**15-030**

**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

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):** 2407.1.1 and 2407.1.2

**Title:**  Modify glass guardrail support requirement & exception to be consistent with IRC Section 308.4.4.1.

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

**Proponents:** Jonathan Siu, representing the City of Seattle and

Lee J. Kranz, representing the City of Bellevue

**Title:**

**Date:** February 26, 2015

**3. Designated Contact Person:**

**Name:** Lee J. Kranz

**Title:** Plan Review Supervisor

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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:** **2015 IRC** **Section** **308.4.4.**

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

Modify Section 2407.1.1 and replace Section 2407.1.2 to read as follows:

**2407.1.1 Loads.** The panels and their support system shall be designed to withstand the loads specified in Section 1607.8~~. A design factor of four shall be used for safety~~, using a factor of safety of four.

**~~2407.1.2 Support.~~** ~~Each handrail or~~ *~~guard~~* ~~section shall be supported by a minimum of three glass balusters or shall be otherwise supported to remain in place should one baluster panel fail. Glass balusters shall not be installed without an attached handrail or~~ *~~guard~~*~~.~~

**~~Exception:~~** ~~A top rail shall not be required where the glass balusters are laminated glass with two or more glass plies of equal thickness and the same glass type when~~ *~~approved~~* ~~by the~~ *~~building official~~*~~. The panels shall be designed to withstand the loads specified in Section 1607.8.~~

**2407.1.2 Structural glass baluster panels.** Guards with structural glass baluster panels shall be installed with an attached top rail or handrail. The top rail or handrail shall be supported by a minimum of three glass baluster panels, or shall be otherwise supported to remain in place should one glass baluster panel fail.

**Exception:** An attached top rail or handrail is not required where the glass baluster panels are laminated glass with two or more glass plies of equal thickness and of the same glass type.

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.

**Reason**: This proposal will clarify and align the Washington State code requirements for glass panels that are used as a structural component in a guard. Imperfections in glass can cause the panel to fail at loads that are well below its nominal resistance value. We believe the intent of the IBC requirements is to have something (a top rail or a handrail at stairs) to provide some additional fall protection for a person leaning on the guard, should a glass panel fail. Having a handrail attached to at least 3 panels also provides some backup support if a panel fails while someone is grabbing the handrail to prevent a fall. However, there is an exception that allows glass-only guards (without an attached top rail or handrail) if the balusters are laminated glass. The laminated glass provides some backup against total panel failure, but note that the entire glass baluster still has to be designed to be able to support the full loads for guards, as specified in Section 2407.1.1, including using a factor of safety of 4.

The change in Section 2407.1.1 is proposed because “factor of safety” is a term that is understood by the engineers who will be doing the design. “Design factor…for safety” has no meaning.

The requirement regarding design loading in the original exception to Section 2407.1.2 has not been carried forward, because the requirement is covered in Section 2407.1.1.

The restriction on use of the exception to “when approved by the building official” has been deleted because there is no guidance or criteria as to when it would or would not be approved.

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.

The amendment corrects errors and omissions.

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

Explain:

This is a code clarification only and should not impact the cost of construction.

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 | Cost/DU | 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)