

Understanding Radon in Basement Levels: What St. Charles County Homeowners Need to Know

When you think about what might be hiding in your basement, radon probably isn't the first thing that comes to mind. But for homeowners in St. Charles County, Missouri, the air beneath your living space deserves serious attention. Radon is a naturally occurring radioactive gas that comes from the decay of uranium in soil and rock. It moves up through the ground and can enter your home through cracks in the foundation, gaps around pipes, and other openings. Because basements are the lowest point of most homes, they are often where radon concentrations are highest. If you spend time in a finished basement or use it as a living area, you are more likely to be exposed to elevated levels.

Why Basements Are a Primary Concern for Radon

Radon enters a house through the soil gas that surrounds the foundation. In homes with basements, the large surface area of concrete walls and floors in contact with the ground creates many potential entry points. Common pathways include cracks in the foundation, gaps around sump pump openings, utility penetrations, and even the porous nature of concrete itself. Once radon gets inside, it can accumulate to concentrations much higher than outdoor air. The EPA estimates that nearly one in every fifteen homes in the United States has elevated radon levels. In Missouri, and particularly in St. Charles County, the geology makes radon a real concern. The local radon map shows zones where higher levels are more likely, and many homes in St. Charles, O'Fallon, St. Peters, and Wentzville fall into those areas.

Testing for [radon in basement](#) areas is the only way to know if your home has a problem. Radon is invisible and odorless, so you cannot rely on your senses. The EPA recommends testing all homes below the third floor, and that includes any basement, even if it is unfinished. Short-term tests, which last from two to seven days, can give you a quick snapshot. Long-term tests, which last more than ninety days, provide a better average of year-round levels. You can buy a radon detector at most hardware stores or hire a professional to perform radon testing. If you choose the do-it-yourself route, make sure the test kit is EPA-listed and follow the instructions carefully. Place the detector in the lowest livable area of the home, away from drafts, high humidity, and exterior walls.

What the Numbers Mean

Radon levels are measured in picocuries per liter of air (pCi/L). The EPA action level is 4 pCi/L. If your test shows a level at or above this number, the agency recommends taking steps to reduce it. Even levels between 2 and 4 pCi/L pose some risk, and many health experts suggest

considering mitigation at those concentrations too. The risk from radon comes from long-term exposure. It is the second leading cause of lung cancer after smoking, and it is estimated to cause thousands of deaths each year in the United States. The good news is that radon problems are fixable. Professional radon mitigation can reduce levels to well below the action level in almost any home.

Mitigation Options for Basements

The most common and effective mitigation technique for radon in basement settings is sub-slab depressurization. This system works by creating a vacuum beneath the concrete slab of the basement floor. A pipe is inserted through the slab into the gravel layer underneath. A radon fan attached to the pipe draws soil gas from below the slab and vents it safely outside, usually above the roofline. This prevents the gas from entering the living space. The fan runs continuously, and the system requires little maintenance beyond occasional checks to make sure the fan is working and the vent pipe is clear.

Another approach is sealing cracks and openings in the foundation with a high-quality sealant. While sealing alone is rarely enough to reduce high levels to safe concentrations, it is an important part of a comprehensive mitigation plan. Cracks in the foundation, gaps around pipes, and openings near sump pumps should be sealed to reduce the pathways for soil gas. Sealants can be applied to visible cracks, but some entry points may be hidden behind walls or under flooring. That is why a combination of depressurization and sealing usually gives the best results.

For homes with a crawl space or a basement that is not fully finished, other methods like block wall depressurization or drain tile suction might be appropriate. The right solution depends on the specific construction of the home, the soil conditions, and the level of radon found. A professional radon mitigation contractor like Air Sense Environmental can assess your home and design a system that works for your situation. They serve St. Charles County, including St. Charles, O'Fallon, St. Peters, and Wentzville, and they understand the local geology and construction styles.

Practical Steps for Homeowners

If you are buying a home in St. Charles County, include a radon test in your inspection process. Many real estate transactions now include radon testing as a contingency. If the test shows elevated levels, you can negotiate for mitigation before closing. If you already live in a home with a basement, test it as soon as possible. The test is inexpensive and easy to do. Keep in mind that radon levels can vary from season to season and even from day to day, so a single short-term test is a starting point, not a final answer.

One common question is whether radon in basement levels can be reduced by simply opening windows or increasing ventilation. While ventilation can help temporarily dilute radon, it is not a reliable long-term fix. In cold weather, you will not want to keep basement windows open, and the effect is inconsistent. A properly designed mitigation system works around the clock, regardless of weather or how you use the space. The investment in a radon fan and sub-slab depressurization system is typically a few thousand dollars, but it adds peace of mind and can even increase the resale value of your home.

When to Call a Professional

If your test shows levels above 4 pCi/L, or if you simply want a thorough assessment, contact a certified radon mitigation contractor. Avoid companies that offer sealing-only solutions for high levels, as that approach rarely works on its own. A reputable contractor will perform a diagnostic test to understand how radon is entering your home, then design a system tailored to your basement and foundation type. They should also provide a post-mitigation test to confirm that levels have been reduced. Companies like Air Sense Environmental follow EPA guidelines and use proven methods to lower radon concentrations effectively.

One final note: do not ignore the problem. Radon is a serious health risk, but it is also one that you can do something about. Testing is simple, mitigation is effective, and the cost is reasonable compared to the potential health consequences. If you live in St. Charles County, Missouri, and you have a basement, testing for radon should be on your home maintenance checklist. Whether you test yourself or hire a professional, the first step is awareness. The second step is action. With the right approach, you can reduce your family's exposure to radon and breathe easier in every part of your home.