

## **RADON AND HEALTH**

- What is radon?  
Radon is a radioactive gas that occurs naturally [across BC and Canada] when uranium in soil and rock breaks down.
- Why is it dangerous?  
Radon is invisible, odourless and tasteless so there is no way to know if you are being exposed – unless you test. Radon gas is carcinogenic, which means it can cause cancer. In enclosed spaces such as a home, it can accumulate to high levels. Radon gas can infiltrate into any building where the foundation comes into contact with the soil. Common areas for radon gas to leak into a building include cracks in the foundation, construction joints, and gaps around service pipes, floor drains, and window casements.
- 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 non-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 non-smokers the risk is about 1 in 20. Approximately 16% of lung cancer deaths in Canada are attributed to radon gas exposure.

## **RADON AND TESTING**

- 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 that you use for testing your home does not emit radon.
- How long does it take to test for radon?  
There are various methods for indoor radon testing – typically ranging from days to months. Health Canada recommends homeowners use a long-term indoor radon test. The BC Lung Association sells 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 and a maximum of 12. You can start your test in the summer, but be sure to leave the test running over the winter months.

- 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 type stores.

## **RADON AND HEALTH GUIDELINES**

- 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 [in this case 200 Bq/m<sup>3</sup>] 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 remedial 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 level(s) 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

- I have tested my home for radon. Am I required to mitigate my home?  
If you have tested your home for radon and the results are above 200 Bq/m<sup>3</sup> the BC Lung Association and Health Canada recommend you mitigate your home to reduce your radon levels. Whether or not you mitigate is a personal choice and only one that you can make. You are not required to mitigate.
- 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, the greater your exposure 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 have 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.
- My indoor radon test results are below 200 Bq/m<sup>3</sup>. What should I do?  
There is no known, absolute safe exposure level to radon. The Health Canada level is a recommended guideline only. As a homeowner you need to make the best decision for you and your family in terms of the level of radon to which you are comfortable being exposed.
- 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 also 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. A fan is not used in a Passive System.
  
- 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 reducing radon levels in existing homes.
  
- 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'. Radon mitigation may be beyond what many homeowners are wanting [or able] to complete. It depends on the level of experience a homeowner has with understanding how radon enters a home and the various construction techniques to reduce its level.
  
- Can I do home radon mitigation myself?  
With the right amount of information, homeowners may choose to take on mitigation themselves. There are various resources that homeowners can use to assist with do-it-yourself mitigation. The BC Lung Association has developed a guide, *Protecting Your Home from Radon in Canada: A Step-by-Step Manual for Radon Reduction* that can be

accessed from most public libraries in communities that are known to have higher radon background levels. You can also order a copy of the book by visiting [www.radonaware.ca](http://www.radonaware.ca)

- Do I need a building permit to perform radon mitigation on my home?  
As with any home renovations and repairs you will want to check with your local Municipal building department to determine whether or not you need to obtain a building permit to perform home radon mitigation. Explain to your local Municipality what you plan to do to reduce the radon level in your home and they will advise you on whether a permit is necessary.