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AIRVENT UNIVERSITY LESSON PLAN

September Lesson Plan
How Many Vents are Needed? The Math Shortcut

There are apps and online calculating tools that run the numbers for exactly how many intake and exhaust vents are needed for any attic. AirVent has such resources. And in our *Attic Ventilation: Ask the Expert Seminars™* we also go over how to do the calculations yourself longhand in case you ever need to. It's one of the most popular portions of our 2-hour seminars across North America every winter.

In this Lesson Plan we will focus on the shortcut to the math you can keep in your back pocket for easy use upon demand. ***NOTE:*** This shortcut works for any non-motorized attic exhaust vent and the intake vents needed to balance the overall airflow.

Shortcut for the 1/150 Ratio (Divide by 2)

We're going to call the 1/150 ratio "optimum attic airflow." This is what it means: 1 square foot of Net Free Area (NFA) for every 150 square feet of attic floor space evenly divided between intake vents (50%) and exhaust vents (50%). By the way, all of AirVent's calculating tools default to 1/150 balanced with equal intake and exhaust airflow. **Here's the shortcut to the math:**

- **Attic square footage** (measured length x width floor of the attic**) divided by 2** = square inches of **intake** Net Free Area airflow needed AND square inches of **exhaust** Net Free Area airflow needed.

- **Example: 2,000 square foot attic divided by 2** = 1,000 square inches of **intake** NFA airflow needed and 1,000 square inches of **exhaust** NFA airflow needed. From there, pick the type of vent you plan to use, learn its published NFA rating by the manufacturer, and compare it to the results of your shortcut you just performed.

- ➢ **Shortcut to the Math Using Ridge Vents for Exhaust:** Most ridge vents on the market provide 18 square iches of NFA airflow per linear foot. Using our shortcut math above, 18 divides into 1,000 about 56 times (we need 56 linear feet of ridge vent).

- ➢ **Shortcut to the Math Using 12″ Wind Turbines for Exhaust:** Most 12-inch wind turbines on the market provide 95 square inches of NFA airflow each. Using our shortcut math above, 95 divides into 1,000 about 11 times (we need 11 wind turbines).

- ➢ **Shortcut Using 60″ Box Vents for Exhaust:** A box vent on the market that provides 60 square inches of NFA airflow each looks like this using our shortcut math above: 60 divides into 1,000 about 17 times (we need 17 box vents).

- ➢ **Shortcut Using 8″ x 16″ Undereave Vents for Intake:** A common large rectangular undereave vent provides 56 square inches of NFA airflow each. Using our shortcut math above, 56 divides into 1,000 about 18 times (we need 18 large undereave vents).

- ➢ **Shortcut Using Roof-top Installed Edge Vent for Intake:** The Edge Vent is a four-foot stick intake vent that provides 9 square inches of NFA airflow per linear foot. Using our shortcut math above, 9 divides into 1,000 about 112 times (we need 112 linear feet of The Edge Vent).

For the shortcut to the math using the building code minimum 1/300 airflow ratio, listen to our podcast episode: Calculating How Many Attic Vents are Needed: Math Shortcut

 NOTE that I/300 = 1 square foot of Net Free Area for every 300 square feet of attic floor space evenly divided between intake vents (50%) and exhaust vents (50%).

To test your knowledge about what you learned in the September 2024 Lesson Plan please take our short 5-question Pop Quiz.

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