



Washington State Building Code Council

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STATE BUILDING CODE OPINION NO. 25-01

CODE: 2018 International Mechanical Code/International Residential Code

SECTION: IMC 403.4 / IRC M1505.4 Mechanical Ventilation

BACKGROUND: The 2015 IMC established the Group R whole house ventilation requirements under Section 403.8.5. Subsection 403.8.5.1 required that “Outdoor air shall be distributed to each habitable space.” Section 403.8.6 allowed such whole house ventilation systems to be via a single “whole house” exhaust fan. Section 403.8.6.1 established the outdoor air intake requirements for an exhaust only system, that (paraphrased) required each space to be provided with a controllable, securable, screened, air inlets of not less than 4 square inches. Interior air transfer requirements were also addressed.

A complete rewrite of the residential ventilation section occurred in the 2018 code, with the requirements moved to Section 403.4. Section 403.4 requires that “*Each dwelling unit or sleeping unit shall be equipped with a whole house ventilation system that complies with Sections 403.4.1 through 403.4.6.*” Section 403.4.1 requires “*The whole house ventilation system shall consist of one or more supply fans, one or more exhaust fans, **or** an ERV/HRV with integral fans; and the associated ducts and controls...The systems shall be designed and installed to supply and exhaust the minimum outdoor airflow...*” (bold & underline added)

Section 403.4 appears to clearly require that each dwelling unit shall be provided with both a supply fan and an exhaust fan (one or more supply, one or more exhaust, (so at least one of each) **OR** an integral system to provide reasonably balanced ventilation. Other subsections require HRV/ERV’s, specific controls, fan efficacy and maximum sound requirements.

Sections 403.4.4.1 and 403.4.4.2, covering all Group R occupancies (subject to the IMC as opposed to one- or two-family under the IRC, which has similar companion requirements in IRC M1505.4.1) also requires that “*The whole house supply fan shall provide ducted outdoor ventilation air to each habitable space within the residential unit.*”

QUESTION 1: As the outdoor intake requirements previously in the 2015 IMC have been deleted/repealed, removing all options of exhaust only, or supply only, or non-distributed intake air inlets that had been previously allowed, and replaced the requirements with the detailed mechanical ventilation provisions in the 2018 IMC Section 403.4, do all dwelling units under the 2018 IMC require a (essentially balanced) supply and exhaust ventilation system, with fresh air ducted to each habitable space?

ANSWER 1: No. The intent was that the systems for Group R-2 dwelling units to be balanced systems and include both the supply and exhaust fans. For other than Group R-2, a balanced system is not required and may consist of any combination of supply fan(s), exhaust fan(s) or ERV/HRV. Table 403.4.3 provides adjustment factors for use if the system is not balanced. While fresh air is required to be provided to each habitable space, there are exceptions found in Section 403.4.6 for adjoining spaces. See also [Opinion No. 20-06](#).

QUESTION 2: Do all one- and two-family dwellings and townhouses constructed under the IRC (Section M1505.4) require a (essentially balanced) supply and exhaust ventilation system, with fresh air ducted to each habitable space?

ANSWER 2: No, it is not required to be balanced. Table M1505.4.3(2) provides adjustment factors for use if the system is not balanced. Fresh air is required to be ducted to each habitable space by the supply system. The systems may be a combination of exhaust and supply fans or ERV/HRV with integral fans.

SUPERSEDES: None

REQUESTED BY: Cities of Bremerton and Ruston