

Why Your Radon Manometer Reading Matters for System Health

A radon mitigation system is a long-term investment in your home's air quality, and like any mechanical system, it needs regular checks to keep working right. The part most homeowners see is the manometer, that simple gauge mounted on a pipe in the basement or garage. Whether you have a classic U-tube manometer or a newer digital manometer, that radon manometer reading tells you whether the system is actively pulling radon from beneath your foundation. Ignoring it for too long can lead to a quiet failure that leaves you unprotected.

I've worked on mitigation systems across the St. Louis area for years, and I can tell you that a surprising number of people assume their radon system runs forever without maintenance. The manometer is the only window into what the system is doing day to day. A healthy system under sub-slab depressurization will show a steady negative pressure, usually measured in inches of water column. If you see that reading drop to zero or start fluctuating wildly, something has changed.

What a Manometer Actually Measures

A manometer measures pressure difference. In a radon mitigation system, it compares the pressure inside the radon vent pipe to the air pressure in the room. When the radon mitigation fan is running, it creates negative pressure inside the pipe, which draws soil gases up from under the slab and vents them above the roof line. The manometer fluid, often a red or blue oil, sits in a U-shaped tube. One side of the tube connects to the pipe, the other is open to the room. The difference in fluid height shows the pressure difference in inches of water column.

Most systems operate somewhere between 0.5 and 2.0 inches of water column. That range is normal for a properly installed system with a good suction point and a working radon fan. If your [radon manometer reading](#) falls below that range, the fan may be losing performance. If it reads zero, the fan has likely stopped entirely. A reading that jumps higher than normal could mean a blockage in the pipe or that the fan is working too hard because of a restriction.

Common Reasons for a Bad Reading

There are a handful of reasons why a radon manometer reading might change over time. Some are simple to fix, others require professional attention. The most common issues I see in the field include:

- The radon mitigation fan wears out after several years of continuous operation. Most fans have a lifespan of five to ten years, depending on the model and how hard it has

to work. When the fan slows down, the pressure drops.

- Debris or moisture gets into the radon vent pipe. A clogged pipe restricts airflow and can cause the manometer to show either a very low or very high reading, depending on where the blockage sits.
- The manometer itself gets dirty or the fluid evaporates. A U-tube manometer from Dwyer Instruments or a similar brand can last many years, but the fluid level should be checked periodically. If it's low, the reading will be inaccurate.

In some cases, the issue is more subtle. A crack in the pipe, a loose fitting, or even a change in the soil around the foundation can affect the system's ability to maintain negative pressure. That is why a single radon manometer reading is useful, but a pattern of readings over time tells you much more about system health.

Digital vs. U-Tube Manometers

Older systems often use a simple U-tube manometer. They are reliable, inexpensive, and easy to read once you know what to look for. But they can be hard to interpret if the fluid has separated or if the tube gets cloudy. Digital manometers are becoming more common. They give a precise numerical readout, sometimes with a backlight, and they can be easier for homeowners to understand at a glance.

Both types measure the same thing. A digital manometer may be more accurate down to very small pressure changes, but for most residential radon systems, a U-tube manometer is perfectly adequate. The key is consistency. If you check your radon manometer reading weekly and note it down, you will spot a decline long before radon levels in the house start to rise.

I've seen homes where the manometer was installed backward or connected to the wrong port on the pipe. That is rare but worth mentioning because it can give a false sense of security. A properly installed manometer should show negative pressure when the fan is running. If you ever see a positive pressure reading, something is wrong with the manometer installation or the system configuration.

When to Call for a Radon System Inspection

If your radon manometer reading has changed significantly, or if you notice that the fluid is not moving at all, it pays to schedule a radon system inspection. A professional can check the fan, look for leaks, and verify that the suction point is still clear. In St. Louis, where radon levels tend to be higher than the national average, keeping your system in top shape matters more than in some other regions.

I recommend doing a quick visual check of the manometer every month. It takes ten seconds. If you have a digital manometer, note the number. If you have a U-tube, look at the fluid level on the side that connects to the pipe. It should be higher than the open side. If the two sides are even, the system is not running.

Fan Replacement: A Common Fix

When a radon manometer reading drops to near zero, the most likely cause is a failed radon mitigation fan. Fan replacement is one of the most common service calls for existing systems. The fan runs 24/7, 365 days a year, so it eventually wears out. Replacing it with a new, properly sized fan usually restores the negative pressure and the manometer reading returns to normal.

I have worked with Air Sense Environmental on several fan replacement jobs in the St. Louis area. They know the local soil conditions and the typical installation challenges that come with older homes. A good installer will also check the manometer installation during a fan replacement, making sure the gauge is clean and accurate before leaving the job.

Sometimes the fan itself is fine, but the radon vent pipe has developed a leak. A loose joint or a crack can let air in, reducing the vacuum at the suction point. That shows up as a low manometer reading even though the fan is spinning. A smoke test or a simple pressure check can pinpoint the leak.

What a Reading Means for Radon Levels

The manometer does not measure radon directly. It measures system performance. But a system that is working properly will keep radon levels low. If you want to confirm that your system is effective, use a radon test kit to measure the actual radon concentration in your home. The EPA radon guidelines recommend action at 4 picocuries per liter, but many experts suggest fixing anything above 2.

A good radon manometer reading does not guarantee that your home is below 4 pCi/L, especially if the system was not designed for the specific house layout or soil conditions. But it is a strong indicator. If your radon test kit shows elevated levels and the manometer reads zero, the system needs repair. If the manometer reads fine but the radon test kit shows high levels, there may be a secondary entry point or a problem with the sub-slab depressurization coverage.

Tracking Changes Over Time

I encourage homeowners to write down their manometer reading once a month, along with the date. It takes very little effort and gives you a history that can be invaluable when troubleshooting. If you see the reading drift downward by 0.1 inches of water column every

month, you can anticipate a fan replacement before the system fails completely. That beats discovering the problem after a radon test kit shows a spike.

In the end, the manometer is the simplest and most reliable tool for monitoring your radon mitigation system. Whether you prefer a U-tube manometer from Dwyer Instruments or a digital manometer with a bright display, the reading matters. Keep an eye on it, and your system will serve you well for years.