

Why Sub-Slab Depressurization Is the Go-To Fix for Basement Radon

If you live in the Metro East area, you may already know that radon is a serious concern. This radioactive soil gas can seep through cracks in your home's concrete slab and build up to unhealthy levels inside your living space. I have spent years working with homeowners in Belleville, Edwardsville, O'Fallon, and Collinsville, and I have seen plenty of basement radon problems. The most reliable solution I have found is a method called sub-slab depressurization.

This approach is not new. It has been used by professional radon contractors for decades. But many homeowners still do not understand how it works, or why it is so effective. Let me walk you through the details from a real-world perspective.

How Radon Gets Into Your Home

Radon comes from the natural decay of uranium in the soil. It moves up through the ground and enters a house through any opening it can find. That includes gaps around pipes, cracks in the slab, and even tiny pores in the concrete. Once inside, it gets trapped by your house ventilation and can build up to dangerous concentrations.

The EPA recommends fixing a home if a radon test shows levels at 4 picocuries per liter or higher. In my experience, many homes in this region exceed that number. The good news is that radon mitigation is straightforward when you use the right technique.

What Is Sub-Slab Depressurization?

[Sub-slab depressurization](#) is an active soil depressurization technique. It works by creating a low-pressure zone beneath the concrete slab. A fan draws soil gas from under the slab and vents it safely above the roof line, usually through a passive vent stack that runs up the side of the house. This prevents radon from being pulled into the basement in the first place.

The system has a few key parts. First, a contractor drills a small hole through the slab and digs out a sump pit below it. Then, under-slab piping is laid to connect that pit to the vent stack. A fan is installed in the stack to keep air moving. Finally, a manometer is mounted on the pipe so you can see at a glance whether the system is working. This small gauge is a simple but essential tool.

One of the most important steps is sealing every visible crack and joint in the slab with a high-quality sealant. This helps the system maintain its vacuum. Without good sealing, you are wasting energy and leaving pathways for soil gas to bypass the fan.

Why It Beats Other Methods

There are other ways to reduce radon. You can increase house ventilation, seal cracks, or install a block-wall system. But I have found that sub-slab depressurization gives the most consistent results. It addresses the source of the problem rather than just treating the symptoms.

Sealing alone rarely works because concrete slabs shrink and crack over time. House ventilation can help dilute radon, but it also raises your heating and cooling bills. A sub-slab system, on the other hand, runs quietly and uses very little electricity. The fan is the only moving part, and it can last for years with basic maintenance.

Another advantage is that it protects indoor air quality without changing how you live. You do not need to open windows or run extra fans. The system works in the background, and you only notice it when you check the manometer.

Installation: What to Expect

If you decide to go with a sub-slab system, the installation process is straightforward but requires skill. A professional radon contractor will first perform a radon test to confirm the level. Then they will inspect your basement to find the best spot for the sump pit. The goal is to place it in an area with good soil permeability so the vacuum can reach the entire footprint of the slab.

After cutting the slab and digging the pit, the contractor runs the under-slab piping to an exterior wall. They route the pipe up the side of the house and through a parapet wall or directly through the roof. The fan is mounted either in the attic or on the exterior wall, depending on local codes. The whole job usually takes one to two days.

Before the crew leaves, they will set up a second radon test to confirm the system is working. This is standard practice. You should see levels drop well below the EPA action level, often to below 2 pCi/L.

Cost and Long-Term Value

Installing a sub-slab depressurization system is not cheap, but it is one of the best investments you can make for your family's health. In the Metro East area, costs typically run between \$1,200 and \$2,500 depending on the complexity of the job. That includes the fan, piping, sealant, and labor.

Compare that to the potential medical costs of long-term radon exposure. Radon is the second leading cause of lung cancer in the United States. For the price of a minor home repair, you can

eliminate that risk entirely.

Maintenance is minimal. Check the manometer once a month. If the needle drops, the fan may have failed or the pipe could be blocked. A quick call to your contractor can get it fixed. The system should last the life of the home.

Common Questions and Misconceptions

I often hear homeowners ask whether they can install a sub-slab system themselves. I understand the appeal, but I do not recommend it. The design requires a good understanding of soil gas behavior and building science. A mistake in the sump pit location or the fan sizing can leave you with a system that does not work. A professional radon contractor has the tools and experience to get it right the first time.

Another question is whether the system will affect the home's resale value. In my experience, a certified radon mitigation system is a selling point. Buyers appreciate knowing the home has been tested and fixed. Some real estate agents even ask for documentation of the system during the sale process.

Finally, some people worry about noise from the fan. Modern fans are very quiet. You may hear a faint hum if you stand next to the vent stack, but it is not disruptive.

Final Thoughts

If your radon test comes back high, do not panic. Sub-slab depressurization is a proven, effective solution. It has been used in thousands of homes across the country, and it works particularly well in the clay-heavy soils we see in the Metro East region. The key is to hire a qualified contractor and to maintain the system after installation.

Your home should be a safe place. With the right approach to radon mitigation, you can keep your indoor air quality high and your family healthy. If you have questions about whether this system is right for your house, I encourage you to talk to a local professional who has done this work before.