

BRITISH COLUMBIA LUNG ASSOCIATION

Radon Screening Library Lending Program

Information & Instruction Booklet



**Find out if radon is an issue
in your home.**

bc.lung.ca

Legal Disclaimer of Liability

Ensure you read this disclaimer in its entirety before beginning the screening process. By beginning the screening process you are agreeing to the terms as written below.

The user holds full accountability for the results of the screening.

A long term test is recommended by Health Canada regardless of the screening results. This screening test only indicates the potential of radon to be in your home, as radon fluctuates continuously, and consequently, a long term test (minimum of 91 days) is recommended.

The British Columbia Lung Association does not guarantee in regards to warranty of the function or the ability of the device.

Table of Contents

- 2 Lung Cancer Stories
- 4 Radon: A Radioactive Discovery
- 5 Learn About Radon
- 9 How to Test for Radon
- 11 Mitigation
- 13 Device and Instructions
- 16 Device Troubleshooting
- 17 Links

Images in this booklet:

Figure on page 6 references:

1. <https://www.tc.gc.ca/eng/motorvehiclesafety/canadian-motor-vehicle-traffic-collision-statistics-2016.html>, 2016
2. <https://www.injuryresearch.bc.ca/wp-content/uploads/2017/10/Carbon-Monoxide-Oct-2017-Final-UFV.pdf>, pg 17
3. Statistics Canada. Table 35-10-0195-01 Fire-related deaths and persons injured, by type of structure (2014)

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Rachael Malmberg and Lori Enns image and stories used with permission.

Rachael Malmberg's Story



Rachael Malmberg (née Drazan) is a former collegiate and Olympic level hockey player. From the eighth grade, Rachael has played with the US women's ice hockey program, competing with the U22 and Senior Women's teams in several Four Nations Cups and World Championships. She has competed all around the world, from the US and Canada to Finland and China.

In April of 2017, at the age of only 31, Rachael was diagnosed with Stage IV lung cancer with metastases in the brain and mediastinum lymph nodes. Given her active, healthy lifestyle, the diagnosis was a big surprise. Rachael's search for a cause of her lung cancer led her to have both her current and childhood homes tested for radon. Both homes measured high, which is not uncommon in Minnesota. Now a proud lung cancer survivor, Rachael has devoted herself to driving change and raising radon testing within schools to help protect the most vulnerable members of society: our children.

Rachael is married and the mother of a beautiful five-year-old daughter. In her spare time, she enjoys spending time with her family, exercising, coaching soccer and hockey, volunteering within the community, and advocating for lung cancer research.

Lori Enns' Story

"I wish I had known about the possibility of radon accumulating in our homes years ago."

How can a lifelong non-smoker possibly get lung cancer? Those were my thoughts when I was first diagnosed. In 2014, I was diagnosed with a Stage 2a non-small cell lung cancer known as adenocarcinoma.

I have never smoked, worked with dangerous chemicals or been exposed to diesel or gasoline exhaust. Earlier that year, I had read an article about radon. We thought of testing our home, but delayed; we assumed that we did not have any risk factors for lung cancer. After my diagnosis, I wanted to find out: was it radon? In January 2015, while I was recovering from surgery, we set up a three month test. Those test results indicated that our family room was above Health Canada's action level, and we then contracted a C-NRPP certified mitigation company to reduce our radon levels.

I wish I had known about the possibility of radon accumulating in our homes years ago. There's no cure for lung cancer, and my life for the last 4 years has had many ups and downs as my treatment continues and changes. Yet, my life continues and I'm so very thankful that, unlike so many who have been diagnosed at a more advanced stage, I'm alive.



Radon: A Radioactive Discovery

- 1899** Radon was discovered at McGill University in Montreal by Ernst Rutherford.
- 1984** Stanley Watras was working at a nuclear power plant that was under construction. He kept setting off the radiation alarms, which baffled safety personnel, as the plant did not yet contain nuclear material. Eventually, the source of the radiation was traced back to his home. The levels of radon in his house were so high that it stayed with him and set off the alarms at work.
- 1988** The World Health Organization classified radon as a Group 1 carcinogen, with well established links to lung cancer.
- 2007** Health Canada launched a national radon program and reduced the action level from 800 to 200 Bq/m³.

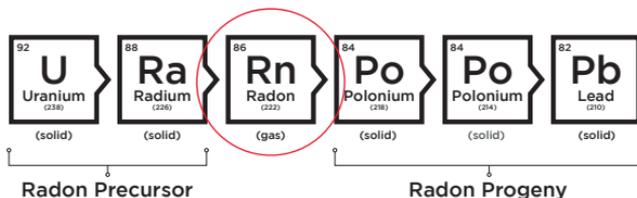
Radon is a
Colourless,
Odourless,
Radioactive
Gas



About Radon

Radon is formed by the breakdown of uranium, which is found in all soil, water and rock. Since radon is a gas, it can escape from the ground. In outdoor air, radon is diluted very quickly and is not a concern. However, in enclosed spaces like homes, it can become trapped and accumulate to high levels, which creates a health risk.

Radon Decay Chain



Once in your home, radon continues to decay, turning into radioactive polonium and lead (solids). When you breathe in radon and its radioactive progeny, the solids get deposited in the lungs and release alpha radiation, which damages the DNA in your lungs.

Health Effects



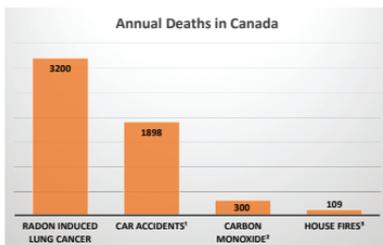
The only known health effect from exposure to radon is the increased risk of developing lung cancer.

It is estimated that 16% of all lung cancer cases are radon induced, which results in more than 3000 deaths per year in Canada.

Long term exposure to radon is the second leading cause of lung cancer after smoking and is the #1 cause of lung cancer for non-smokers.

Radon has not been linked to respiratory diseases such as asthma or symptoms such as persistent coughing or headaches.

According to Health Canada, the lung cancer risk for lifetime exposure to radon at 800 Bq/m³ is 1 in 20. If you smoke and are exposed to 800 Bq/m³, the risk of lung cancer increases to 1 in 3.

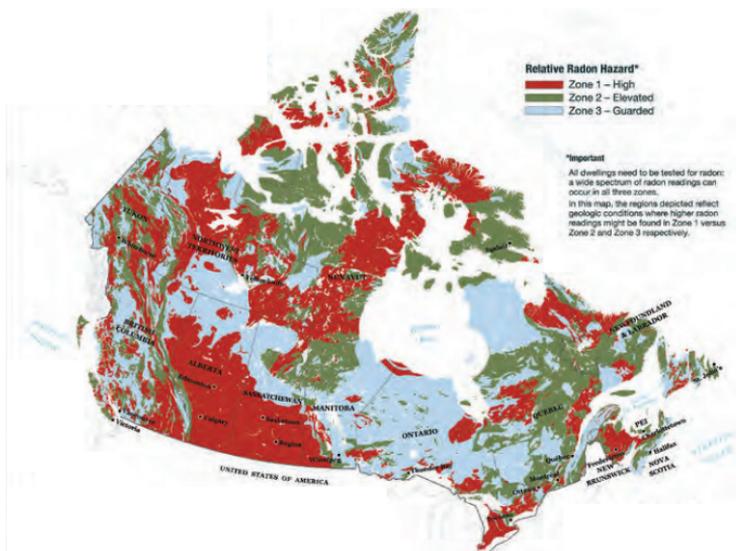


The above chart compares radon related deaths to other risks.

Where is Radon in Canada?



1 in 6 homes in Western
Canada have high levels
of radon.

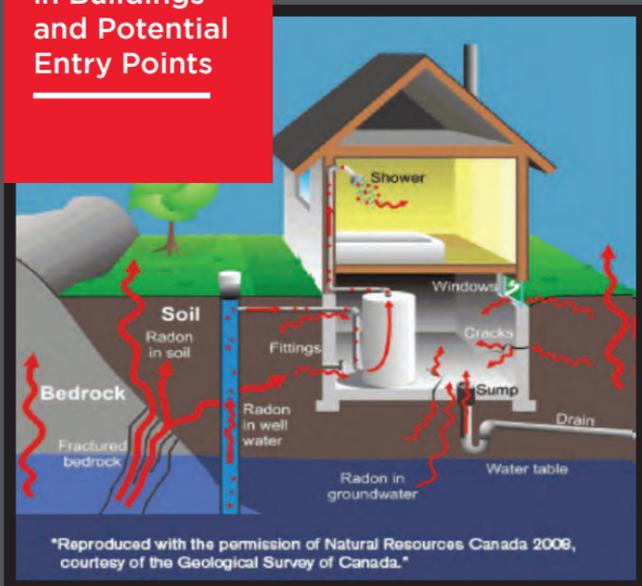


The Radon Potential Map of Canada was produced by Radon Environmental Management Corp., who granted permission for its reproduction in this publication.

The above map shows the potential for radon to be found in homes across Canada. It is based on uranium concentration in the soil.

In a cross-Canada survey, Health Canada found that no areas in Canada are free from radon issues.

Radon in Buildings and Potential Entry Points



Radon can get into any building that is in contact with the ground. Radon will not just stay in your basement; it will circulate in the air throughout your home.

Every home has some level of radon – the only way to know how much is to test. Several factors influence radon levels, and two houses built side-by-side can have different indoor radon levels.

How to Test

This is an alpha track long term test device, which can be purchased from the BC Lung Association. Visit www.radonaware.ca to order.

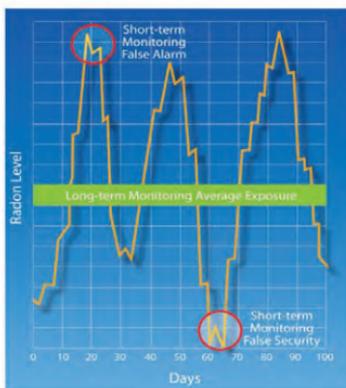


The easiest and least expensive way to test is to purchase a do-it-yourself approved long term test device that costs between \$30-60.

Place the device in your home for at least three months (91 days) during the fall or winter time, when windows and doors tend to be closed.

Send the device back to the lab, and results will be mailed to you. Be aware, some test kits do not include the lab analysis fee in the retail price. Check with the manufacturer or the retailer.

Health Canada recommends long term testing, as radon levels can fluctuate throughout the year; therefore, a long term test will be more representative of your annual average exposure.





Action Level

The Canadian Guideline for radon is 200 Bq/m^3 . If you are above this level, Health Canada recommends you take action.

While the health risk from radon exposure below the Guideline is small, there is no safe level. Health Canada recommends reducing your exposure to as low as reasonably achievable.

The action levels are based on long term exposure. You must do a long term test of at least three months to determine if you are at risk.



200 - 600 Bq/m^3
fix your home
within 2 years



Above 600 Bq/m^3
fix your home
within 1 year

The library kit is a short term screening; regardless of the results, we recommend you do a long term test.

Re-test every 5 years or after a major home renovation.



Reduce Your Risk

High radon levels in all homes can be reduced by a certified mitigation professional.

The average cost to have this system installed by a mitigation professional is \$2,000 to \$4,000, including materials and labour.

It is recommended that you get multiple quotes and ask for references as you would for other types of home renovations.

To find a certified mitigation professional visit: <https://c-nrpp.ca/find-a-professional/> or call: 1-855-722-6777

HOW TO REDUCE RADON IN YOUR HOME

- HIRING a certified professional**
LOWERS RADON BY UP TO **90%**
- INCREASING home ventilation**
LOWERS RADON BY **25-50%**
- SEALING cracks**
LOWERS RADON BY LESS THAN **15%**

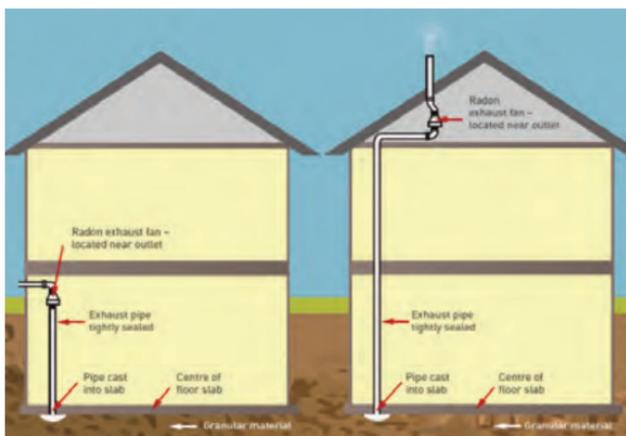
RADON

How to Reduce

The most common and effective method utilized is called sub-slab depressurization.

This method involves installing a pipe through the foundation and attaching a fan that runs continuously. The fan draws the radon gas from below the home and vents it to outside the home, where it is diluted to safe levels.

Increasing ventilation in the home and sealing cracks in the foundation are other ways to reduce your radon exposure, but will generally only result in a small reduction in the radon levels in your home.



About the Device



The device in the screening kit is called *Corentium Home* by Airthings. It is an electronic device that can detect radon.

Cumulative average from the time the device is reset.

Short term average for the past 1 or 7 days. Note: the display toggles between 1 and 7 days.



Device Instructions

1

Using a pin or a ballpoint pen, press the **Reset** button on the back of the device to start the screening. The device is powered by 3 x AAA batteries.



We recommend you do not press the mode button. It is only used to repair the device.

2

Device will say **CAL** and count down, then will flash dashes for up to 24 hours before any readings appear.

If the screen displays **Err** (error) reset the device by pressing the button or by removing and reinstalling the batteries. If problem persists, return device to the library.



Disclaimer

This device is meant as a screening tool to give you an approximate idea of the radon levels in your home. It is recommended that regardless of the level this device shows, that it is followed up with a long term test of at least 3 months during the fall or winter.

14

Radon Screening Program

3

Place the device on a bookshelf or an end table in a bedroom or living room in the lowest level of your home.



Place device out of reach of pets and children.



Do not put in direct sunlight or high moisture areas.



4

Leave the device in one spot undisturbed for as long as possible; longer measurement periods will be more representative.



5

When you are finished your screening:

- A Take note of the radon levels (long term and short term averages).
- B Complete the anonymous online survey at: <https://www.surveymonkey.com/r/radonLLP>

6

It is recommended that you confirm the results of this screening with a long term test kit.

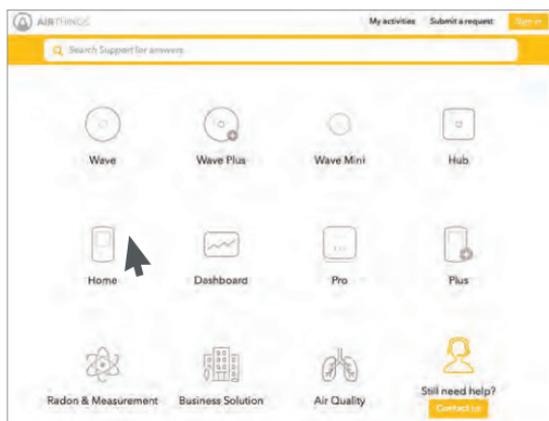


Purchase at www.radonaware.ca

Device Troubleshooting

Airthings has a great FAQ and Troubleshooting section on their website.

Go to: support.airthings.com and click on the 'Home' icon.



Contact:  support@airthings.com

 +1 (866) 222-2117

Links

For more information on radon:

Health Canada

<http://www.canada.ca/radon>



604.666.3351



hc.radon.bc.yt.sc@canada.ca

British Columbia Lung Association

www.radonaware.ca



1.800.665.5864



radonaware@bc.lung.ca

Take Action on Radon

<https://www.takeactiononradon.ca>

To find a certified mitigation professional visit:

Canadian National Radon Proficiency Program (C-NRPP)

<https://c-nrpp.ca/find-a-professional>

The BC Lung Association would like to acknowledge Alberta Lung Association for the use and reproduction of this material.

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