

Basic Radon Facts

What is Radon?

Radon is a naturally occurring, invisible, odorless gas that comes from deposits of uranium in soil, rock, and water. It is harmlessly dispersed in outdoor air, but when trapped in buildings, can be harmful, especially at elevated levels. Radon is a radioactive decay product of radium, which is itself a decay product of uranium. Uranium and radium are both common elements in soil.

Where is Radon Found?

The primary source of high levels of radon in homes is the surrounding soil. Radon has been found in elevated levels in homes in every state, and the U.S. Environmental Protection Agency estimates that as many as one in 15 homes across the U.S. have elevated radon levels.

How Does Radon Get Into My House?

Warm air rises. When this happens in your home, it creates a vacuum in the lower areas of the house. Nature hates a vacuum, so something must rush in to fill it. In the case of your home, air seeps in from the soil around and under the house, and some air is sucked in through openings (cracks, doors, windows) on the lower levels. Radon gas enters the same way air and other soil gases enter the home; through cracks in the foundation floor or walls, hollow-block walls, and openings around floor drains, pipes and sump pumps.

What are the Health Effects of Radon?

Exposure to radon is the second leading cause of lung cancer in the U.S. Radon can be inhaled into the lungs, where it undergoes radioactive decay. As it decays, radon releases tiny bursts of energy called alpha particles, which can harm sensitive lung tissue by damaging the DNA. This damaged DNA can lead to lung cancer.

How is Radon Measured?

Radon is measured in picocuries per liter of air (pCi/L), a measurement of radioactivity. The U.S. EPA and the Centers for Disease Control and Prevention recommend that homes with radon levels 4 pCi/L, or greater, be fixed.

How do I Find Out if My House has Elevated Levels of Radon?

Radon test kits that meet EPA guidelines can be obtained from a radon testing company or laboratory. Get a listing from your state radon office or local health department by calling **800-SOS-RADON or 800-922-1255 in West Virginia.**

They are available at local hardware stores and home improvement stores. Many are priced under \$25.00. Testing your home for radon is as simple as opening a package, placing a radon detector in a designated area, and, after the prescribed number of days, sealing the detector back in the package and mailing it to a lab. Information on testing your home for radon and how to get a test kit is also available by calling 1-800-SOS-RADON. The cost of making repairs to reduce radon depends on how your home was built and other factors. Most homes can be fixed for about the same cost as other common home repairs, like painting or having a new hot water heater installed. The average cost for a contractor to lower radon levels in a home is about \$1,200, although this can range from \$500 to about \$2,500.

How Can I Fix My House if it has Elevated Levels of Radon?

A variety of methods can be used to reduce radon in homes. Sealing cracks and other openings in the foundation is a basic part of most approaches to radon reduction. EPA does

not recommend the use of sealing and caulking alone to reduce radon because, by itself, sealing has not been shown to lower radon levels significantly or consistently. In most cases, systems with pipes and fans are used to reduce radon. Such systems are called "sub-slab depressurization". These systems prevent radon gas from entering the home from below the concrete floor and the foundation. Similar systems can also be installed in homes with crawl spaces. Radon reduction contractors may use other methods that may also work in your home, depending on its design and other factors. Look in the Yellow Pages or call your state radon office to locate radon mitigators in your area.

Dispelling Some Common Radon Myths

"I don't have a basement, so I probably don't have a radon problem."

Radon can seep in from soil anywhere around or under a home, regardless of whether your home has a basement, a crawl space, or is built slab-on-grade. The U.S. Environmental Protection Agency and the Surgeon General recommend radon testing for all types of homes. In multi-level homes testing should be done on a level below the third floor.

"I don't live in an area designated as a high radon zone, so my home won't have a problem."

The U.S. EPA and the U.S. Geologic Survey conducted surveys of radon potential across the United States. They broke the country down into three zones according to their potential for high indoor radon levels, with Zone 1 having the highest radon potential. It is true that homes in Zones 1 and 2 have a statistically higher chance of having elevated levels of radon. However, the fact is that elevated levels of radon have been found in homes *in all fifty states*. The radon level in your home depends on the geology under and near your home. The only way to know for sure, and to protect your family from radon, is to test your home.

"Two of my neighbors have tested their homes for radon and they don't have high levels, so I probably don't either."

Radon levels can vary considerably from house to house, even on the same street. It is nearly impossible to predict the exact nature of geologic soil deposits and the extent to which soil gasses will seep into and be retained by a specific house. The only way to know whether radon exists in elevated levels in your home, and to protect your family from radon, is to test.

"There doesn't seem to be much proof that radon is a serious health problem."

The science on radon has been formidable over the years, but never before have we had such overwhelming scientific consensus that exposure to elevated levels of radon causes lung cancer in humans. In February of 1998, the National Academy of Sciences (NAS) presented the findings of their Biological Effects of Ionizing Radiation (BEIR) VI Report: "The Health Effects of Exposure to Indoor Radon." This new report by the NAS is the most definitive accumulation of scientific data on indoor radon. The report confirms that radon is the second leading cause of lung cancer in the U.S. and that it is a serious public health problem. The study fully supports U.S. EPA estimates stating that radon causes between 15,000 and 22,000 lung cancer deaths per year.

"I don't have time to test for radon!"

Testing is as simple as opening a package, placing a radon detector in your home in a designated area, and, after the prescribed number of days (typically two days), sealing the detector back in the package and mailing it to a lab. The whole process only takes a few minutes of your time!

For additional information please go to the internet web page for the U.S. EPA

<http://www.epa.gov/radon>