

Whole House Mechanical Ventilation Worksheet

To assist in compliance with the Energy Code portion of the 2018 Connecticut State Building Code, please complete this form and submit it along with the Building Permit Application for a new single family or two-family residence.

PROJECT ADDRESS: _____

OWNER/CONTRACTOR: _____

Section M1505 Mechanical Ventilation

M1507.3 Whole-house mechanical ventilation system. Whole-house mechanical ventilation systems shall be designed in accordance with Sections M1505.4.1 through M1505.4.4.

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 as such a system. Outdoor air ducts connected to the return side of an air handler shall be considered as providing supply ventilation.

M1505.4.2 System controls. The whole-house mechanical ventilation system shall be provided with controls that

enable manual override. Controls shall include text or a symbol indicating their function.

M1505.4.3 Mechanical ventilation rate. The whole-house mechanical ventilation system shall provide outdoor air at a continuous rate of not less than that determined in accordance with Table M1505.4.3(1), or not less than that determined by Equation 15-1.

$$\text{Ventilation rate in cubic feet per minute} = (0.01 \times \text{total square foot area of house}) + [7.5 \times (\text{number of bedrooms} + 1)] \quad (\text{Equation 15-1})$$

Exceptions:

1. Ventilation rate credit. The minimum mechanical ventilation rate determined in accordance with Table M1505.4.3(1) or Equation 15-1 shall be reduced by 30 percent, provided that both of the following conditions apply:
 - 1.1. A ducted system supplies ventilation air directly to each bedroom and to one or more of the following rooms:
 - 1.1.1. Living room.
 - 1.1.2. Dining room.
 - 1.1.3. Kitchen.
 - 1.2. The whole-house ventilation system is a balanced ventilation system.
2. Programmed intermittent operation. The whole-house mechanical ventilation system is permitted to operate intermittently where the system has controls that enable operation for not less than 25 percent of each 4-hour segment and the ventilation rate prescribed in Table M1505.4.3(1), by Equation 15-1 or by Exception 1 is multiplied by the factor determined in accordance with Table M1505.4.3(2).

**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

For SI: 1 square foot = 0.0929 m², 1 cubic foot per minute = 0.0004719 m³/s.

**TABLE M1505.4.3(1)
CONTINUOUS WHOLE-HOUSE MECHANICAL VENTILATION SYSTEM AIRFLOW RATE REQUIREMENTS**

RUN-TIME PERCENTAGE IN EACH 4-HOUR SEGMENT	25%	33%	50%	66%	75%	100%
Factor ^a	4	3	2	1.5	1.3	1.0

- a. For ventilation system run-time values between those given, the factors are permitted to be determined by interpolation.
- b. Extrapolation beyond the table is prohibited.

M1505.4.4 Local Exhaust Rates. Local exhaust systems shall be designed to have the capacity to exhaust the minimum airflow rate determined in accordance with Table M1505.4.4.

**TABLE M1505.4.4
MINIMUM REQUIRED LOCAL EXHAUST RATES FOR
ONE- AND TWO-FAMILY DWELLINGS**

AREA TO BE EXHAUSTED	EXHAUST RATES ^A
Kitchens	100 cfm intermittent or 25 cfm continuous
Bathrooms–Toilet Rooms	Mechanical exhaust capacity of 50 cfm intermittent or 20 cfm continuous

For SI: 1 cubic foot per minute = 0.0004719 m³/s, 1 inch water column = 0.2488 kPa.

- a. The listed exhaust rate for bathrooms-toilet rooms shall equal or exceed the exhaust rate at a minimum static pressure of 0.25 inch water column in accordance with Section M1505.3.

Number of Bedrooms: _____ Square Footage (including finished basement): _____ Sq. Ft.

What is the continuous airflow rate for this house per Table M1505.4.3(1)? _____ CFM

Is the system designed to be [Check One] _____ Continuous, or _____ Intermittent?

If this is an intermittent system, what is the required runtime factor?

_____ x Minimum CFM _____ = Total CFM _____

How do you propose to meet the required CFM for this system? [Check One]

- _____ Outdoor air duct connected to the return duct with an ECM motor
- _____ Exhaust fans with outdoor air duct connected to the return duct
- _____ A combination of the above
- _____ ERV or air exchanger [heat exchanger]
- _____ Other (Specify) _____