

The Critical Role of a Professional Sump Pit Sealing Service in Radon Mitigation

When I first started working in radon mitigation across York County, Pennsylvania, I quickly learned that no two homes are alike. Some have crawl spaces, others have full basements, and many have a sump pit tucked away in a corner of the basement floor. That sump pit, while useful for managing groundwater, can become a major pathway for soil gas to enter a home. Over the years, I have seen how a proper sump pit sealing service can make the difference between a radon mitigation system that works and one that struggles to keep up.

Why Sump Pits Matter for Radon Control

A sump pit is essentially a hole in the concrete slab, designed to collect water so a pump can remove it. But that same hole also connects directly to the soil underneath your home. Soil gas, which contains radon, can rise through the gravel and dirt beneath the slab and find its way into the pit. From there, it seeps into the living space through gaps around the pit cover, pipes, or the concrete itself. This is why a radon mitigation strategy that ignores the sump pit is incomplete.



In my experience, many homeowners in Pennsylvania assume that a radon test alone tells them everything. A test measures the current level of radon in the air, but it does not show where the gas is entering. A thorough inspection often reveals that the sump pit is a primary entry point. That is where a professional [sump pit sealing service](#) becomes essential. It stops the problem at its source.

The Difference Between a Quick Fix and a Real Seal

Some DIY approaches involve covering the sump pit with a piece of plastic or a metal plate. In theory, that might reduce airflow, but it rarely creates a tight seal. Radon is a gas. It moves through the tiniest cracks. A loose cover or a poorly sealed lid can still allow significant amounts of soil gas to enter. I have seen homes where the radon level dropped only a little after a quick cover was installed, and the homeowner was left frustrated.

A proper sump pit sealing service involves more than just placing a lid. It requires cleaning the pit, inspecting the concrete slab around it, and applying a durable sealant. In many cases, we use a combination of polyurethane foam for larger gaps and an epoxy coating for the surface.

The foam expands to fill voids, while the epoxy creates a hard, airtight layer. This approach holds up well against the pressure changes that occur in a basement.



Dan Jenkins, who runs a local radon mitigation service here in York County, often emphasizes that the sealant must bond to the concrete, not just sit on top. If the concrete is damp or dirty, the sealant will not stick. That is why a professional service includes proper surface preparation. Without it, even the best epoxy coating can fail within months.

Integration with Sub-Slab Ventilation

Sealing the sump pit is rarely the only step in a radon mitigation plan. It works best when combined with sub-slab ventilation. A passive system uses natural air pressure differences to draw radon from beneath the slab and vent it above the roof. An active system adds a fan motor to create suction, which is more reliable in most homes. The sump pit itself can sometimes be used as the suction point for the sub-slab ventilation. In that case, the pit is sealed around the vent pipe, and the fan motor pulls the soil gas out before it can enter the living space.

This is where the expertise of a trained professional really matters. If the sump pit is not sealed correctly around the pipe, the system can lose its vacuum, and radon may still leak into the basement. I have seen active systems that tested well initially but then failed because the seal around the sump pit degraded over time. A proper sump pit sealing service ensures that the entire system works as intended, year after year.

Real-World Examples from York County

York County sits on a geology that can produce elevated radon levels. I recall a home near the Susquehanna River where the basement radon level was over 20 pCi/L, more than five times the EPA action level. The homeowner had already tried sealing cracks in the basement floor with caulk, but the sump pit had been left open. After a professional assessment, we recommended a sump pit sealing service combined with an active sub-slab ventilation system. The fan motor was installed in the attic, and the pit was sealed around the vent pipe using polyurethane foam and then coated with an epoxy coating. The post-mitigation radon test showed a level of 1.2 pCi/L. That result was not a surprise. It came from addressing the main entry point properly.

Another home in a newer development had a crawl space instead of a full basement. The sump pit was located in the crawl space, and the soil gas was migrating up into the main living area. The homeowner had a radon test done during a real estate transaction, and the levels were high. The solution involved sealing the pit and running a sub-slab ventilation pipe through the crawl space to an exterior wall. The fan motor was placed outside to keep noise down. That system has been running for five years now with no issues. The key was the initial seal. If the sump pit had not been properly closed off, the system would have struggled to maintain negative pressure under the slab.

Warranty and Long-Term Performance

A good mitigation warranty covers the components and the workmanship, but it also depends on the integrity of the seals. If the sump pit sealing service is done correctly, the warranty is more meaningful because the system is less likely to need repairs. I have seen warranties that specifically require the sump pit to be sealed by a professional. That is not just a technicality. It reflects the reality that a poorly sealed pit is the most common cause of system failure.



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Epoxy coating and polyurethane foam both have good longevity when applied to clean, dry concrete. But they are not permanent. Over time, concrete can shift, and moisture can affect the bond. A professional service will include an inspection of the seal during annual

maintenance. That is something a DIY cover cannot offer. If the seal starts to fail, it can be repaired before radon levels rise again.

Passive vs. Active Systems: The Role of the Seal

In a passive system, the sump pit seal is even more critical because there is no fan motor to create suction. The system relies on natural stack effect and wind to draw soil gas out. If the seal leaks, the pressure difference is lost, and the system becomes ineffective. I have seen passive systems that were installed with a simple plastic cover over the sump pit. They rarely perform well. A proper sump pit sealing service using a rigid sealant and a gasketed cover is much more reliable.

For an active system, the fan motor creates negative pressure, which helps overcome small leaks. But even then, a large leak at the sump pit can reduce the vacuum enough to allow radon to enter elsewhere. The fan motor may run continuously, but the system will not achieve the desired reduction in radon levels. That is why I always recommend a professional sump pit sealing service as part of any active system installation.

Choosing the Right Approach for Your Home

Every home is different, and the right radon mitigation plan depends on the specifics. A professional like Dan Jenkins will start with a radon test and a visual inspection of the basement floor, sump pit, and any other potential entry points. If the sump pit is present, it will be a priority. The sealing service should be done before the sub-slab ventilation is installed, so the system can be tested for leaks.

Some homeowners ask if they can seal the sump pit themselves. In theory, yes, but in practice, it is tricky. Getting the right sealant, preparing the surface, and ensuring a lasting bond requires experience. I have seen DIY seals that looked fine but failed a smoke test. A professional sump pit sealing service includes a verification step, often using a pressure test or a smoke pencil, to confirm the seal is airtight. That peace of mind is worth the cost.



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Final Thoughts on Radon Mitigation in Pennsylvania

Residential radon is a serious issue in Pennsylvania, and York County is no exception. A comprehensive radon mitigation strategy must address all entry points, and the sump pit is one of the most common. Whether you are installing a passive system or an active system, the quality of the sump pit sealing service directly affects the outcome. It is not the flashiest part of the job, but it is one of the most important. A well-sealed sump pit, combined with proper sub-slab ventilation and a reliable fan motor, can bring radon levels down to safe levels and keep them there for years.

If you are planning a radon mitigation project, do not overlook the sump pit. Talk to a local expert who understands the soil gas behavior in your area. A professional sump pit sealing

service is a small investment that protects the entire system. It is one of those details that separates a job done right from one that needs to be redone later.