

Why Accurate Radon Measurement Matters for Your St. Louis Home

When I first moved into my home in St. Louis, Missouri, I had the usual checklist of worries: roof condition, foundation cracks, water heater age. Radon gas never crossed my mind. It wasn't until a neighbor mentioned her basement test results that I started paying attention. What I learned over the following months changed how I think about indoor air quality and why reliable radon measurement is worth understanding for any homeowner in this region.

Radon is a radioactive gas that comes from the natural decay of uranium in soil, rock, and water. You can't see it, smell it, or taste it. The only way to know if it's present in your home is through testing. The EPA estimates that radon causes thousands of lung cancer deaths each year, and it's the second leading cause after smoking. For anyone living in an area with moderate to high radon potential, and St. Louis sits in a zone where testing is strongly recommended, getting a real picture of your indoor radon levels is not just a checkbox item. It's a serious health decision.

People often ask me what the difference is between a simple test kit you buy at the hardware store and a professional [radon measurement](#). The short answer is that both can give you a number, but not all numbers are equally useful. A short-term radon test, such as a charcoal canister or an alpha-track detector, can provide a snapshot of radon levels over two to seven days. These are inexpensive and easy to use. However, radon levels can fluctuate wildly with weather, time of day, and how your home is ventilated. A single short-term test might catch a low point or a high spike, giving you a result that doesn't represent your long-term average exposure.

That's where continuous monitoring comes in. A continuous radon monitor is an electronic device that takes readings over hours or days, recording changes and averaging them into a more reliable result. Air Sense Environmental, a professional radon testing service based in St. Louis, uses continuous monitors for exactly this reason. They place the device in the lowest livable level of the home, run it for a minimum of 48 hours under closed-house conditions, and provide a detailed report. The difference in confidence between a single charcoal canister result and a continuous monitor result is substantial. I have seen cases where a homeowner tested with a short-term kit, got a reading just below the EPA action level of 4 picocuries per liter, and assumed everything was fine. A follow-up professional radon test using a continuous monitor showed average levels well above that threshold, because the first test happened during an unseasonably warm week when windows were open more than normal.

Understanding Radon Zones and Local Risk

The EPA publishes a radon map of the United States that divides counties into three zones based on predicted average indoor radon levels. Zone 1 has the highest potential, Zone 2 moderate, and Zone 3 low. St. Louis City and St. Louis County are both designated as Zone 1. That means the predicted average indoor radon level is greater than 4 pCi/L. But a map is only a guide. Individual homes within the same neighborhood can have very different results. The only way to know your actual exposure is through testing.

Missouri's geology is part of the reason. The state sits on ancient granite and sedimentary rock that contains uranium. As that uranium decays, radon gas moves through the soil and can enter homes through cracks in the foundation, sump pumps, crawlspaces, and even through well water. The Missouri Department of Health and Senior Services has long recommended testing for radon in homes, and many local health departments offer low-cost test kits. Still, the most actionable information comes from a thorough, professionally conducted radon level measurement that accounts for seasonal and daily variation.

Short-Term vs. Long-Term Testing

There are two main categories of radon tests: short-term and long-term. A short-term radon test typically lasts between two and seven days. The most common devices are charcoal canisters and alpha-track detectors. Charcoal canisters absorb radon gas and are sent to a lab for analysis. Alpha-track detectors use a plastic film that records alpha particles from radon decay. Both can give you a useful initial reading, especially if you need quick results for a real estate transaction.

Long-term radon tests run for 90 days to a full year. These are better for understanding your true average exposure because they smooth out the seasonal peaks and valleys. Alpha-track detectors are also used for long-term tests. The trade-off is time. If you are buying or selling a home, you rarely have months to wait. In that case, a continuous radon monitor used by a professional tester can give you a reliable result in 48 to 72 hours, combining the speed of a short-term test with the accuracy of a longer sampling period.

I have seen homeowners opt for a short-term kit, get a borderline result, and then do nothing because they weren't sure what to do next. That uncertainty is dangerous. A professional radon measurement doesn't just give you a number. It comes with context and recommendations. For example, if your test shows levels between 2 and 4 pCi/L, the EPA suggests considering mitigation. Above 4 pCi/L, action is strongly recommended. A professional tester can explain the results in plain terms and point you toward qualified contractors for radon mitigation if needed.

What Happens After a High Reading

If your radon test comes back above 4 pCi/L, the next step is radon mitigation. This usually involves installing a sub-slab depressurization system, which pulls radon from beneath the foundation and vents it outside before it can enter the home. The process is straightforward for most houses, but it requires a contractor who understands radon in homes and knows the local building codes. In St. Louis, many mitigation companies work closely with testing services like Air Sense Environmental to ensure that the system is designed to address the specific conditions of your home.

After mitigation, a follow-up radon test is essential to confirm that levels have dropped. This is where a continuous radon monitor really proves its value. You want to see that the system is working consistently, not just during a single favorable weather window. The EPA and most health departments recommend testing again every two years or after any major renovation that affects the foundation.

One thing I often point out to homeowners is that radon remediation is not a one-size-fits-all solution. The type of foundation, the soil composition, and even the layout of the home can affect which approach works best. That is why professional radon testing is such a critical first step. It gives you the data you need to make informed decisions, not just guesses.

Choosing a Radon Detector for Your Situation

If you decide to test on your own, the market offers many radon detectors. Some are single-use charcoal canisters that you mail to a lab. Others are digital continuous monitors that you can buy and use repeatedly. The digital ones are convenient, but they cost more upfront and require regular calibration to stay accurate. The alpha-track detector is a solid middle ground for long-term testing. It is passive, does not need power, and is relatively inexpensive.

For a person who wants the most reliable result in the shortest time, especially when buying or selling a home, hiring a professional is the best route. A professional radon testing service will place a calibrated continuous monitor, follow EPA protocols for closed-house conditions, and provide a report that is recognized by real estate agents, lenders, and health departments. In St. Louis, the local real estate market often requires radon testing as part of a home inspection, and having a professional radon measurement on hand can speed up the transaction and give everyone confidence.

The Bigger Picture on Radon Gas

Radon gas is a natural hazard, but it is a manageable one. The first step is always a reliable measurement. Without that, you are flying blind. The second step is understanding what the number means for your family's health and your home's value. The third step is acting on that

knowledge, whether that means installing a mitigation system, sealing cracks, or simply testing again after a renovation.

I have seen too many people skip the testing step because they assume their home is fine or because they tried a cheap kit years ago and forgot about it. Radon levels can change over time as the soil settles, as the house shifts, and as you change your living habits. A new addition, a finished basement, or even a new HVAC system can alter how radon enters and moves through your home.

For homeowners in Missouri, especially in St. Louis and the surrounding counties, radon measurement is not a niche concern. It is a straightforward, affordable way to protect your health and your investment. Whether you choose a short-term test, a long-term test, or a professional continuous monitor, the most important thing is to test. Get a baseline. Understand your risk. Then decide what to do next.

If your test results come back low, you can breathe a little easier. If they come back high, you now have the information you need to fix the problem. Either way, you are better off than before you tested. That is the real value of a good radon measurement: it replaces worry with knowledge.