Watch Out for Vents When Installing a Ledger

Q Should I be concerned about covering a foundation vent with a deck ledger?

A Glenn Mathewson, a building inspector and a former deck builder in Westminster, Colo., responds: The short answer is yes. It's wise to assume that every element of a structure has a purpose and therefore design your work so as not to inhibit that purpose.

Vents, for instance, may be vital to controlling moisture in a crawlspace. Even if they are sealed shut from years of painting and poor maintenance, they shouldn't be covered by new construction unless alternative moisture-control methods are used.

Historically, building codes have required that crawlspaces be vented to the exterior to prevent water vapor from the soil below from building up and fostering rot or mold. If you've ever tarped your tools or lumber for the night, you may have found the tarp's underside dripping with water in the morning — that moisture was condensation, which came from water vapor that evaporated out of the earth. You don't want a building to act like that tarp, so vents are installed to move outside air through the space to remove the moisture-laden air.

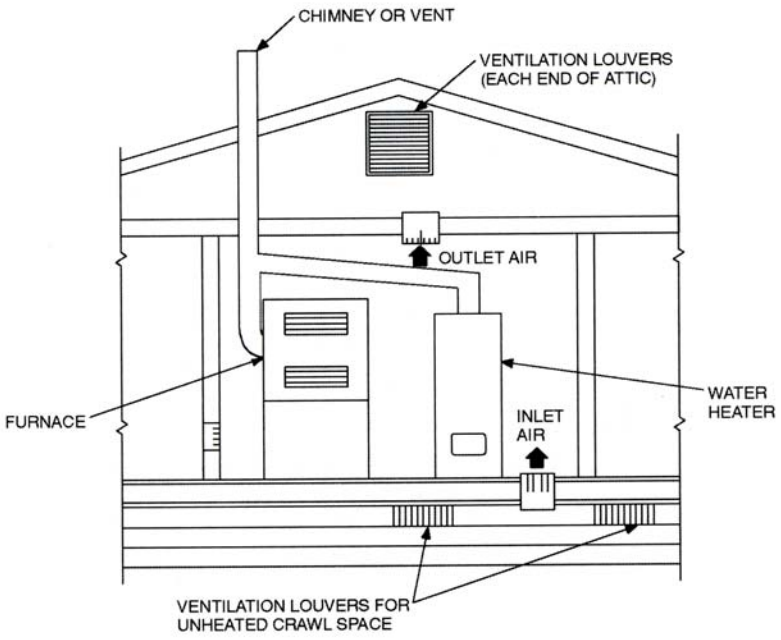
How effective crawlspace vents are depends on the climate. What works in Seattle (cold and humid) may not work as well in Denver (cold and arid) or in Houston (hot and humid), so the 2006 International Residential Code (iccsafe.org) provides for a crawlspace moisture-control method that doesn't require outside ventilation (2006 IRC R408.3). Though this provision may eliminate the need for vents in new construction, it doesn't help much in older crawlspaces — unless the client is willing to pay for remediation.

Foundation vents are not meant to work singly; there must be multiple vents on opposite sides of the crawlspace for air to cycle through the area. The 2006 IRC specifies the minimum size of openings based on the total area of the crawlspace and requires an opening within 3 feet of each corner to facilitate the movement of the air (2006 IRCC R408.1). Blocking just one vent can reduce air flow and trap moisture in the crawlspace, which could cause fingers to point your way if there were ever a mold, mildew, or moisture issue.

Blocking vents could also asphyxiate the building occupants. Many fuel-burning appliances get their combustion air (2006 IRC M1703.5, Figure M1703.2(4)) from vented crawlspaces (see illustration, below).

An outdoor source for combustion air performs a number of important functions: It balances the pressure differential created by removing the

Figure M1703.2(4)
Appliances Located in Confined Spaces—Inlet Air Taken From Ventilated Crawl Space and Outlet Air to Ventilated Attic



For SI: 1 square inch = 645.16 mm^2, 1 British thermal unit per hour = 0.2931 W.
NOTE: The inlet and outlet air openings shall have a free area of not less than 1 square inch per 4,000 Btu/h of the total input rating of all appliances in the enclosure.

Vents do more than flush moisture from crawlspaces: Sometimes they provide makeup air needed for furnaces and water heaters, as shown in this illustration from the 2006 International Residential Code. Closing them off could starve these appliances — and your clients — of air.

exhaust gas from the building; provides oxygen for combustion without taking it from the building occupants; provides air to start and maintain a natural draft in gravity flues; ventilates to cool the equipment; and acts as a backup exhaust vent.

Combustion air is not something you want to inhibit. The alternative to vents is to have the hvac system professionally evaluated to ensure there's sufficient combustion air.

If you know that combustion air is not a concern, you could modify the crawlspace to make it compliant with the new provisions for unvented crawlspaces. Details of this modification are outside the scope of this answer and likely would not be cost-effective or practical if your only goal is to install a deck ledger.

Another option is relocating the vents — and this may be a good idea anyway. Air movement may be limited to even wide-open vents when they are located under a deck at grade level or under decks skirted to grade at the perimeter. But if you move the vents, you need to make sure there is still one opening within 3 feet of each crawlspace corner, and that the total area of openings is no less than previously existed.

It's good practice to inspect the inside of the rim for any plumbing or wiring that you don't want to dissect when cutting in the vent. As was stated earlier, assume everything has a purpose. For example, that seemingly misplaced piece of blocking against the inside of the rim could be transferring an untold load from an unknown post in the wall down to the foundation — not something you want to cut out for a vent opening.

Waterproofing Under Porch Decking

Q A customer has an older porch with tongue-and-groove decking. Part of it is over a block foundation that was once used as a coal bin. That's been converted to a room he would like to use, but water leaks into this space from the decking.

I considered using EPDM on top of plywood with sleepers and decking attached above. However, there is a door out to this porch, and there's only about a 1-inch differential between the bottom of the threshold and the top of the decking. This effectively eliminates the idea of a sleeper under the decking. What would you suggest to remedy the problem?

A Bobby Parks, owner of Peachtree Decks and Porches in Alpharetta, Ga., responds: There may be a number of solutions that would work in your situation. In all cases, you'll need to incorporate slope away from the house and install some flashing at the threshold.

The first options that come to mind avoid any significant rework. You'll have to install exterior plywood on top of the existing decking first, but deck waterproofing coatings or sheet vinyl membranes might solve the problem. Waterproofing coatings such as Lava Deck (All Weather Surfaces; 866/350-4667, allweatherhawaii.com) are brushed or mopped on over a plywood surface. Sheet vinyl membranes have an appearance similar to vinyl flooring; Duradek (800/338-3568, duradek.com) is one such product.

It may be necessary to remove the threshold and install the membrane beneath it to create a seal. However, it also may be possible to turn the membrane up and seal it in place below the threshold. Because there's a roof, this is a fairly well-protected area, and you might get away without the flashing you'd need in a more exposed spot.

Another possibility would be to replace the T&G decking with DryDeck aluminum decking (800/933-4748, xccentdecking.com). DryDeck planks snap together to create a watertight decking system that drains to the outside.

If you want to maintain the original look of the porch floor, two options come to mind. Depending on spans and joist depth, you might be able to rip down the joists by $2^1/_2$ inches to allow for installing EPDM, sleepers, and flooring. And if you've got room above the ceiling below, you might also consider one of the under-deck drainage systems, such as Dek Drain (866/335-3724, dekdrain.com) or Rain Escape (Correct Building Products; 877/348-1385, rainescape.com). ❖

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