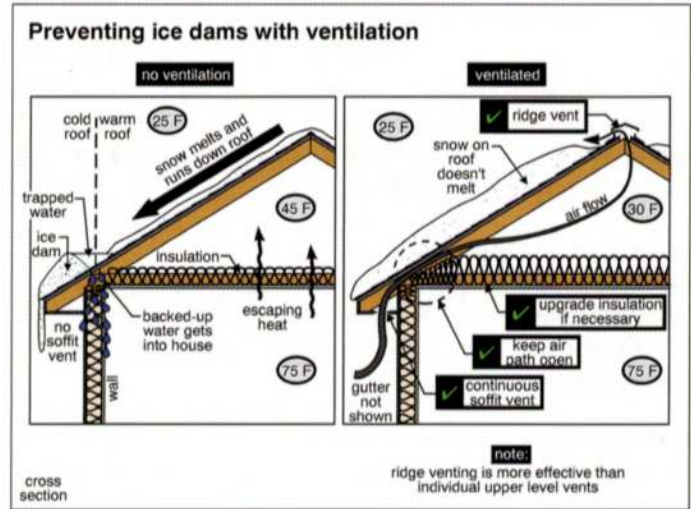
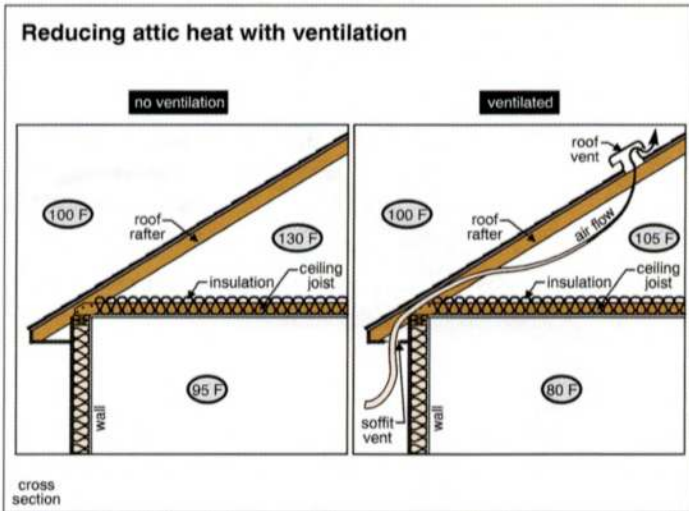


Venting Attic Spaces



BY CARSON, DUNLOP & ASSOCIATES LTD.

Ventilating unconditioned spaces such as the attic is designed to flush out the warm, moist air that has escaped from the living space before it has a chance to deposit its moisture into the building structure where it can do some damage. There's another good reason to ventilate unconditioned spaces, especially in climates with hot summers. The air in a roof space can become very hot. The sun beating down on a roof surface can drive heat into the roof space. Roof ventilation systems flush out the super-heated air and help keep the building cooler.



Prevent Ice Dams

In northern climates, there is a third good reason to ventilate unconditioned roof spaces. Good roof venting helps prevent ice dams. Ice dams form at the lower edges of roofs when the warm air in the attic melts the snow on the roof above the attic. The melted snow runs down to the edge of the roof, which is colder because there is no attic beneath it. The water refreezes before it drops off the edge of the roof. This freezing water builds a dam along the eaves. Subsequent melted snow running down the roof will run into the dam and back up under roof shingles, leaking into the building.



Venting Keeps Roof Cold

A well-ventilated roof will be cold. The colder the roof, the less likely snow is to melt above the attic. Less melted snow means less chance of ice dams.

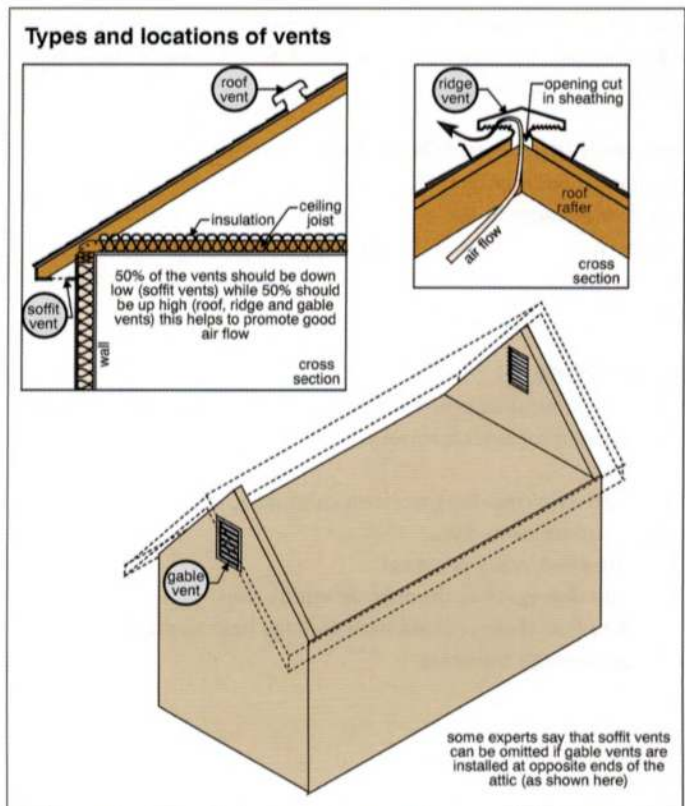
Purpose

We've touched on three functions of roof venting. Let's review them:

- Venting allows warm, moist air out of the attic before the moisture condenses on structural members.
- Venting reduces attic temperatures in the summer by allowing hot air to escape.
- Venting helps prevent ice dams by keeping the attic cold in winter. There are four common types of vents:

Types and locations of vents

- Soffit vents
- Ridge vents
- Roof vents
- Gable vents



High And Low Vents

Soffit vents typically comprise about fifty percent of the ventilation. Ridge, roof or gable vents make up the balance. The purpose of low and high vents is to encourage convective air movement through the attic. Air is drawn in through the soffit vents and leaves through the ridge, roof or gable vents.

Gable Vents at Opposing Ends

Some experts say that soffit vents can be omitted where there are gable vents at opposing ends of attic areas. While it's preferable to see soffit vents too, many houses are vented this way with no evidence of problems.

Vent Both Roof Surfaces

In many locations, roof vents are required on both sides of a gable roof, for example. This is good practice because wind comes from different directions on different days. If the roof vents are on the downwind side of the roof, air will tend to be drawn out of the roof vents as intended. However, if the roof vents are on the windward side of a roof, air may be forced into the attic through the roof vents. If there are vents on both sides of the roof, we are assured that air will be drawn out of at least some of the roof vents.

Soffit Vents at Least 50% of Total

We've said that soffit vents should make up at least half of the total venting. Because the air tends to be drawn in through soffit vents, soffit vents tend to put the attic under positive pressure. This is a good thing in one sense. We don't want to create negative pressure in the attic because this will draw more house air out of the living space and up into the attic.

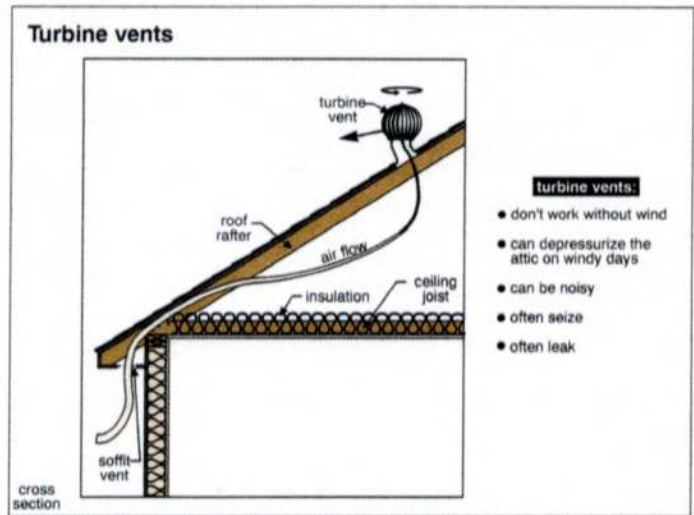
Roof and Ridge Vents Depressurize Attics

If we have more roof or ridge venting than soffit venting, we can create low pressure in the attic. This causes more warm, moist air from the house to be sucked out through the ceilings into the attic. This increases attic moisture levels, which is what we are trying to avoid.

Turbine Vents

Turbine-type vents may be found on the roof surface. These are not recommended for several reasons:

- Wind-driven vents don't work on calm days, but we still need ventilation on calm days.
- They are often noisy or seized.
- They can depressurize the attic on windy days.
- We often find these covered with garbage bags to prevent water leakage through the vents.

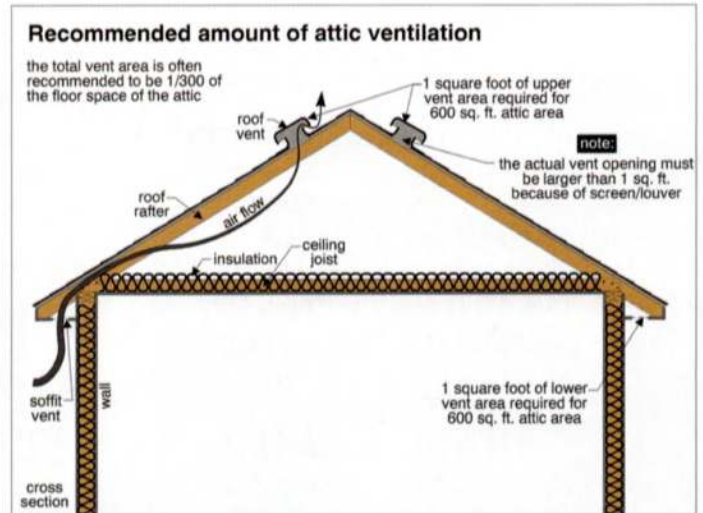
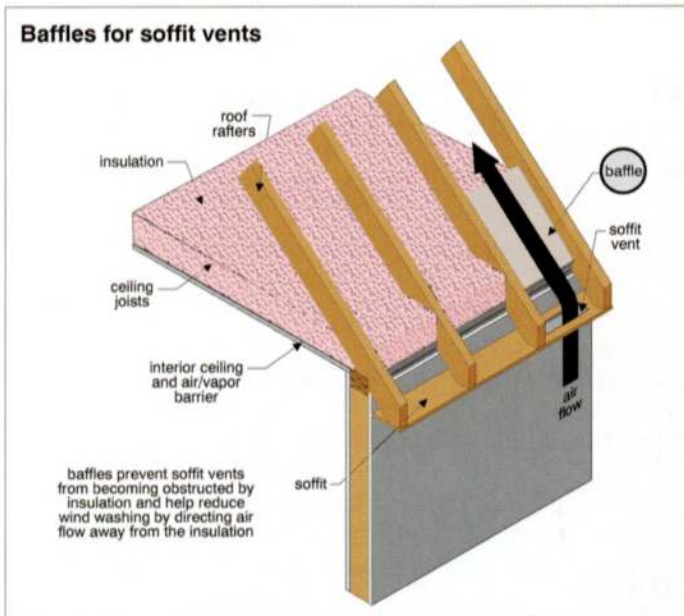


Baffles for Soffit Vents

It's common to find soffit vents blocked by insulation. Good installations include cardboard, plywood or expanded polystyrene baffles. These baffles prevent insulation from covering the roof vents and allow air to flow up through the soffit vents into the roof space. Baffles also direct the air away from the insulation and help reduce wind washing (unwanted air movement through the insulation, which reduces its R-value).



A common issue is loose-fill insulation added which results in soffit vents being blocked – cardboard, plywood, or Styrofoam baffles can help here.



Recommended Amounts of Attic Ventilation

The total vent area is often recommended to be 1/300 of the floor space of the attic. If the attic floor is 600 square feet, we would look for 2 square feet of unobstructed or free vent area. At least one square foot of this vent area would be at the soffits and the other square foot would be at the ridge, roof or gable vents.

The actual vent size has to be larger because the vent area is reduced by louvers or screens to keep out insects, rain and snow.

We have briefly introduced the topic of attic ventilation, and have also outlined some of the conditions that are typically found during home inspections. More information on the implications and the strategies for inspection can be found in the ASHI@HOME training program.



Inadequate ventilation in this attic space has resulted in decayed sheathing.

ABOUT ASHI@HOME

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