ASPHALT ROOFING™
MANUFACTURERS ASSOCIATION

technical bulletin

Asphalt Roofing Manufacturers Association

National Press Building
529 14th Street, NW, Suite 750
Washington, DC 20045
Tel: (202) 591-2450 • Fax: (202) 591-2445
www.asphaltroofing.org

Attic Ventilation Best Practices for Steep Slope Asphalt Shingle Roof Systems

Ventilation is:

Attic ventilation is the flow of outside air through the space at the underside of the deck of an asphalt shingle roof system.

The benefits of ventilation are:

Ventilation moves heat and moisture out of an attic space. Ventilation helps to prevent premature shingle deterioration and roofing system failure by keeping the attic temperature closer to the outside temperature. Ventilation may also help reduce the risk of moisture-related problems by removing moisture-laden air that may collect in the attic space caused by day-to-day activities in the living space. Ventilation also helps to reduce the risk of ice damming.

Ventilation is achieved by:

Natural attic ventilation is effective because hot air rises. Outside air flows through an attic space when vent openings allow this hot air to rise out of the attic space at the top (exhaust) while cooler air is drawn in at the bottom (intake). To achieve the benefits noted above, there must be sufficient air flow. Ventilation systems that provide exhaust but no or inadequate intake (or intake but no or inadequate exhaust) severely limit air flow and are unlikely to be effective. Wind can increase air flow but an effective ventilation system assures air flow whether the wind is blowing or not.

The following practices are components of an effective attic ventilation system:

- Install intake vents at the eaves or in the lower portion of the roof or attic space.
- Install exhaust vents at the ridge or in the upper portion of the roof or attic space.
- Locate the intake and exhaust vents to assure air flow in all areas of the attic space. When using eave and ridge vents, they should be continuous and run the entire length of the eave and ridge. Do not allow blockages or restrictions to the air flow, such as by sky lights or incorrectly installed insulation. Maintain open air flow from eave to ridge between each rafter space. When using static vents, they should be equally spaced and close enough to each other to ventilate the entire attic. A combination of different types of intake vents and different types of exhaust vents may be necessary to properly ventilate each attic space. However, combining different types of exhaust vents on the same roof above a common attic space could cause short-circuiting of the attic ventilation system and does not follow vent manufacturers' installation instructions.
- Install a balanced system of intake and exhaust. Balance is achieved when intake vents provide 50 to 60% of the open venting area and exhaust vents provide 40 to 50% of the open venting area. The intake amount should always exceed the exhaust amount. This ventilation system balance is compatible with the requirements in the International Building Code (IBC) and the International Residential Code (IRC).
- Install sufficient ventilation. For many years, the standard recommendation has been to provide 1 sq. ft. of net free venting area for every 150 sq. ft. of attic floor area. The codes generally allow this to be reduced to 1 sq. ft. of net free venting area for every 300 sq. ft. of attic floor area when certain building features, such as balanced ventilation in combination with vapor barriers are incorporated into the attic space.
- When reroofing, replace ventilation devices within the field of the roof (e.g., static vents, ridge vents). It is possible to retain intake and exhaust vents not in the field of the roof (e.g., soffit vents, gable vents), provided they remain functional when reroofing is complete.

- Follow vent product manufacturers' installation instructions. Model building codes require that the product manufacturers' installation instructions be followed.

Please note that some building codes require ventilation to be updated to code required levels when reroofing.

See ARMA's "Ventilation" Fast Facts and ARMA's Residential Asphalt Roofing Manual for additional information.