

Why a Long-Term Radon Test Gives You the Most Reliable Reading

The Difference Between a Snapshot and the Full Picture

When I bought my first home in St. Louis, I did what most people do. I ordered a test kit, left it in the basement for a few days, and sent it off. The result came back low, so I moved on. It wasn't until years later, when I started working with Air Sense Environmental, that I realized how much that short-term radon test had left out.

Radon gas is not stable from day to day. It shifts with the weather, the season, and how often you run your furnace or open your windows. A short-term radon test can give you a number, but it might not be the number that matters most. That is where a long-term radon test becomes more than just another option. It becomes the standard you should trust.

What Makes a Long-Term Radon Test Different

A [long-term radon test](#) runs for at least 90 days, and often closer to a full year. The idea is simple. Instead of measuring radon levels during one specific week, you measure them through multiple seasons. You capture the highs of winter, when the house is sealed tight, and the lows of spring, when windows open and fresh air moves through. The result is an average that represents your actual radon exposure over time.

The EPA recommends that every home be tested for radon. If the radon level comes back at 4 picocuries per liter or higher, they advise taking action. But the EPA also says that a long-term radon test gives the most accurate picture of your annual average. A short-term radon test, by contrast, is a snapshot. It can be useful if you need a quick answer before a real estate transaction, but it can also miss the peaks that matter most to your health.

How the Tests Actually Work

When I talk to homeowners in Missouri about radon measurement, they often ask what the difference is between the devices. A short-term radon test usually uses an activated charcoal test kit. You expose it for two to seven days, seal it, and mail it to a lab. It is cheap and fast, but it only catches what is happening in that narrow window.

A long-term radon test uses a different kind of radon detector. Some are alpha-track detectors that sit in the same spot for months. Others are continuous radon monitors that log data day by day. The continuous radon monitor is especially useful because it can show you not just the average, but the pattern. You can see if levels spike at night when the house is closed up, or if

they climb during a storm. That kind of detail helps you decide whether radon mitigation is needed and how urgent it is.

Why St. Louis Homes Are Especially Vulnerable

St. Louis sits on top of geologic formations that can release radon gas into basements and crawl spaces. The EPA radon map for Missouri shows large parts of the region in zones with the highest potential for elevated indoor radon levels. That does not mean every house has a problem, but it does mean that skipping a proper radon test is a gamble.

I have seen homes in St. Louis where a short-term radon test came back at 2.5, well below the action level, but a long-term radon test came back at 5.8. The difference was not a mistake. It was the season. The short test was done in September when the windows were open. The long test ran through January and February, when the house was closed and the furnace was running. The radon level in winter was nearly triple what it was in fall.

That kind of gap is common. It is why I tell homeowners not to rely on a single short-term radon test to make decisions about radon remediation. If you are going to spend money on radon reduction, you want to know that you actually need it. A long-term radon test gives you that confidence.

Practical Details for Running a Long-Term Radon Test

If you decide to run a long-term radon test, here is what you should expect. The test device, whether an alpha-track detector or a continuous radon monitor, gets placed in the lowest livable area of your home. That is usually the basement or the first floor if there is no basement. You leave it there undisturbed for at least 90 days. You do not move it, open windows next to it, or run fans directly on it. At the end of the period, you send it to a lab for analysis.

Some things to keep in mind:

- Place the radon detector at least 20 inches above the floor, away from drafts, heat vents, and direct sunlight.
- Do not open windows or run exhaust fans in the test area more than you normally would. The goal is to measure your everyday exposure, not a best-case scenario.
- If you use a continuous radon monitor, you may get hourly readings that show daily patterns. This can help you decide when to schedule radon mitigation work.
- Once the test is complete, compare your radon level to the EPA action level of 4 pCi/L. If it is above that, consider professional radon remediation.

- Keep a record of the test results. If you ever sell the home, buyers may ask for documentation of radon measurement.

The Trade-Off Between Time and Accuracy

A long-term radon test takes longer. That is the obvious trade-off. If you are in the middle of a home sale and the buyer wants a radon test done before closing, you may not have three months to wait. In that case, a short-term radon test is better than no test at all. But if you are living in the home and you want to know what your family is actually breathing, the long-term radon test is the better choice.

I have had homeowners tell me they were surprised by how easy it was. You set the device, forget about it, and check it a few months later. The waiting is not really a burden. And the result you get is more trustworthy. That is especially important for families with children or older adults, where the health risk from radon exposure is higher over time.

What to Do If Your Long-Term Radon Test Shows High Levels

If your radon level comes back above 4 pCi/L, the EPA recommends taking action. Radon mitigation is not a DIY project in most cases. A qualified professional will evaluate your home's foundation, ventilation, and soil contact. The most common solution is a sub-slab depressurization system, which pulls radon gas from beneath the house and vents it safely above the roof.

In St. Louis, radon reduction systems are common in newer homes and are also retrofit into older ones. The cost varies depending on the size of the home and the complexity of the foundation, but it is usually a few thousand dollars. That sounds like a lot, but compared to the health risk of long-term radon exposure, it is a reasonable investment.

One thing I always mention is that radon remediation does not have to be perfect to be effective. The goal is to get the radon level below 4 pCi/L, not to zero. Zero is not realistic because radon is a natural gas that comes from the ground. But bringing it down from 8 to 2 makes a huge difference in your cumulative exposure.

Making the Decision That Fits Your Home

Every home is different. The age of the foundation, the soil type, the heating system, and even the landscaping can affect radon levels. That is why a single short-term radon test is not enough to make a permanent decision. A long-term radon test accounts for those variables and gives you an answer you can trust.

If you are in the St. Louis area and you are considering radon testing, I encourage you to think about what you really need to know. If you want a quick number for a transaction, a short-term radon test may be fine. But if you want to protect your family's health over the long haul, invest in the test that takes the long view.