Q When you're mitigating radon gas, is there a way to prep a house to avoid running an ugly pipe up the exterior façade?

A *Josh Girard, who owns and operates North Country Construction, in Jericho, Vt., responds:* In retrofit situations, it's sometimes hard to avoid using an exterior pipe, but with new construction, it's fairly easy and inexpensive to do.

I build in northwestern Vermont in Radon Zone 2 where radon levels can vary widely, even from one lot to another within the same development. The predicted average indoor radon screening levels can range from 2 to 4 picocuries per liter (pCi/L)—meaning houses have a "moderate potential" for the presence of radon gas, according to the EPA. So as a matter of course with all new construction, I rough in a dedicated radon stack in every house I build in case a house tests positive for radon.

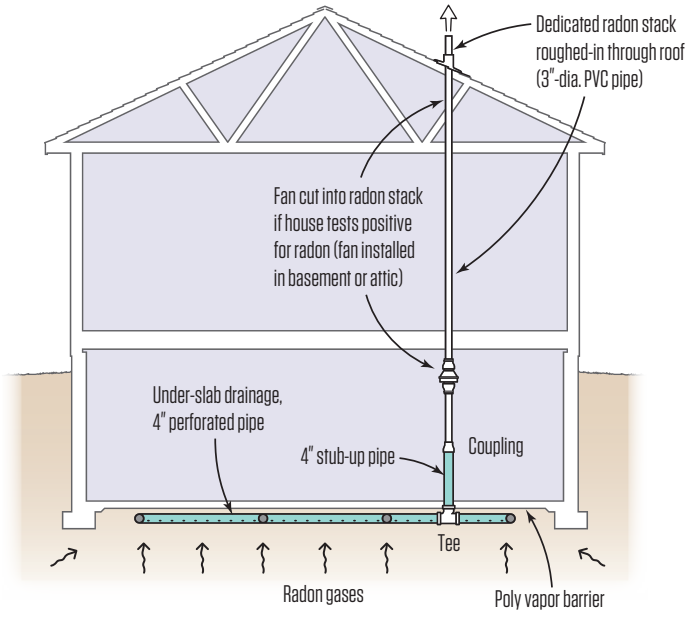
I tie the radon stack into the under-slab drainage system from the get-go. This beats a future retrofit situation of having to core through the concrete floor and install a single pipe down into the sub-slab gravel—that approach will mitigate radon gas, but it will be far less effective than tying the stack into the drainage system.

From the perforated sub-slab piping, I stub up a 4-inch piece of pipe into the basement (the poly vapor barrier is taped to the pipe and the slab is poured around it). The plumbers take it from there and reduce the pipe down to a 3-inch PVC schedule 40 vent pipe. The pipe is then typically run through the exterior wall into the attic space. From there, it's run through the roof and flashed with a standard roof vent boot.

A radon fan can be easily cut into the stack, if needed; I typically install the fans in the basement.

Although it's another roof penetration I have to account for, a dedicated stack is cheap radon-mitigation insurance. A ready-to-go remedy beats an ugly pipe run up the exterior façade every time.

Radon Stack Tied Into Under-Slab Drainage



Crew members "tee" off the under-slab drainage piping (top left) and stub-up a 4-inch pipe into the basement (top right). A 3-inch pipe is run from the basement into attic and through the roof. A radon fan is cut in, if needed (illustration).

Photos and illustration: Tim Healey

Q I have a client who is concerned about the possibility of rodent damage on a newly installed mini-split system. How can you critter-proof a heat pump condenser unit?

A *Eric Hartman, owner of Harvestar, a home performance contractor in Lincoln, Vt., responds:* In winter, when the mini-split system is in heating mode, mice have a tendency to hang out in gaps between the round insulated refrigerant lines (which are warm) and the rectangular line cover concealing them. So, it's important to close off the ends of the protective line cover.

We install Fortress line set covers to protect the refrigeration lines between the house and the outside condenser. Their end fittings are tapered and fit tightly to the refrigerant line's insulation. But mice can squeeze through pretty much everything. If a customer complains about a rodent problem, we seal gaps with a combination of steel wool mixed with silicone to thwart mice; they chew into the silicone a little bit, then hit the steel wool and quickly find a different place to go.

One last note: If you have cold-climate heat pump, it should be mounted off the ground on a stand because of snow. A side benefit to a stand is it reduces the likelihood of mice intrusion.

Heat pump stands, commonly installed today for cold-climate heat pumps, also reduce the likelihood of rodent damage; mice have difficulty climbing the thin factory-finished legs.

Photo: Tim Healey