1. State Building Code to be Amended:

- International Building Code
- ICC ANSI A117.1 Accessibility Code
- International Existing Building Code
- X International Residential Code
- International Fire Code
- Uniform Plumbing Code
- International Fuel Gas Code
- NFPA 54 National Fuel Gas Code
- NFPA 58 Liquefied Petroleum Gas Code
- Wildland Urban Interface Code

For the Washington State Energy Code, please see specialized energy code forms.

Section(s): Section 1505.1, 1505.4

Title: General

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

Proponent: Michael Lubliner

Title: SBCC Ventilation TAG member

Date: March 1, 2022

3. Designated Contact Person:

Name: Michael Lubliner

Title: SBCC Ventilation TAG member

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E-Mail address: lublinerm@energy.wsu.edu
4. Proposed Code Amendment.

M1505.1 General. Where local exhaust or whole-house mechanical *ventilation* is provided, the ventilation system shall be designed in accordance with this section.

**Dwelling units complying with the mechanical ventilation system requirements of this code (Washington Amendments to the IRC) shall allow the use of ASHRAE Standards 62.2-2019 as an acceptable option for compliance.**

**Exception:** Alternate balanced whole house ventilation systems and local exhaust systems subject to Residential Buildings provisions of the Washington State Energy Code serving Group R dwelling units designed and commissioned in accordance with ASHRAE Standard 62.2-2019 are permitted.

M1505.4 Whole-house mechanical ventilation system. Each dwelling unit shall be equipped with a ventilation system. The whole-house mechanical ventilation systems shall be designed in accordance with Sections M1505.4.1 through M1505.4.4.

**Exception:** Dwelling units complying with the mechanical ventilation system requirements of this code (Washington Amendments to the IRC) shall allow the use of ASHRAE Standards 62.2-2019 as an acceptable option for compliance.

5. 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 proposal is an option, for those seeking higher ventilation rates to further improve IAQ in accordance with ASHRAE Standard 62.2. Higher ventilation rates can dilute and thereby reduce indoor air pollutants beyond the current IRC-WA rate options.

- The use of 62.2 as an alternative will help avoid confusion and duplication of efforts, when builders seek to comply with requirements for high performance voluntary programs such as; USEPA Energy Star, EPA Indoor Air Plus, Passive House and IRS-45L for new home builder tax credits.

- This proposal seeks to clarify that 62.2-2019 can be used for single family and townhouse dwellings, provided that a balanced ventilation systems as is currently required in IMC-WA amended is employed. This proposal seeks to require the use of a balanced system, when using the 62.2-2019 option is taken.

- Justification for this proposal is discussed in WSEC-R training:

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

- X The amendment is needed to address a critical life/safety need.
- The amendment clarifies the intent or application of the code.
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.

7. Is there an economic impact:  ☑ No

If no, state reason: This is an option for achieving acceptable IAQ using mechanical ventilation standard 62.2-2019. The use of current approaches for mechanical ventilation are still allowed.

a. Code Enforcement. List any code enforcement time for additional plan review or inspections that your proposal will require, in hours per permit application: NONE

Note: The AHJ should be already verify ventilation systems requirements at the plan review and field verification/commissioning phases of inspection. Training ventilation system sizing and commissioning is available from WSU Energy Program Web WSEC-R Web page:

https://www.energy.wsu.edu/EventsTrainings.aspx
https://www.energy.wsu.edu/BuildingEfficiency/EnergyCode.aspx#Permit

The Code Compliance Calculator can be used to size the ventilation system:

Code Compliance Calculator and readme

· Video training:
  ○ Introduction to the C3 Calculator (9 min)
  ○ Using the C3 Calculator: Small Addition with User-defined Baseline (16 min)
  ○ Entering Custom Values in the Databases & Creating a “Glazing Schedule” (7 min)
  ○ Using C3 to print PDF forms (9 min)
  ○ Using the C3 Calculator to Calculate Ventilation Rates (10 min)
  ○ Filling out the Compliance Certificate for Ventilation systems (10 min)

See WSU Energy Program Training Videos (10 minutes each) and available at:

Calculating Ventilation Rates:
https://www.youtube.com/watch?v=IGu0HS0V5UU

Filling Out the Compliance Certificate for Ventilation Systems:
https://www.youtube.com/watch?v=C2W6m9Mts4
See Code Compliance Calculator (C3) form at:

Compliance Certificate

The certificate should be completed by the builder or other approved party and posted in the space where the furnace is located, a utility room, or another approved location in the building.

- 2018 WSEC Compliance Certificate
- 2018 Compliance Certificate – Instructions

WSU-Low-rise multifamily ventilation training Dr. Iain Walker:
2020-10-15 SeaBEC Meeting - YouTube

WSU-Low-rise multifamily ventilation training Mike Lubliner:
https://energy.wsu.edu/videos/wsec_2018-residential_updates_20200716/
b. **Small Business Impact.** Describe economic impacts to small businesses: NONE

c. **Housing Affordability.** Describe economic impacts on housing affordability: NONE

d. **Other.** Benefits to owners, to occupants, to the public, to the environment, and to other stakeholders is expanded and summarized here:

- The proposal is a clear defined option, for those seeking higher ventilation rates to further improve IAQ in accordance with ASHRAE Standard 62.2.
- Higher ventilation rates can dilute and thereby reduce indoor air pollutants beyond the current IMC rate options.
• Reduced IAQ pollutants saves on health care costs to the dwelling occupants and society.

• Higher dilution of moisture generated by occupants and other sources reduces risk for condensation and help reduce mold, building structural decay and maintenance/repair expenses.

• The use of 62.2 as an alternative will help avoid confusion and duplication of efforts, when used by builders for high performance voluntary programs such as USEPA Energy Star, EPA Indoor Air Plus, and Passive House and IRS-45L for new home builder tax credits. IRS 45L and WA utility incentives may help reduce the first cost of the home and improve purchase affordability.

• This proposal seeks to clarify that 62.2-2019 can be used for low-rise R2 multifamily dwellings, provided that a balanced ventilation systems as is currently required in IRC-WA amended is employed. This proposal seeks to require the use of a balanced system, when using the 62.2-2019 option is taken.

Please send your completed proposal to: sbcc@des.wa.gov
This slide shows below a typical balanced and exhaust only ventilation system employed in 62.2-2019 (credit ASHRAE 62.2 user manual):
This slide below shows the difference in ventilation rates between IRC-WA and ASHRAE 62.2 for a balanced ventilation system sized for each dwelling.

**Combining natural infiltration and mechanical ventilation:**

**Single-Family Example**

![Graph showing ventilation flow rates](image)

WA code has a fixed factor to account for balanced vs. unbalanced difference – not recommended