

Proper airflow in the attic helps prevent home problems

BY JAMES AND MORRIS CAREY
The Associated Press

Does lowering your utility bill, improving your home's comfort, cutting down on moisture and mildew, preventing an ice dam or a roof leak and extending the life of your roof sound good?

Suppose you could tackle all these tasks with a single improvement?

Well, you can. Attic ventilation is the answer.

A well-ventilated attic can help prevent problems associated with excessive heat and moisture buildup. This requires continuous air circulation in the attic, exchanging overheated and moisture-ridden air for fresh, cooler air from outside. Proper attic ventilation protects a home from damage and costly problems.

For example:
■ Heat and moisture can build up, causing the roof structure, shingles and paint to deteriorate prematurely. In fact, many shingle manufacturers require proper ventilation to validate their shingle warranties.

■ Excessive heat can radiate into living areas, making rooms uncomfortable — and air conditioners work longer and harder, sending utility bills into orbit.

■ Ventilation helps reduce moisture buildup that can cause mold and mildew.

■ An under-ventilated attic (in combination with a poorly insulated attic) in the winter is a major cause of destructive ice dams and, hence, roof leaks.

The incidence of moisture damage in attics has risen in recent years in today's more energy-efficient and airtight homes. A typical home produces an average of 2 to 4 gallons of water vapor per day. In winter this vapor is attracted to the cooler air in the attic, where it quickly condenses. It can drip onto attic insulation, reducing its effectiveness.

What can you do to maintain a well-ventilated attic?

First, there are two fundamental types of ventilation systems — passive and active.

A passive system uses physics to create natural air currents. In contrast, an active system employs a mechanical device to move air. An example of a passive system would be a combination of roof vents such as those located at gable ends, at eaves or soffits, on the roof up high or at the roof's ridge.

An active system still requires static ventilation ports (eave or soffit vents or gable vents), but utilizes a mechanical exhaust fan (an attic fan) that draws cool air into the attic and discharges it through the roof or a gable vent (depending upon the style of the roof and the type of attic fan utilized).

To maximize the volume and influence of airflow through a ventilation system, intake and exhaust venting must be balanced. This is called high-low balance. A properly designed attic ventilation system takes this basic principle into account.

For many years, passive was regarded as the poorer of the two styles of attic ventilation. If you wanted good ventilation it was a given that you would install a powered attic fan. While this may still be true where the proper high-low balance cannot be achieved (as with a hip roof, for example), a passive attic ventilation system otherwise is usually the better choice. A passive system has no moving parts, requires little or no maintenance and produces substantially better results.

One of the most effective components of a passive ventilation system is a ridge vent. Ridge vents are installed along the entire ridge of the roof, maximizing net free area and, working in concert with soffit-eave vents, they provide an even flow of air across the entire underside of the roof deck. It is this phenomenon that both

prevents ice dams and the premature deterioration of some roofing materials. Research proves this pattern to be the most effective. Moreover, ridge vents can be more attractive than other types of vents because they blend in with the roofline.

A ridge vent system can be installed during new construction, as part of a re-roofing project or retrofit into an existing roofing system. Retrofitting will require the existing ridge cap to be removed and a continuous section of the roof sheathing to be trimmed back to improve air flow. A ridge vent can have an integral ridge cap, thus eliminating the need for cap replacement, or it can be sandwiched between the roof cover and the ridge cap. Although there are slight differences in performance, the choice of one over the other usually is dictated by aesthetics.

Other types of ventilation (turbines, attic fans, gable vents and dormer vents) interfere with the dynamics of the ridge-soffit vent combination and must, therefore, be removed or sealed. Since gable vents usually are architectural elements, it generally is best to seal them from the interior with a piece of plywood, thus preserving the architectural integrity of the home and eliminating the need to make a siding patch.

For many years, a typical "builder's-basic" ventilation system consisted of a combination of soffit and gable vents. These systems are

marginal at best since gable vents work independently, providing limited airflow across the underside of the roof.

Another traditional means of ventilating an attic is with turbine vents. Though better than some means, turbine vents provide limited air movement at all wind speeds. They often must be covered to prevent weather infiltration, too. Ironically, covering a turbine defeats its purpose and hinders ventilation. Still other styles of roof vents provide a small, confined area of air movement, which prevents airflow from moving along the entire underside of the roof deck.

Power attic ventilators employ a factory-wired, adjustable automatic thermostat that monitors the

attic for costly heat buildup. When a preset temperature is reached, the fan will turn on and will stop once the attic has reached the cooler temperature. A powered attic fan can be installed on the roof or at the inside of a gable vent. The size and quantity of attic fans needed is determined by the size of the attic.

If a powered attic fan is what you need, consider a solar-powered attic fan. As the name implies, the fan is powered by the sun and requires no electrical hookup, thus saving on your utility bill. When a powered attic ventilator is required, we believe that this revolutionary device is a better, more environmentally friendly way to ventilate an attic.



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