

## STATE BUILDING CODE OPINION 20-June04

**CODE:** 2018 International Mechanical Code  
**SECTION:** 403.4.4, Whole house ventilation for residential occupancies

**BACKGROUND:** *DISTRIBUTED WHOLE HOUSE VENTILATION. A whole house ventilation system shall be considered distributed when it supplies outdoor air directly (not transfer air) to each dwelling or sleeping unit habitable space, (living room, den, office, interior adjoining spaces or bedroom), and exhausts air from all kitchens and bathrooms directly outside.*

*403.4.4.2 Whole house ventilation for other than Group R-2 occupancies. Residential dwelling and sleeping units in other than Group R-2 occupancies, including I-1 condition 2 occupancies, shall have a whole house mechanical ventilation system with supply and exhaust fans in accordance with Section 403.4.6.1, 403.4.6.2, 403.4.6.3, or 403.4.6.4. The whole house ventilation system shall operate continuously at the minimum ventilation rate determined in accordance with Section 403.4.2 unless configured with intermittent off controls in accordance with Section 403.4.6.5. The whole house supply fan shall provide ducted outdoor ventilation air to each habitable space within the residential unit.*

**QUESTION 1:** Is ducted outdoor ventilation air required to be distributed to each habitable space even if the whole house ventilation system airflow rate is correct per the “Not Distributed” system coefficients in Table 403.4.3 with Equation 4-11?

**ANSWER 1:** **Yes. Per Section 403.4.4.2 whole house supply fan shall provide ducted outdoor ventilation to each habitable space within the residential unit. The intent is that whole house ventilation systems are only allowed to have exhaust that is “Not Distributed”. Therefore, the “Not Distributed” system coefficients in Table 403.4.3 are only applied to residential unit whole house ventilation airflows when intermittent local exhaust that is not part of the unit whole house ventilation system is provided in one or more of the bathrooms or kitchen of the residential unit.**

**BACKGROUND:** *403.4.2 Whole house mechanical ventilation rates. The sleeping unit whole house mechanical ventilation minimum outdoor airflow rate shall be determined in accordance with the breathing zone ventilation rates minimum outdoor airflow rate shall be determined in accordance with the breathing zone ventilation rates requirements of Section 403.3.1.1.1.2 using Equation 4-2. The dwelling unit whole house mechanical ventilation minimum outdoor airflow rate shall be determined in accordance with Equation 4-10 or Table 403.4.2.*

**QUESTION 2:** Section 403.4.2 of the 2018 Washington State Mechanical Code is unclear as to which Table the base ventilation rate for sleeping unit is selected from. Is the intent that ventilation rates for sleeping units are from Table 403.3.1.1?

**ANSWER 2:** **Yes. The intent of Section 403.4.2 is that ventilation rates for the appropriate occupancy classification are selected from Table 403.3.1.1 such as “Bedroom/living room in Hotels, motels, resorts, and dormitories”. These ventilation rates are used to calculate the breathing zone outdoor airflow per Section 403.3.1.1.1.1 using Equation 4-1 and then are corrected by the zone air distribution effectiveness per Section 403.3.1.1.1.2 ( $E_z$ ) using Equation 4-2.**

**SUPERSEDES:** None  
**REQUESTED BY:** City of Bellevue