



# Balancing ventilation

## Intake vents are important to achieve proper ventilation

by Paul Scelsi

If you are not convinced about how important intake vents are to attic ventilation systems, consider this: Intake vents are the single biggest reason for most attic ventilation callbacks Dallas-based Air Vent Inc. receives. Not the exhaust vents—the intake vents.

For an attic ventilation system to perform properly, it needs a *balance* of intake and exhaust. Unfortunately, too many houses have sufficient exhaust but inadequate intake. The potential problems vary with the type of exhaust vent being used. For example, insufficient intake can cause an externally baffled ridge vent to pull intake air from itself. That means it could pull in weather. With a power attic ventilator, improper intake could cause premature motor burnout and force the power vent to pull its source of intake air from the living space in the home.

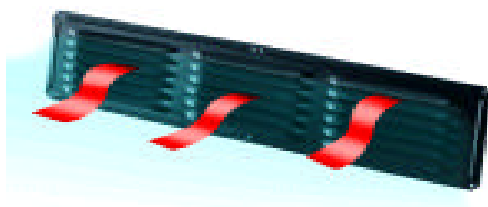
### Contractors' tips

Through its attic ventilation training seminars, Air Vent has collected numerous tips from roofing contractors regarding how to install intake vents. Some of those tips follow:

- Be sure the amount of intake matches or exceeds the amount of exhaust. Always install at least half, if not more, of the total required net free area needed for proper ventilation in the intake area. If a house calls for 1,500 square inches (97500 mm<sup>2</sup>) of net free area, half of that—or 750 square inches (48750 mm<sup>2</sup>)—must be intake ventilation.
- Whenever there is a soffit, use it. If a house has a soffit, use it to install the intake vents whether they are continuous soffit vents or individual rectangular under-eave vents. A soffit provides the most protection against possible weather infiltration. If a house doesn't have a soffit, use a vented drip-edge vent (see "Installing vented drip-edge products," page 44).
- Pull back the attic insulation. To

work properly, intake vents need an unobstructed airflow path to feed the exhaust vents with outside air. If attic insulation covers the interior of a soffit, the intake vents cannot work. Pulling back attic insulation creates a clear airflow path. This obviously involves going inside the attic. One of the differentiating strategies used by successful roofing contractors is to inspect an attic for signs of improper ventilation (mold, mildew, wood rot, rusty nails, etc.). Many contractors say they have won bids because they took the time to inspect attics.

- Position intake vents far out on a rafter tail. Doing this will provide an optimum airflow path from intake to exhaust. Furthermore, it will help minimize intake vents from being blocked by attic insulation.
- Check for the right-sized hole. The hole cut in the soffit should be properly sized for the intake vent to maximize the net free area specified for the particular intake vent. For example, two 4-inch (102-mm)



Roofing contractors have shared tips for installing intake vents; some are illustrated in the figure. Figure courtesy of Air Vent Inc., Dallas.

*continues on page 44*

### Installing vented drip-edge products

Sometimes, providing proper intake is much more difficult than it seems—especially with regard to houses with little or no soffits. Vented drip-edge products specifically are designed for such applications. They combine louvers with a drip edge to allow for intake airflow.

One of the beneficial features of a properly designed vented drip-edge product is it balances with most ridge vents because it provides exactly half the net free area (typically 9 square inches [585 mm<sup>2</sup>]) of common ridge vents on the market. By installing a vented drip edge on both sides of a house, a contractor successfully will have balanced the attic ventilation system.

Following are a few tips to keep in mind when installing vented drip-edge products:

- ✗ Louvers on a vent always should be parallel to the ground so wind cannot blow rain and snow directly into the openings. Be careful that louvers are not lifted out of parallel position during installation, creating a possibility of moisture sneaking in.
- ✗ Be sure fascia is installed so its top is above the louvers.
- ✗ There should be a 1- to 1¼-inch (25- to 32-mm) space between louvers on the vent and top of the gutter. If the vent is installed tightly above the top of the gutter, the vent louvers can become blocked as soon as the gutter fills with debris or snow. Should this happen, the vented drip edge will not function as an intake vent until the blockage is cleared.

round holes cut for a 16- by 8-inch (406- by 203-mm) undereave vent reduce the vent's net free area from 56 square inches (3640 mm<sup>2</sup>) to 25 square inches (1625 mm<sup>2</sup>).

- Use insulation baffles. If necessary, install insulation baffles to ensure attic insulation isn't blocking the soffit area. Place a baffle in every rafter bay, and check baffle placement. If a baffle extends farther into the soffit than where the vent is located, the insulation will push up against the baffle and block the vent.
- Look for debris and other blockages. Intake vents can become clogged or blocked by dust, dirt and other debris, or a homeowner may have painted them. Periodic inspections of intake vents by the roofing contractor and homeowner are important.

### Can you have too much?

One of the most common questions roofing contractors ask at Air Vent seminars is, "Can you have too much intake ventilation?" It's nearly impossible to have too much.

If, for example, more intake net free area is installed than there is exhaust net free area, the excess intake will become exhaust on the house's leeward side because the intake vents on the windward side of the house will have pressurized the attic. As a result, the intake vents on the house's leeward side will work with the exhaust vents to release air. In general, it's more likely houses will have too little intake than too much.

### An important feature

Although as a roofing contractor you often may be tempted to strictly focus on the type of roof coverings you install, it is equally important to realize the necessity of proper ventilation. Paying attention to ventilation issues will enable you to install better performing roof systems. ■

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