



## Attic – Crawl Ventilation

Requirements based on presence of ceiling vapor retarder, climate zone, and vent location.

The International Residential Code 2015 (also 2015 Michigan Residential Code) requirement for attic venting states:

- Minimum net free ventilating area shall be 1/150 of the area of the vented space.
  - Exception: The minimum net free ventilation area shall be 1/300 of the vented space provided one or more (IRC 2018 says both) of the following conditions are met:
    - In climate zones 6, 7, and 8, a class I or II vapor retarder is installed on the warm-in-winter side of the ceiling.
    - At least 40% and not more than 50% of the required ventilating area is provided by ventilators located in the upper portion of the attic or rafter space.

### Options:

1/150 – One square foot of net free vent area per 150 square feet of attic.

- Most of Michigan south of Saginaw is in Zone 5
- Zone 5 – 1/150 must be used if venting is not high and low

1/300 – One square foot of net free vent area per 300 square feet of attic.

- Most code officials recognize a painted ceiling as a vapor retarder. Therefore, the 1/300 rule will likely apply in most cases in climate zones 6–8.

NFA (net free area) refers to the actual open area available to provide effective ventilation.

- For example, a 12" x 12" vent will provide somewhat less than 144 square inches of NFA because screens and louvers occupy some of the space.
- Vents can be rated by an R-value that relates to their NFA (not to be confused with insulation value). For example, an R-61 roof vent has an NFA of 61 square inches.

### Example:

An attic is in Zone 7. The ceiling has been air-sealed, insulated and painted. The vents that will be used have 60 in<sup>2</sup> of net free area. The area of the attic is 1536 ft<sup>2</sup>. Per code how many vents are required for this attic?

Vents: \_\_\_\_\_ (1536 ÷ 300 = 5.12 ft<sup>2</sup> x 144 ÷ 60 = 12.29 – **12 or 13 vents**)

\*NOTE: Attic ventilation is required for new construction. Typically, adding additional venting to an existing attic is not required as a result of Wx work. Good air sealing and proper insulation will reduce the need for ventilation and will not make existing attic problems worse.

**See next page for crawl space ventilation**

## Crawl space Ventilation

The International Residential Code 2015 (also 2015 Michigan Residential Code) requirement for crawl space venting states:

- 1 ft<sup>2</sup> of vent NFA is needed for every 150 ft<sup>2</sup> of crawl space
- 1 ft<sup>2</sup> of vent NFA is needed for every 1,500 ft<sup>2</sup> of crawl space provided:
  - A Class 1 vapor retarder is installed over the ground

### **Example:**

The crawlspace area is 1050 ft<sup>2</sup>. The vents to be used have 50 sq. in. of net free area. How many vents would be required for the following?

Without a vapor retarder: \_\_\_\_\_ (1050 ÷ 150 = 7 sq.ft. x 144 sq.in. /ft ÷ 50 NFA = **20 vents**)

With a vapor retarder: \_\_\_\_\_ (1050 ÷ 1500 = .7 sq.ft. x 144 sq.in. /ft ÷ 50 NFA = **2 vents**)