Radon testing

Introduction

This fact sheet provides recommendations from the Ohio Department of Health (ODH) on testing for radon in Ohio homes as well as information on how to use test results. The goal of radon testing is to estimate the amount of radon in a home. The results can help homeowners decide if they wish to take action to protect their health.

These recommendations reflect unique aspects of the radon levels typical in Ohio. These levels are affected by many factors such as climate, geology and the fact that many basements are used as living space. These recommendations may differ slightly from the advice given by some others such as the U.S. Environmental Protection Agency (EPA).

Why is radon important?
Radon is a naturally occurring gas that enters buildings from the surrounding soil. It is colorless, odorless, tasteless and radioactive. Elevated levels of radon have been found in homes in every county in Ohio. Increased radon levels increase the risk of lung cancer in humans. Radon is the second leading cause of lung cancer in the United States, second only to tobacco smoking.

Should I test my home for radon?
Yes. Testing is the only way to find out how much radon is in your home. The Ohio Department of Health estimates that one of every two (1/2) Ohio homes has radon levels above the EPA's recommended action level.

What does the recommended action level mean?
The EPA set a recommended action level for radon at 4.0 picoCuries/liter (pCi/L) as advice to the public on how to understand their test results. To use the recommended action level correctly, it should be compared to the annual average level of radon measured in a home. If the annual average level of radon in a home is above this action level, EPA and ODH recommend that steps be taken to lower it.

How much radon in a home is safe?
Any amount of radon carries some risk, even at or below the recommended action level. The risk of lung cancer increases with higher long-term average radon levels. Because it isn't possible to reduce radon to zero, the best approach is to lower it as much as possible. In Ohio there are no regulations requiring that radon be reduced, so people must decide for themselves how much radon they feel is acceptable in their home.

The table on the next page shows the degree of risk from radon at several different levels. These are estimates of lung cancer risk due to long-term exposure to radon. The risk estimates were adapted from the EPA's A Citizen's Guide to Radon, May 2002. They show that there is no "safe" level of radon and that risk increases with higher levels of radon. The risk to smokers from radon is significantly higher than for non-smokers.

Where can I get a radon test kit?
The ODH conducts a certification program for radon laboratories. It is recommended that you purchase a test kit that was manufactured by, and will be analyzed by, an approved laboratory. Radon test kits are sold at some hardware or home supply stores. Your local health department may offer test kits at reduced prices or at no cost. Contact the ODH Radon Program (1-800-523- 4439) for information on where to obtain low cost radon test kits.

How much will a radon test cost?
A radon test kit will cost between $5 and $30, depending on the type of kit. This price should include the laboratory analysis. Many of Ohio's County and City Health Department s have free radon test kits available for their residents.

If you hire someone to test your home, it will be more expensive. Licensed Radon Testers are often used when an unbiased third party is needed, such as in real estate transactions. Under Ohio law, other than the homeowner, only a Licensed Radon Tester may test a house.

How do I test for radon?
Follow the instructions that come with the radon test kit. There are two basic types of radon tests available to the public.

Short-term tests offer a quick and inexpensive way to "screen" for radon in your home. Short-term tests do not measure the annual average level of radon. They are typically left in place for 2 to 7 days. Tests less than 48 hours in duration are not valid.

Special measures must be in place during a short-term test. These conditions, called "closed-house conditions", include:

1. all windows must be closed;

2. air exchange systems must be turned off (except furnace); and

3. if the test is less than four days in length, the house must be und er closed-house conditions for 12 hours immediately prior to testing.

Decisions on whether or not to mitigate a home should NOT be based on the results on one short -term test. In a few instances, such as some real estate transactions, it may be necessary to make a mitigation decision based on only a single test. Whenever possible, terms of the transaction should be written to allow for another alternative so that appropriate testing can be completed before making such a decision. (See the table on the following page.)

Long-term tests should be left in place for a minimum of 90 days. Compared to short-term tests, long-term tests provide results that more accurately reflect the average amount of radon in the home during the year. The best way to estimate a year-round average is to test for a full year. If a year- long test can't be done, the test period should include both heating and cooling seasons.

Results from long-term radon tests can reasonably be used to decide whether or not to mitigate a home.

Where should I test?
Test the lowest level of the home that is regularly used. For example, if you spend more than 8 to 10 hours a week in the basement, ODH recommends testing the basement. Radon test kits should be placed as follows:

1. Select a location where the test kit:
   - will not be disturbed for the entire length of the test; and
   - is at least 4 inches from other objects.
2. Place the radon test kit:
   - at least 20 inches off the floor;
   - at least 12 inches from exterior walls; and
   - at least three feet from windows.

Do NOT place radon test kits in;

- areas with high humidity, such as kitchens, bathrooms, and laundry rooms;
- direct sunlight;
- areas with excessive heat;
- drafts caused by ventilation systems, fans, windows or doors; or
- a crawl space, furnace room, or other small enclosed area.

What factors can influence radon test results?

Time of year: The amount of radon in homes is usually highest during the heating season. Long-term tests should span both heating and non-heating seasons.

Test location: Radon levels are usually highest on the lowest floor of a home, such as the basement.

Weather patterns: Weather patterns can influence how radon gets into your home. Shortterm tests should not be conducted during severe weather or unusually high winds.

Disturbances: Test kits that are disturbed or moved during a test may underestimate the amount of radon in your home.

Timeliness of analysis: Radon test results may not be accurate if you delay sending the test kit to the laboratory. Send it as soon as possible after completing the test.

What do my radon test results mean?
In Ohio, it is up to each homeowner to decide what amount of radon is acceptable for their home. To help make that decision, the table below provides recommendations based on radon test results and the type of test used. These differ slightly from those of the EPA because they account for the weather extremes and the amount of radon typically found in Ohio. The advice also clarifies some common mistakes in how people interpret the EPA guidance. These suggestions assume that the radon tests were conducted properly.

What can I do to lower my risk?
A number or steps can be taken to lower the amount of radon in a home. A quality radon reduction (mitigation) system is often able to reduce the annual average radon level to below 2 pCi/L. As with Licensed Radon Testers, Radon Mitigation Contractors are licensed by the state. Licensed radon mitigation contractors can install appropriate control systems. Contact the ODH Radon Program for information regarding radon mitigation.

Do I ever need to retest my home?
ODH recommends that your home be retested every 3 or 4 years. Also, retest your home if you make any major changes to the ho me, such as building an addition, finishing a basement, buying a new heating system or adding central air conditioning.

Where can I get more information on radon?

Copies of EPA publications and other information on radon may be obtained at:
Ohio Department of Health
Radon Program
P.O. Box 118
Columbus, OH 43216-0118
800-523-4439 or 614-644-2727

For information on licensed radon testers and mitigators call: 614-466-0061

Data and information on radon in Ohio can be found at the Ohio Radon Information System web site at: http://radon.utoledo.edu
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