

# Whole House Mechanical Ventilation

January 27, 2022

The 2021 International Residential Code requires homes in our climate zone be tightly sealed with no more than 3 air changes per hour (ACH). In order to preserve indoor air quality and provide adequate air to occupants, a whole house mechanical ventilation system must be installed.

**M1505.4.1 System Design.** *The whole-house ventilation system shall consist of one or more supply or exhaust fans, or a combination of such, and associated ducts and controls. Local exhaust or supply fans are permitted to serve such a system. Outdoor air ducts connected to the return side of an air handler shall be considered to provide supply ventilation.*

Kitchens and bathrooms require continuous local exhaust of at least 25 and 20 cubic feet per minute (cfm) respectively (100 and 50 cfm intermittent). These rates can be figured into the total ventilation. Range hoods, in-line fans and bath fans at or above 90 cfm must meet minimum efficiency requirements of 2.8 cfm/watt, with smaller bath fans at 1.4 cfm/watt. Outdoor air intakes require dampers that close when the air handler isn't running.

The ventilation system must have controls to enable manual over-ride. The system must operate continuously, unless the controls allow intermittent operation for at least 25% of each 4-hour period, and the net ventilation rate must meet the requirements of this table:

Table M1505.4.3 (1)  
Continuous Whole-House Mechanical Ventilation System Airflow Rate Requirements

Dwelling Unit Floor Area (square feet)	Number of Bedrooms				
	0-1	2-3	4-5	6-7	>7
	Airflow in CFM				
<1,500	30	45	60	75	90
1,501-3,000	45	60	75	90	105
3,001-4,500	60	75	90	105	120
4,501-6,000	75	90	105	120	135
6,001-7,500	90	105	120	135	150
>7,500	105	120	135	150	165

Care must be taken with an exhaust-only system to avoid backdrafting natural gas appliances like draft-hood water heaters and fireplaces.