



## KEEP YOUR FAMILY SAFE: TEST YOUR HOUSE FOR RADON

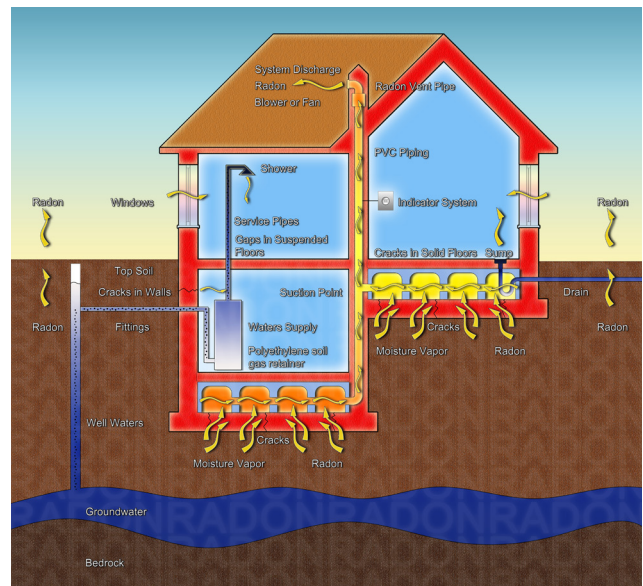
Can you name which cancer is the nation's leading cause of deaths? It may surprise you. The answer is lung cancer. Why should that concern you? Because Kentucky leads the nation in the number of new cancer cases and lung cancer deaths. Not only is this because of Kentucky's high smoking rates but also because of Kentucky's high radon levels. Radon is more than an element on a chemical chart. Now let's learn more about radon, its effects on Kentuckians health, and what steps you can take to address those effects.

### WHAT IS RADON?

The Environmental Protection Agency (EPA) identifies radon as a naturally occurring radioactive gas and the second leading cause of lung cancer. Radon can't be seen, smelled, or tasted. Testing is the only way to know the level of radon in your indoor living spaces, work areas, and buildings.

### WHERE DOES RADON COME FROM?

Radon comes from uranium which is naturally present in soil, rocks, and groundwater. When uranium breaks down into radium, it then becomes radon, a gas that can then easily move through small spaces. Radon can move between rocks and soil to reach the surface and then enter your home. Since radon is considered moderately soluble, groundwater will absorb it, creating another possible entry point. According to the EPA, radon is quickly dispersed outdoors.



### RADON AND SMOKING

Radon causes an estimated 21,000 deaths each year in the U.S. from lung cancer. Additionally, people who are exposed to both radon and tobacco smoke are 10 times more likely to develop lung cancer. Kentucky leads the nation in the number of new lung cancer cases and lung cancer deaths.

### RADON IN KENTUCKY

Kentucky has rock deposits of black shale, phosphatic limestone, and other geology that contain uranium and radium where radon can be found. Radon levels can vary greatly, even for homes sitting side by side. The only way to know the radon level in your home or workplace is by testing for it.

## WHAT HAPPENS WHEN WE BREATHE IN RADON?

Much of the radon you breathe in and out causes no harm to your lungs. However indoors, it builds up and continues further radioactive decay. Through this decay, it releases ionizing radiation and forms “daughter” elements. Radon daughters are particles that can attach themselves to items in your home and to dust and other particles in the air. When you inhale radon daughters, whether free floating or attached to particles, they can embed in your lungs. As the radioactive decay process continues, alpha particles are released which can damage your lungs and possibly lead to lung cancer. The more time you spend in a space with a high concentration of radon daughters, the higher your chances of lung damage.

## HOW DOES RADON GET INSIDE STRUCTURES?

Since radon is a gas, it can easily move from the soil and rock underneath homes and buildings into them. Radon can enter through cracks in the foundation, basements, crawl spaces, joints, floor drains, and other openings. Radon can also be drawn into the house with the use of fans and dryers. The weather can be a factor with indoor radon levels as well. It is recommended when testing for radon to start at the lowest level of the home, such as the basement or first floor.

## HOW IS RADON MEASURED?

Radon is measured in picocuries per liter of air (pCi/L). A picocurie is a measure of the rate of radioactive decay of radon. The EPA has set up a guideline of 4 pCi/L of annual average radon exposure as an acceptable health risk, even though any amount of exposure carries risk.

## TESTING FOR RADON IN YOUR HOME

There are several options to test for radon. You can find test kits at home improvement stores or online. Use an EPA-approved test kit for accuracy. The kits usually have a label that says, “Meets EPA Requirements.”

The Kentucky Department for Public Health’s Radon Program recommends three testing methods:

- a. You can use a short-term kit which is for tests lasting two to 90 days. Most commonly, people test for two days to one week, but it is important to understand that radon levels do change throughout the year.
- b. The EPA recommends you test your home for one full calendar year when possible. Long-term kits range from 90 days up to a year. You can find long-term radon kits online and at home improvement stores. These tests will record the average radon level during the period you choose to test and provide a better sign of year-round radon exposure in the home than a short-term test.
- c. You can hire a certified testing and mitigation specialist to test your home or building. If you want to hire a professional, find someone who has the technical knowledge and special skills to test then install a radon mitigation system, if necessary.

When you test your home, it is important to find the right testing location.

1. Test the lowest level of the home that is used on a regular basis and where you or a household member spend at least eight hours per week.
2. Place the test kit in a general breathing zone, between two and seven feet above the floor.
3. Place the test kit at least six inches from any walls and five feet from exterior windows and doors.
4. Keep the test kit away from vents or other places where there is frequently moving air.
5. Do not place the test kit in direct sunlight or near areas of high moisture.
6. Keep out of reach of pets and children.
7. Do not move the test kit during testing.

## REMOVING RADON FROM YOUR HOME

If your home has tested high for radon (4 pCi/L or higher), experts recommend you have a professional install a radon mitigation system. The mitigation system reduces radon inside your home by either preventing radon from entering or by venting it outside after it had entered. Lowering high radon levels requires technical knowledge and special skills. Contractors who do not specialize in radon reduction could make the problem worse. There are several ways to find a certified contractor.

- a. Search the National Radon Proficiency Program website and enter your zip code at <https://nrpp.info/pro-search/>.
- b. Contact the Kentucky Radon Program at <https://chfs.ky.gov/agencies/dph/dphps/emb/Pages/radon.aspx>.
- c. Check out the Kentucky Association of Radon Professionals website at <https://kentuckyradon.org/>.

There are several proven methods to reduce radon in your home. The most-used method has a vent pipe system and fan, which pulls radon from beneath the house and vents it to the outside. This system does not require major changes to your home. Sealing foundation cracks and other openings makes this kind of system more effective and cost-efficient. Similar systems can also be installed in houses with crawl spaces. The right system depends on the design of your home and other factors such as whether your home has a basement.

After installing a radon mitigation system, test your home again to make sure the system is working. It is strongly advised to retest your home every two years to be sure radon levels remain low. You should also retest your home after any home remodeling projects.

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*Photo courtesy of UK College of Nursing BREATHE Program*

Given Kentucky's high smoking rates, the large number of lung cancer cases and deaths, and the state's geological features, it is important for all Kentuckians to be aware, knowledgeable, and ready to take action to reduce radon in homes and indoor living spaces. By reducing exposure to radon and its effects on your health, you and your loved ones can breathe easier.

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