

## RADON and HEALTH

### What is radon?

Radon is a radioactive, chemically inert gas that occurs naturally across BC and Canada, when uranium in soil and rock breaks down.

### Why is it dangerous?

Radon gas is carcinogenic, which means it is known to cause cancer in humans. Radon is invisible, odourless and tasteless so there is no way to know if you are being exposed, unless you test. Radon gas can infiltrate into any building where the foundation comes into contact with the soil. In enclosed spaces such as a home, it can accumulate to high levels.

### What are the known health risks from radon gas exposure?

Exposure to high levels of radon over time is known to cause lung cancer. Radon is the leading cause of lung cancer for never-smokers and the second leading cause of lung cancer after smoking. You have a 1 in 3 chance of developing lung cancer in your lifetime if you are exposed to high levels of radon and you smoke or used to smoke. For never-smokers the risk is about 1 in 20. Health Canada estimates as many as 16% of lung cancer deaths in Canada are attributed to radon gas exposure.



## RADON and TESTING

### How do I test for radon?

The most common method for testing indoor radon in Canadian homes is the long-term test. A long-term test remains in the home for 91 days and up to 12 months. A long-term test will give you a reading that is more likely to tell you your home's year-round average radon level. If you need results quickly you might choose a short-term test. Short-term tests remain in a home for 2-90 days and are effective to determine radon potential. As radon levels can fluctuate, the BC Lung Association recommends you always follow-up a short-term test with a long-term test. A single short-term test should not be used to determine mitigation.

### Is it safe to test my home for radon?

Yes, indoor radon testing is completely safe. Test kits usually come with one detector. The detector used for testing your home for radon does not emit radiation.

### How long does it take to test for radon?

Health Canada recommends homeowners use a long-term radon test. The BC Lung Association sells long-term test kits that can be used for 91 days and up to a maximum of 12 months.

### When is it best to test my home for radon?

Radon levels tend to be higher in the cooler months when homes are typically 'sealed-up.' The BC Lung Association and Health Canada recommend testing your home for radon for a period of no less than 3 months during the cooler months. You can start your test in the summer, but be sure to leave the test running over the winter.

### My results were high/low. Should I test my water too?

Some water supplies may be a source of radon gas released into the air when water is agitated, such as water from a shower. The health risk from radon gas dissolved in water and ingested is considered to be much less than the health risk from radon gas in air that is inhaled. The BC Lung Association recommends homeowners contact a Certified Radon Professional if they are concerned about a possible source of radon from their water supply.

### Where can I purchase an indoor radon test kit?

The BC Lung Association sells indoor radon test kits. Go to [www.radonaware.ca](http://www.radonaware.ca) to find out how you can purchase a kit. You can also purchase test kits from some hardware stores or through your local health authority.

## RADON and HEALTH GUIDELINES

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### What is the Health Canada recommended action level for radon mitigation?

The Health Canada recommended action level [also known as the reference level] is 200 Bq/m<sup>3</sup>.

### What does 'action level' mean?

Action level refers to the point at which Health Canada recommends a homeowner reduce the radon level in a home. When you test for indoor radon, you will receive a lab analysis report that will highlight a number that is either above or below the Health Canada action level of 200 Bq/m<sup>3</sup>.

### Health Canada recommends taking action at an indoor radon level of 200 Bq/m<sup>3</sup>. Is this guideline the same in the US, internationally?

Worldwide, not all action levels for indoor radon are the same. The recommended action level in the US by the Environmental Protection Agency is 148 Bq/m<sup>3</sup>. The action levels in countries in the European Union range between 200 Bq/m<sup>3</sup> and 400 Bq/m<sup>3</sup>. The World Health Organization recommends one of the lowest action levels of 100 Bq/m<sup>3</sup>.

Health Canada's action level is only a suggested guideline based on a variety of factors such as health risk and what can be easily achieved in a home with current mitigation techniques, for a reasonable cost. You may decide to mitigate your home even if your test results are below 200 Bq/m<sup>3</sup>.

## RADON and HOME MITIGATION

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### My indoor radon test results are above 200 Bq/m<sup>3</sup>. What should I do?

Health Canada and the BC Lung Association recommend homeowners take action to reduce indoor radon levels if test results are above the Canadian guideline of 200 Bq/m<sup>3</sup>. The higher the level of radon in a home and the longer your exposure, the greater your risk is.

### I recently tested my home for radon and my levels were above the Health Canada recommended action level of 200 Bq/m<sup>3</sup>. What happens if I choose not to mitigate?

If you tested your home for radon and the levels are elevated [above 200 Bq/m<sup>3</sup>] the BC Lung Association and Health Canada recommend you reduce your exposure by mitigating your home. If you do not mitigate your home and reduce your radon levels, you will continue to be exposed to unsafe levels that may impact your or your family's health. Exposure to elevated levels of radon over time is known to cause lung cancer.

### Can radon in my home/every home be fixed?

Most homes are built using similar construction techniques. As such, the variety of ways for radon to infiltrate a home tend to be consistent from building to building. Therefore, the strategies for reducing radon levels in different homes tend to be consistent.

### How can indoor radon levels be reduced?

For homes that have radon levels above 200 Bq/m<sup>3</sup>, one or more of the following measures may be needed:

- Sealing cracks in the foundation and openings around pipes, drains, and at foundation edges.
- Increasing mechanical ventilation.
- Installing a Passive Sub-slab Depressurization System.
- Installing an Active Sub-slab Depressurization System.

### What is a Passive Sub-slab Depressurization System (PSD)?

A Passive Sub-slab Depressurization System helps to reduce the amount of radon entering a home by enabling its evacuation from below the foundation. A Passive System uses the natural movement of air to vent radon gas to the outdoors via a radon pipe where it can be quickly diluted.

### What is an Active Sub-slab Depressurization System (ASD)?

An Active Sub-slab Depressurization System is much like a Passive System except the Active System has the benefit of an electrically powered fan. The fan acts much like a vacuum drawing radon and other potentially harmful gases up through the pipe. These gases can then be vented to the outdoors where they are quickly diluted. An Active Sub-slab Depressurization System is the recommended strategy for ensuring radon levels are consistently reduced below 200 Bq/m<sup>3</sup>.

### How much does home mitigation typically cost?

The typical cost to install an Active Sub-slab Depressurization System is similar to other small home renovations and repairs. Costs typically range (one average) from \$1500 - \$3500, depending on the size and type of home. Please note: the BC Lung Association recommends all people consult with a Certified Radon Mitigation Professional when considering home mitigation to reduce radon levels. You can locate a Certified Radon Mitigation Professional at [www.radonaware.ca](http://www.radonaware.ca)

### Who can perform home radon mitigation?

Any person can do home radon mitigation, but only people that have completed specific training courses can call themselves 'Certified'. A Certified Radon Professional will be able to provide detailed information on radon risks, testing, and mitigation. A Certified Radon Professional will also ensure that your mitigation system is working properly once it has been installed.