

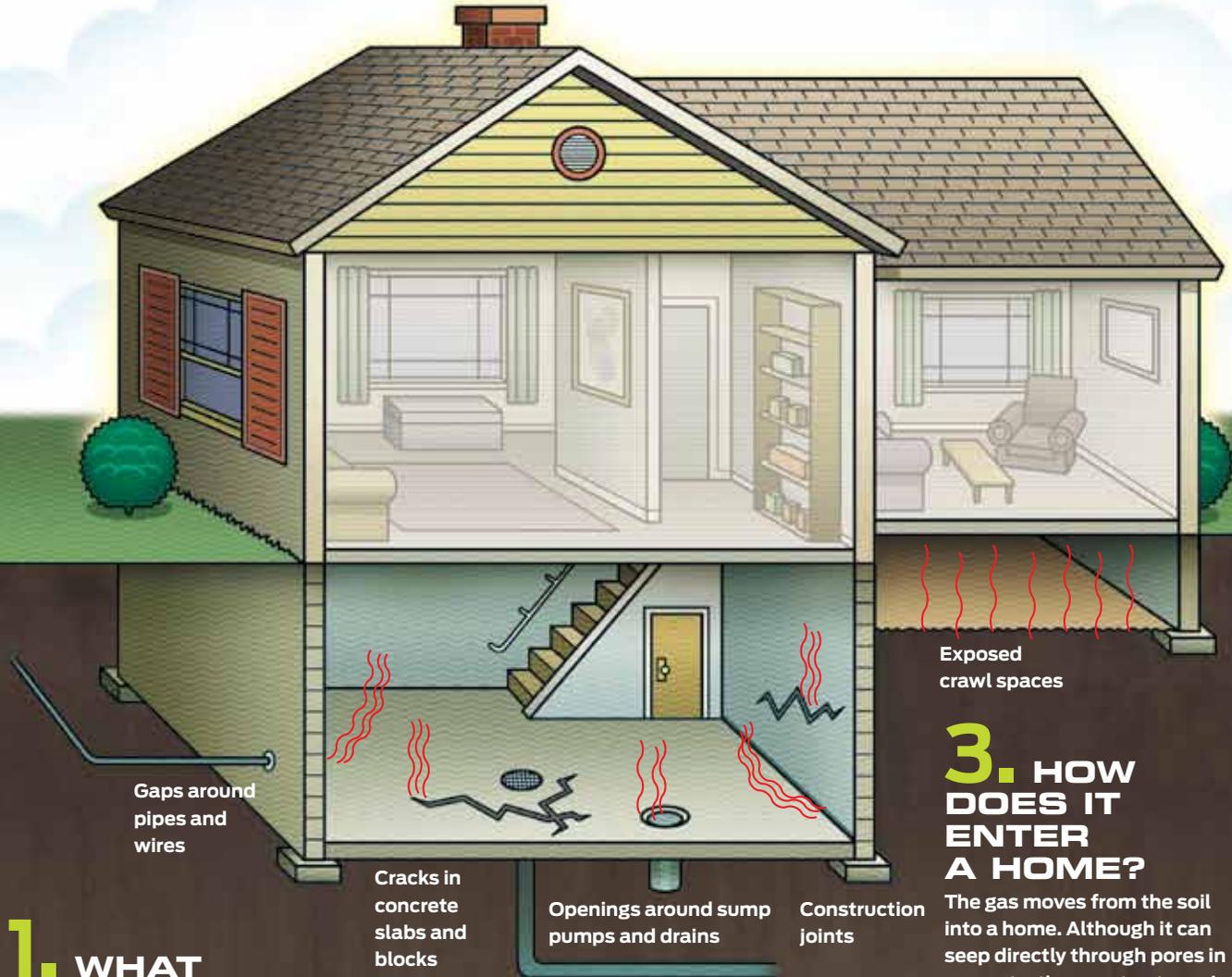
RADON

Straight answers to six key questions

A decade ago, media hype caused both panic and skepticism about the risks and effects of radon. Now, better research has made two things clear: Elevated levels of radon over a long period of time can cause lung cancer, and there are effective ways to reduce these levels.

While questions still remain over the quantities

and length of exposure, radon concerns are a fact of homeownership. Most residential real estate transactions require radon testing, and many states require radon mitigation for new construction. This article will help you figure out whether your home has risky radon levels and what you can do to reduce them.



1. WHAT IS RADON?

Radon is a colorless, odorless radioactive gas that's produced by decaying uranium. It's present in nearly all soils, and very low levels of radon are found in the air we breathe every day.

2. WHY IS IT A PROBLEM?

The problem occurs when radon gas enters your home and gets trapped. Long-term exposure to high levels of radon can cause lung cancer.

3. HOW DOES IT ENTER A HOME?

The gas moves from the soil into a home. Although it can seep directly through pores in concrete, the worst entry points are gaps in walls and floors. Any house, of any age, in any state can have elevated radon levels. It really depends on the way your specific house interacts with the surrounding soil. Your neighbor's radon level may differ significantly from yours.

by Elisa Bernick, editors@thefamilyhandyman.com

4. HOW DO I TEST FOR RADON?

Conduct the test in the lowest livable area of your house that is regularly used 8 to 10 hours per week.

Short-term tests are useful to see if further testing is warranted. Most are activated charcoal-based or electret ion that measure radon levels for two to seven days. You mail the tests to a lab for the results.

Short-term tests are available for \$10 to \$50 at home centers, hardware stores and online retailers. Visit rtca.com for more information.

Long-term tests measure levels for 90 days to one year. Most, such as this **AccuStar** test (about \$24), are based on alpha particle tracking. This is a more accurate indicator of

average annual levels in your home, which can vary significantly from day to day and month to month based on factors such as a drop in air pressure, gusty winds, variable soil moisture, and snow cover, which traps radon gases.

The AccuStar test is available through state radon agencies, accustarlabs.com and online retailers.

Continuous electric monitors, such as the **Safety Siren Pro Series digital meter** (\$130 from online retailers), plug into a standard outlet. These monitors can be used for both short- and long-term testing and give you a running average. They use an ionization chamber and sample the air continuously. Consider sharing the monitor and costs with neighbors.



Radon Testing Corporation of America's short-term charcoal canister, \$47 for a two-pack



AccuStar Alpha Track long-term radon test, \$24

Safety Siren Pro Series 3 digital continuous radon meter, \$130



DIY ADVICE FROM AN EXPERT



Val Riedman has owned and operated a handyman/construction company since 1999. He became certified as a Radon Mitigation Tech in 2004 and started his DIY Web services in 2008.

According to radon mitigation expert Val Riedman, a skilled DIYer can usually install a fan and exhaust system (see "The Ultimate Solution," p. 60) for about \$400.

"I've helped hundreds of DIYers reduce their radon levels to acceptable levels," says Riedman. "And while installing a radon mitigation system isn't always a simple project, DIYers with the right information, a working knowledge of tools, and an understanding of their home's construction techniques can install an effective system."

Riedman says houses that are good candidates for a DIY system have a basement that sits on top of a gravel base or have a sump system and drain tile. If you're not sure what's underneath your basement or you have a dirt crawl space, Riedman can walk you through testing and alternative mitigation scenarios. He offers free consulting advice and step-by-step guides to DIYers interested in buying radon fans and other specialized equipment from his Web site, indoor-air-health-advisor.com.

"If you're considering installing a radon mitigation system yourself," says Riedman, "it's very important to know what you're doing so you don't increase radon levels or cause combustion appliance backdrafting, which can increase carbon monoxide levels in your home."

Other good DIY resources are your state's radon office and the EPA's detailed guides at epa.gov/radon/pubs.

5. WHEN SHOULD I TAKE ACTION?

The EPA recommends doing a second test if an initial short-term test registers 4 picoCuries per liter (pCi/L) or higher. A long-term test will give you the most accurate information, but a short-term test is acceptable if you need the results quickly, such as for a real estate transaction, or your first levels registered 8 pCi/L or higher.

If a second test registers above 4 pCi/L, consider taking steps to reduce radon levels in your home.

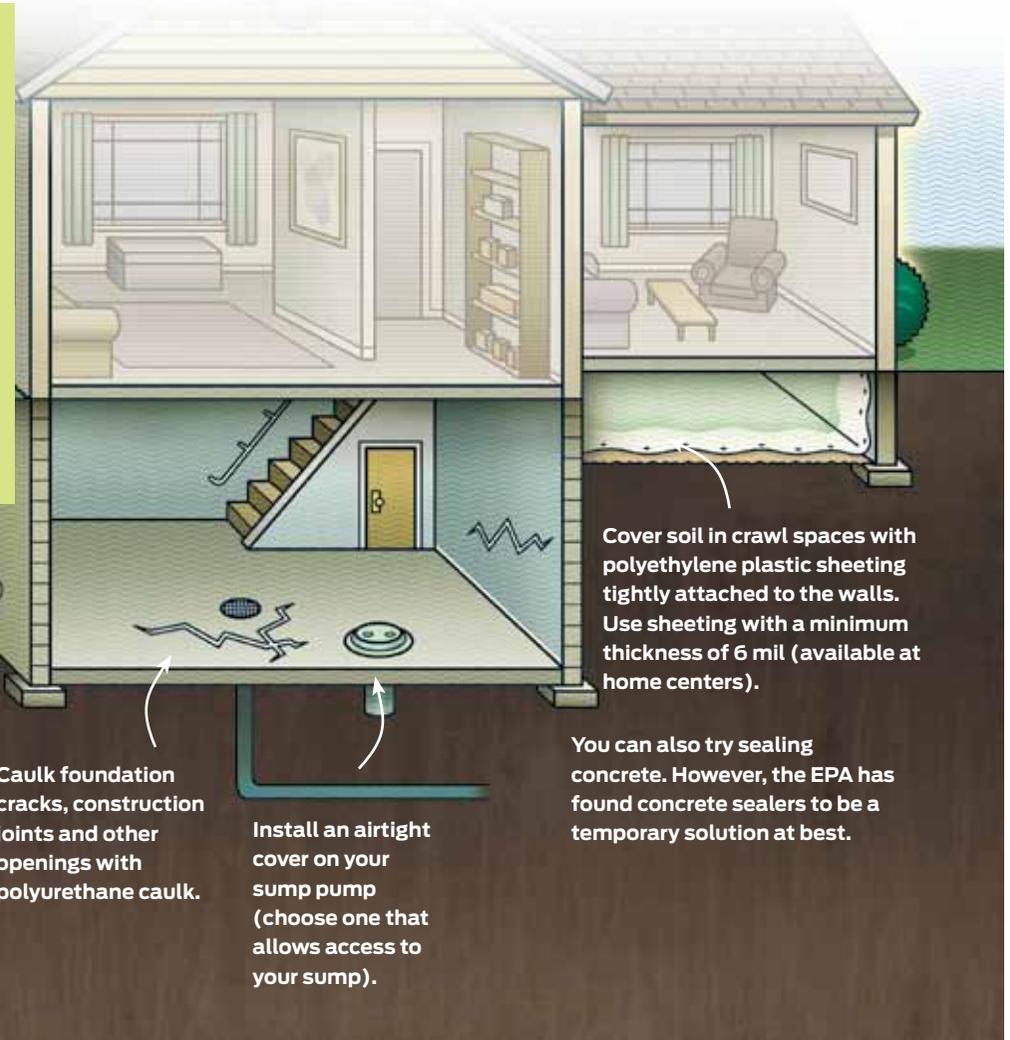
Don't Panic

Act, but don't overreact. The risks from radon are cumulative, which means serious effects result from exposure to high levels over a long period of time. It is prudent to test radon levels and decide on a course of action. But you don't have to move out of your house or hire the first contractor who can fix the problem. For more information, contact your state radon office at epa.gov/radon/whereyoulive.html.

6. HOW DO I REDUCE RADON LEVELS?

Try these easy repairs to reduce radon levels. These efforts alone rarely reduce levels significantly, but if your level is only slightly elevated, these repairs might make the difference. They will also make other radon reduction methods more effective and cost efficient.

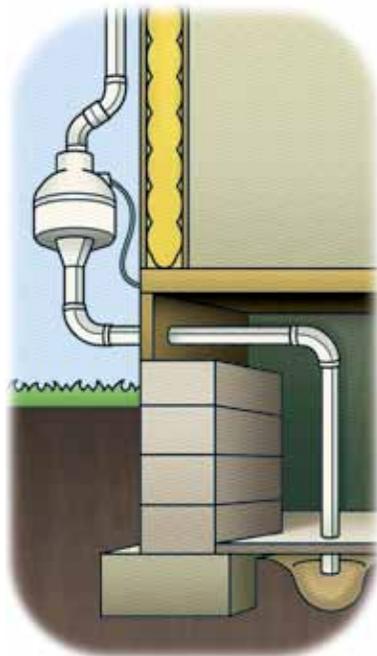
Once you've tackled these, retest. If levels are still high, consider installing a radon mitigation system yourself or hire a pro.



The ultimate solution

The most effective system is a vent pipe placed in the sump pit (if you have a sump pump) or a hole made under your concrete floor slab. A special in-line radon fan is placed in the attic or outside the house to draw air through the vent and radon from under the basement floor. The easiest method is to run the vent out the side of the house and up to the eaves as shown here. You can also run the vent up through the house and out the roof, which is a lot more work and cost, but it looks better.

Pros usually charge \$800 to \$2,000 to install a radon mitigation system, depending on your home and your radon levels. Your state radon office will have a list of qualified contractors.



“I created a radon problem when I insulated my crawl space and blocked some vents. Moving some insulation was all it took to clear up our problem. My advice is to try the simple solutions first.”

Matt Haun, Field Editor