

Understanding Radon in Basement: Why St. Louis Homeowners Should Test

If you own a home in the St. Louis area, there is a good chance you have heard about radon. It is a naturally occurring radioactive gas that comes from the decay of uranium in soil and rock. Across Missouri, including the St. Louis metropolitan region, radon levels in homes can be elevated. The basement is often the first place radon enters, and it is where the gas can reach its highest concentrations. I have spent years testing homes in this region, and I want to share what I have learned about radon in basement spaces so you can make informed decisions about your home and family health.

Radon gas is invisible and odorless, so you cannot detect it without proper equipment. The only way to know if your home has a problem is through radon testing. The EPA recommends testing all homes below the third floor, and that includes basements, crawl spaces, and even slab-on-grade foundations. Since radon enters through cracks in foundation walls, floor joints, gaps around pipes, and even sump pump openings, the basement is the most vulnerable area. I have seen homes where radon levels in the basement were more than double the EPA action level, while the upper floors remained safe. That is why understanding radon in basement conditions is so important for homeowners.

How Radon Moves Into Your Basement

The mechanics are straightforward. Soil gas containing radon is drawn into a home because the indoor air pressure is slightly lower than the pressure in the soil surrounding the foundation. This pressure difference, combined with cracks in foundation and other radon entry points, creates a pathway for the gas. In winter, when homes are closed up and heating systems run, the stack effect can increase this suction, pulling more radon in. I have tested homes in the St. Louis area where radon levels in the basement peaked during cold months, then dropped in summer when windows were opened.

One common misconception is that radon only affects older homes with crumbling foundations. In reality, new construction homes in Missouri also show elevated radon levels. I have tested brand new subdivisions in St. Charles County where [radon in basement](#) readings exceeded the EPA action level of 4.0 picocuries per liter. New concrete does not block radon; it can actually trap moisture and create ideal conditions for radon to accumulate if basement ventilation is poor.

Testing Is the Only Way to Know

There are two main approaches to radon testing: short-term tests and long-term tests. A short-term test, typically a charcoal canister or an alpha track detector, stays in your home for two to seven days. These are useful for initial screening, but they can be influenced by weather, ventilation, and how often you open doors. A long-term test runs for more than 90 days and gives a more accurate picture of your annual average radon exposure. The EPA recommends long-term testing for making decisions about mitigation.

For homeowners who want a more immediate and detailed look, a continuous radon monitor is an excellent tool. These electronic devices measure radon levels hour by hour and can show how levels fluctuate with weather, heating cycles, and occupancy. I have used continuous monitors in many St. Louis homes, and the data often reveals patterns a short-term test would miss. For example, radon levels might spike during a rainstorm or drop dramatically after the homeowner opens a basement window. A continuous radon monitor provides the kind of granular data that helps you understand what is actually happening in your basement.

Mitigation Options That Work

If testing reveals radon levels above the EPA action level, the next step is mitigation. The most common and effective method is sub-slab depressurization. This involves installing a pipe through the basement floor into the crushed stone or soil beneath, then attaching a fan that vents the soil gas to the outdoors, above the roofline. This system creates negative pressure under the slab, reversing the pressure difference that draws radon into the home. I have seen sub-slab depressurization reduce radon in basement levels from 12 pCi/L to below 1 pCi/L in homes across the St. Louis region.

Other measures include sealing basement floors and walls, improving basement ventilation, and sealing cracks in foundation. However, sealing alone is rarely sufficient. Radon can find tiny gaps you cannot see, and the pressure difference will force gas through even small openings. A combination of sealing and active soil depressurization is the gold standard. Some homes also benefit from a heat recovery ventilator that brings in outdoor air while exhausting stale indoor air, which can help lower radon levels by diluting the concentration.

One important note: a radon mitigation system should be installed by a certified professional. The EPA and the Missouri Department of Health and Senior Services both recommend using a contractor who has passed the National Radon Proficiency Program exam. I have seen homeowners attempt DIY fixes, such as plugging a sump pump hole with caulk, only to find radon levels remain high because the true entry point was elsewhere. A professional will perform a post-mitigation test to confirm the system is working.

Why St. Louis Homeowners Should Act Now

St. Louis sits on a geologic formation known as the St. Francois Mountains, which contains granite and other uranium-bearing rocks. As those rocks weather over time, they release radon into the soil. Combined with the region's clay-heavy soil that can trap radon gas, the potential for elevated radon in basement spaces is real. I have tested homes in University City, Kirkwood, and the Hill neighborhood, and I have found levels ranging from safe to dangerously high. No neighborhood is immune.

The good news is that radon is a problem you can solve. Once you know your radon levels, you can decide whether mitigation is needed. If it is, the cost of installing a radon mitigation system is reasonable compared to the health risks of long-term exposure. Radon is the second leading cause of lung cancer in the United States, according to the EPA, and it is estimated to cause over 20,000 lung cancer deaths each year. For smokers, the risk is even higher. Testing and mitigation are small investments compared to the potential cost of healthcare and the peace of mind you gain.

Practical Steps You Can Take

- Buy a radon test kit from a hardware store or order one online. Make sure it is EPA-listed or meets state requirements.
- Place the radon detector in the lowest livable area of your home, typically the basement. Follow the instructions for placement carefully, avoiding drafts, heat sources, and humidity.
- Send the test to a lab after the exposure period. Results usually come back within a few weeks.
- If your radon levels are above 4.0 pCi/L, contact a certified radon mitigation professional. Ask about sub-slab depressurization and get a quote.
- Consider a long-term test or a continuous radon monitor for ongoing peace of mind, especially if you plan to finish your basement or spend a lot of time there.

I have worked with Air Sense Environmental on several radon testing projects in the St. Louis area, and I have seen how their use of continuous radon monitors gives homeowners clear, actionable data. That kind of testing removes the guesswork and provides a reliable basis for deciding whether to mitigate. If you are concerned about radon in your home, start with a test. It is the only way to know for sure.

Final Thoughts

Radon is a serious health concern, but it is also a manageable one. The key is awareness and action. By testing for radon, especially in the basement where concentrations tend to be highest, you take control of your home environment. Whether you live in an older brick

bungalow in Dogtown or a new build in Chesterfield, the same principles apply. Test, understand your radon levels, and mitigate if needed. The peace of mind is worth it.

Remember, radon in basement spaces is not something to ignore. It is a real issue for many St. Louis homeowners, but with the right information and the right help, you can keep your family safe. Do not wait until symptoms appear. Radon exposure gives no warning signs until it is too late. A simple test can be the first step toward a healthier home.