

Vent an Island Sink

... and Other Tricky Spots

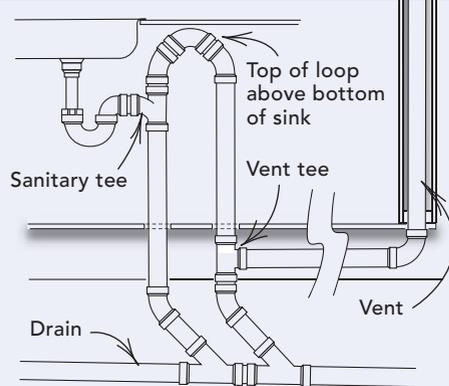
A handy one-way valve eliminates most of the plumbing work

BY LYNN UNDERWOOD

Adding a sink or a dishwasher to a kitchen island isn't quite as simple as just tapping into the water supply and the drain line. You also need to vent the drain line (usually through the roof) to keep water in the sink trap. Without this vent, water in the trap can be siphoned out when someone flushes a toilet or drains a bathtub, allowing smelly sewer gases to seep into your house. A vent pipe is easy to install in some situations, but kitchen islands (inset drawing) and many plumbing-project remodels pose some major venting challenges.

Air-admittance valves (AAVs) solve these problems elegantly. An AAV allows air to enter the drain system through a one-way valve that then closes by gravity after the sink drains. This valve keeps the water trap sealed and sewer gases out of the house.

THE OLD WAY WAS COMPLICATED



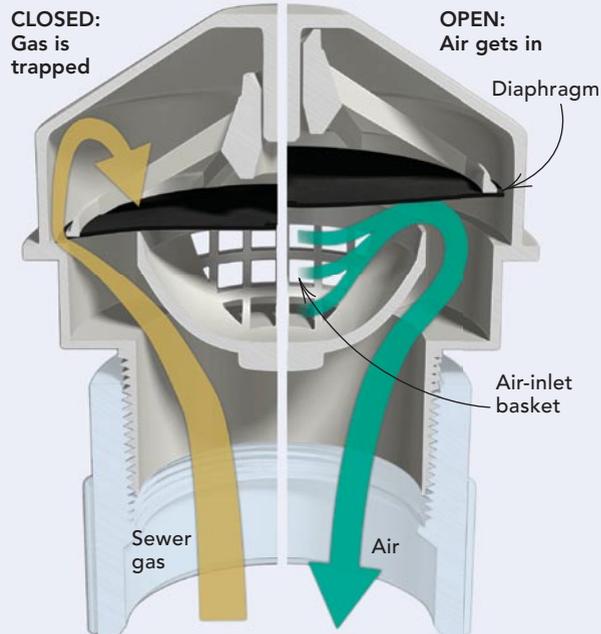
Without a direct path to the roof, venting an island meant making a loop with lots of fittings and often cutting into a wall to tie into a vent line.

Water in trap creates an air seal that keeps sewer (or septic) gases out of the house.

AIR-ADMITTANCE VALVES WORK SIMPLY AND OFFER VENTING FLEXIBILITY

Suction opens the valve, and gravity closes it

Sewer gases trying to escape seal the diaphragm to the rim of the air-inlet basket, which keeps the gases inside the pipe. When a sink is drained or a toilet flushed, this slight positive pressure is relieved because air is sucked in through the basket. This rushing air pushes up the diaphragm, connecting the basket to the drainpipe. After the flush, gravity drops the diaphragm back into place.



You can vent more than just one sink

Large AAVs
160+ DFU; \$35. Cap a main vertical vent stack in the attic and vent most fixtures in a house.

Medium AAVs
20 DFU; \$30. Can cap a vent stack in the attic or vent a high-volume horizontal branch line.

Small AAVs
6 DFU; \$25. Can vent a single horizontal branch line, such as a bathroom.



AAVs HAVE SOME LIMITATIONS

Most common fixtures can be vented with an AAV, but there are a few limitations. To work properly, an AAV must be connected to a drainage system that has at least one vent through the roof.

- AAVs must be installed vertically, at least 4 in. above the top of a sink trap, and they must be accessible, either in a cabinet, in the attic (6 in. above insulation), or behind an access panel if installed in a wall.
- AAVs must be installed where there's plenty of freely circulating air.
- An AAV can be installed onto 1¼-in. to 4-in. PVC or ABS vent pipe.
- The AAV must be sized to match the total drainage-fixture units (DFU) of the branch line it is venting. For example, a kitchen island with a sink and dishwasher totals 4 DFUs, and a bathroom is 6 DFUs.

AAVs have many other benefits, too: fewer holes to cut through framing; fewer holes to cut in your roof; and up to 75% less pipe in your house.

It's not new, but it's not conventional, either

Invented in Sweden nearly 30 years ago and used widely in Europe for the past 20 years, AAVs now are accepted in North American plumbing and building codes. AAVs are not as widely used as they could be: Many local jurisdictions have accepted AAVs as a standard fitting, but some inspec-

tors remain suspicious. It's a good idea to talk with your plumbing inspector before adopting unfamiliar technologies in your building project. The Partnership for Advanced Technology in Housing (PATH), a public-private partnership sponsored by the U.S. Department of Housing and Urban Development (HUD), listed AAVs as one of its top-10 building technologies for 2004 (*FHB* #162, "Cross Section," p. 22). □

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