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Radon in the Home

What is radon?

Radon is a radioactive gas that naturally occurs from traces of uranium in soil and rock. It can be found at varying levels around the world. In outdoor air, radon is present in low concentrations. However, in indoor air or enclosed spaces, radon can sometimes increase, and action can be required to reduce levels. Radon may be a problem in buildings such as homes, schools and small office buildings.

How is radon measured?

Special monitoring devices must be used to detect and measure radon because it is an odorless, colorless gas. A unit commonly used to measure radon is Becquerel per cubic meter (Bq/m^3). Another still in use is picocuries per litre (pCi/L).

Can radon affect my health?

The Ministry of Health Services has estimated that there are about 100 deaths a year related to radon induced lung cancer in British Columbia.

The risk of developing lung cancer depends on the concentration of radon in the air, as well as length of exposure. Short-term exposure to radon does not result in a significant risk. Medical and scientific experts state that a person exposed to a radon level of 150 Bq/m^3 (4 pCi/L) at home on a continuous basis over a lifetime has about a one in one hundred chance of developing lung cancer. If a person is continuously exposed to a radon level of 800 Bq/m^3 (22 pCi/L), the risk of developing lung cancer increases to roughly one in twenty over a lifetime.

Health Canada considers a radon level of over 150 Bq/m^3 (4 pCi/L) to be "elevated". If your home has a radon level over 800 Bq/m^3 (22 pCi/L), Health Canada recommends taking action to reduce the level within a year due to the higher risk to health. Health Canada is currently reviewing the radon guideline or action level.

What is the situation in BC?

Radon surveys have been conducted in more than 22 BC communities to monitor radon levels in various regions of the province and to identify radon-prone areas.

The survey results show that radon is not a problem along BC's coastal regions.

However, in the Interior and east of the Coast Mountain Range, a small percentage of homes tested have levels of radon gas that require action to reduce them by the homeowner. Based on these surveys, and other data on natural radioactivity in the province, it is estimated that from one to five per cent of all homes in the interior of BC may have radon levels of more than 800 Bq/m^3 (22 pCi/L). At this level, Health Canada recommends corrective action within a year.

Should I get my home tested?

Testing is required to determine whether a house has an elevated level of radon. Radon levels vary widely not only from area to area, but even from house to house.

Your home is more likely to have high radon levels if:

- It is built on dry porous soil;
- It has bare soil in the basement or crawlspace; or
- The building site was once a riverbed, a glacial outwash, or a slide area.

It is recommended that homeowners in the Interior of BC test their homes for radon. Newer homes that are tightly sealed tend to have higher radon levels. In homes with more than one floor, radon levels are often about twice as high in the basement as on the main floor.

Remember: The only one way to be absolutely sure of the level of radon gas in your home is to have your home tested.

How do I get my home tested?

You can easily do it yourself. You need to get a radon detector from a supplier and place it in the main living room or area of your home for a period of three to six months, depending on the device you use. Then return it to the supplier for analysis. The supplier will give you the results of the test reported either in Becquerel's per cubic meter (Bq/m^3) or picocuries per litre (pCi/L).

For more accurate results, a radon test should be completed during cold and warm weather, preferably for a period of six months or longer. Radon levels can vary greatly over a period of 24 hours so short-term tests, lasting only a few days, may be less reliable. Generally, levels can be higher in the winter months when the home is closed up. The aim is to get a long-term, average reading.

A list of suppliers of radon testing devices is available from Radiation Protection Services, British Columbia Centre for Disease Control (BCCDC), or under Home Inspection Services in your local Yellow Pages. The cost of a testing device and results is about $45.

What can I do if tests show my home has elevated radon levels?

There are several things you can do to greatly reduce the levels of radon in your home. Some of these are inexpensive and include:

- Improve ventilation or air flow (natural or forced) of crawl spaces, basements and other areas;
- Cover exposed earth in basements, cold rooms, storage areas, crawl spaces and other areas;
- Seal cracks and openings in basement floors and walls, and around pipes and drains.

If high radon levels continue, sub-slab ventilation is generally recommended. A small pump is installed to draw the radon from below the concrete slab to the outside before it can enter the home. If you decide to take any actions to reduce radon levels in your home, you should have a follow-up test afterwards to confirm that the levels have been lowered.

Before proceeding with any corrective action, obtain detailed information on how you can reduce indoor radon levels. More information is available at Radiation Protection Services.

What else is being done?

Both the federal and provincial governments continue to explore ways to prevent or reduce the presence of radon in buildings.

Information is available from the Canada Mortgage and Housing Corporation and other sources about how a homeowner can reduce levels of radon gas in both new and existing buildings.

Changes have been made to the National Building Code to include ways to reduce radon in new home construction. Contact your local Building Inspector for details.

For more information, contact your local environmental health officer, or contact:

Radiation Protection Services
BC Centre for Disease Control
Main Floor, 655 West 12th Avenue
Vancouver, BC V5Z 4R4
Tel: 604-660-6633 Fax: 604-660-6628
www.bccdc.org/content.php?item=69

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