost, please use a 6,000-square-foot parcel and the construction of a 1,200-square-foot detached single-family dwelling on that parcel. The information on the cost must be sufficient to assist the division in preparing a housing cost impact statement.

This proposal does not have any fiscal impact as it just provides the tools for executing the executive order. The executive order will add costs to the applicable buildings, especially those with light framed roofs. This does not apply to single family homes, however the load increase on a light framed roof could increase the costs of the roof framing by 5-10% depending on the system.

Impacted Stakeholders And Other Specialty Codes

1. It is important that proposals be shared with stakeholders that will be impacted by them. Was this proposal developed with people or organizations likely to be affected by it? Has it been reviewed or shared with people or organizations likely to be affected by it? If so, who, and if not, why not?

This proposal has been developed by the Structural Engineers of Oregon on request by BCD.

2. Does this proposal impact other specialty codes or statewide programs?

No

OSSC 22-05

1606.4.1 Solar-ready roofs. Where roofs are required to be solar-ready per Section 3111.4, a collateral dead *load* shall be included in the gravity design of the building in accordance with Section 3111.4.4.

OSSC 22-11

1613.3 Photovoltaic panel systems.

1613.3.1 ~~1613.3~~ Ballasted photovoltaic panel systems. Ballasted, roof-mounted *photovoltaic panel systems* need not be rigidly attached to the roof or supporting structure. Ballasted nonpenetrating systems shall be designed and installed only on roofs with slopes not more than one unit vertical in 12 units horizontal. Ballasted nonpenetrating systems shall be designed to resist sliding and uplift resulting from lateral and vertical forces as required by Section 1605, using a coefficient of friction determined by acceptable engineering principles. In structures assigned to *Seismic Design Category* C, D, E or F, ballasted nonpenetrating systems shall be designed to accommodate seismic displacement determined by nonlinear response-hi *story* or other *approved* analysis or shake-table testing, using input motions consistent with ASCE 7 lateral and vertical seismic forces for nonstructural components on roofs.

1613.3.2 Rigidly attached photovoltaic panel systems. The mass of nonballasted *photovoltaic panel systems* shall be considered in the seismic design of the supporting structure.

1613.3.3 Solar-ready roofs. Where roofs are required to be solar-ready per Section 3111.4, a collateral dead *load* shall be included in the seismic design of the building in accordance with Section 3111.4.4.