Minnesota Department of Health Fact Sheet March 2008

Radon Testing and Use of Test Results

Introduction

This fact sheet provides information from the Minnesota Department of Health (MDH) on testing for radon in Minnesota homes and how to use test results. The goal of radon testing is to estimate the amount of radon in a home. The results can help a homeowner decide if they need to take further action.

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

What is radon?

Radon is a naturally occurring radioactive gas that means it continuously decays and releases radiation. It is produced from minerals in soil, such as uranium and radium. It is colorless, odorless and tasteless.

Should I test my home for radon?

Testing is the only way to find out how much radon is in your home. MDH estimates that one in three (1/3) Minnesota homes have 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 MDH recommend that steps be taken to lower it. The EPA recommends fixing your home if the level of radon is 4 pCi/L or more. MDH recommends that if the annual average level of radon is between 2 and 4 pCi/L to consider taking action to lower radon levels.

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 Minnesota there are only regulations for new construction, so people must decide for themselves how much radon they feel is acceptable in their home.

The following table shows the level 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 Assessment of Risks from Radon in Homes. 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.

Radon (Annual Average) Level	Additional Lung Cancer Risk for People Who Never Smoked
20 pCi/L	36 out of 1,000
10 pCi/L	18 out of 1,000
8 pCi/L	15 out of 1,000
4 pCi/L	7 out of 1,000
2 pCi/L	4 out of 1,000

Where can I get a radon test kit and how much will it cost?

Radon test kits may be sold at some hardware or home supply stores. Your local health department may also offer test kits at reduced prices. Contact the MDH Indoor Air Unit for more information on where to obtain low cost radon test kits.

A radon test kit should cost between $5 and $25, depending on the type of kit. Make sure the price includes laboratory analysis.

If you hire someone to test your home, it will be more expensive. Radon measurement professionals are often used when an unbiased third party is needed, such as in real estate transactions.

MINNESOTA MDH DEPARTMENT OF HEALTH

Indoor Air Unit
625 Robert St N
P.O. Box 64975
St. Paul, MN 55164-0975
651-201-4601
www.health.state.mn.us

Radon Testing and Use of Test Results – page 2

How do I test for radon?

It is important to 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 3 to 7 days.

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 a full year. If a year-long test can't be done, the test period should include both heating and cooling seasons.

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, MDH recommends testing the basement.

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 season.

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

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

Disturbances: Test kits that are distributed 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 test kits to the laboratory as soon as possible after completing the test.

What do my radon test results mean?

In Minnesota, it is up to the homeowner to decide what amount of radon is acceptable for their home. To help with this 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 this state. The advice also clarifies some common mistakes in how people interpret the EPA guidance.

These suggestions assume that the radon tests were conducted properly.

Test Type	Result (pCi/L)	Recommended Action
Initial Short-term Test	Less than 2	Consider performing a long-term test.
	2 to 10	Perform long-term test.
	Greater than 10	Perform a second short-term test. Contact MDH before buying second test kit.
Second Short-term Test	Less than 8	Perform long-term test.
	8 or greater	Mitigation strongly recommended if first test result was also 4 pCi/L or greater.
Long-term Test	Less than 2	Retest if major changes made to the home. See "Do I ever need to retest my home?" below
	2 to less than 4	Consider performing mitigation.
	4 or greater	Mitigation strongly recommended.

What can I do to lower my risk?

A number of 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. Experienced radon mitigation professionals are available and can install appropriate control systems. A list of certified mitigators is available on our website at www.health.state.mn.us/divs/eh/air

Do I ever need to retest my home?

Yes. You should retest your home every 2 – 5 years or if you make any major changes to the home, such as building an addition, finishing a basement, buying a new heating system or adding central air conditioning.

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