

# How a Sub-Slab Depressurization System Works for Radon Control

## Why Radon Gets Into Your Home

Radon is a radioactive gas that comes from the natural decay of uranium in soil and rock. It moves up through the ground and can seep into any building that sits on the earth. The main entry points are cracks in the foundation, gaps around pipes, and the joint where the floor slab meets the wall. Once inside, radon can build up to levels that pose a health risk, especially in lower floors where people spend a lot of time.

For homes in York County, Pennsylvania, this is a real concern. The geology here includes a mix of limestone, shale, and granite, all of which can release radon. Testing is the only way to know if your home has a problem. If the test shows levels at or above 4 picoCuries per liter, the EPA recommends taking action to reduce them. That is where a sub-slab depressurization system comes into play.



## What a Sub-Slab Depressurization System Does

A sub-slab depressurization system is the most common and effective method for lowering indoor radon levels. The idea is simple: create a zone of lower pressure under the concrete slab of your basement or crawl space. That pressure difference stops radon from being pushed up through the slab and into your living space. Instead, the gas is drawn through the soil and vented safely above the roofline, where it dilutes in the outside air.

The system has three main parts. First, one or more suction points are installed through the slab into the gravel layer below. Second, a fan creates the negative pressure that pulls soil gas from under the house. Third, a vent pipe carries that gas up and out through the roof or an exterior wall. A manometer, or pressure gauge, is mounted on the pipe so you can see at a glance that the system is working. When we talk about a [sub-slab depressurization system yorkparadonpros](#), we are describing a setup built specifically for the homes and soil conditions found in York County.

## How Installation Works

Installing a sub-slab system takes careful planning. The first step is to locate the best spot for the suction point. Usually this is near the center of the slab or where the highest radon levels were measured. A four-to-six-inch hole is cored through the concrete. The installer then digs out a small pit below the slab to expose the gravel or stone bed. A length of PVC pipe is set into that pit and sealed to the concrete with a urethane or epoxy sealant. That seal is critical, any gap here will let radon bypass the system and still enter the house.



sub-slab depressurization system

From the suction point, the pipe runs up through the interior of the home or along the outside wall. The fan is installed in the attic or on the exterior, as close to the discharge point as possible. The discharge pipe must extend at least ten feet above grade and well above any windows, doors, or vents. If the pipe ends too low, the radon can be pulled back inside. A proper install follows the EPA's "Radon Mitigation Standards" and meets local building codes. That is why working with a service that knows the area matters. For instance, a sub-slab depressurization system yorkparadonpros installs follow the same proven steps but are adjusted for the specific house layout and soil type.

## Fan Selection and Replacement

The fan is the heart of the system. It has to run continuously, often for years, with little maintenance. Most residential systems use an in-line centrifugal fan designed for soil-gas

extraction. These fans are rated for static pressure and airflow. The right size depends on the soil permeability, the number of suction points, and the length of the pipe run. A fan that is too small will not pull enough negative pressure. One that is too large can create noise or even suck moisture from the soil, which may freeze in the pipe in cold weather.

Fans do fail eventually. Bearings wear out, blades collect dust, or the motor burns out from heat buildup. When that happens, the manometer will show a drop in pressure. The home occupant might notice no difference in radon levels at first, but over weeks the radon will climb back up. That is why York PA Radon Pros offers fan replacement as part of its service. They carry common sizes and brands, and can swap a failed fan in a single visit. Having a reliable team handle that replacement means the system is down for only a few hours instead of days.

## **When a Sub-Slab System Is Not Enough**

While sub-slab depressurization works for most homes, some situations need a different approach. If the house has a crawl space with no concrete slab, or a dirt floor, the system cannot be installed the same way. In those cases, a crawl space vapor barrier combined with a vent fan might be the answer. For homes with a finished basement where drilling through a tile floor is not desired, a block wall system or a heat recovery ventilator can help. But for a typical basement with a poured concrete slab, the sub-slab method is the gold standard. York PA Radon Pros can test your home and recommend the right strategy, whether that is a sub-slab system or an alternative.



sub-slab depressurization system

## **Cost and Value**

The cost to install a sub-slab depressurization system varies. Factors include the number of suction points, the length of pipe, the type of fan, and the difficulty of routing the vent. In York County, a typical install runs between \$800 and \$1,500. That might sound like a lot, but compared to the health cost of long-term radon exposure, it is a bargain. The system also adds a small amount to the electric bill, usually less than \$100 per year for the fan. And if you ever sell your home, a radon mitigation system can be a strong selling point, especially in areas where radon is common.

## **Maintenance and Monitoring**

Once a system is installed, it requires very little upkeep. Check the manometer every month or so to make sure the pressure reading is stable. If the fluid level changes, that could mean a leak in the pipe, a clog, or a failing fan. Keep the vent pipe clear of snow, leaves, and bird nests.

Some homeowners also choose to re-test radon levels every two years to confirm the system is still performing. A well-maintained system should last twenty years or more, with only the fan needing replacement somewhere in that span.

## Choosing a Radon Contractor

Not every home improvement contractor knows radon. It is a specialized field that requires understanding of soil gas behavior, pressure dynamics, and proper sealing techniques. A certified radon mitigator has passed exams and follows national standards. When you look for a company, ask if they are listed with the Pennsylvania Department of Environmental Protection or hold a NRPP (National Radon Proficiency Program) certification. York PA Radon Pros holds that kind of credential and focuses only on radon testing and mitigation. That means they see the same problems day after day and know what works in local homes.

If a contractor suggests a sub-slab depressurization system, they should explain why it fits your house. They should also give you a clear quote and a written warranty. A good install comes with a guarantee that radon levels will drop below the EPA action level. If they do not, the contractor should come back and adjust the system at no extra cost. That is the level of service you want.



sub-slab depressurization system

At the end of the day, reducing radon is about peace of mind. Knowing that your family is breathing cleaner air is worth the effort. A properly designed sub-slab depressurization system yorkparadonpros can give you that confidence for decades. Whether you need a new install, a fan replacement, or just a test, having a local expert handle it makes all the difference. York PA Radon Pros has the tools and the know-how to do it right, and they stand behind their work.

Follow York PA Radon Pros on  [LinkedIn](#)  [Facebook](#)  [Instagram](#)  [YouTube](#)

[Pinterest](#)