# When Your Radon Mitigation Fan Needs Replacing

## Signs It Might Be Time for a New Fan

Radon mitigation systems rely on a fan to pull soil gas from beneath the foundation and vent it safely above the roofline. Over time, that fan works under constant load, exposed to moisture, temperature swings, and dust. Even a well-built fan will eventually show its age. Knowing what to look for can help you decide when to plan a radon fan replacement rather than wait for a complete system failure.

One common warning is a change in noise. A fan that once ran quietly may begin to hum, rattle, or produce a high-pitched whine. That usually points to wear in the bearings or an imbalance in the fan wheel. Another sign is reduced airflow. If your system's manometer, the gauge that shows pressure, reads lower than it did when the system was installed, the fan may be losing its ability to move air. Sometimes the motor simply stops running. Before assuming the worst, check the wiring and the capacitor; a simple electrical fault can sometimes be repaired. But if the motor itself is dead, a radon fan replacement is the straightforward solution.

## Understanding the Fan's Role in Your System

The fan in a radon mitigation system creates negative pressure under the slab. That pressure draws radon-laden soil gas into the vent pipe and pushes it outside. Without a properly working fan, the pressure equalizes and radon can seep back into the living space. The fan must be sized correctly for the pipe diameter, the length of the vent run, and the soil conditions under the house. A fan that is too small won't pull enough suction; one that is too large can create excessive noise or even damage the piping over time.

Most residential systems use an in-line fan designed for continuous duty. These fans are typically mounted in the attic, on the exterior wall, or sometimes in the basement near the exit point. The mounting location affects how easy it is to access the fan for inspection or replacement. Attic-mounted fans are out of the way but can be awkward to reach. Exterior mounts are easier to service but may be exposed to weather. Knowing where your fan lives helps you plan for the work involved.

## What a Replacement Involves

Replacing a radon mitigation fan is not a complex job for someone comfortable with basic tools and electrical work, but safety comes first. The system must be disconnected from power before any work begins. If the fan is wired directly into a junction box, that means turning off the breaker. If it plugs into an outlet, simply unplug it.

The physical swap usually follows a few steps. First, the vent pipe must be disconnected from the fan housing. Most systems use flexible couplings that slide on and can be loosened with a screwdriver or a nut driver. Once the pipe is free, the electrical connections are undone. This is where careful labeling helps. Note which wire went where before you remove anything. After the old fan is unbolted from its mounting bracket, the new fan goes in. The mounting holes often line up, but some adjustment may be needed. Then the wiring is reconnected, the pipe is reattached, and the system is tested.

Fan size must match the original specifications. If you are not sure what size to buy, look for a label on the fan housing that lists the model number and airflow rating. A fan that moves the same cubic feet per minute (CFM) at the same static pressure will keep the system performing as designed. Changing the fan size without checking the pipe diameter and vent path can reduce effectiveness or cause noise problems.

## Noise Considerations

Fan noise is one of the most common homeowner complaints after a mitigation system is installed. A fan that is too loud can make a basement or living area uncomfortable. Some fans are quieter than others by design. If noise is a concern, look for a fan with a lower sone rating. Sones measure perceived loudness; a difference of one sone is noticeable. Fans designed for radon mitigation often have insulated housings or sound-dampening features. Replacing an older, noisy fan with a newer, quieter model can improve comfort without sacrificing performance.



Mounting also affects noise. A fan that is bolted directly to a floor joist can transfer vibration through the structure. Using rubber isolation gaskets or mounting the fan on a short length of flexible duct can reduce that vibration. If the fan is in a living space, even a small reduction in noise can make a big difference.

## When to Call a Professional

While some homeowners replace their own fan, others prefer to hire a certified radon mitigation contractor. The main reasons are safety and assurance. Working with electrical connections carries risk, and a mistake in wiring can cause a fire hazard or damage the new fan. Also, a poorly sealed pipe joint can allow radon to leak back into the home. A certified contractor has the tools and experience to do the job correctly and can test the system afterward to confirm it is working.

Another consideration is the warranty. Some mitigation systems have warranties that require professional installation of replacement parts. If you are unsure about the terms, check the documentation that came with your system. A professional can also advise on whether the fan is the only issue or if other parts of the system, such as the pipe sealant or the sump pit, need attention.

## Preventive Maintenance

Regular checks can extend the life of your radon fan. At least once a year, inspect the fan housing for cracks or rust. Listen for changes in sound. Clean any dust or debris from the fan inlet and outlet. Make sure the vent pipe is clear of obstructions like bird nests or leaves. If your system has a manometer, note the reading and compare it to the original installation value. A gradual drop may indicate a developing problem that could be corrected before the fan fails completely.

Some fans have replaceable motors. If the housing is in good condition and the motor is the only failed part, replacing just the motor can be more cost-effective than swapping the entire assembly. But if the housing is cracked or the fan wheel is damaged, a full unit replacement is the better choice.

## Final Thoughts

Radon mitigation fans are built to run for years, but they are not permanent. Knowing the signs of wear and understanding what a replacement involves helps you make an informed decision when the time comes. Whether you do the work yourself or call a professional, addressing a failing fan promptly keeps your system effective and your home's radon levels low.