What to Expect From a Professional Radon System Installation

If you have tested your home for radon and the levels came back above the EPA action threshold, you are likely weighing your next move. Mitigation is the obvious answer, but the process of getting a system in place can feel like unfamiliar territory. Over the years, I have seen homeowners in York and Adams County go through this process, and the ones who come out satisfied are the ones who understood what a proper radon system installation actually involves. It is not a one-size-fits-all job, and knowing what to expect helps you avoid shortcuts that waste time and money.

Why a Professional Install Matters

Radon is a radioactive gas that seeps up through the soil and can enter a home through cracks in the foundation, sump pumps, or gaps around pipes. A mitigation system works by creating negative pressure beneath the slab or crawlspace and venting that air safely above the roofline. The theory is straightforward, but the execution requires judgment. You need to know where to place the suction point, how many suction points to use, what size fan to pick, and how to seal the interior entry routes. A professional radon system installation takes all of these variables into account. A do-it-yourself approach often misses something critical, like insufficient sealing or a fan that cannot handle the static pressure of the soil, leading to a system that runs but does not actually lower the radon level.

Reading the Test Results First

No installer worth hiring will start cutting holes before they see your radon test results. The initial reading tells them the severity of the problem and helps them decide the system design. For example, a home with a level of 8 pCi/L in the basement might only need a single suction point and a medium-duty fan. A home with 40 pCi/L, especially one built on fractured limestone, may require multiple suction points or a high-performance fan. I have seen contractors skip this step and install the same system regardless of the reading, which is a red flag. A proper mitigation plan begins with your actual data, not a generic template.



The Steps Inside a Typical Installation

Once the test results are in, the installer will walk through the house to inspect the foundation. They look for the thickest part of the slab, the presence of a sump hole, the type of flooring, and the condition of the crawlspace. Then they drill a test hole to check the soil conductivity. That step sounds minor, but it tells them how easily the gas can be pulled through the soil. If the soil is dense clay, the fan needs to work harder. If it is sandy gravel, the system is easier to design. The radon system installation then proceeds with the following typical sequence:

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- Drilling a five- to six-inch hole through the basement floor or through the crawlspace membrane.
- Digging out a small pit beneath the slab to create an air pocket for suction.
- Running PVC pipe from that suction point up through the interior wall or an exterior chase to the roof.
- Installing a sealed, in-line fan in the attic or on the exterior wall of the house. The fan must be rated for continuous operation and matched to the pipe diameter and run

length.

- Sealing all visible cracks, joints, and utility penetrations in the basement slab with polyurethane caulk or hydraulic cement.

Each step has its own set of decisions. Where to exit the pipe, whether to use an interior or exterior fan, and how to handle the condensation that can form inside the pipe on cold days. A good installer will explain these choices to you before they start. They will also show you where the system will be placed so you can see it fits your space without interfering with storage or foot traffic.

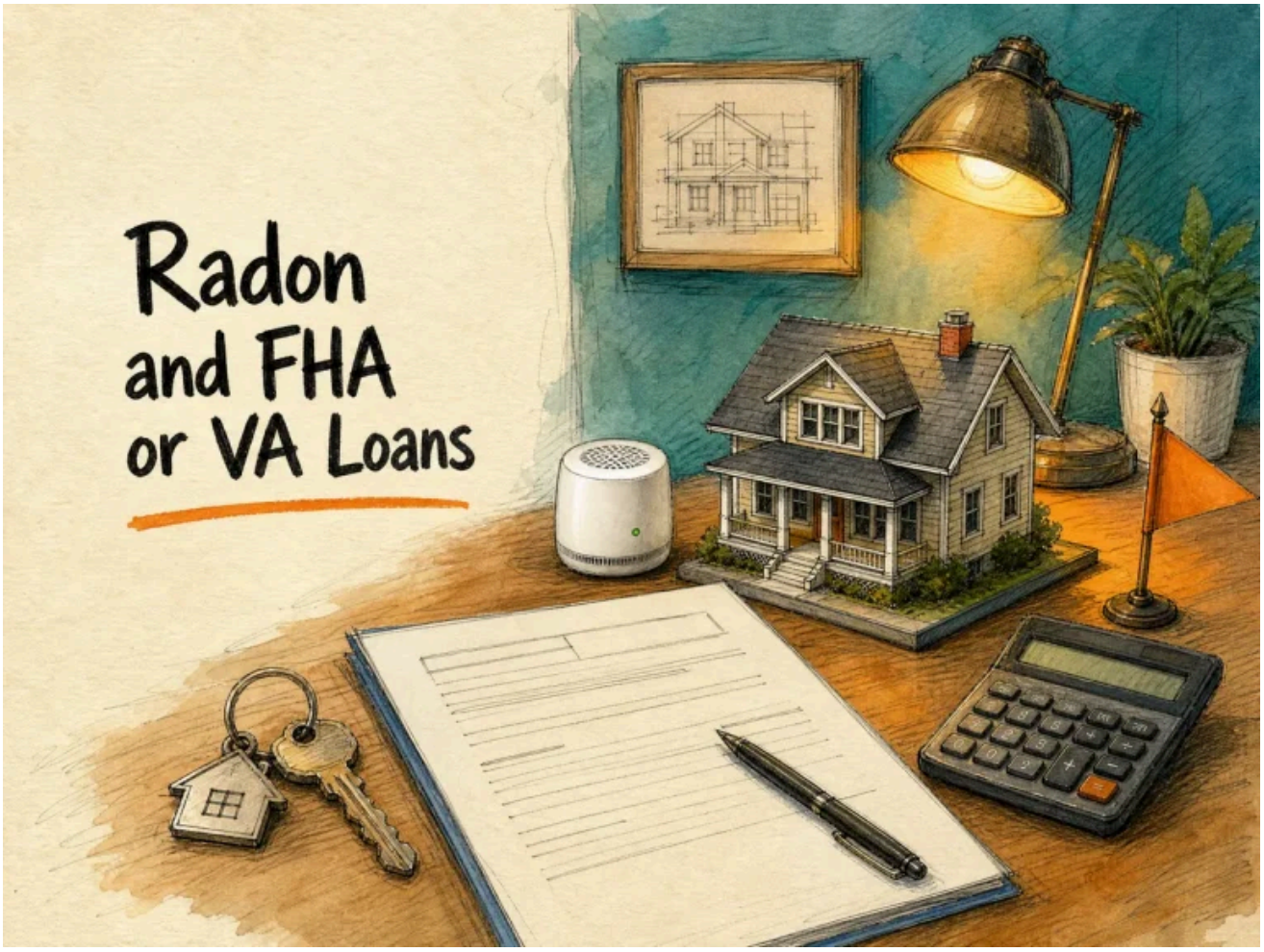
Fan Selection and Placement

The fan is the heart of the system. It runs 24/7, often for years, so picking the right one matters. There are two main types: a radon-specific centrifugal fan, which is quiet and efficient, and a standard bathroom exhaust fan that has been repurposed. The radon-specific fans are more expensive but last longer and produce the right pressure profile for soil gas extraction. I have seen homeowners try to save money by using a cheap inline fan, only to have it burn out in a year. The installer should also place the fan somewhere accessible for maintenance. An attic fan is common, but the access panel must be large enough to reach the fan motor. A basement fan is easier to service but requires the pipe to exit the foundation separately.

Post-Installation Testing

After the system is in, the work is not finished. A professional radon system installation always includes a follow-up radon test. That test should run for at least 48 hours, often longer, while the system is running. The goal is to confirm that the indoor level has dropped below 4 pCi/L, ideally to around 2 pCi/L or lower. Some contractors will guarantee a specific post-mitigation level in writing. That is a strong sign of confidence. If the test comes back high, the installer should come back to adjust the system at no extra charge. That could mean adding a second suction point, upgrading the fan, or sealing additional cracks.

I have seen situations where the first test after installation shows a level of 3.9 pCi/L, which is technically below the threshold but still uncomfortably close. A good installer will not stop there. They will try to push it lower. The EPA action level is a guideline, not a finish line. Lower is always better, especially for homes where children or elderly people spend a lot of time in the basement.



Common Misconceptions About Radon Systems

One misconception I hear often is that a radon system installation is a one-time expense with no ongoing care. In reality, the fan has a lifespan of roughly five to ten years, and the manometer (the liquid-filled gauge that shows the system is working) needs to be checked monthly. Another misunderstanding is that the system will make the house noisy. When installed correctly, a radon fan should be barely audible inside the living space. The noise comes from vibration transmitted through the pipe or the wall. That is fixed by adding a flex coupling or a vibration isolator between the fan and the pipe. A third misconception is that sealing the slab is optional. Some homeowners think the suction alone is enough. But without sealing, the system pulls outside air through the cracks rather than pulling the gas from beneath the soil, and the radon levels stay high.

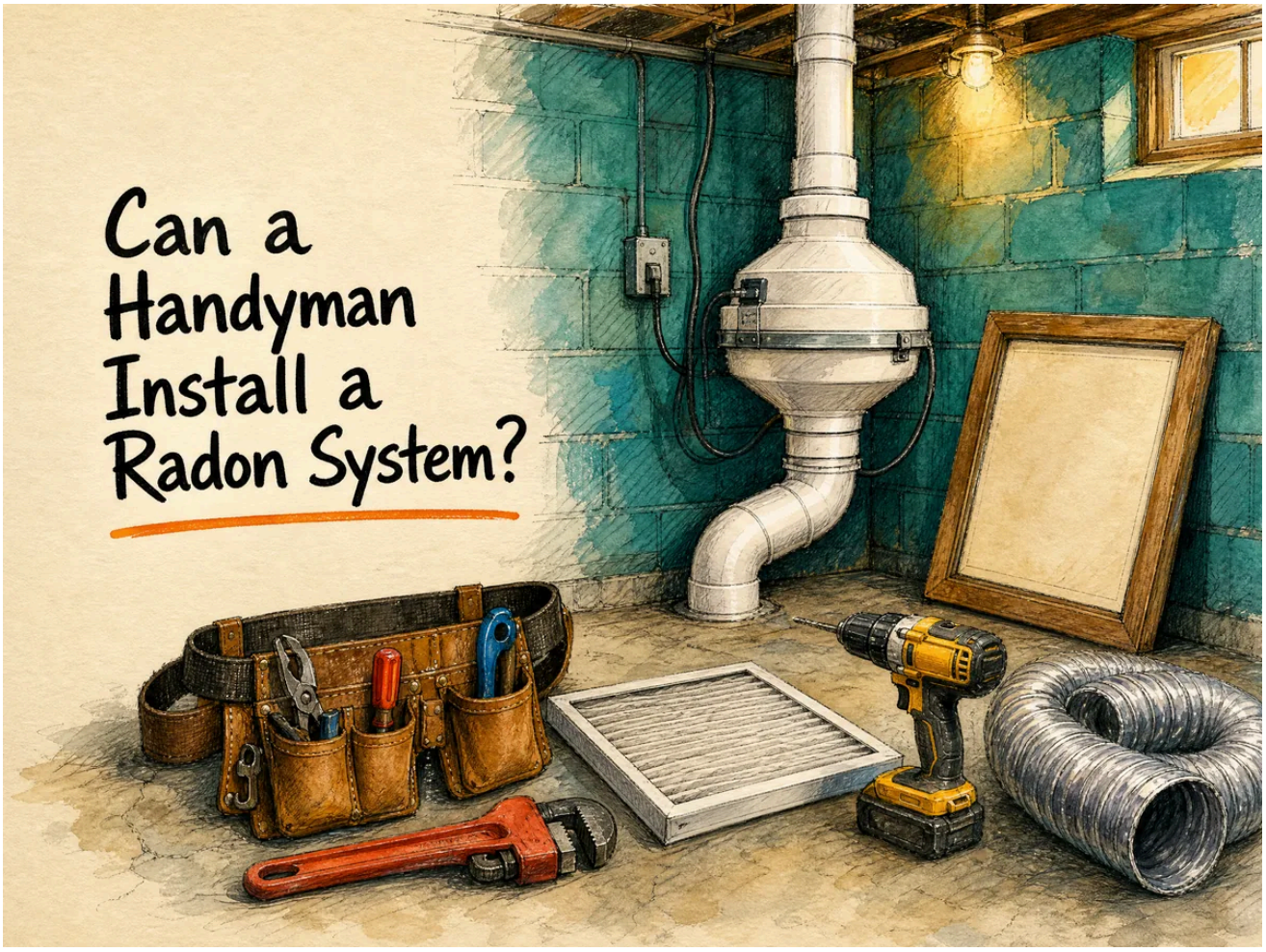
When to Call for an Upgrade or Replacement

Many homes in York and Adams County were built before radon mitigation was common. If you move into an older home that already has a system, do not assume it works. Check the manometer. If the liquid is level on both sides, the fan is not running or the pipe is blocked. A

system that was installed twenty years ago may have an undersized fan or corroded piping. In that case, a full radon system installation is not needed, but a fan replacement and a pipe inspection are. I have worked with homeowners who tried to fix a dead system by just swapping the fan, only to find the old pipe had collapsed or the suction pit had filled with dirt. A professional inspection can catch those issues before you spend money on parts that do not solve the problem.

Choosing a Contractor You Can Trust

Because radon mitigation involves construction work, electrical work, and health safety, the contractor you choose matters a great deal. Look for someone who is certified by the National Radon Proficiency Program (NRPP) or the National Radon Safety Board (NRSB). Ask if they carry liability insurance and if they have a written warranty for the system. A reputable contractor will also provide a post-mitigation test report and explain the system maintenance in plain language. They will not pressure you into a larger system than you need, but they will also not under-size the components to win a low bid.



York PA Radon Pros, located at 867 Clare Ln, York, PA 17402, USA, can be reached at +1 717-807-5245. They offer a local resource for radon testing, mitigation, and fan replacement in York and Adams County, Pennsylvania, with trusted contractor recommendations and DEP-backed data to help homeowners make informed decisions.

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