**15-029**

**1. State Building Code to be Amended:**

International Building Code  State Energy Code

ICC ANSI A117.1 Accessibility Code  International Mechanical Code

International Existing Building Code  International Fuel Gas Code

X International Residential Code  NFPA 54 National Fuel Gas Code

International Fire Code  NFPA 58 Liquefied Petroleum Gas Code

Uniform Plumbing Code  Wildland Urban Interface Code

**Section(s):**

(e.g.: Section: R403.2)

**Section R324.4.1**

**Title:**

(e.g: Footings for wood foundations)

Roof Live Load [for PV]

**2. Proponent Name (Specific local government, organization or individual):**

**Proponent: Jonathan C. Siu, City of Seattle DPD, representing WABO**

**Title: Principal Engineer/Building Official**

**Date: 2/9/2015**

**3. Designated Contact Person:**

**Name: Jonathan C. Siu**

**Title: Principal Engineer/Building Official**

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**4. Proposed Code Amendment**. Reproduce the section to be amended by underlining all added language, striking through all deleted language. Insert new sections in the appropriate place in the code in order to continue the established numbering system of the code. If more than one section is proposed for amendment or more than one page is needed for reproducing the affected section of the code additional pages may be attached. (Examples on the SBCC [website](https://fortress.wa.gov/ga/apps/sbcc/Page.aspx?nid=191))

**Code(s)** \_\_IRC\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **Section(s)** \_\_R324.4.1 Roof live load\_\_\_\_\_\_\_\_

Enforceable code language must be used; see an example [by clicking here](https://fortress.wa.gov/ga/apps/SBCC/File.ashx?cid=1803).

Amend section to read as follows:

**R324.4.1 Roof ~~live~~ load.** ~~Roof structures that provide support for photovoltaic panel systems shall be designed for applicable roof live load. The design of roof structures need not include roof live load in the areas covered by photovoltaic panel systems. Portions of roof structures not covered by photovoltaic panels shall be designed for roof live load. Roof structures that provide support for photovoltaic panel systems shall be designed for live load, L~~~~R~~~~, for the load case where the photovoltaic panel system is not present.~~

Portions of roof structures not covered with photovoltaic panel systems shall be designed for dead loads and roof loads in accordance with Sections R301.4 and R301.6. Portions of roof structures covered by photovoltaic panel systems shall be designed for the following load cases:

1. Dead load (including photovoltaic panel weight) plus snow load in accordance with Table R301.2(1).
2. Dead load (excluding photovoltaic panel weight), plus roof live load or snow load, whichever is greater, in accordance with Section R301.6.

1. **Briefly explain your proposed amendment, including the purpose, benefits and problems addressed.** Specifically note any impacts or benefits to business, and specify construction types, industries and services that would be affected. Finally, please note any potential impact on enforcement such as special reporting requirements or additional inspections required.

The current text of the code is confusing, incomplete, and technically incorrect.

* The text is confusing because the fourth sentence appears to contradict the second sentence. In addition, the term “LR” is not used in the IRC.
* The text is incomplete because it does not appear to include snow load on top of the PV panels as a load case for roof design.
* The text is technically incorrect in that it implies that PV panels themselves would be considered live load. This is inconsistent with how ASCE 7 and other portions of the IRC treat fixed equipment (see Section R301.4 and the definition of “Dead Load” in Section R202).

We believe the proposed amendments more clearly and completely state the intent of the code.

It is to be noted that Section R324.4 also does not contain the wind load design requirements for PV panels, although it references Section R907, which does. A separate proposal will move Section 907.2 to this section so the requirement does not get missed.

1. **Specify what criteria this proposal meets.** You may select more than one.

The amendment is needed to address a critical life/safety need.

The amendment is needed to address a specific state policy or statute.

The amendment is needed for consistency with state or federal regulations.

The amendment is needed to address a unique character of the state.

X The amendment corrects errors and omissions.

1. **Is there an economic impact:**  Yes     X No

Explain:

This is a clarification of the code requirement, so there is no economic impact.

If there is an economic impact, use the Table below to estimate the costs and savings of the proposal on construction practices, users and/or the public, the enforcement community, and operation and maintenance. If preferred, you may submit an alternate cost benefit analysis.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Building Type | Construction[[1]](#footnote-1) | | Enforcement[[2]](#footnote-2) | | Operations & Maintenance[[3]](#footnote-3) | |
| Costs | Benefits[[4]](#footnote-4) | Costs | Benefits4 | Costs | Benefits4 |
| Residential |  |  |  |  |  |  |
| Single family |  |  |  |  |  |  |
| Multi-family |  |  |  |  |  |  |
| Commercial/Retail |  |  |  |  |  |  |
| Industrial |  |  |  |  |  |  |
| Institutional |  |  |  |  |  |  |

Please send your completed proposal to: [sbcc@ga.wa.gov](mailto:sbcc@ga.wa.gov)

All questions must be answered to be considered complete. Incomplete proposals will not be accepted.

1. $ / square foot of floor area or other cost. Attach data. **Construction** costs are costs prior to occupancy, and include both design and direct construction costs

   that impact the total cost of the construction to the owner/consumer. [↑](#footnote-ref-1)
2. Cost per project plan. Attach data. **Enforcement** costs include governmental review of plans, field inspection, and other action required for enforcement. [↑](#footnote-ref-2)
3. Cost to building owner/tenants over the life of the project. [↑](#footnote-ref-3)
4. Measurable benefit. [↑](#footnote-ref-4)