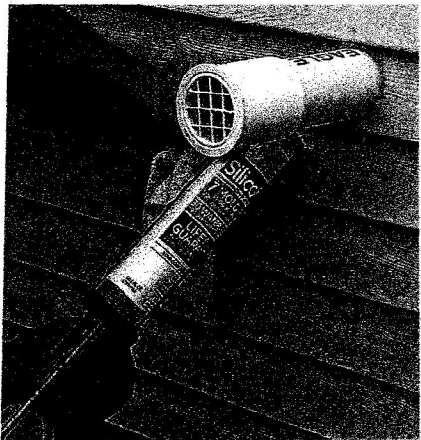




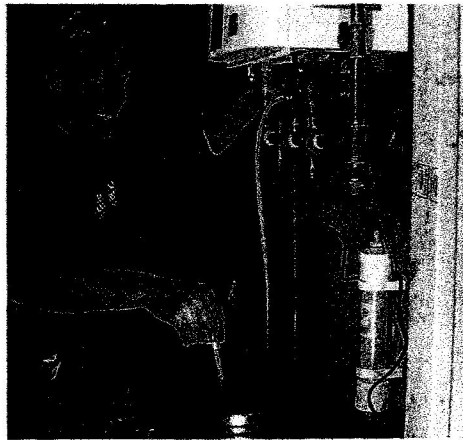
**Setting the relief valve.** Like traditional units, tankless water heaters have temperature and pressure (T&P) valves to relieve pressure in the case of a malfunction. Some have dedicated outlets; this one screws onto the hot water relief valve.



**Filling the trap.** There's a condensate trap within the heater that on some units must be filled with water before starting the unit. A small amount of water is poured into the flue-gas piping and then the combustion-air and flue-gas piping is fitted with elbows and screens to keep out rain and pests.



**Sealant is applied.** With the exterior pipe connections complete, the gap between the pipe and the siding is filled with silicone sealant.



**Time to test.** The condensate pump, the condensate neutralizer, and all the piping connections are complete, so it's time to plug in the water heater for a test. Unlike a tank-type heater, an on-demand water heater should start making hot water almost immediately.

er's specs and plan the pipe routing before determining the size of vent and combustion-piping you'll need. Generally speaking, the straighter and shorter the run, the smaller pipe diameter required. When planning the route for the flue pipe, keep in mind that for direct vent setups you need to keep the vent outlet at least 12 in. away from any operable door or window and at least 12 in. above the ground. If your area experiences heavy snow, you may have to move the intake and combustion piping higher so it doesn't get buried in the snow. These codes can vary by region in the U.S., and are more stringent in Canada,

so check with local code enforcement before moving forward with an installation.

Installing an on-demand water heater like the one shown here costs between \$2800 and \$3500, depending on the complexity of the job. My customers, who have two small children, really like how their new on-demand water heater keeps up with evening bath time, even while they're simultaneously running the dishwasher and washing clothes. □

Tom Cardillo is a plumbing and heating contractor in Hope, R.I. Photos by Patrick McCombe.

## Do you need a condensate neutralizer?

The condensing burners found in modern on-demand water heaters increase the unit's efficiency and allow you to vent the exhaust gases with inexpensive and installer-friendly plastic piping. Perhaps the only downside to these modern burners is the condensed water vapor, which is a by-product of combustion—and it's not just a matter of where to drain or pump the water. Nitric acid, a by-product of the heater's combustion, makes the water acidic. Even in a new home where all the drain pipes



Neutra-Safe condensate neutralizer \$70

are made from plastic, which is impervious to the acid's corrosive effects, you can never know what pipes down the line may be affected. The acidic water can also kill plants, and I've heard it's damaging to septic systems.

To solve the problem, I almost always install a condensate neutralizer. I used a Neutra-Safe neutralizer in this case, but there are other brands. Just make sure to choose the right filter for each install, as separate models should be used for vertical and horizontal mounting.