

**STATE OF WASHINGTON**

**STATE BUILDING CODE COUNCIL**

**15-075**

# 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):**

IBC 1203.2 and 1203.1 (the Washington State Amendments combine the two IBC Sections)

**Title:**

1203.2—Ventilation Required

1203.3—Unvented Attic an unvented enclosed rafter assemblies.

**Proponent Name (Specific local government, organization or individual): Proponent:** State Building Code Technical Advisory Group

**Title:**

**Date:** February 23, 2015

**Designated Contact Person:**

Name: Paul Skidmore

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# 2.

**3.**

February 24, 2015

1. **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.

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| --- | --- | --- | --- |
| **Code(s):** | IBC | **Section(s):** | 1203.2, 1203.3 |

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:

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***1203.2:***

**Attic spaces.** Enclosed attics and enclosed rafter spaces formed where ceilings are applied directly to the underside of roo framing members shall have cross ventilation for each separate space by ventilation openings protected against the entrance of rain and snow. Blocking and bridging shall be arranged so as not to interfere with the movement of air. An airspace of not less than 1 inch (25 mm) shall be provided between the insulation and the roof sheathing. The net free ventilating area shall not be less than 1/150th of the area of the space ventilated.

**Exceptions:**

1. The net free cross-ventilation area shall be permitted to be reduced to 1/300 provided not less than 50 percent an not more than 80 percent of the required ventilating area provided by ventilators located in the upper portion of the space to be ventilated at least 3 feet (914 mm) above eave or cornice vents with the balance of the required ventilation provided by eave or cornice vents.

2. At least 40 percent and not more than 50 percent of the required venting area is provided by ventilators located i the upper portion of the attic or rafter space. Upper ventilators shall be located **within the upper half of the roo** and not more than 3 feet (914 mm) below the ridge or highest point of the space, measured vertically, with the balance of the ventilation provided by eave or cornice vents. Where the location of wall or roof framing member conflicts with the installation of upper ventilators, installation more than 3 feet (914 mm) below the ridge or highest point of the space shall be permitted**.**

3. The net free cross-ventilation area shall be permitted to be reduced to 1/300 where a Class I or II vapor retarder i installed on the warm-in-winter side of the ceiling.

4. Attic ventilation shall not be required when determined not necessary by the building official due to atmospheric or climatic conditions.

5. Unvented attic assemblies (spaces between the ceiling joists of the top story and the roof rafters) shall be permitted if all the following conditions are met:

5.1 The unvented attic space is completely contained within the building thermal envelope.

5.2 No interior vapor retarders are installed on the ceiling side (attic floor) of the unvented attic assembly.

5.3 Where wood shingles or shakes are used, a minimum 1/4 inch (6 mm) vented air space separates the shingles or shakes and the roofing underlayment above the structural sheathing.

5.4 In Climate Zones 5B and 6B, any air-impermeable insulation shall be a Class II vapor retarder, or shall have a Class II vapor retarder coating or covering in direct contact with the underside of the insulation.

5.5 Either items a, b, or c below shall be met, depending on the air permeability of the insulation directly unde the structural roof sheathing.

a. Air-impermeable insulation only. Insulation shall be applied in direct contact to the underside of the structural roof sheathing.

b. Air-permeable insulation only. In addition to the air-permeable insulation installed directly below the structural sheathing, rigid board or sheet insulation shall be installed directly above the structural roof sheathing as specified in Table 1203.2 for condensation control.

c. Air-impermeable and air-permeable insulation. The air-impermeable insulation shall be applied in direct contact to the underside of the structural roof sheathing as specified in Table1203.2.1 for condensation control. The air- permeable insulation shall be installed directly under the air- impermeable insulation.

i. Climate Zone #1: R-10 minimum rigid board or air-impermeable insulation R- value.

ii. Climate Zone #2: R-25 minimum rigid board or air-impermeable insulation R- value.

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~~d.~~ ~~Where preformed insulation board is used as the air-impermeable insulation layer, it shall be sealed~~ ~~at the perimeter of each individual sheet interior surface to form a continuous layer.~~

***1203.3:***

***TABLE 1203.3 footnote a:***

~~TABLE 1203.2~~

~~INSULATION FOR CONDENSATION CONTROL~~

Contributes to, but does not supersede, thermal resistance requirements for attic and roof assemblies in ~~Section~~ ~~C402.2.1 of the International Energy Conservation Code.~~ **the Washington State Energy Code (WAC 51-11).**

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 2015 International Building Code now includes much of the language of section 1203.2 of the 2012 Washington State amendment and conforms to the language included in the 2012 IRC. There are relatively minor differences between the two as noted below. There is research that supports the IBC requirements and the language is similar to that in IRC sections R806.2 and R806.5. To maintain

consistency between the codes, it is recommended that the SBCC accept the bulk of the IBC except a noted above. The differences between the IBC and the WA Amendments are:

a. **1203.2 Ventilation:**

i. IBC Exception 1 includes vapor retarding requirements for Climate Zones 6, 7, and 8 only. None of these Climate Zones are designated in Washington State and therefore conflicts wit WA Exception 2 requiring ***all*** Climate Zones to provide a vapor retarder. The IBC is consistent with the 2012 IRC.

ii. IBC Exception 2 revises the ratio of venting area in the upper half of the roof system in response to recent data demonstrating better ventilation performance with the revised ventilation distribution ratios. The IBC is consistent with the 2012 IRC

iii. IBC Exception 2 is not specific that upper roof ventilation is required to be located in the upper portion of the roof. This can be an issue on low slope roofs. The additional language limits the location of the upper roof vent to the upper half of the roof, and limit the range of vent locations at conditions where walls or roof framing members conflict.

iv. The IBC does not include the exception where the building official can determine whether attic ventilation is necessary. The building official should not be put in the position to make this determination and accept the liability. This provision should be removed.

b. **1203.3 Unvented attic assemblies**:

i. IBC 1203.3.2 restricts the use of Class I vapor retarders. The WA Amendments restricts the use of *any* vapor retarder. The IBC is consistent with the 2012 IRC.

ii. IBC 1203.3.4 requires a Class III vapor retarder in climate zones 5, 6, 7, and 8. The WA Amendments require a Class II vapor retarder. The IBC is consistent with 2012 IRC.

iii. IBC Table 1203.3 Minimum R-value for Climate Zone 4C is listed as R-10. The WA Amendments list it as R-15. The IBC is consistent with the 2012 IRC.

iv. IBC 1203.3.5.1.3 references IBC Table 1203.3 for minimum air impermeable insulation. Th WA Amendments reference Climate Zone #1 and #2 which are not defined in the Energy Code and has a conflicting definition in the IBC. This, and all other WA Amendment and WSEC references to Climate Zone #1 and #2 should be removed. The IBC is consistent with the 2012 IRC.

v. IBC 1203.3.5.1.4 provides an additional method for unventilated attic assemblies not listed the WA Amendments nor is it included in the 2012 IRC. It is a calculation method in lieu of

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prescriptive construction.

* 1. IBC 1203.3 Exceptions does not allow unvented attic assemblies with special heat and humidity conditions. These exceptions should be retained.
	2. Table 1203.3 appendix a references the International Energy Conservation Code. The reference should be revised to the Washington State Energy Code.
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.

# Is there an economic impact: Yes No

Explain:

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.

Construction1 Enforcement2 Operations & Maintenan ding Type Costs Benefits4 Costs Benefits4 Costs Benefits4 dential

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mercial/Retail strial

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e send your completed proposal to: sbcc@ga.wa.gov

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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.

2 Cost per project plan. Attach data. **Enforcement** costs include governmental review of plans, field inspection, and other action required for enforcement.

3 Cost to building owner/tenants over the life of the project.

4 Measurable benefit.