

VENTILATION VIEWS

Issue Focus:

**Ridge Vent and
Power Vent
Installation Tips**

**News, opinions, ideas and technical advice from
the ventilation specialists at Air Vent**



As a manufacturer of attic ventilation products since 1975, we've seen a lot of applications and installations of attic ventilation products. We've also learned some "tricks of the trade" by listening to you.

We've dedicated this issue of Ventilation Views to sharing with you some of the highlights of what we've learned over the years about installing ridge vents and power vents. Here are some tips and answers to some frequently asked questions. We welcome your feedback and ideas.

IMPORTANT: Please be aware that this document is not intended to serve as an installation manual or to replace any instructional literature which may accompany Air Vent products. Please consult installation instructions which accompany Air Vent products for all pertinent installation information.



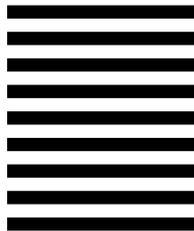
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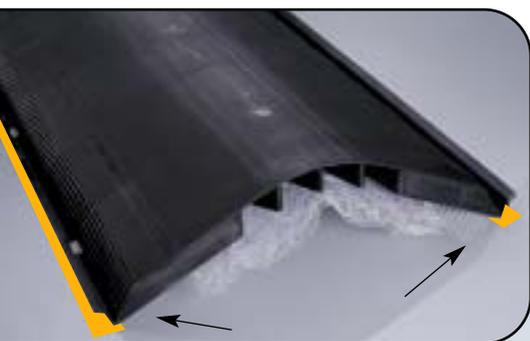
WHAT'S YOUR TIP?

Do you have an installation tip you'd like to share for possible publication in a future *Ventilation Views*? Fill out the attached reply card, e-mail your tip to Paul.b.Scelsi@saint-gobain.com, or fax it to (214) 630-7413.

In appreciation for your time and idea we'll send you an Air Vent gift. Thanks.

Caulk

when using
**DIMENSIONAL
SHINGLES**



Why Caulk?

As highlighted in the printed installation instructions, when ridge vents are installed on dimensional or architectural shingles there will be some low spots between the shingles and the vent because of the design of the shingles. That invites weather infiltration. Where there are low spots, we recommend caulking UNDERNEATH THE EXTERNAL BAFFLE on the ridge vent to seal the gap or low spot between the vent and the shingle.

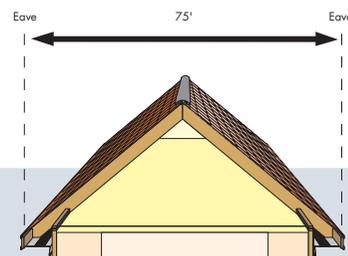
Care must be taken so that the weep holes on the vent, which allow the water to drain, are not blocked by the caulk.

TIP: For best performance, use a tri-polymer caulk, which will maintain its flexibility when exposed to the weather elements. Avoid roofing cements and roofing compounds because they will breakdown or crack when exposed to UV, thus losing the waterproof seal under the vent.

Another Solution

An alternative to caulking for standard laminated shingles is to shorten the shingle course exposure up to 1/4" per course starting up to 5 feet below the ridge. Reducing the exposure over a properly planned distance allows the installer to finish at the ridge with the bottom edge of the ridge vent's external baffle matching the top edge of the dragon's tooth on the uppermost laminated shingle course. This will present a flat surface upon which the vent can be installed without caulking. Shortening the shingle course exposure in this manner will not be readily noticeable from a distance.

In the case of CertainTeed's Independence Shingle®, Hallmark Shingle®, and Grand Manor Shingle® shingles, where it is desired to close the gap, adjust the courses as described above, then remove the uppermost portion (headlap area only) of the top laminate piece (only). This will present a flat surface upon which the vent can be installed. A single small-head aluminum siding nail of a similar color to the shingles should be used to face-nail the exposed tab portion to keep it from slipping (especially important on slopes greater than 12:12).



A Word about Rafter Runs and Building Widths

For all cathedral/vaulted or otherwise compact roof systems, a minimum of 1" to 1 1/2" airspace between the insulation and the roof deck will allow proper airflow from intake to exhaust. Please note the following guidelines.

- 1" to 1 1/2" airspace is sufficient for rafter lengths up to 35 feet.
- Rafter runs longer than 35 feet should have a 2" to 3" airspace to allow for an easier path for the air to travel along the extra distance.

In terms of building widths and their impact on the ridge vent, here are some important numbers.

- To meet minimum 1/300-code requirements, the widest structure a ridge vent can be installed on is 75 feet (based on a ridge vent that provides 18 square inches of Net Free Area per linear foot).
- To stay within 1/150-code requirements, the structure can only be 37 1/2 feet wide.
- These numbers are based on code requirements and the NFA specifications of the ridge vent. They have nothing to do with the ridge vent's performance.
- To use a ridge vent on a structure that's wider than 75 feet you'll have to install a ridge vent with more NFA.

TIP: Width of a structure is based on a plan view, footprint of the structure looking at it eave to eave or across the bottom.

The nails used to fasten the shingle caps to the ridge vent are the primary fasteners protecting the vent against blow-off, therefore it's important to use nails that will penetrate the underside of the roof deck without compressing the vent.



cap shingles could blow off. If the wind doesn't blow the vent and cap shingles off, the ridge vent could be "lifted" or raised enough to allow rain to blow up underneath.

What Size Nail?

While hand nailing is the most careful way to ensure that this happens, we recognize that some roofers prefer the speed of a nail gun. If you use a pneumatic gun to install ShingleVent® II, **the following precautions, as set forth in the printed installation instructions, must be followed:**

- **Don't overdrive the nails.** Doing so could dimple or distort the cap shingles.
- **Make sure the nails are not under-driven.** If they are, the ridge vent may back out of the roof deck and could blow off. Or, the

a particular length nail because several variables come into play: shingle thickness, type of roof deck, weight of the felt. For example, a 3-tab shingle installed over 15-lb. felt and ½" OSB deck will require a shorter nail than a dimensional shingle installed over two layers of 15-lb. felt and a tongue-and-groove deck.

You'll have to assess the situation on the job and then select the proper size nail. Also, some common sense will be necessary to properly set the air pressure supplied to the nail gun.

For best installation of ShingleVent II it's recommended that you hand nail as illustrated in the printed installation instructions. However, some roofers have used nail guns successfully by carefully following these guidelines.

Cutting the Ridge Vent Slot



WIDER IS NOT BETTER

Air Vent's ridge vent installation instructions require the following when cutting the ridge slot.

Slot Width:

- If it's ridge board or ridge pole construction, **cut ¾"** on each side of the pole or board
- If it's truss construction, cut a **1½" opening**

Slot Length

- Cut the slot length along the ridgeline **6"** from the end wall or hip intersection
- Cut the slot **12"** from a chimney or an intersecting ridgeline

Cutting the Slot Wider

Here's a common question we receive about slot width: **Can I cut the slot wider to increase the Net Free Area?**

For example, ShingleVent II is specified at 18 square inches of NFA per linear foot. If you cut the slot 2" wide (instead of the required 1½") it may seem logical that the NFA would increase to 24 square inches per linear foot. However, keep in mind that the air that passes through the wider slot must now pass through the openings in the ridge vent itself. Although the slot is wider, the ridge vent's openings remain the same.

There's no benefit to cutting a wider slot. **A word of caution:** There is the potential for weather infiltration if the slot is cut **too wide. The vent needs to fully cover the slot to protect the attic from weather infiltration.**

TIP: The slot width is designed to match the amount of Net Free Area provided by the ridge vent itself. For example, ShingleVent II has openings that total 18 square inches of NFA per linear foot. Over the span of 1 foot, a 1½" slot width equals 18 square inches. Likewise, a ¾" slot on both sides of the ridge board or pole also equals 18 square inches over the span of 1 foot.

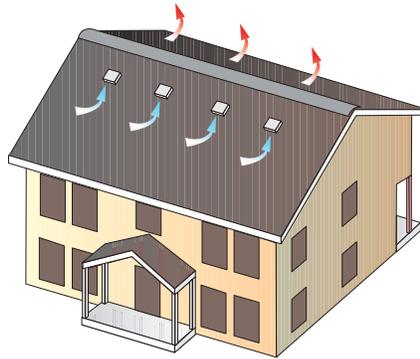
DON'T MIX

We see this application a lot: **One roof with two different types of exhaust vents; ridge vents and roof louvers, for example. It's understandable why one would think that adding a second type of exhaust vent to the roof would improve the overall ventilation system. But that is not the case. Here's why it's a potential problem.**

The four main categories of exhaust ventilation products (ridge vents, power vents, roof/gable louvers, and wind turbines) function on different principles. If you mix or combine two or more of them on the same roof, short-circuiting could occur which could lead to weather infiltration and unbalanced airflow along the underside of the deck.

Let's say there's a ridge vent and some roof louvers on the same roof plus

Two Different Exhaust Vents



intake vents at the soffit. Although the ridge vent is supposed to pull its intake air from the soffit vents, air follows the path of least resistance. The path of least resistance on this roof is the path between the ridge vent and the roof louvers. Therefore, the ridge vent can pull air from the roof louvers. As a result, portions of the lower part of the roof (below the roof louvers) are not being ventilated. Of worse consequence is the potential for the roof louvers to pull in weather.

In general, we recommend that you never mix or combine two different types of exhaust vents on the same roof. To avoid the short-circuiting problems, either remove the secondary exhaust vent from the roof or at least block off its opening so that it's not functioning.

VENTILATING MULTIPLE RIDGELINES ON THE SAME HOUSE

The printed installation instructions explain how to properly install Air Vent ridge vents. Here are a few guidelines for ventilating multiple ridge heights on the same house.

All of the ridges can be ventilated whether they run parallel or at angles to each other.

If the ridgelines are more than 3 feet apart in height and the ridgelines share one common attic, we recommend that you only ventilate the higher ridgeline. *Here's why.*



If two ridgelines are more than 3 feet apart in height, you can exhaust vent both if the attics are separated.

As wind passes over ridge vents with external baffles (*Air Vent's ShingleVent® II, Multi-Pitch FilterVent® and VenturiVent Plus™ all feature an external baffle*) it creates negative pressure over the vent openings drawing air from the attic. This is called the Bernoulli Effect. The faster the wind moves over the baffle the greater the negative pressure; thus more air will be pulled from the attic.

Winds generally move faster at higher elevations; therefore the higher ridgeline will be exposed to higher winds. The stronger negative pressure at the higher ridgeline may be enough to literally pull air through the ridge vent at the lower ridgeline. That could lead to weather infiltration.

Separate the Attics

If you can separate the one common attic shared by the two ridgelines into two distinct attics you can then safely exhaust

vent both ridges regardless of how far apart in height they are. Use plywood or plastic sheeting to separate the attics.

Always check to make sure you're within minimum code standards when you're only venting the higher of the two ridgelines. Let's look at a 1½ story style house, for example. This design has two ridgelines that are often greater than 3 feet apart in height, with one equal ridge length and a connected area underneath. Putting a ridge vent on only the higher of the two ridgelines would not meet minimum code requirements.

Upon closer inspection we'll see that the attics "connect" or meet through a sidewall on the higher portion where the lower ridgeline runs into it. The area where they meet is approximately 3 to 5 feet high. By blocking off this area we can create two separate attics that can each be ventilated at the ridge.

FREE Ventilation Calculator!



Get your hands on Air Vent's pocket sized slide-chart attic ventilation calculator.

It's the fastest way to specify a balanced system. The slide-chart lists exactly how many feet or units of various exhaust & intake vents are required for attics up to 3,500 square feet. And we've accounted for attic volume! It's a tool you'll use again and again on the job. To get your free slide-chart, complete and return the form or call **1-800-AIR-VENT**.

YES! Air Vent, send me the slide-chart calculator. (Fill out and return this coupon or call 1-800-AIR-VENT.)

Name _____

Company _____

Address (Cannot deliver to P.O. Box) _____

City _____ State _____ ZIP _____

Phone (_____) _____ Fax (_____) _____

E-mail _____ Have you ever used ridge vents? Yes No

If yes, what brand(s): _____

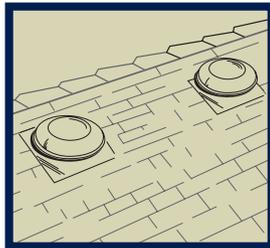
WHAT'S YOUR INSTALLATION TIP?

— Give us your tip and get an Air Vent gift —

POWER VENT

PLACEMENT AND CONTROL SETTINGS

As explained in the printed installation instructions, the roof-mount power vent should be installed as close to the ridgeline and as close to the center of the roof as possible. If the vent is positioned too far down the roof it could leak because the amount of water shedding off the roof increases as you move further down the roof. It could get to the point where the water can start to splash over the stack and into the power vent.



at the manufacturing plant. The controls are adjustable.

Position the thermostat/humidistat as far away from the vent opening as possible to prevent the outside weather conditions from

triggering the fan. As listed in the printed installation instructions, the controls are pre-set at:

- Thermostat = 100-110°F
- Humidistat = 80% relative humidity

In the south and along the coasts. The recommended settings can cause the fan to run all the time in southern regions of the country and along the coasts. To prevent this from happening, set the thermostat and the humidistat higher.

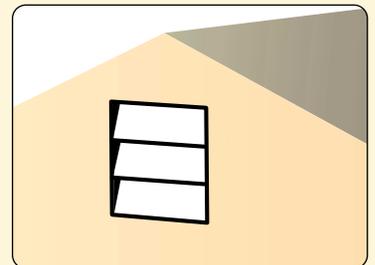
In extreme cold climates. The thermostat will only work in warmer months. The humidistat will be necessary for operation in the winter. We recommend setting the humidistat lower than 65% (but no lower than 50%) allowing the fan to cycle on and off even with slight changes in the air's moisture content.

If the attic size requires two power vents, space them evenly apart on the roof with their thermostat/humidistat settings the same. It is very important that there is sufficient intake venting to supply both of the power vents.

TIP: On a hip roof it may be necessary to place two power vents next to each other at the ridgeline. If this is the case, be sure the thermostat/humidistat settings are the same for both fans.

PRE-SET CONTROLS

The thermostat/humidistat controls on roof-mount and gable-mount power vents are pre-set at the recommended settings



WHAT ABOUT GABLE LOUVERS?

Gable louvers are a type of exhaust vent and should not be mixed with another type of exhaust vent on the same roof. However, many homeowners like the aesthetic touch gable louvers add to the house and would rather they remain in place even if another type of exhaust vent were installed on the roof. A quick solution is to block off the opening to the gable louver from inside the attic with plywood, Styrofoam or plastic sheeting. You could also temporarily remove the louver from outside the house and then block off the opening. Blocking off the opening successfully prevents the short-circuiting problems, maintains the aesthetic appearance the homeowners prefer and avoids the hassle of re-siding the house!



2 Common

Power Vent Mistakes

Power attic ventilators are a great alternative for hard-to-vent roofs. But, they can cause costly, damaging problems if the printed installation instructions are not followed. Here are two of the more common misapplications we see.

1 Insufficient intake ventilation.

The intake venting must be sized according to the CFM (cubic feet of air moved per minute) capacity of the power vent. If not, the power vent could create a negative pressure in the attic, which could allow air to be pulled from the living space through openings in the ceiling plane.

When this happens, homeowners could actually see their air conditioning bills increase. Furthermore, air could be pulled through the wall cavities from a wet foundation — potentially adding a large amount of moisture to the attic.

TIP: Be careful when replacing a roof louver with a power vent. Don't assume the intake venting in place for the roof louver is sufficient for the power vent.

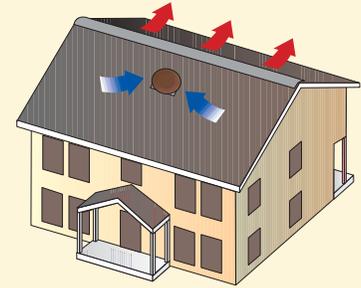
Double check. Here's the formula for calculating power vent intake venting:

CFM capacity divided by 300.

For example: 1260 CFM divided by 300 = 4.2 square feet of intake or 605 square inches.

2 Mixing a power vent with a ridge vent.

Although this is addressed in "Don't Mix Two Different Exhaust Vents," it's worth repeating. Mixing a power vent with a ridge vent can short-circuit the attic ventilation system because air follows the path of least resistance.



When the power vent *turns on*, it can pull air from the ridge vent, which could lead to weather infiltration and unbalanced airflow along the underside of the roof deck. When the power vent *turns off*, it acts like a roof louver — an opening on the roof without a motor. In this scenario, the ridge vent pulls its intake air from the power vent opening, again leading to possible weather infiltration and less than optimal ventilation along the underside of the roof deck.

TIP: Multiplying the attic square footage by 0.7 (which tells you the CFM capacity of the power vent) will provide 10-12 air exchanges per hour assuming an 8-foot high attic at the ridge. The Home Ventilating Institute recommends 10-12 air exchanges per hour.

TIP: For roofs with 7/12 pitch or higher consider adding 20% to 30% more CFM and the appropriate amount of intake venting to handle the larger volume in the attic space.

CFM



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