

Why Crawl Space Radon Sealing Matters for York County Homes

If you own a home in York County with a crawl space, you have probably wondered about the best way to manage radon. The ground beneath your house releases soil gas, and that gas can carry radon into your living space. A lot of homeowners think a simple vapor barrier will do the trick, but the reality is more complicated. I have spent years working on radon mitigation in Pennsylvania, and I can tell you that crawl space radon sealing is one of those jobs where details matter more than most people expect.

The goal of any radon mitigation strategy is to keep the soil gas from entering the home. Crawl spaces present a unique challenge because they are partially open to the ground, and they often have exposed dirt or gravel floors. A proper sealing job involves covering that exposed ground with a durable vapor barrier, sealing all seams and edges, and then managing the pressure under that barrier so radon does not find a way through. When done right, crawl space radon sealing can drop radon levels significantly, but it is not something you can half-do and expect results.



What Crawl Space Radon Sealing Actually Involves

When I talk about [crawl space radon sealing](#), I mean the complete process of installing a continuous vapor barrier over the crawl space floor and walls up to a certain height, sealing every seam, penetration, and gap with a proper sealant, and then connecting that barrier to a radon mitigation system. The barrier itself is usually heavy-duty polyethylene sheeting, at least 6 mil thick, though many professionals prefer 12 mil or thicker for better durability. The seams are overlapped and sealed with butyl tape or a compatible sealant, and the edges are fastened to the walls with a termination bar and more sealant.

But the sealing is only one part of the equation. A sealed crawl space without active ventilation can actually trap radon gas under the barrier, which can then migrate through tiny gaps or even through the barrier itself if it is not thick enough. That is why most radon mitigation systems for crawl spaces combine sealing with active ventilation. A fan pulls soil gas from under the barrier and vents it outside, creating a negative pressure that keeps radon from entering the home. This approach is often called sub-slab depressurization, but in a crawl space it is sometimes referred to as soil suction under the vapor barrier.

Why York County Homes Need This

York County sits in a region of Pennsylvania with elevated radon potential. The local geology includes granite and other rocks that contain uranium, which decays into radon. The EPA has mapped much of the county as Zone 1, meaning predicted average indoor radon levels could be above 4 picocuries per liter. That is the action level where the EPA recommends mitigation. I have tested homes in York County where the radon level in the crawl space was over 20 pCi/L, and even with the floor separating that space from the living area, the radon was migrating upward through floor joists and electrical openings.



A crawl space radon sealing project is often the most effective way to address this because it stops the gas at its source. Without a sealed barrier, the radon mitigation system has to pull soil gas from a much larger area, and it may not create enough negative pressure to protect the whole crawl space. With a proper seal, the fan works more efficiently, and the radon levels in the home can drop to safe levels. Post-mitigation testing usually confirms a dramatic reduction.

The Components That Make It Work

A complete crawl space radon sealing system includes several key elements. The vapor barrier is the foundation, but it has to be paired with a radon system installation that includes a suction point, typically a sump pump or a simple pit dug in the dirt, connected to a vent pipe that runs to the fan. The fan, usually mounted outside or in the attic, creates the active ventilation that draws soil gas from under the barrier.

One detail that often gets overlooked is the manometer. This is a simple U-tube gauge that shows whether the fan is creating negative pressure under the barrier. If the manometer reads zero, the fan may be off or the system may have a leak. A working system will show a steady

pressure difference, and I always recommend checking it after a heavy rain or after any work in the crawl space. A fan replacement might be needed if the old fan fails after years of service, and that is a straightforward job if the rest of the system is intact.

Crawl space encapsulation is another term you might hear. It refers to the same general concept: covering the crawl space surfaces to isolate them from the home. But encapsulation can include insulating the walls and sometimes adding a dehumidifier. For radon purposes, the sealing is the critical part. The rest is comfort and energy efficiency.



Common Mistakes and How to Avoid Them

I have seen plenty of crawl space radon sealing jobs that did not work because of simple errors. One common mistake is using a thin vapor barrier that tears easily. Polyethylene sheeting that is 4 mil thick might save a few dollars, but it will get punctured during installation or by foot traffic later, and then the seal is broken. Thicker sheeting costs more but lasts longer and provides a better seal.

Another mistake is not sealing the edges properly. The vapor barrier needs to be attached to the wall with a termination bar and sealant, and the sealant must be compatible with both the sheeting and the wall surface. Some people use duct tape, which dries out and fails within a year. A proper sealant stays flexible and bonds to concrete or wood.

A third mistake is skipping the post-mitigation testing. A follow-up test with a radon test kit, placed in the lowest livable area, will tell you if the system is working. Without that test, you are guessing. I always recommend waiting at least 24 hours after the system is running, then conducting a test that lasts at least 48 hours. The results will show whether the crawl space radon sealing achieved its goal.

Is It Worth Doing Yourself?

Some homeowners are handy and might consider installing a vapor barrier themselves. For a small crawl space with easy access, it is possible to lay down polyethylene sheeting and seal the seams. But the radon system installation part, including the fan, vent pipe, and electrical work, is best left to a professional. A mistake in the vent pipe routing can cause the fan to pull air from inside the home instead of from under the barrier, which defeats the purpose.



There is also the question of radon resistant construction. New homes in York County can be built with radon resistant features, including a layer of gravel under the slab, a vapor barrier, and a vent pipe stub that can be connected to a fan later if needed. For existing homes with crawl spaces, retrofitting a sealed barrier and active ventilation is the standard approach.

Crawl space radon sealing is not a glamorous home improvement project, but it can make a real difference in indoor air quality. If you have tested your home and found radon levels above 4 pCi/L, or if you have not tested but your home has a crawl space in a high-radon area, it is worth looking into. A manometer reading, a working fan, and a good seal are the signs of a system that is doing its job.