

Understanding Radon in Basement: What Metro East Homeowners Need to Know

If you live in Metro East Illinois and have a basement, you have probably heard about radon. But what exactly is it, and why does it matter so much for homes in Belleville, Edwardsville, O'Fallon IL, and Collinsville? Radon is a radioactive gas that comes from the natural decay of uranium in soil. It is invisible, odorless, and tasteless. The only way to know if you have a problem is to test for it. And the place where it most often shows up is the basement.

For homeowners in this region, the concern is real. The US Environmental Protection Agency has classified radon as the second leading cause of lung cancer after smoking. Because basements sit on or below the soil, they act like a collection point for radon gas. The question is not whether radon could enter your home, but how much, and what you can do about it.

Why Basements Are Vulnerable

Think about how a basement is built. The basement slab and the surrounding walls are in constant contact with the ground. Over time, soil shifts, concrete develops small cracks, and the seal around pipes or sump pump systems can fail. Radon gas moves through the soil and finds these gaps. It seeps in through cracks in the basement slab, gaps around floor drains, and even through the pores of concrete blocks. Once inside, it can accumulate because basements often have limited basement ventilation.

I have walked through many crawl spaces and basements in the Metro East area. One thing I see again and again is that people assume their basement is tight. They think that because the walls are painted or the floor looks solid, radon cannot get in. But radon molecules are tiny. They can move through a crack you cannot see with your naked eye. That is why the phrase [radon in basement](#) comes up so often in conversations with homeowners. It is not a scare tactic. It is a real exposure pathway.

Testing Is the First Step

You cannot fix what you do not measure. Testing for radon is straightforward, and there are several ways to do it. The most common method is a radon test kit that uses activated charcoal. You place the kit in the lowest livable area of your home, usually the basement, leave it for a few days, and then send it to a lab. The lab analyzes the charcoal to determine the average radon level during the test period. These kits are inexpensive and a good starting point.

A more precise option is an alpha track detector. This device uses a special plastic film that gets etched by alpha particles from radon decay. It stays in place for a longer period, often three months to a year, and gives a more accurate long-term average. If you want continuous data, you can use a continuous radon monitor. These plug into an outlet and show real-time readings. They are more expensive but useful if you want to track changes over days or weeks, especially after mitigation work.

I recommend that every homeowner in Belleville, Edwardsville, O'Fallon IL, and Collinsville start with a short-term test using a radon test kit from a reliable source. The US Environmental Protection Agency suggests testing every two years or after any major renovation. If your first test shows a level at or above 4 picocuries per liter (pCi/L), the EPA says you should take action. But even levels below that can be worth addressing, especially if you spend a lot of time in the basement.

What the Radon Map Tells Us

The US Environmental Protection Agency and state geological surveys have created a radon map that shows predicted radon potential across the country. Most of the Metro East area falls into Zone 1, meaning the predicted average indoor radon level is higher than 4 pCi/L. That is the highest risk category. This does not mean every home in Edwardsville or O'Fallon has dangerous levels, but it does mean the likelihood is high enough that testing is not optional. I have seen homes in the same neighborhood with very different radon readings. Soil type, house construction, and even how the basement slab was poured all affect the outcome. So the radon map is a guide, not a guarantee.

Mitigation Options That Work

If testing confirms high radon levels, do not panic. The good news is that effective solutions exist. The most common and reliable method is called sub-slab depressurization. A radon mitigation contractor drills a small hole through the basement slab, digs out a pit beneath it, and installs a pipe that runs up through the house to the roof. A fan attached to the pipe creates suction, pulling radon gas from under the slab and venting it safely outside. This system is quiet, runs continuously, and uses very little electricity.

Some homes already have a sump pump system in the basement. In those cases, the sump pit can sometimes be used as the suction point for a sub-slab system, which reduces the amount of drilling needed. The contractor seals the pit and connects it to the vent pipe. This approach works well when the sump pit is properly sealed and not used for anything else.

Crack sealing is another important piece of the puzzle. A mitigation contractor will seal visible cracks in the basement slab and walls, as well as gaps around pipes and utility entries. But

sealing alone is rarely enough. Radon can still push through concrete pores and tiny joints. That is why active systems like sub-slab depressurization are the gold standard.

In some homes, especially those with crawl spaces or unfinished basements, a heat recovery ventilator can help. This device brings in fresh outdoor air and exhausts stale indoor air while recovering some of the heat that would otherwise be lost. It improves basement ventilation and dilutes radon levels. It is not a standalone solution for high radon, but it works well as a complement to other measures.

Choosing a Qualified Contractor

Not every general contractor knows how to handle radon. The work requires specific knowledge of soil gases, pressure differentials, and building science. A good radon mitigation contractor will be certified by a national program, carry liability insurance, and offer a post-mitigation test to confirm the system is working. In the Metro East area, Air Sense Environmental has been doing this work for years. They understand the local soil conditions and the construction types common in Belleville, Edwardsville, O'Fallon IL, and Collinsville. They use continuous radon monitors to verify results, not just a single test kit.

When you hire someone, ask them about their experience with sub-slab depressurization and whether they have handled homes with sump pump systems. A contractor who has seen many basements in this region will know what to expect. They will also know how to route the vent pipe without ruining the look of your house. Most people never notice the pipe once it is installed.

Long-Term Thinking

Radon levels can change over time. Soil settles, new cracks form, and the fan in your sub-slab system may eventually wear out. I tell homeowners to retest every few years, even after mitigation. A simple radon test kit or a quick check with a continuous radon monitor will tell you if the system is still doing its job. If you replace your furnace or make changes to your basement ventilation, test again. It is cheap insurance.

The bottom line is that radon in basement spaces is a manageable problem. The science is mature, the solutions are proven, and the cost is reasonable compared to the health risk. If you live in the Metro East area and have not tested your basement yet, now is the time. A few days with a test kit can give you peace of mind. And if the number comes back high, you know exactly what to do.