

# RADON & YOUR HEALTH

## FREQUENTLY ASKED QUESTIONS



### 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 radon a concern?

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. 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.

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

Exposure to high levels of radon over a long period of time is known to increase the chances of contracting lung cancer. Radon is the leading cause of lung cancer for never-smokers and the second leading cause of lung cancer after smoking.

### What is the risk of developing lung cancer from radon?

You have a 1 in 3 chance of developing lung cancer in your lifetime if you are exposed to high levels of radon (over a period of many years) 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 Smoking

The majority of lung cancer deaths are caused by smoking. Radon exposure is linked to approximately 16% of lung cancer deaths in Canada and is the second leading cause of lung cancer for smokers. If you smoke or have smoked and your home has high radon levels, your risk of lung cancer is especially high:

Radon Level (Bq/m3)	If 1,000 people who never smoked were exposed to this level over a lifetime	If 1,000 people who smoked were exposed to this level over a lifetime
740	About 36 people could get lung cancer	About 260 people could get lung cancer
296	About 15 people could get lung cancer	About 120 people could get lung cancer
148	About 7 people could get lung cancer	About 62 people could get lung cancer
74	About 4 people could get lung cancer	About 32 people could get lung cancer

## Radon Levels in Canadian Homes

In 2009 Health Canada conducted a two-year study of radon concentrations in homes across Canada. This study found that:

- Approximately 7% of homes have high levels of radon
- Radon levels vary significantly across the country
- There are no areas of the country that are 'radon free,' but there are areas of the country where high levels of indoor radon are more prevalent

No matter where your home is located, the only way to know if it has a high level of radon is to test.

## I just found out I have been exposed to high levels of radon for the last year, should I be concerned?

Not everyone exposed to high levels of radon will develop lung cancer. The risk from radon exposure is long term (many years) and depends on 3 factors:

1. The level of radon
2. How long you are exposed
3. Your smoking habits

Individuals exposed to high levels of radon (over 800 Bq/m<sup>3</sup>) over many years, have an estimated 1 in 20 lifetime risk of developing lung cancer.

## Is there anything I can do if I have been exposed to radon at my workplace?

Due to the latency and long period of exposure required for the onset of some occupational diseases, WorkSafeBC has created the exposure registry as a way for workers, employers, and others to register a worker's exposure to a harmful substance or agent or work.

## I have been exposed to high levels of radon, should I get a chest x-ray?

If you are concerned about your lung health you should speak with your family doctor. Your primary care physician will provide you with advice related to any lung health concerns.

## How to test your home?

The only way to know if you have radon present in your home is to test for it.

Indoor radon test kits can be purchased through the BC Lung Association. Go to [www.radonaware.ca](http://www.radonaware.ca) to purchase a long term test kit. Instructions on the proper deployment of the test are included with the purchase of the test kit. You may also be able to purchase test kits from your local health authority.

Long term radon tests kits cost \$29.99 plus shipping and handling at [www.radonaware.ca](http://www.radonaware.ca). This includes the cost of analysis and delivery of the findings to your attention.



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## How does radon damage lung tissue?

Radon is radioactive and decays. As it decays, radon produces decay products, sometimes called "radon daughters" or "radon progeny". Radon gas and radon progeny in the air can be breathed into the lungs where they decay further and emit "alpha particles". Alpha particles release bursts of energy that can be absorbed by lung tissue. This results in lung cell death or damage. When lung cells are damaged, they have the potential to result in cancer when they reproduce.

## What are the symptoms of radon exposure?

Exposure to radon does not produce any symptoms, such as coughing or headaches. There is no way to know if you are being exposed to high levels of radon other than to test for it in your home and workplace.

## What level of radon is safe?

Radon is a radioactive gas known to cause cancer in humans. There is no completely safe level of exposure. At zero radon exposure, there is zero risk. As the level of radon exposure and time of exposure increases, so does risk.

## 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>. A Becquerel is a unit for measuring radioactivity. A Becquerel refers to the amount of ionizing radiation released when a radioactive isotope such as uranium starts to decay. One Becquerel (1Bq) is defined as the radioactivity in which one nucleus decays per second.

## What does 'action level' mean?

Action level refers to the point at which Health Canada recommends a building's radon level be reduced. When you test for indoor radon, a lab analysis report provides a number that is either above or below the Health Canada action level of 200 Bq/m<sup>3</sup>. The Provincial Building Radon Testing Pilot Project is using the Health Canada guideline of 200 Bq/m<sup>3</sup> for remedial action.

Radon Concentration	Recommended Remedial Action Time
Greater than 600 Bq/ m <sup>3</sup>	Less than 1 year
Between 200 Bq/m <sup>3</sup> and 600 Bq/m <sup>3</sup>	Less than 2 years
Less than 200 Bq/m <sup>3</sup>	No action required

## Resources

If you would like further information about radon, visit the following websites.

Health Canada

[http://www.hc-sc.gc.ca/ewh-semt/radiation/radon/faq\\_fq-eng.php#detect](http://www.hc-sc.gc.ca/ewh-semt/radiation/radon/faq_fq-eng.php#detect)

Radon in Buildings

[https://www.ccohs.ca/oshanswers/phys\\_agents/radon.html](https://www.ccohs.ca/oshanswers/phys_agents/radon.html)

Guide for Radon Measurements in Residential Dwellings (Homes)

[https://www.canada.ca/en/health-canada/services/publications/health-risks-safety/guide-radon-measurements-residential-dwellings.html#a1\\_3](https://www.canada.ca/en/health-canada/services/publications/health-risks-safety/guide-radon-measurements-residential-dwellings.html#a1_3)

Radon Reduction Guide for Canadians

[http://www.hc-sc.gc.ca/ewh-semt/pubs/radiation/radon\\_canadians-canadiens/index-eng.php](http://www.hc-sc.gc.ca/ewh-semt/pubs/radiation/radon_canadians-canadiens/index-eng.php)

WorkSafeBC

<https://www.worksafebc.com/en/health-safety/hazards-exposures/radon>

WorkSafeBC Exposure registry

<https://www.worksafebc.com/en/resources/health-care-providers/forms/exposure-registry-program-form-41m1?lang=en>

BC Lung Association

<http://www.radonaware.ca/>

