



## Guide to Radon

If you have any questions regarding radon gas or radon gas testing feel free to contact us via email, [Info@nextlevelhipm.com](mailto:Info@nextlevelhipm.com), or via phone, (845)-978-3414, and thanks for choosing Next Level Home Inspection and Property Management.

## EPA Recommends

- If you are buying or selling a home, have it tested for radon.
- For a new home, ask if radon-resistant construction features were used and if the home has been tested.
- Fix the home if the radon level is 4 picocuries per liter (pCi/L) or higher.
- Radon levels less than 4 pCi/L still pose a risk, and in many cases, may be reduced.
- Take steps to prevent device interference when conducting a radon test.

➤ *Radon is estimated to cause about 21,000 lung cancer deaths per year, according to EPA's 2003 Assessment of Risks from Radon in Homes (EPA 402-R-03-003).*

### 1. Overview

- *Radon is a Cancer-Causing, Radioactive Gas*
  - You cannot see, smell, or taste radon, But it still may be a problem in your home.  
  
When you breathe air containing radon, you increase your risk of getting lung cancer. In fact, the Surgeon General of the United States has warned that radon is the second leading cause of lung cancer in the United States today. If you smoke and your home has high radon levels, your risks of lung cancer is especially high.
- You Should Test for Radon
  - Testing is the only way to find out your home's radon levels. EPA and the Surgeon General recommend testing all homes at the lowest possible living level.
- You Can Fix a Radon Problem
  - If you find that you have high radon levels, there are ways to fix a radon problem. Even very high levels can be reduced to acceptable levels.
- If You Are Selling a Home...

- EPA recommends that you test your home before putting it on the market and, if necessary, lower your radon levels. Save the test results and all information you have about steps that were taken to fix any problems. This could be a positive selling point.
- If You Are Buying a Home...
  - EPA Recommends that you know what the indoor radon level is in any home you consider buying. Ask the seller for their radon test results. If the home has a radon-reduction system, ask the seller for any information they have about the system.
  - If the home has not yet been tested, you should have the house tested for radon levels.
  - If you are having a new home built, there are features that can be incorporated into your home during construction to reduce radon levels.

## 2. Why Should I Test for Radon?

- Radon has been found in homes all over the United States
  - Radon is a radioactive gas that has been found in homes all over the United States. It comes from the natural breakdown of uranium in soil, rock, and water and gets into the air you breathe. Radon typically moves up through the ground to the air above and into your home through cracks and other holes in the foundation. Radon can also enter your home through well water. Your home can trap radon inside.
  - Any home can have a radon problem. This means new and old homes, well-sealed and drafty homes, and homes with or without basements. In fact, you and your family are most likely to get your greatest radiation exposure at home. That is where you spend most of your time.
- EPA and the Surgeon General recommend that you test your home
  - Testing is the only way to know if you and your family are at risk from radon. EPA and the Surgeon General recommend testing all homes at the lowest possible living level.

## U.S. Surgeon General Health Advisory

“Indoor radon is the second-leading cause of lung cancer in the United States and breathing it over prolonged periods can present a significant health risk to families all over the country. It’s important to know that this threat is completely preventable. Radon can be detected with a simple test and fixed through well-established venting techniques.”

### 3. I’m buying a home. What should I Do?

- If the Home Has Already Been Tested for Radon...
  - If you are thinking of buying a home, you may decide to accept an earlier result from the seller or ask the seller for a new test to be completed. Before you accept a previous test you should consider:
    - The results of the previous test
    - Who conducted the previous test
    - Where in the home the previous test was taken
    - What, if any, structural changes, alterations, or changes in heating, ventilation, and air conditioning (HVAC) system have been made to the house since the last test was completed.
- If the Home Has NOT Yet Been Tested for Radon...
  - Make sure that the radon test is done as soon as possible, and start to determine specifics like:
    - Where will the test be performed
    - Who should conduct the test
    - When to do the test
    - Who will incur the cost of the test
    - How test results will be shared between seller and buyer
  - If you decide to finish or renovate an unfinished area of the home in the future, a radon test should be done before starting the project, and after the project is finished. Generally, it is less expensive to install a radon mitigation system during the renovation rather than afterward.

*\* Make sure that the test is done in the lowest level of the home that could be used regularly. This means the lowest level that you are going to use as living space where it is finished or unfinished.*

## 4. I'm buying or building a new home. How can I protect my family?

- Why Should I Buy a Radon-Resistant Home?
  - Radon-resistant techniques work, and when installed properly and completely, these simple and inexpensive passive techniques can help reduce radon levels. In addition, installing during construction makes it even easier and cheaper than if they were to be installed afterward.
  - Radon-resistant techniques:
    - Make upgrading easy – Even if built to be radon resistant, all new homes should be tested immediately after occupancy. If the result yields a 4 pCi/L or higher, then necessary steps can be taken.
    - Are cost effective – Building radon-resistant features into a new home is easier and cheaper than fixing a radon problem later.
- What Are Radon-Resistant Features?
  - Radon-resistant techniques (features) may vary for different foundations and site requirements. If your new home was built (or will be built) to be radon-resistant, it will include these basic elements:
    - Gas-Permeable Layer – This is a layer of placed beneath the slab or flooring system to allow the soil gas to move freely underneath the house. This layer is only used in homes with a basement or a slab on grade. It is generally not used in a home with a crawlspace.
    - Plastic Sheeting – Plastic sheeting is placed on top of the gas permeable layer and underneath the slab to help prevent soil gases from entering the home. In crawlspaces, the sheeting is placed directly over the floor.
    - Sealing and Caulking – All below grade openings in the foundation and walls are sealed to reduce soil gas entry into home.
    - Vent Pipe – A 3” or 4” PVC pipe that runs from the gas permeable layer through the house and out through the roof. This will help safely vent these gases, including radon gas, outside of the house.

## 5. How can I get reliable test results?

- Types of Radon Devices

Since you cannot see or smell radon, special equipment is needed to detect it. You can hire a qualified radon tester, most often a home inspector, who will use the proper radon testing device for your situation.

- Passive Devices
  - Passive radon testing devices do not need electric/power to function. These include charcoal canisters, alpha-track detectors, charcoal liquid scintillation devices, and electret ion chamber detectors. These devices are exposed to the air in the home for a specified period of time and then sent to a laboratory for analysis.
- Active Devices
  - Active radon testing devices need electric/power to function. These include continuous radon monitors and continuous working level monitors. They continuously measure and record the amount of radon or its decay products in the air.

### Radon Test Device Placement

EPA recommends that the test device(s) be placed in the lowest level of the home that could be used regularly, whether it is finished or unfinished. Conduct the test in any space that could be used by the buyer as a bedroom, play area, family room, den, exercise room, etc. Based on their client's intended use of the space, the testing professional should identify the proper test location and inform the client. DO NOT test in a closet, stairway, hallway, crawlspace, or in an enclosed area of high humidity or high air velocity. An enclosed area may include a kitchen, bathroom, laundry, or furnace room.

### • Short-term Testing

- The most common form of testing and the quickest. Short-term testing devices remain in your home from two (2) to ninety (90) days depending on the type of device used. Both passive and active devices can be used for short-term radon testing.

ALL radon tests should be taken for a minimum of 48 hours. Some devices require longer length of time.

- During a Radon Test

- Maintain closed-house conditions during the entire duration of a short-term test, especially for tests shorter than one week.
- Operate the home's heating and cooling systems normally during the test. For tests lasting less than one week, operate only air conditioning units which recirculate interior air.
- DO NOT disturb test device at any time during the test.
- If a radon-reduction system is in place, make sure the system is working properly and will be in operation during the entire radon test.

- Interpreting your Radon Test Results

- The average indoor radon level is 1.3 pCi/L; roughly 0.4 pCi/L of radon is normally found in the outside air. While the U.S. Congress has set a long-term goal of indoor radon levels to be no more than outdoor levels, it is recommended that radon levels be fixed if between measured 2 pCi/L and 4 pCi/L
- Sometimes short-term tests are less definitive about whether the radon level in the home is at or above 4 pCi/L, however the EPA believes that any radon exposure carries some risk; no level of radon is safe! Even radon levels below 4 pCi/L pose some threat for lung cancer.

- High Radon Levels Can Be Reduced.

- EPA recommends that you take action to reduce your home's indoor radon levels if your radon test result is 4 pCi/L or higher.
- A variety of methods can be used to reduce radon levels:
  - Sealing cracks and other openings in the foundation is the first basic step to radon reduction. However, the EPA recommends that this not be the only step in attempt to reducing radon levels in your home.
  - In most cases, a system with vent pipe(s) and fan(s) is used to reduce radon levels. These "sub-slab depressurization" systems do not require major changes to your home. These systems help prevent radon gas from entering the home from below the concrete floor and from outside the foundation. Other radon reduction systems could be available as well.

## 6. Radon in Water

- The radon in your home's indoor air can come from two sources, the soil or your water supply. Compared to radon entering your home through water, radon entering your home through the soil is a much larger risk. If you have elevated radon levels in your home and have a private well, you should have your water tested for radon. Testing water for radon is different from testing for radon in the air within your home.
- Radon in your water poses both an inhalation and consumption risk, however most of the risk from radon in your water comes when radon is released into the air when water is used for showering and other household purposes.
- Radon in water is fixable and should be fixed if found during a water test.

## 7. Radon Myths and Facts

- **Myth #1:** Scientists are not sure that radon really is a problem.
- **Fact:** Although some scientists dispute the precise number of deaths due to radon, all the major health organizations agree with estimates that radon causes thousands of preventable lung cancer deaths every year. This is especially true among smokers.
- **Myth #2:** Radon testing is difficult and time consuming.
- **Fact:** Radon testing is easy, and hiring Next Level Home Inspections is even easier!
- **Myth #3:** Homes with radon problems cannot be fixed.
- **Fact:** There are solutions to Radon problems in homes. Thousands of home owners have already lowered their radon levels.
- **Myth #4:** Radon only affects certain types of homes
- **Fact:** Radon can be a problem in all types of homes, including old or new homes, and homes with basements or without basements.
- **Myth #5:** Radon is a problem in certain parts of the country.
- **Fact:** High radon levels have been found in every state. The only way to know your home's actual radon level is through testing.

- **Myth #6:** A neighbor's test result is a good indication of whether your home has a radon problem.
- **Fact:** IT IS NOT. Radon levels vary from home to home, the only way to know is through radon testing.
- **Myth #7:** It is difficult to sell a home where radon problems have been discovered.
- **Fact:** Where radon problems have been fixed, home sales have not been stopped. The added protection is a good selling point.
- **Myth #8:** I have lived in my home for so long, it doesn't make sense to take action now.
- **Fact:** You reduce your risk of lung cancer when you reduce the level of radon in your home.

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