Attic Air Ventilation

Few aspects of your home are as critical to the long-term performance of your roof as the ventilation of the roof and the attic space directly under it. Ever ask yourself "why does my attic smell so musty?" In many cases, the lack of proper ventilation can lead to this musty smell as well as voiding an [asphalt shingle](https://www.thespruce.com/asphalt-shingles-for-your-home-1824686) manufacturer's warranty if damage to the roof is a direct result of insufficient ventilation.

## Adequate Ventilation

Ventilation can be accomplished using various products and techniques. Before we explore how to ventilate an attic space, it is prudent to understand how much ventilation is needed. Ventilation of attic spaces is required by most building codes as well as by roofing material manufacturers and the [National Roofing Contractors Association](http://www.nrca.net/) (NRCA). Most building codes require a ratio of 1/150 ventilation space to attic floor space. You can also contact your local municipality to check on building code in your area. Let's look at the following example:

* Mr. Jones has an attic space that measures 23 feet by 48 feet. This yields a total area of 1,104 square feet.
* Mr. Jones takes this measurement and divides it by 150 for a total of 7.36 square feet of ventilation space that is needed.
* Mr. Jones must now take this required ventilation space and compare it against the total ventilation that he currently has for his attic space.

## Ventilation

There are many different options available to provide adequate ventilation to your attic space. As with any array of products, there is no one solution that works best for all situations. A careful comparison of all options is suggested before choosing a final solution to install. The following is a list of options for installing ventilation into a residential attic space:

* **Ridge Vent:** A [ridge vent](https://www.thespruce.com/ridge-vent-installation-2902123) is a ventilation strip that is placed along the [ridgeline](https://www.thespruce.com/ridge-roof-ridge-2902137) of the home. Prior to installing the ridge vent, a 1-inch wide strip of roof decking is cut out along both sides of the ridgeline to allow for air movement through the vent. It is important that air movement occurs and is not impeded by any framing members of the home.
* **Soffit Vents/Insulation Baffles:** An important part of installing any system of ventilation into your roof system is to make sure that there is a point of entry and a point of exit for airflow. As a homeowner, it is important that you review the soffit areas of the home for soffit vents. The soffit vents allow convective air movement from the soffits of the residence to the ridge vent. In addition, [insulation baffles](https://www.thespruce.com/prevent-ice-dams-with-insulation-baffles-4125826) must be installed at the point where the attic floor meets the roofline to prevent the [attic insulation](https://www.thespruce.com/pros-of-attic-insulation-1821982) from migrating into the cavities and restricting the airflow from the soffit vents.
* **Whole House Fans/Powered Attic Fans:** Fans and vents may be installed on the roof system that will draw the air out of the attic space and exhaust it to the exterior. These fans may be controlled by a switch or a thermostat which detects heat build-up in the attic space and automatically exhausts the attic space. There are solar-powered options available that should be considered depending upon the location of the fan and the home.
* **Gable Vents:** These vents are installed in the gable ends of the home or building. They are normally louvered vents that allow air to be drawn out of the attic space but prevent moisture from rain and snow from blowing back into the home.
* **Other Options:** There are various other options that can be installed depending upon the construction of the home. These include louvered dormers, mushroom vents, and other options that allow targeted areas of the attic space to be ventilated.

## Requirements

Let’s return to the example of Mr. Jones. He has calculated that he needs 7.36 square feet of ventilation space for his attic.

His next step is to calculate the total amount of ventilation that he has in his attic. His home is 48 feet long and has a ridge vent that measures 46 feet. The ridge vent is cut back 1 inch on either side of the ridgeline which yields a total area of 7.67 square feet of ventilation. Mr. Jones has adequate ventilation along the ridge to ventilate the attic space.

However, he is not finished yet. He now must look for ventilation through the [soffit](https://www.thespruce.com/ventilate-solid-wood-soffits-for-natural-ventilation-2902124) areas to create the cross-ventilation required to maximize the efficiency of his ridge vent. In his examination, he realizes that his soffits are solid wood and do not provide any ventilation. As a result, Mr. Jones must install soffit vents. In addition, he must examine the insulation at the location where the attic floor meets the roof rafters to ensure that there is adequate airflow and that the soffit vents are not obstructed.

## Closing

Ventilation is important to many different aspects of the home. The comfort of the homeowner, the life expectancy of the roof and the performance of the heating and [air conditioning systems](https://www.thespruce.com/how-home-air-conditioning-system-works-4121077) can all be affected by the lack of ventilation throughout the structure.

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