

Why Every Homeowner Should Understand Radon Gas Risk

The invisible threat under your feet

If you have lived in the Midwest long enough, you have probably heard someone say that radon is just one of those things you test for when you buy a house. You sign the disclosure, mail off a little plastic puck, and forget about it until the report comes back. That is the standard story, anyway. But after spending years in the field performing radon testing and mitigation across Jefferson County, I can tell you that the real picture is less tidy and far more important than most people realize.

Radon is a radioactive gas that forms naturally when uranium in soil and rock breaks down. It has no color, no smell, and no taste. The only way to know it is there is to measure it. And because it moves up through the ground and into buildings through cracks in foundations, gaps around pipes, and openings in crawl spaces, the radon gas risk in one home can be completely different from the risk in the house next door. That is why generalized advice from a realtor or a friend who "tested once" is never enough.

What the EPA says and what it means for you

The EPA has set an action level of 4.0 picocuries per liter (pCi/L) of air. If your home measures above that, they recommend fixing it. But here is the nuance that does not get repeated enough: the EPA also says there is no safe level of radon. Even readings below 4.0 pCi/L carry some health risk, and the risk increases with long-term exposure. The EPA estimates that radon causes about 21,000 lung cancer deaths per year in the United States, making it the second leading cause of lung cancer after smoking.

For homeowners in areas like Arnold, Festus, High Ridge, and Hillsboro, this is not abstract. Jefferson County sits on geology that can produce elevated radon levels. I have tested homes in High Ridge that came back at 8 pCi/L and others a few blocks away that were under 2. That kind of variability is normal, and it underscores why every home needs its own measurement. Relying on a neighbor's test result is like guessing the temperature in your kitchen based on the thermometer in your garage.

Testing is the only honest starting point

There are two main ways to test a home for radon: short-term and long-term. A short-term test usually lasts two to seven days and uses a charcoal-based test kit. These are affordable and widely available, and they give you a quick snapshot. But because radon levels fluctuate with

weather, season, and how the house is being used, one short-term test can miss the bigger trend. That is where a long-term test or a continuous radon monitor becomes valuable. A continuous radon monitor plugs into a wall and records radon levels over weeks or months, giving you a much clearer picture of the actual average concentration.

During a home inspection for a sale, a short-term test is often the only practical option because of time constraints. But if you are testing your own home for peace of mind, I recommend running a long-term test for at least 90 days. Many people do not realize that the [radon gas risk](#) they are trying to understand is an average exposure over years, not a peak reading during one rainy week. A long-term measurement accounts for that variability and gives you data you can actually trust.

In my years with Air Sense Environmental, I have seen homes where the seller tested in summer with the windows open and got a low result. Then the buyer tested in winter with the house sealed up, and the number came back above the action level. Neither test was wrong, but only one reflected the living conditions that matter most. If you are buying a home in Arnold or Festus, insist on a test that represents the home under closed-house conditions, meaning windows and doors shut, normal occupancy, and no running fans that draw outdoor air in.

Mitigation is about engineering, not luck

If your test comes back high, the next step is radon mitigation. This is not a DIY job. Effective radon reduction requires understanding how air moves through a building and how to create a pressure difference that keeps soil gas out. The most common method is sub-slab depressurization, sometimes called soil suction. A contractor drills a hole through the basement floor or crawl space slab, installs a pipe that runs up through the house, and attaches a fan that vents the radon-laden air above the roofline. The fan runs continuously, creating negative pressure under the slab so that radon is pulled out before it can enter the living space.

There are variations, of course. In a home with a crawl space instead of a full basement, the approach might involve a sealed membrane on the dirt floor combined with a vent pipe and fan. In slab-on-grade construction, the system goes in much like it would in a basement. The key is that every system is designed for that specific house. A good radon mitigation contractor will perform diagnostic testing before and after installation to make sure the system is working. A common benchmark is to reduce radon levels below 2 pCi/L, which gives a healthy margin under the EPA action level.

I have seen homes in Hillsboro where the first mitigation attempt failed because the fan was undersized for the soil type. And I have seen homes in High Ridge where a simple seal of the sump pit and a properly placed fan brought levels down by 90 percent. The equipment matters.

Reputable brands like RadonAway make fans that are designed to run for years with minimal maintenance, and they are the standard in the industry. A cheap fan from a big-box store is not a substitute for a purpose-built radon fan.

Where do you start?

If you are reading this and wondering about your own home, the first step is easy: get a test kit. You can buy one online, from a hardware store, or through a service like Air Sense Environmental that also offers analysis and follow-up. If you are in Jefferson County, you can also contact your county health department for information. But do not let the testing sit on your to-do list. Radon does not give you a second chance. The radon gas risk is real, and it is cumulative. A year of living with elevated radon is a year of unnecessary exposure.

If you test and find levels below the action level, that is great news. But if you test and find levels above, do not panic. Radon mitigation is a well-understood process, and most homes can be fixed for a cost comparable to a minor appliance replacement. It is not cheap, but it is far cheaper than the alternative. And once the system is in, maintenance is minimal. Check the fan every year, make sure the vent pipe is clear, and retest every two years or after any major structural work.

The quiet habit that makes a difference

One thing I tell every homeowner is this: treat radon testing like changing the batteries in your smoke detector. It is not a one-and-done task. Renovations, foundation settling, and changes to your heating system can all affect how radon enters your home. A house that tested fine in 2018 could have a problem in 2025 if a new patio or a French drain changed the soil pressure around the foundation.

I also encourage people to buy a continuous radon monitor if they are serious about long-term awareness. These devices sit on a shelf or countertop and give you a real-time reading. They are not as accurate as a laboratory-analyzed test kit for a single snapshot, but they are excellent for spotting trends. Some of them even connect to your phone. If you see a spike after a heavy rain or during a cold snap, you know something changed. That kind of awareness turns a once-a-year worry into a background habit, and that is where real protection lives.

In the end, understanding radon gas risk comes down to a simple truth: you cannot fix what you have not measured. And you cannot measure it once and call it done. The geology under Jefferson County does not change, but the path radon takes into your home can shift over time. Stay curious, stay consistent, and if you ever need help, call someone who does this work every day. There is no shame in asking for a professional opinion, especially when it comes to the air your family breathes.