

Understanding Radon in Basement: A St. Louis Homeowner's Guide

If you own a home in St. Louis, Missouri, you have likely heard about radon gas. It is a naturally occurring radioactive gas that comes from the decay of uranium in soil and rock. While it can be found anywhere, the geology of our region makes it a more common concern. The real worry for most homeowners is not radon in the open air of the main floor, but rather the potential for elevated radon in basement spaces. This article draws on years of local testing experience to help you understand the risks, the testing process, and what to do if your home has a problem.

Why the Basement Matters Most

The basement is the primary entry point for radon gas into a home. Radon moves from the soil into the lowest level of a house because of the pressure difference between the house and the ground. Warm air rising inside the house creates a slight vacuum, pulling soil gases up through any opening in the foundation. That means cracks in foundation slabs, gaps around pipes, and even the sump pump opening can become radon entry points. The longer radon gas has to accumulate in a closed space, the higher the concentration can become. That is why radon in basement areas is almost always higher than in upper floors, and why it demands the most attention.

In my years testing homes across St. Louis and Missouri, I have seen [radon in basement](#) readings range from negligible to well above the EPA action level of 4.0 picocuries per liter. The variation depends on soil type, home construction, and how well the basement is sealed. A house built on a slab with no sub-slab ventilation can trap radon easily. A house with a crawl space might have lower levels, but not always. The only way to know is to test.

Testing for Radon: Short-Term vs. Long-Term

When people call about radon testing, they often ask whether a quick test is enough. The answer depends on your goal. A short-term test, usually lasting two to seven days, gives a snapshot. It is useful for a real estate transaction or if you just want a quick check. But radon levels fluctuate with weather, season, and how much you run the furnace. A short-term test can miss a spike or overstate the average.

A long-term test, running for more than 90 days, provides a much more accurate picture of your annual average exposure. The EPA recommends long-term testing for the most reliable results. For St. Louis homeowners who are not in a hurry, I suggest a long-term test first. If you are

buying or selling a home, a short-term test is standard, but make sure it is placed correctly in the lowest livable level. That usually means the basement, not a closet or a garage.

You can buy a radon test kit at a hardware store or order one online. These kits are affordable and simple to use. You place the detector in the basement, leave it for the required time, and mail it to a lab. The results come back in a few weeks. For more immediate answers, some companies like Air Sense Environmental offer testing with a continuous radon monitor. This device sits in the basement for a set period and records radon levels hour by hour. It gives you a detailed picture of how radon in basement spaces changes over time, which is especially helpful if you suspect a problem or need fast results for a real estate closing.

What the Numbers Mean

Once you have your test results, the next question is what to do. The EPA action level is 4.0 picocuries per liter (pCi/L). If your test shows radon levels above this number, the EPA recommends fixing your home. But even levels between 2.0 and 4.0 pCi/L carry some risk, and many homeowners choose to reduce them. Radon is the second leading cause of lung cancer after smoking, so it is not something to ignore.

If your test shows low levels, you should still retest every few years. Soil shifts, home renovations, and changes in heating systems can all affect radon in basement concentrations. A house that was fine five years ago might not be fine now.

Reducing Radon: Practical Steps

If your test reveals elevated radon levels, do not panic. Mitigation is straightforward and usually not as expensive as people fear. The most common and effective method is sub-slab depressurization. A contractor drills a small hole through the basement floor, installs a pipe that runs from below the slab up through the roof, and attaches a fan that runs continuously. This fan creates a vacuum beneath the slab, pulling radon gas away from the house and venting it safely outside. It is a proven system that works for most homes.

Other steps can help as part of a comprehensive approach. Sealing basement floors and walls reduces the number of radon entry points. Caulking cracks in foundation slabs and around pipes is a good do-it-yourself project. Improving basement ventilation can also help dilute radon levels. If you have a sump pump, make sure the lid is sealed tightly. A radon mitigation system is the most reliable solution, but these smaller steps can make a difference, especially if your radon levels are only slightly above the action level.

I have seen homes where sealing cracks alone brought levels down from 5.0 pCi/L to 3.0 pCi/L, which is below the action level. But I have also seen homes where sealing did almost nothing because the main entry point was a large gap around the sump pump or a floor drain. Every

house is different. That is why a professional assessment is valuable. A qualified tester can identify the main radon entry points and recommend the best fix.

Choosing a Radon Detector and Testing Service

When it comes to choosing a radon detector, you have options. Passive detectors, like charcoal canisters or alpha-track detectors, are inexpensive and reliable. They require no electricity and can be placed anywhere. Active detectors, like continuous radon monitors, give you real-time data and can show you how levels change throughout the day. For a one-time test, a passive detector is fine. For ongoing monitoring or for a situation where you need results quickly, an active monitor is better.

If you prefer to hire a professional, look for a company that uses certified testers and follows EPA protocols. Air Sense Environmental, for example, provides radon testing in St. Louis, Missouri, using continuous radon monitors. Their approach gives you a detailed report with clear results and next steps. That kind of service is especially helpful if you are selling a home and need to provide a test report to the buyer, or if you have already taken mitigation steps and want to verify they worked.

A Few Things to Watch For

Over the years, I have noticed a few common mistakes people make when testing for radon in basement areas. First, they place the detector too close to a window or door. The detector should be in a lived-in space, at least 20 inches above the floor, away from drafts and direct sunlight. Second, they test during a period of heavy rain or snowmelt. Wet soil can temporarily block radon from entering the house, giving a false low reading. Third, they forget to keep windows and doors closed for 12 hours before the test starts and throughout the test period. This is critical for short-term tests.

Another mistake is assuming that a radon mitigation system is ugly or expensive. Modern systems are designed to be discreet. The pipe runs up the side of the house or inside a closet, and the fan is usually mounted outside or in the attic. Most installations cost between \$800 and \$1,500, which is a small price for peace of mind and long-term health.

Final Thoughts

Radon is a serious issue, but it is also a manageable one. The first step is testing. If you own a home in St. Louis, Missouri, and you have never tested for radon in basement spaces, I strongly encourage you to do so. It is simple, inexpensive, and could protect your family from a silent threat. If you find elevated levels, do not delay. Mitigation systems are effective and can often

be installed in a single day. And even if your levels are low, retesting every few years will keep you informed as conditions change.

I have walked into basements that smelled damp and musty, and after a radon test, discovered levels well above the action level. I have also walked into dry, finished basements that tested perfectly safe. You cannot judge radon by smell or sight. Only a proper radon test kit or a professional continuous radon monitor can tell you the truth. Once you know, you can act. And acting is the best thing you can do for your home and your health.