

# Attic Ventilation Installation Techniques

By Paul Scelsi, Air Vent, Inc., Dallas Texas

Over the past several years, I've talked with hundreds of roofing contractors nationwide at technical seminars that I present for Air Vent. They've shared with me many of the challenges and concerns they are experiencing specific to attic ventilation installations. Some of these topics have led to lively exchanges during the Q & A portion of our seminars. I'd like to summarize some of the key issues that have surfaced which may help you on the job.

Let me start with an important fact that sometimes is overlooked. Shingle manufacturers generally require that roof systems on which its shingles are installed meet minimum code standards for ventilation or the shingle warranty terms may be void or significantly reduced. For example, the shingle warranty for most CertainTeed asphalt composition shingles will be reduced to a maximum of 10 years if the minimum code requirement for attic ventilation is not met.

## A Word About Codes

### What is the minimum code requirement for attic ventilation?

The International Building Code, which was written to eventually replace BOCA, SBCCI and ICBO, calls for the following requirements: One square foot of Net Free Area for every 300 sq. ft. of attic floor space if the attic ventilation system is balanced with half exhaust and half intake vents AND a vapor retarder is installed.

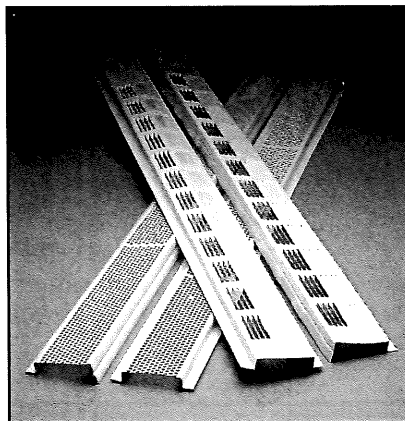
If a vapor retarder is not installed, the code requires one square foot of Net Free Area for every 150 sq. ft. of attic floor space balanced with half exhaust and half intake vents.

### Lack of Intake Can Spell TROUBLE

For optimum intake performance, install continuous soffit vents. If this isn't practical, install rectangular undereave vents (8"x16" for example) between every rafter space or every 2 to 4 foot apart. The goal is to provide a flow of air along the entire underside of the roof deck.

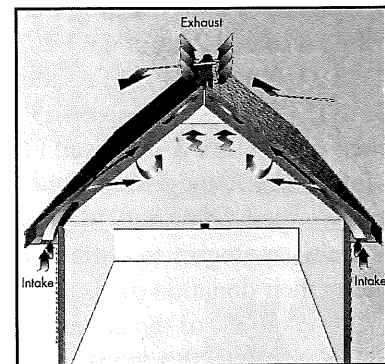
The single biggest cause of most of the attic ventilation problems I hear about stem from insufficient intake ventilation. The amount of intake ventilation in the soffit or overhang areas should be equal to or greater than the amount of exhaust ventilation. This will allow cool, dry air to enter the attic low through the intake vents so that the exhaust vents can remove the warm, moist air in the attic. If you cannot balance the attic ventilation system exactly 50/50, err on the side of more intake. Keep an eye on these potentially troublesome areas:

- Is the hole cut properly for the size of the intake vent?
- Are the soffits already clear inside the attic or are insulation baffles in place to maintain an airflow space?
- Has dirt or debris clogged or blocked the intake vents from inside the attic or outside the house?
- Have the intake vents been painted closed?



## Installing Ridge Vents

For year-around attic ventilation, a ridge vent system (combined with sufficient intake vents) is one of the most efficient. To maximize the performance of a ridge vent system, be sure to follow the manufacturer's printed installation instructions,



including slot width, slot length and nailing requirements. Keep the following in mind:

- If using a nail gun it's especially important not to overdrive the nails because that could dimple or distort the cap shingles or the vent. And be careful not to under-drive the nails because that could allow the vent to become loose.

- A wider slot is not better, cutting the slot wider than the installation instructions require invites weather infiltration. It is critical that the ridge vent covers the entire slot. A wider slot does not increase the vent's Net Free Area because the air passing through the side slot must still pass through the openings on the vent. The airflow is restricted to the NFA of the vent.

- End to end looks best. Regardless of where the slot length terminates, run the ridge vent along the entire ridgeline (from end-to-end) to create an even, attractive appearance that blends in nicely with the roof.

**The Dangers of Mixing Exhaust Vents**

Though it may seem logical that you could improve the attic ventilation system of one house by installing a ridge vent and a power vent (or roof louvers, or wind turbines or gable-end louvers), that's not the case; here's what can potentially happen as a result of this common misapplication:

- One of the two different exhaust vents can short-circuit the attic ventilation system by becoming an intake vent.
- The exhaust vent that is functioning as an intake vent can literally pull in weather.
- Portions of the roof below the secondary exhaust vents will not be properly ventilated. These problems can occur because air follows the path of least resistance. When you combine or mix two different exhaust vents, the path of least resistance will be the paths between those exhaust vents.

You can prevent short-circuiting by blocking-off the opening to these "secondary" exhaust vents with a piece of plywood, Styrofoam or plastic sheeting. Of course, you can avoid this problem altogether by not installing two different exhaust vents in the first place.

**About the Author:** Paul Scelsi presents *Air Vent's Attic Ventilation: Ask the Expert* seminars to the industry nationwide in the fall and winter. For more information about the seminars or to request a copy of the latest *Ventilation Views* covering power vent and ridge vent installation tips, call 1-800-AIR-VENT.

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