

Why a Proper Radon Reduction System Matters for Your Metro East Home

Understanding Radon in the Metro East Area

Living in the Metro East area, which includes communities like Belleville IL, Edwardsville IL, and O'Fallon IL, brings a lot of charm and a strong sense of community. But one thing that often goes unnoticed until it's too late is the risk of radon gas. Radon is a naturally occurring radioactive gas that comes from the breakdown of uranium in soil and rock. It can seep into homes through cracks in the foundation, gaps around pipes, and other openings. The EPA radon zone maps show that much of Illinois, including our region, falls into Zone 1, which means average indoor radon levels are predicted to be higher than 4 picocuries per liter (pCi/L), the EPA's action level. That's a serious concern for any homeowner.

The invisible, odorless nature of radon makes it particularly tricky. You cannot see it, smell it, or taste it. The only way to know your home's radon level is to perform a radon test. Many people start with a simple charcoal canister test, which you leave in place for a few days and then mail to a lab. Others prefer a continuous radon monitor, which gives real-time readings over a longer period. Both methods have their place, but the key is to actually test and then take action if the results are high.

Once you have test results that show elevated radon, the next step is deciding what kind of [radon reduction system](#) to install. This is not a one-size-fits-all situation. The right system depends on your home's foundation type, soil characteristics, and even your local climate. A professional radon mitigation contractor, like Air Sense Environmental, will evaluate your specific situation and recommend a solution that actually works. A poorly designed or installed system can be worse than no system at all, giving you a false sense of security while radon continues to build up.

Active vs. Passive Radon Systems

When we talk about radon mitigation, two main categories come up: active and passive radon systems. A passive radon system is often built into new homes during construction. It involves a pipe running from a layer of gravel under the concrete slab up to the roof, with a junction box in the attic where a radon fan could be added later. The idea is that natural stack effect and wind create some suction, pulling radon out before it enters the living space. Passive systems are a good start, but they rarely reduce radon levels enough on their own, especially in high-risk areas like Metro East.

An active radon system is the standard for effective radon reduction. It uses a radon fan installed in the pipe to create continuous suction under the slab. This is called sub-slab depressurization, and it is the most common and reliable method for homes with a basement or concrete slab foundation. The fan creates negative pressure under the house, so soil gases, including radon, are drawn into the pipe and vented safely above the roof line, far from any windows or openings. The fan is typically mounted on the outside of the house or in the attic, and it runs continuously. A well-installed active system can bring radon levels down to well below the EPA's action level, often below 2 pCi/L.

The trade-off is that an active system uses a small amount of electricity, and the fan will eventually need to be replaced after ten to fifteen years. But the peace of mind is worth it. You can check that the system is working by looking at the manometer, a small U-shaped tube with colored liquid that shows the pressure difference. If the liquid levels are even, the system is under suction and working. If they are not, something is wrong, maybe the fan failed or the pipe is blocked. A quick glance at the manometer tells you everything.

Key Components of a Reliable Radon Mitigation System

A radon reduction system is only as good as its components and installation. Let's walk through the main pieces. The heart of an active system is the radon fan. Two well-known brands in the industry are RadonAway and Scurion. Both manufacture fans specifically designed for radon mitigation, and they are built to run continuously for years. The fan should be installed in a location that is accessible for maintenance but not in a living area, because even a small leak in the intake side can pull radon into the house.

The piping system is usually made of PVC, running from a suction point in the gravel under the slab, up through the house, and out through the roof. The suction point is created by digging a small pit under the slab and sealing the pipe into it. Sealing cracks in the concrete floor and walls is also important. Even small gaps can allow radon to bypass the system. A good contractor will seal cracks, gaps around utility lines, and the sump pump opening if there is one.

For homes with a crawlspace instead of a full basement, crawlspace ventilation is critical. A dirt-floor crawlspace can be a major radon entry point. In these cases, a radon reduction system might include a heavy-duty vapor barrier on the crawlspace floor, combined with sub-slab depressurization if there is a slab, or simply increased ventilation to the outside. Sometimes a combination of soil suction and crawlspace ventilation is the best approach.

Why Professional Installation Matters

Installing a radon reduction system is not a weekend DIY project. It requires understanding of house physics, local building codes, and the specific characteristics of radon movement. A professional will perform a radon test before and after installation to confirm the system is effective. Air Sense Environmental, which serves Belleville IL, Edwardsville IL, and O'Fallon IL, has the experience to design and install a system that fits your home's unique layout. They can also handle the added work of sealing cracks and ensuring that the radon fan is properly vented so that exhaust gases do not re-enter the house through soffits or nearby windows.

One common mistake homeowners make is thinking that any exhaust fan will work. Standard bathroom or attic fans are not designed for continuous outdoor use and can fail quickly, or worse, they may not create enough suction to actually reduce radon levels. A dedicated radon fan from RadonAway or Scurion is built for this exact job. It moves the right volume of air at the right pressure, and it includes safety features like a thermal overload cutoff.

The Role of Radon-Resistant New Construction

If you are building a new home in the Metro East area, radon-resistant new construction is a smart investment. The 2021 International Residential Code (IRC) includes requirements for radon-resistant features in EPA radon Zone 1 counties, which includes the whole Metro East region. These features include a layer of gravel under the slab, a vapor barrier, a sealed gas-tight pipe stub through the slab, and a junction box in the attic. This setup is essentially a passive radon system that can be easily upgraded to an active system by adding a radon fan later if testing shows it is needed.

Building radon-resistant from the start costs very little compared to retrofitting a system later. Retrofitting often involves cutting concrete, adding pipes through finished spaces, and running electrical wiring for the fan. It can be done, but it costs more and is more disruptive. If you are working with a builder, make sure they follow the code requirements and that the pipe is clearly labeled so that future owners know what it is.

What to Expect After Installation

After a radon reduction system is installed, you should expect a follow-up radon test. This test should be done with a continuous radon monitor or a charcoal canister, depending on your preference. The test should be conducted during the winter or heating season, when windows are closed and radon levels tend to be highest. A good contractor will guarantee that the system reduces radon levels to below 4 pCi/L, and often much lower.

You will also need to perform periodic maintenance. Check the manometer every month to make sure the fan is running. If you have an outdoor fan, keep snow and debris away from the exhaust pipe. If the fan stops working, the manometer will show no suction, and you will need

to replace the fan. RadonAway and Scurion fans are reliable, but nothing mechanical lasts forever. Plan on a fan replacement every ten to fifteen years.

It is also a good idea to retest your home every two years, or after any major renovation that could affect the foundation or the ventilation system. Radon levels can change over time as the soil settles, as the water table shifts, or as new construction nearby changes the gas flow patterns.

Making the Right Choice for Your Home

When you are ready to address radon in your home, the most important decision is choosing a qualified contractor who will design and install a radon reduction system that actually works. Look for someone who is certified by the National Radon Proficiency Program (NRPP) or the National Radon Safety Board (NRSB). A certified professional will have the training to assess your home, choose the right fan and pipe size, and ensure the system meets code.

The cost of a radon reduction system varies depending on the complexity of the installation, the type of foundation, and whether you need additional work like sealing cracks or adding crawlspace ventilation. But compared to the health risks of long-term radon exposure, which is the second leading cause of lung cancer after smoking, the cost is a worthwhile investment. A properly installed system not only protects your family's health but can also be a selling point if you ever put your home on the market.

In the Metro East area, radon is a real concern, but it is also a manageable one. Testing your home is the first step. If your results are high, and many homes in Belleville IL, Edwardsville IL, and O'Fallon IL do test high, then call a professional like Air Sense Environmental to design a solution. A well-designed radon reduction system gives you peace of mind and a healthier home for years to come.