

Why Crawl Space Radon Sealing Matters for York County Homes

Understanding the Hidden Risk Below Your Home

Most homeowners in York County know radon is a problem. You see the test kits at the hardware store, you hear about it from neighbors, and maybe you have already bought a radon test kit yourself. But what many people overlook is the path radon takes to get inside. It is not always through the basement floor. Sometimes it comes through the crawl space.

Radon is a soil gas. It moves up through the ground and finds the easiest way into your living space. In homes with a crawl space, that easiest path is often the dirt floor or the gaps around the foundation walls. That is where crawl space radon sealing becomes a practical solution. It is not the same as sealing a basement slab. Crawl spaces have their own challenges, and addressing them requires a specific approach.



What Makes Crawl Spaces Different

A crawl space is essentially a shallow, unfinished area beneath the first floor. Unlike a basement, it usually has a dirt floor, exposed foundation walls, and often plumbing or ductwork running through it. This design makes it a natural collection point for radon. The soil gas enters through the dirt, through cracks in the foundation, and around the points where pipes or wires penetrate the floor above.

The standard method for radon mitigation in homes with a slab foundation is sub-slab depressurization. That involves pulling radon from beneath the concrete and venting it above the roofline. But in a crawl space, there is no slab. You cannot pull suction under concrete that does not exist. So the approach shifts to crawl space encapsulation combined with active ventilation.

[Crawl space radon sealing](#) typically involves covering the dirt floor with a thick vapor barrier, usually polyethylene sheeting, and sealing it to the walls and any penetrations. The goal is to create a barrier that stops soil gas from entering the crawl space air. Then, an active ventilation system pulls air from beneath the vapor barrier and exhausts it outside. This is sometimes called soil suction, and it works much like sub-slab depressurization but with the vapor barrier acting as the collection surface.



Components of an Effective System

A well-designed crawlspace radon mitigation system has several key parts. The vapor barrier is the most visible. It needs to be heavy-duty polyethylene sheeting, at least 6 mil thick, though thicker is better. The seams must overlap and be sealed with a compatible sealant. The edges are secured to the foundation walls with a combination of mechanical fasteners and sealant, creating an airtight envelope.

Underneath that barrier, a network of perforated pipes helps pull the soil gas. These pipes connect to a central suction point, often a sump pump or a dedicated suction pit. A radon fan is installed on the exhaust line, usually in the crawlspace or outside the home. This fan creates

negative pressure under the vapor barrier, drawing the radon-laden air from the soil and venting it safely above the roof.

The fan must be sized correctly for the crawl space volume and the soil conditions. Too small, and it will not pull enough suction. Too large, and it can create excessive noise or even pull moisture from the soil, which can cause other problems. A manometer is installed on the system to verify that the negative pressure is maintained. This simple gauge tells you at a glance whether the system is working.

Post-mitigation testing is essential. After the radon system installation, you need to run a follow-up test, usually with a continuous monitor or a second radon test kit placed in the living space. The EPA recommends that radon levels be reduced to below 4 picocuries per liter. Many systems in York County achieve levels well below that, often under 2 pCi/L. But you cannot assume it works; you have to test.

Why Professional Installation Matters

Crawl space radon sealing is not a weekend DIY project. The vapor barrier must be installed correctly, with all seams sealed and all penetrations properly flashed. If the barrier is torn or the seal around a pipe is incomplete, the soil gas can still enter. Worse, the fan can pull conditioned air from the living space down into the crawl space, increasing energy costs and potentially drawing moisture into the insulation.

There is also the question of what else is in the crawl space. Many homes have furnaces, water heaters, or HVAC equipment located there. The radon system must be designed so that it does not interfere with combustion air or create backdrafting conditions. A professional radon mitigation contractor will check for these hazards before starting work.



In Pennsylvania, radon levels can vary dramatically from one property to the next. Even within the same neighborhood, one home might test at 50 pCi/L while the next is below 2. That is because radon entry depends on soil permeability, foundation condition, and the pressure differential between the house and the ground. A professional can assess these factors and design a system that actually works for your specific home.

Long-Term Maintenance and Upkeep

A radon mitigation system is not a set-it-and-forget-it solution. The fan will eventually wear out. Fan replacement is a common service call, typically needed every five to ten years depending on the fan model and how hard it runs. The manometer should be checked periodically to ensure the system is still pulling suction. If the manometer reading drops, it could mean the vapor barrier has a tear, a pipe has come loose, or the fan is failing.

The vapor barrier itself can be damaged by rodents, by people working in the crawl space, or by settling of the soil underneath. If the barrier develops a hole, radon can bypass the system. That is why post-mitigation testing should be repeated every two years, or whenever you make

changes to the crawl space. A follow-up test gives you peace of mind that the system is still performing.

Some homeowners ask about radon resistant construction techniques for new homes. If you are building a house with a crawl space, it is far cheaper to install a vapor barrier and a passive vent stack during construction than to retrofit later. But for existing homes, crawl space radon sealing is the most practical retrofit option. It is less invasive than breaking up a slab and often more effective than trying to seal the floor above.

Cost and Value Considerations

The cost of crawl space radon sealing varies with the size of the crawl space, the condition of the foundation, and the complexity of the installation. A basic system might include polyethylene sheeting, sealant, a single suction point, and a fan. A more complex system might require multiple suction points, a sump pump pit, and additional sealing around structural supports.

In York County, radon mitigation is a worthwhile investment. High radon levels can reduce the resale value of a home, and potential buyers are increasingly checking radon test results before making an offer. A properly documented mitigation system with post-mitigation test results can be a strong selling point. It shows that the home has been maintained and that the indoor air quality is safe.



There is also the health consideration. Radon is the second leading cause of lung cancer in the United States, according to the EPA. Reducing your exposure is not just about compliance with real estate disclosures; it is about protecting your family. The EPA estimates that radon causes more than 20,000 lung cancer deaths each year. That is a risk worth taking seriously.

Putting It All Together

Crawl space radon sealing is a proven method for reducing radon levels in homes with crawl spaces. It combines a vapor barrier, active ventilation, and careful sealing to stop soil gas at its source. With proper installation and regular maintenance, the system can keep radon levels low for decades. If you live in York County and your crawl space has a dirt floor, it is worth

having a professional test the radon levels and evaluate whether crawl space radon sealing is right for your home. The test is simple, the solution is effective, and the peace of mind is invaluable.