

New Guidance on the EPA Radon Action Level Sharpens Focus on Indoor Air Safety

The Environmental Protection Agency's radon action level has become a renewed focus of discussion among public health officials and property professionals, as emerging data reinforces the importance of maintaining indoor radon concentrations below this threshold. The current action level, set at 4 picocuries per liter of air, remains the benchmark at which the EPA recommends mitigation measures. This standard has guided testing and remediation efforts for decades, yet recent studies suggest that a significant portion of American homes still exceed this limit, prompting calls for more rigorous enforcement and public education.

The EPA radon action level is not a legally enforceable standard but rather a guideline for homeowners, landlords, and builders. Radon, a naturally occurring radioactive gas that results from the decay of uranium in soil, is the second leading cause of lung cancer in the United States, responsible for an estimated 21,000 deaths annually. When radon enters a building through cracks in the foundation or gaps around pipes, it can accumulate to dangerous levels without any immediate sensory warning. The action level serves as a practical trigger for action: when test results show four picocuries per liter or higher, the EPA recommends installing a radon mitigation system to reduce concentrations.

Interest in the [EPA radon action level](#) has grown as more states adopt disclosure requirements during real estate transactions. Many buyers now request radon tests as a routine part of home inspections. If results come back at or above the action level, sellers may be required to disclose that information, and in some jurisdictions, they must install mitigation systems before closing. This shift has made radon awareness more mainstream, but compliance remains uneven. A 2023 survey by the American Association of Radon Scientists and Technologists found that fewer than 30 percent of homes in high-radon zones had ever been tested.

Why the Action Level Matters for Public Health

Exposure to radon over years increases the risk of lung cancer, especially among smokers and those exposed to secondhand smoke. The EPA radon action level is set at a point where the risk of lung cancer from radon exposure is estimated to be about the same as the risk from other common carcinogens. At four picocuries per liter, the lifetime risk of lung cancer from radon exposure is roughly 7 in 1,000 for nonsmokers, and much higher for smokers. Lowering the action level would reduce that risk further, but would also increase the number of homes requiring mitigation, raising questions about cost and feasibility.

Some health advocates have argued that the EPA radon action level should be lowered to 2.7 picocuries per liter, a level recommended by the World Health Organization. The WHO guidelines are based on similar risk assessments but take a more precautionary approach. The EPA has periodically reviewed its action level but has not formally changed it since 1988. Critics say the agency has been slow to update its recommendations despite advances in measurement technology and mitigation methods. Supporters of the current standard argue that lowering it would overwhelm the mitigation industry and impose unnecessary costs on homeowners without clear evidence of additional benefit.

How Radon Testing Works

Testing for radon is straightforward and inexpensive. Short-term tests, which last from two to 90 days, are commonly used during real estate transactions. They provide a snapshot of radon levels but can be influenced by weather and ventilation. Long-term tests, lasting more than 90 days, give a more accurate picture of average annual exposure. Both types of tests are available at hardware stores or through certified testing companies. If a short-term test shows levels at or above the EPA radon action level, the agency recommends following up with a long-term test before making mitigation decisions.

Mitigation methods vary depending on the construction of the home. The most common approach is sub-slab depressurization, which uses a fan to draw radon from beneath the foundation and vent it outside. Other methods include sealing cracks and installing a vapor barrier. The cost of mitigation typically ranges from \$800 to \$2,500, though some homes require more extensive work. In many cases, mitigation reduces radon levels to well below the EPA radon action level, often to less than one picocurie per liter.

Regional Variations and Risk Maps

The EPA has published a radon zone map that divides the United States into three zones based on predicted average indoor radon levels. Zone 1 areas have the highest potential, with predicted averages above four picocuries per liter. Zone 2 areas have moderate potential, between two and four picocuries. Zone 3 areas have the lowest potential, below two picocuries. However, the map is based on limited data and should not replace actual testing. Homes in high-risk zones are more likely to exceed the EPA radon action level, but homes in low-risk zones can also have elevated levels, depending on local geology and house construction.

State radon programs vary widely in their resources and requirements. Some states require radon testing in schools and daycare centers. Others mandate disclosure during home sales or provide free test kits to residents. A few states have set their own indoor radon standards that are stricter than the federal guideline. For example, New Jersey has established a state action

level of 4 picocuries per liter but also requires remediation in schools at 2 picocuries. These variations create a patchwork of protections that can confuse homeowners and renters.

Radon in the Workplace

Occupational exposure to radon is regulated by the Occupational Safety and Health Administration, which sets a permissible exposure limit of 30 picocuries per liter over an eight-hour workday. This standard is far higher than the EPA radon action level and applies only to workplaces where radon is a known hazard, such as uranium mines. For most office buildings and schools, the EPA guideline remains the relevant benchmark. However, there is no federal requirement for employers to test for radon in general workplaces, and many do not. The lack of mandatory testing in commercial buildings is a concern for workers who spend long hours in basements or ground-floor spaces.

Some industry groups have called for OSHA to update its radon standard to align more closely with the EPA radon action level. They argue that the current occupational limit is outdated and does not reflect current scientific understanding of radon risks. Others counter that the EPA guideline is designed for continuous residential exposure, not the shorter durations typical of workplaces. The debate highlights the complexity of setting exposure limits that apply across different settings and time frames.

New Technology and Testing Methods

Advances in sensor technology have made continuous radon monitors more affordable and accurate. These devices can provide real-time data on radon levels, allowing homeowners to see fluctuations throughout the day and season. They are especially useful for verifying the effectiveness of mitigation systems. Some smart home integration platforms now offer radon monitoring as part of their indoor air quality packages. As these devices become more common, the data they generate could help refine the EPA radon action level by providing a richer picture of actual exposure patterns.

Research is also underway to develop passive radon barriers that can be incorporated into building materials. These include radon-resistant concrete additives and membrane systems that block radon from entering the living space. While such products exist, they are not yet widely used in residential construction. Building codes in some high-radon areas now require passive radon control measures, such as a layer of gravel beneath the foundation and a vapor barrier, even if an active mitigation system is not installed. These measures can later be retrofitted with a fan if testing shows levels above the EPA radon action level.

What Homeowners Should Do

The first step for any homeowner is to test the home for radon. The EPA recommends testing every home, regardless of its location or age. Test kits are inexpensive and available online or at local hardware stores. If the test result is at or above four picocuries per liter, the EPA advises taking steps to reduce the level. Mitigation should be performed by a certified radon mitigation professional to ensure it is done correctly. After mitigation, the home should be retested to confirm that levels have fallen below the EPA radon action level.

Homeowners should also be aware that radon levels can change over time. Changes to the home's foundation, soil settling, or renovations can alter the pathways through which radon enters. Periodic retesting every two years or after any major structural work is recommended. For those buying a home, a radon test should be part of the inspection process. If the test shows elevated levels, the buyer can negotiate for mitigation before closing. In areas where radon is common, real estate agents often include radon testing as a standard contingency.

The EPA radon action level remains a key tool for protecting public health from an invisible threat. While it is not a legal mandate, it serves as a clear and actionable benchmark for millions of property owners. As awareness grows and technology improves, the conversation about whether the action level should be tightened is likely to continue. For now, the most important message from public health officials is simple: test your home, and if levels are high, take action.