

Why Your Crawl Space Needs a Radon Test Before You Finish It

If you own a home in St. Charles County, there is a good chance you have a crawl space tucked under part of your house. Many homeowners treat that area as dead storage or a place to ignore until something goes wrong. But if you are thinking about finishing that crawl space into a workshop, a playroom, or even extra living space, you need to stop and think about radon gas first. I have seen too many homeowners pour money into a finished lower level only to discover later that their radon levels are high enough to worry about. That kind of mistake is hard and expensive to undo.

Radon is a radioactive gas that comes from the natural decay of uranium in soil and rock. It moves up through the ground and enters buildings through cracks, gaps, and porous materials in the foundation. The EPA calls radon the second leading cause of lung cancer in the United States, right behind smoking. The tricky part is that you cannot see it, smell it, or taste it. The only way to know if it is present is through proper radon testing. And the crawl space, because it sits directly on the ground, is often the main entry point for radon into your home.

What Makes a Crawl Space Different from a Basement

A lot of homeowners confuse crawl spaces with basements, but the two are different in ways that matter for radon control. A basement typically has a poured concrete floor, often a concrete slab that sits on a gravel bed. A crawl space, on the other hand, may have a dirt floor, a partial concrete slab, or even just a vapor barrier laid over the soil. That direct contact with the ground means radon has an easier path into the crawl space and from there into the rest of the house.

In St. Charles County, the soil composition varies from neighborhood to neighborhood. Some areas have more clay, others more gravel. That matters because radon moves more easily through certain soil types. A crawl space with a dirt floor is essentially an open pathway for radon gas to enter. Even if you have a concrete slab in the crawl space, cracks can develop over time, and the slab itself is not a perfect barrier. Radon can seep through tiny pores in the concrete.

Testing a Crawl Space for Radon

Before you do anything else, get a radon test done in the crawl space. You can buy a short-term test from a hardware store or online, but I recommend using a radon detector that meets EPA guidelines and placing it in the crawl space for the full test period. A short-term test lasts two to seven days and gives you a quick snapshot. A long-term test runs for 90 days or more and

provides a more accurate average of radon levels throughout the year. Air Sense Environmental offers both options for homes in St. Charles County and can walk you through the process.

One thing I have learned over the years is that testing only the main living area can miss the picture. Radon levels in a crawl space can be much higher than in the rooms above. If you are planning to spend time in that crawl space, you need to know what you are breathing. Even if you are not finishing the space, radon from the crawl space can migrate upward through floor joints, utility penetrations, and gaps around pipes. Testing the crawl space gives you the real story.

What to Do If Radon Levels Are High

If your test comes back with levels at or above the EPA action level of 4 picocuries per liter of air, do not panic. Radon mitigation is a proven and effective process. The most common approach for a crawl space is soil suction, also called sub-slab depressurization. This method involves installing a pipe through the crawl space floor into the soil below, then attaching a radon fan that creates a vacuum under the foundation. The fan pulls radon gas from beneath the house and vents it safely outside, usually through a pipe that runs up the side of the house and exits above the roofline.

The phrase **radon crawl space** comes up often in these discussions because the crawl space presents unique challenges for installation. In a full basement, you have headroom and a solid floor. In a crawl space, you are often working in tight quarters with limited access. A skilled installer from a company like Air Sense Environmental knows how to work in those conditions without disturbing the rest of the house. They can seal the pipe penetration and ensure the system is airtight.

For crawl spaces with dirt floors, the mitigation approach can include laying a vapor barrier over the soil and sealing the edges to the walls. The vapor barrier is a thick sheet of plastic that stops radon and moisture from coming up through the ground. Then the soil suction pipe is installed through the vapor barrier. The combination of a vapor barrier and sub-slab depressurization is very effective for [radon crawl space](#) situations where the floor is not sealed concrete.

Key Components of a Crawl Space Radon System

When you look at a properly installed radon mitigation system, you will notice several specific parts. Each one plays a role in keeping your home safe.

- **Soil suction pipe:** A PVC pipe that goes through the crawl space floor into the gravel or soil beneath. It is the main pathway for pulling radon out from under the house.

- **Radon fan:** A special fan designed to run continuously and move the gas up and out. It is usually installed in the attic or on the exterior of the home, not inside the crawl space.
- **Manometer:** A small gauge that shows whether the fan is working. It uses a liquid level to indicate pressure. You should check it every few months to confirm the system is running.
- **Sealant:** Used around the pipe penetration and along the edges of the vapor barrier to prevent radon from bypassing the system.
- **Exhaust pipe:** The pipe that carries the radon gas to a safe release point above the roofline, away from windows and air intakes.

A good mitigation system comes with a warranty. Air Sense Environmental backs their work with a mitigation system warranty that covers parts and performance. If the manometer ever shows a problem, they will come back and check the system. That kind of support matters because a radon fan can last for years, but like any mechanical device, it can fail. Regular checks keep it working.

Long-Term Testing and Monitoring

After the system is installed, you should run another radon test to confirm the levels have dropped. Most mitigation systems bring levels well below the EPA action level, often to 1 or 2 picocuries per liter. But I recommend doing a long-term test every few years anyway. Soil can shift, new cracks can form, and fans can lose efficiency over time. A long-term test gives you peace of mind that the system is still doing its job.

Some homeowners ask if they can skip the test and just install a system as a precaution. My answer is always no. You do not know where the radon is coming from or how strong the source is until you test. A system that is oversized or undersized for the actual radon levels may not work correctly. Testing first saves time and money and ensures the right solution for your specific crawl space.

Practical Advice for St. Charles County Homeowners

If you live in St. Charles, O'Fallon, St. Peters, or Wentzville, your home sits on ground that can produce radon. The geology of the Missouri River valley and the surrounding areas creates conditions where radon is common. I have worked on homes in all those towns, and the pattern is the same. Older homes with crawl spaces often have no radon control at all. Newer homes may have a passive system, basically a pipe running from under the slab to the roof, but no fan. A passive system relies on natural air pressure differences, and it often does not

reduce radon enough. Adding an active fan turns that passive pipe into a working sub-slab depressurization system.

One more thing worth mentioning: if you are selling your home, a radon test in the crawl space can be a good selling point. Buyers in St. Charles County are becoming more aware of radon risks, and a clean test or a documented mitigation system can set your home apart. On the flip side, discovering high radon levels during a real estate transaction can delay or kill a deal. Getting ahead of it now is smart.

Testing and mitigation are not expensive compared to the cost of a finished crawl space or the health risks of long-term radon exposure. A short-term test costs roughly the same as a nice dinner out. A mitigation system runs a few thousand dollars. That is a small price for reducing your lung cancer risk and making your home a safer place to live.

I have seen homeowners ignore their crawl space for years, then decide to finish it and end up with a radon problem they never expected. The good news is that **radon crawl space** issues are fixable. With proper testing, a well-designed soil suction system, and regular monitoring, you can turn that crawl space into usable square footage without worrying about what is in the air. The key is to act before you build. Test first, mitigate if needed, then finish the space with confidence.