Glossary

Balanced System	A ventilation system where 50 percent of the required ventilating area is provided by vents in the upper portion of the roof with the balance provided by under-eave or soffit vents.
Ridge	The highest point on the roof that runs the entire length of the roof line, formed by two planes of the roof intersecting.
Ridge Vent	An exhaust venting device located at the ridge of a roof that works in conjunction with an under eave or soffit vent to ventilate attics.
Stack Effect	The occurrence where air escapes through opening in the upper part of a building and is replaced with outside air that enters through a lower opening; in roofing, the stack effect helps create proper air flow for attic or roofspace ventilation.
Soffit	The underside of a roof overhang, which can include intake vents for attic ventilation.
Vent	Any device that protrudes through the roof, gable or soffit for the purpose of ventilating the underside of the roof deck.
Ventilation	The system used to circulate air or replace stale air with fresh air; exhaust ventilation is required to remove heat from an enclosed space.

Symbol Key

Important

Approved Product

Expert Opinion

Warning

Do It Right

Replacing a new roof is something most homeowners do only a few times in their lives. Do it right, and you will add decades of beauty, comfort and energy efficiency to your home. If done wrong, you may end up multiplying your initial investment in repeated repair costs.

1-800-GET-PINK®
www.roofing.owenscorning.com/completesystem

OWENS CORNING
INNOVATIONS FOR LIVING®
OWENS CORNING ROOFING AND ASPHALT, LLC
ONE OWENS CORNING PARKWAY
TOLEDO, OHIO, USA 43659
1-800-GET-PINK®
www.roofing.owenscorning.com

Pub. No. 10012241. Printed in U.S.A. August 2010. ©2010 Owens Corning.

Insulation and Ventilation

From Owens Corning™ Roofing

An EDUCATIONAL SERIES on the importance of installing a complete roofing system

It takes **more than shingles** to create a high-performance roof. It requires a system of materials and products working together. This report explains why **insulation and ventilation** are critical to maximize the performance and beauty of a roof.

Insulate and Ventilate for Longer Lasting Roofing

Proper ventilation is one of the most critical factors in roof system durability. According to the National Roofing Contractors Association (NRCA), without proper ventilation heat and moisture can build up in an attic and combine to cause rafters and sheathing to rot, shingles to buckle and insulation to lose its effectiveness.

Reviewing this bulletin will help you:

- Understand the importance of insulation and **ventilation** to your home and roof assembly
- Understand how ice dams form and how to prevent them with proper insulation/ventilation

A well-insulated and ventilated attic helps to improve home energy efficiency and helps maximize the performance and life of your roofing system.

A properly ventilated attic provides an escape route for any heat and moisture that does enter your attic, while attic insulation helps slow the movement of heat between the living space and the top of your home. During colder months, insulation helps keep heat in your home and out of the attic. In warmer weather, insulation helps keep attic heat from moving down into your home.

continued on next page

Insulation and Ventilation

Ventilation 101

Typical household activities can wreak havoc on a roof and attic if proper insulation and ventilation are not provided:

- In the summer, heat build-up encourages the premature aging and cracking of wood and other roofing materials; unwanted heat can also transfer back down into living areas, which reduces energy efficiency
- In cold weather, warm air generated by laundry, showers, dish washing and cooking can linger in the house and cause moisture build-up

Condensation can result from a buildup of relatively warm, moisture-laden air. Moisture in a poorly ventilated attic promotes decay of wood sheathing and rafters, possibly destroying a roof structure.

One way to combat these problems is with a balanced roofing system that includes both insulation and ventilation.

Insulation helps slow the movement of heat from the living space to the attic of your home and vice versa. This means that during colder months, insulation helps keep heat in your home and out of the attic and in hotter months insulation helps keep the cool air conditioning in your home.

Attic ventilation can help alleviate problems by keeping the attic air temperature closer to the outside air temperature.

A balanced ventilation system uses **vents** at or near the **ridge** for about one-half the total ventilation area and the remaining area at the roof's low points, such as the **soffit**. Balancing ventilation allows air intake to occur at the low points and exhaust to take place at high points.

In a **balanced system**, wind blowing over the exhaust vents creates negative pressure at the vents that draws warmer air out of the attic. Replacement air then enters through the under-eave or soffit vents and bathes the underside of the roof before exiting through ridge, roof or gable vents. Even without wind, the natural convection of rising warm air maintains a continuous air flow along the underside of the roof.

NRCA recommends a minimum of 1 square foot (0.09 square meters) of net free ventilating area for every 150 square feet (28 m2) of attic space measured at the attic floor level (a 1:150 ventilation ratio).

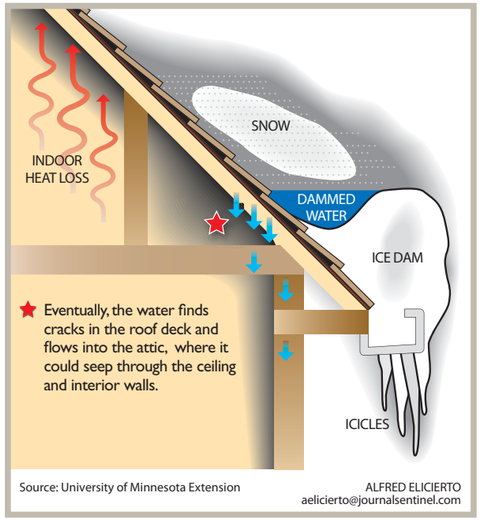
- If designing a balanced system into a house structure, the ventilation requirements can be cut in half or 1:300.

Roof Ventilation Benefits

- A cooler, drier attic
- Helps prevent moisture from becoming trapped in insulation, structural wood, shingles and the roof deck
- Helps prevent rotting, mildew, drywall damage, peeling paint and warped siding
- Year-round performance without energy consumption

Owens Corning™ offers many types of roof ventilation products including **ridge vents**, roof vents and insulation products. For more information, visit www.Roofing.OwensCorning.com.

Preventing Ice Dams



Source: University of Minnesota Extension

ALFRED ELICIERTO
aelicierto@journalsentinel.com

Ice dams develop as snow on the upper part of the roof melts and water runs down the slope and refreezes into a band of ice at the roof's lower edge creating a "dam." Additional snow-melt then pools against the dam and can eventually work up under the shingles to leak into the home.

The upper surface of a roof is located directly above the living space. Heat lost from the house warms this section of the roof and melts the snow above. During periods of sub-freezing temperatures, the lower portions of the roof deck are not warmed by indoor heat-loss and remain at sub-freezing ambient temperatures.

Attic insulation and roof ventilation can help stop ice dams from forming. Insulation keeps heat in your home and out of the attic so it does not help heat the roof deck and melt the snow above. Ventilation helps keep your roof at ambient temperature by allowing outside air to wash over the under surface of the deck.

For more about preventing ice dams, see the bulletin "Battling Ice and Water, Preventing Leaks" in this series.

Key questions to ask your contractor for a quality roofing job:

- Do I have balanced ventilation system designed into my roof?
- Are my intake vents working properly and not blocked by attic insulation?

continued on back

OWENS CORNING ®
INNOVATIONS FOR LIVING®