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# RADON: IS IT IN YOUR HOME?



Canada



## WHAT IS RADON?

Radon is a radioactive gas that occurs naturally when the uranium in soil and rock breaks down. It is invisible, odourless and tasteless. When radon is released from the ground into the outdoor air, it is diluted and is not a concern. However, in enclosed spaces like homes, it can sometimes accumulate to high levels, which can be a risk to the health of you and your family.

## WHAT ARE THE HEALTH EFFECTS OF RADON?

Radon gas breaks down or decays to form radioactive elements that can be inhaled into the lungs. In the lungs, decay continues, creating radioactive particles that release small bursts of energy. This energy is absorbed by nearby lung tissue, damaging the lung cells. When cells are damaged, they have the potential to result in cancer when they reproduce.

Exposure to high levels of radon in indoor air results in an increased risk of developing lung cancer. The risk of cancer depends on the level of radon and how long a person is exposed to those levels.

Exposure to radon and tobacco use together can significantly increase your risk of lung cancer. For example, if you are a lifelong smoker, your risk of getting lung cancer is 1 in 10. If you add long-term exposure to a high level of radon, your risk becomes 1 in 3. On the other hand, if you are a non-smoker, your lifetime lung cancer risk at the same high radon level is 1 in 20.

## HOW CAN RADON GET INTO MY HOME?

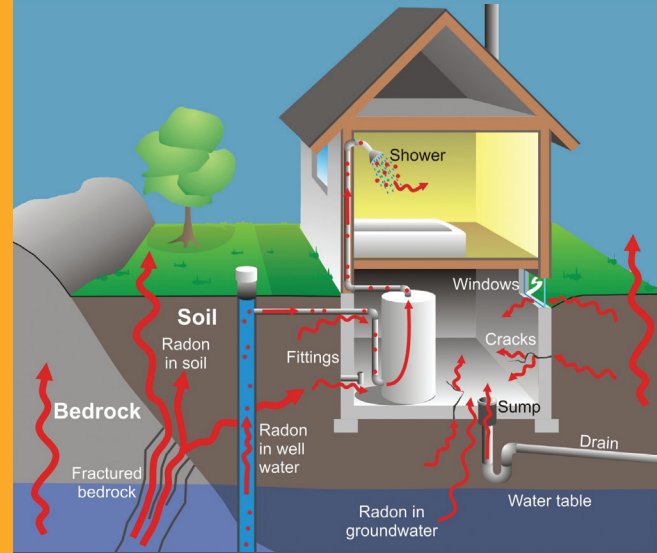
The air pressure inside your home is usually lower than in the soil surrounding the foundation. This difference in pressure draws air and other gases, including radon, from the soil into your home.

Radon can enter a home any place it finds an opening where the house contacts the soil: cracks in foundation walls and in floor slabs, construction joints, gaps around service pipes, support posts, window casements, floor drains, sumps or cavities inside walls.

## WHAT ARE THE RADON LEVELS IN CANADA?

Radon is found across Canada, because it occurs naturally in soil. Concentrations differ greatly, but are usually higher in areas where there is a higher amount of uranium in underlying rock and soil. Some amount of radon is found in almost every home, but concentration levels will vary from one house to another, even if they are similar and next door to each other. It is expected that only a small percentage of homes will have radon levels above the guideline but the **ONLY** way to be sure of the radon level in your home is to **TEST**.

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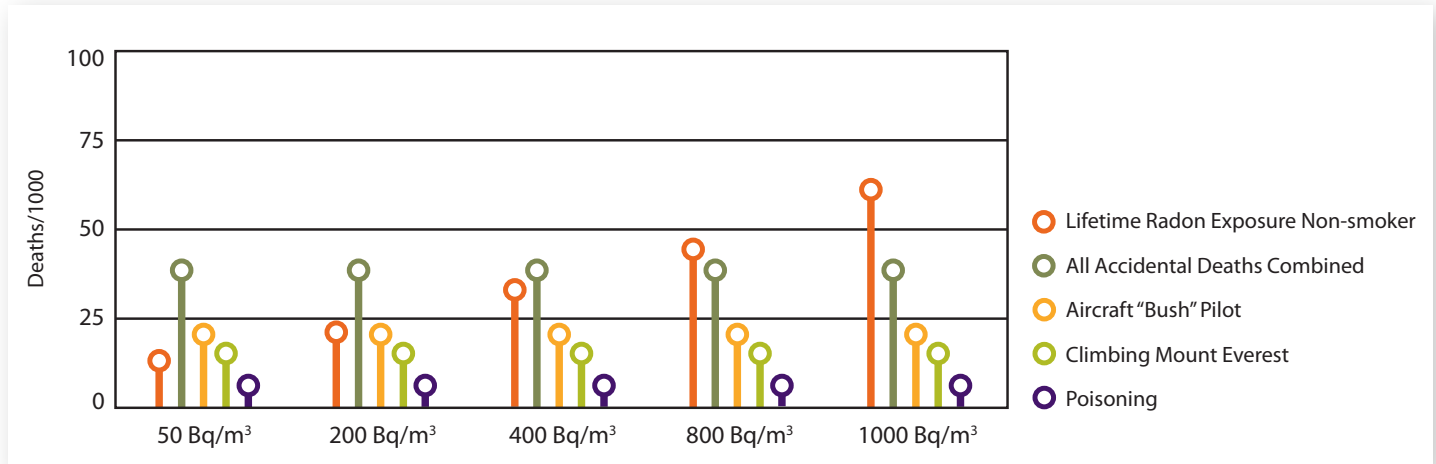


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## WHAT IS THE CURRENT CANADIAN GUIDELINE FOR RADON IN INDOOR AIR?

The current Canadian guideline for radon in indoor air for dwellings is 200 Becquerels per cubic metre (200 Bq/m<sup>3</sup>). This was recently reduced from 800 Bq/m<sup>3</sup> based on new information about potential health risks. A Becquerel means one radioactive disintegration per second. Individual dwelling owners may wish to reduce radon levels as much as they reasonably can, using methods they find affordable and practical. However, the level in a dwelling should not be above the new guideline.

The chart below illustrates that the risk for a non-smoker at 800 Bq/m<sup>3</sup> is higher than for all common accidental deaths (motor vehicle accidents, drownings, falls, fire and more) combined. We take precautions against accidental deaths by putting on our seatbelts, wearing lifejackets or ensuring that our smoke detectors are working – we should also be testing our homes for radon!



## HOW DO I TEST MY HOME FOR RADON?

There are two options for testing a house for radon: to purchase a do-it-yourself radon test kit or to hire a radon measurement professional. If you choose to purchase a radon test kit, you must closely follow the instructions on how to set up the test.

If you choose to hire a service provider to perform the radon test in your house, it is recommended that you ensure they are certified and will conduct a long term test for a minimum of 3 months.

## WHERE CAN I GET A RADON TEST DEVICE?

Radon test kits may be purchased over the phone, on the internet or from home improvement retailers. The radon test kits include instructions on how to set up the test and to send it back to a lab for analysis once the testing period is over. The cost of testing ranges from \$25 to \$75.

## WHERE IN MY HOME SHOULD I PERFORM THE TEST?

To provide a realistic estimate of the radon exposure of your family, all measurements should be made in the lowest lived-in level of the home. That means the lowest level that is used or occupied for more than four hours per day. For some, this may be a basement with a rec room, for others it will be the ground floor. If you only use your basement once a week to do laundry, for example, there is no need to test on that level – your exposure time will not be long enough to create health effects.

## WILL HIGH LEVELS OF RADON AFFECT THE VALUE OF MY HOUSE?

Where a high radon level is detected, it can most often be successfully lowered at a cost which is usually small when compared to the value of the house. Like regular maintenance, fixing the problem may in fact protect the value of your home.

## HOW CAN I REDUCE THE AMOUNT OF RADON IN MY HOME?

If your radon test result is above the guideline of 200 Bq/m<sup>3</sup>, you can take the following steps to help reduce the level of radon:

- Ventilate the basement sub-flooring by installing a small pump to draw the radon from below the concrete slab to the outside before it can enter your home (commonly known as Sub Slab Depressurisation typically performed by a contractor).
- Increase the mechanical ventilation, via a heat recovery ventilator (HRV), to allow an exchange of air.
- Seal all cracks and openings in foundation walls and floors, and around pipes and drains.

If you want to hire a contractor, Health Canada recommends that the contractor be certified as a radon mitigation professional from an accredited organization.

Health Canada recognizes the Canadian certification program, *Canadian National Radon Proficiency Program* (C-NRPP), offered through the *American Association of Radon Scientists and Technologists* (AARST), [www.neha-nrpp.org/cnrpp.shtml](http://www.neha-nrpp.org/cnrpp.shtml), 1 800 269-4174. C-NRPP is the credentialing body that will administer and operate the program in accordance with their program policies.

## HOW MUCH WILL IT COST TO REDUCE THE LEVEL OF RADON IN MY HOME?

The cost for radon reduction depends on the size and design of a home and the work that is needed. These costs typically range from \$500 to \$3000.

## WHERE CAN I LEARN MORE?

Visit the Health Canada Web site [www.healthcanada.gc.ca/radon](http://www.healthcanada.gc.ca/radon) or call **1 800 O-Canada (1 800 622-6232)**, **TTY – 1 800 926-9105** for more information on how to reduce your exposure to radon.