

When Radon in Basement Levels Spike: What Homeowners Should Know

Understanding the Problem Beneath Your Feet

If you own a home in St. Louis, you have probably heard about radon. It is a naturally occurring radioactive gas that comes from the breakdown of uranium in soil and rock. The gas moves up through the ground and can enter your house through cracks in the foundation, gaps around pipes, or sump openings. Because basements are the lowest living space in most homes, they are where radon tends to accumulate first. Testing for radon in basement areas is not just a good idea, it is the only way to know if you have a problem before it becomes a health risk.

I have spent years working with radon mitigation systems in the St. Louis area, and I have seen how misleading a single test result can be. Radon levels fluctuate with weather, soil moisture, and even how much you run your furnace. A test done in July might show safe levels while the same basement in January could be much higher. That is why the EPA recommends testing every two years, and especially after any major renovation or change to your heating system. But testing alone does not fix anything. If you find elevated radon levels, you need a system that actively reduces the gas concentration.

What Radon Mitigation Actually Does

The most common approach for reducing [radon in basement](#) spaces is sub-slab depressurization. This method involves running a pipe from the soil beneath your concrete slab up through the house to a radon fan mounted on the exterior wall or roof. The fan creates negative pressure under the slab, pulling radon gas away from the foundation and venting it safely above the roofline. It is a proven technique that works on most homes, but it requires careful design and proper installation.

I have seen systems where the pipe routing was done poorly, with too many bends or undersized ducting, and the fan could not pull enough suction. I have also seen systems where the radon fan was installed in an attic with no regard for freezing temperatures, which can cause condensation and fan failure. These are not theoretical problems. They are real issues that can make a mitigation system ineffective or even dangerous if the radon vent is too close to a window or air intake.

Signs Your Radon System Needs Attention

A properly installed radon system should run quietly in the background. You should not have to think about it. But there are a few things that can go wrong over time. The most common issue

I encounter is a failed radon fan. These fans are designed to run continuously for years, but they do eventually wear out. When a fan stops working, the negative pressure under the slab disappears, and radon levels can climb back up without any obvious sign.

Another problem is a blocked or damaged vent pipe. Animals or debris can clog the outlet, or the pipe itself can crack from ground movement. In one case I worked on, a homeowner had no idea their system had failed because the fan was still running and making noise, but the pipe had been disconnected during a landscaping project. The only way to catch these issues early is with regular inspection and a simple tool called a manometer.

The Role of the Manometer

A manometer, specifically a U-tube manometer, is a small device installed on the radon system to show whether the fan is pulling proper suction. It looks like a clear tube with colored liquid inside. When the system is working correctly, the liquid stands at different heights on each side of the tube. If the levels equalize, that means the fan is not creating enough vacuum, and you need to investigate. I tell every homeowner to check their manometer at least once a month. It takes ten seconds and can save you from months of unknowingly high radon exposure.

If you have a system but no manometer, or if yours is old and the fluid has evaporated, it is a good idea to have one installed during your next service. Many radon repair companies, including Air Sense Environmental in St. Louis, include a manometer check as part of a standard inspection. It is a small investment that gives you peace of mind.

When to Call for Professional Help

Some homeowners try to handle radon mitigation themselves. I understand the impulse, but this is not a DIY project for most people. The science behind sub-slab depressurization is straightforward, but the execution requires knowledge of local soil conditions, foundation types, and building codes. Improper installation can create more problems than it solves. For example, if you vent radon too close to a first-floor window, you are just pulling the gas into your living space through a different route.

In St. Louis, the clay-rich soil and variable weather make radon behavior especially tricky. I have seen homes where a system that worked fine for years suddenly stopped performing after a particularly wet spring. The soil under the slab became saturated, and the fan could not pull enough air through the wet ground. A professional understands these dynamics and can adjust the system, perhaps by adding a second suction point or upgrading the fan.

Radon Repair and Fan Replacement

When a radon system fails, the most common repair is fan replacement. Fans have a typical life span of five to ten years, depending on the brand and how hard they work. If you hear unusual noises, notice a vibration, or see that your manometer reading has dropped, it is time to call someone. A technician will test the system, check the pipe routing for blockages, and install a new fan if needed. They will also verify that the radon vent is still clear and properly located.

I have done many fan replacements where the old unit was undersized to begin with. The original installer guessed at the required airflow, and the system never worked well. Upgrading to a larger fan with better static pressure can make a dramatic difference in how effectively the system pulls radon from under the slab. It is not always the most expensive fix, but it requires someone who understands airflow and pressure calculations.

Why St. Louis Homes Are at Risk

The geology of the St. Louis region includes areas with elevated uranium content in the bedrock. The EPA has mapped radon potential across the country, and much of the metro area falls into Zone 1, meaning average indoor radon levels are expected to exceed 4 picocuries per liter of air. That is the EPA action level. If your test shows anything above that, you should take action to reduce it.

I have tested basements in St. Louis that showed readings over 20 pCi/L. The homeowners had no idea. They had never tested, or they tested once years ago and assumed nothing changed. Radon is invisible and odorless, which makes it easy to ignore. But long-term exposure is the second leading cause of lung cancer after smoking. That is not a scare tactic; it is the EPA estimate. Mitigation is effective and affordable, especially compared to the health costs of doing nothing.

Practical Steps for Homeowners

If you have not tested your basement recently, start there. Buy a short-term test kit from a hardware store or online. Follow the instructions carefully. Do not open windows or run fans during the test period. If the result is above 4 pCi/L, schedule a professional inspection. If you already have a radon system, check your manometer today. If you do not have one, consider having one installed during your next service call.

Regular inspection of your radon system should include checking the fan, looking for cracks in the vent pipe, and ensuring the exhaust point is above the roofline and away from windows. In St. Louis, ice and snow can block vents in winter, so it is worth a quick look after a storm. These small habits can keep your radon levels low year-round.

The Bottom Line on Radon in Basement Spaces

Radon in basement areas is a manageable problem. It does not have to be a source of constant worry. With a properly designed mitigation system, regular inspection, and prompt repairs when something goes wrong, you can keep your indoor air safe. The key is to stay proactive. Test every two years, check your manometer monthly, and call a qualified professional if you notice any change in your system performance.

I have seen too many homeowners wait until a real estate transaction forces them to address radon. By then, the problem has often become more complicated and expensive to fix. If you are in the St. Louis area and need radon repair, fan replacement, or just a thorough inspection, companies like Air Sense Environmental can help. They understand the local soil conditions and have the experience to get your system working right. But even if you choose someone else, the important thing is to take action. Your health and your family's safety are worth the effort.