

## RADON: Frequently Asked Questions

### 1. WHAT IS RADON?

Radon is a naturally occurring odourless and colourless radioactive gas that comes from the breakdown of uranium in soil and rock. It travels upwards through the ground and is released into the air. Radon can be found throughout Canada, but concentrations vary, largely due to differences in bedrock and sediment.<sup>1</sup>

According to [Health Canada](#), this gas is not harmful when it is released outdoors, where it is quickly diluted. However, radon can enter and accumulate in homes and other buildings, where it can become a health risk. Radon releases alpha-particles that can enter our lungs when we breathe and cause lung cancer.

Radon can come through small openings where the house contacts the ground, such as very small cracks in foundation walls and in floor slabs. It is often drawn in and stays for a long time, increasing in concentration. This occurs through the “stack effect” whereby warm air in a home is drawn up, creating an area of low pressure in the basement.

Although radon may be out of sight, it certainly shouldn't be out of mind when it comes to real estate transactions. High radon levels in a home create significant health risks. For this reason, elevated radon should be treated as a potential latent defect.

### 2. WHERE IS RADON FOUND IN BC?

Radon occurs naturally throughout British Columbia, but concentrations differ greatly. Radon levels are usually higher in areas where there is a larger amount of uranium in underlying rock and soil.

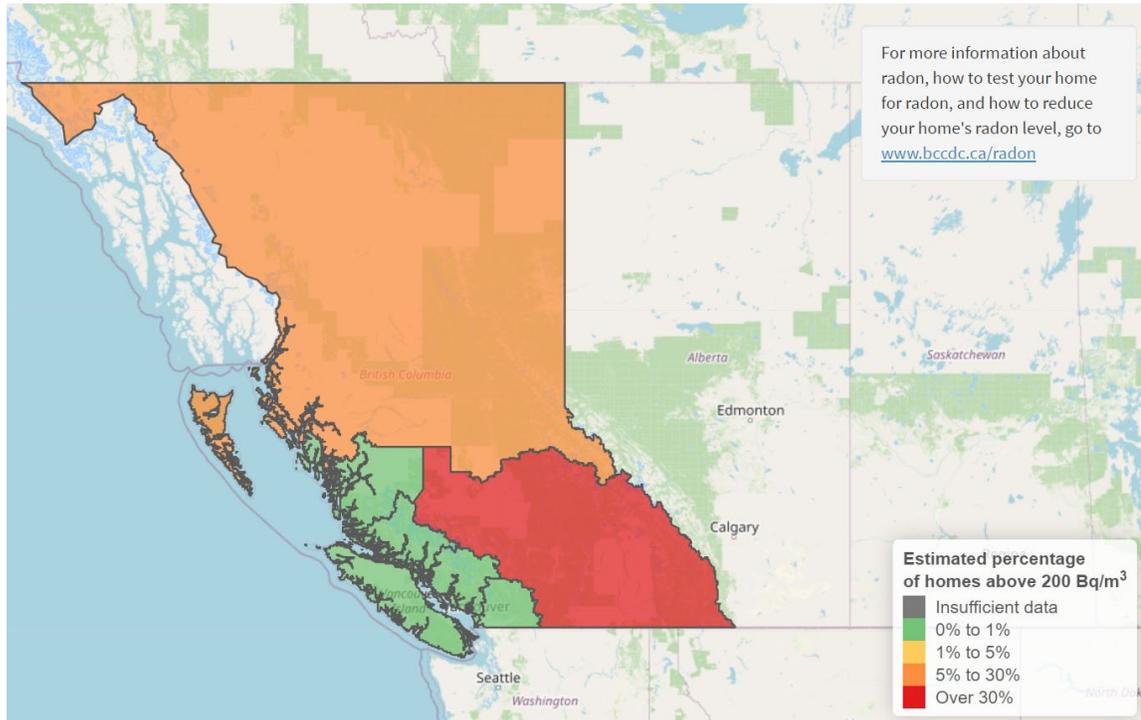
The [BC Radon Map](#) is an interactive map that displays radon levels that have been detected in homes across BC.

Even in areas with generally lower levels of radon, it is still recommended to test homes for radon because levels can vary widely from house to house, even in the same neighborhood.

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<sup>1</sup> [Health Canada](#)

The data used in this map is from the British Columbia Radon Data Repository. For more details on the repository, follow [this link](#).



For the 2018 Building Code 2018, the BC Building Standards Branch made a list of municipalities for which the radon provisions apply (at [Table C-4 Locations in British Columbia Requiring Radon Rough-Ins](#).) If local governments discover new data showing elevated radon in buildings in their community, then can also choose to enforce the Code".

### 3. WHAT ARE THE HEALTH RISKS OF RADON EXPOSURE?

When radon gas is breathed in, there is a chance that alpha particles will cause damage to your lungs. Radon is the leading cause of lung cancer after smoking. For this reason, the federal government has created a Canadian guideline for radon in indoor air for dwellings. [See the Government of Canada Radon Guidelines](#).

Radon concentrations are measured in becquerels ~~becqeuels~~ per cubic metre (Bq/m<sup>3</sup>). One becquerel is a release of an alpha particle per second. Canada's Radon Guideline says that if radon concentrations are over 200 Bq/m<sup>3</sup> steps should be taken to fix the problem.

Radon creates risks at any concentration. At higher concentrations, the risks become very serious. If your home is at 800 Bq/m<sup>3</sup> you have a 1 in 20 risk of developing lung cancer. The risk for smokers is even greater, climbing to a 1 in 3 risk.

Lung cancer is a serious disease with a poor survival rate. Scientists estimate that radon exposure accounts for an estimated 16 percent of lung cancer deaths in Canada.<sup>2</sup> An estimated 29,300 Canadians contract lung cancer each year, and about 20,700 Canadians will die from lung cancer (about 1 in 15 people).<sup>3</sup> Radon can thus be linked to approximately 3,000 deaths per year or a bit over 1 in 100 deaths in Canada<sup>4</sup>.

#### 4. DOES EACH HOME NEED TO BE TESTED?

Although radon concentrations vary from one region to another, no home is risk-free. Whether radon is building up in a home depends also on how it is built, whether there are cracks or holes that let radon in, and ventilation systems. Just because a neighbour has tested and doesn't have a radon problem doesn't mean that other homes in the neighborhood aren't affected.

Some parts of the province are known to have a high proportion of homes with elevated radon concentrations, including the Kootenays, Okanagan and Prince George areas. To know whether radon is a significant issue in your community, you should check resources like radon potential maps and the BC Building Code's list of radon-affected municipalities.

The only way to know if a home has a very high level of radon is to perform a measurement test, regardless of the home's geographic location. For this reason, Health Canada recommends that all homes be tested. As well, the results obtained from test kits from some health organizations can contribute to databases and maps which build more precise knowledge of where radon is a higher priority. These organizations include the [British Columbia Lung Foundation](#) and the [Donna Schmidt Lung Cancer Prevention Society](#).

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<sup>2</sup> Darren R. Brenner, Abbey Poirier, Ryan R. Woods, Larry F. Ellison, Jean-Michel Billette, Alain A. Demers, Shary Xinyu Zhang, Chunhe Yao, Christian Finley, Natalie Fitzgerald, Nathalie Saint-Jacques, Lorraine Shack, Donna Turner, and Elizabeth Holmes; for the Canadian Cancer Statistics Advisory Committee. Projected Estimates of cancer in Canada in 2022. CMAJ May 02, 2022 194 (17) E601-E607; DOI: <https://doi.org/10.1503/cmaj.212097>.

<sup>3</sup> [Canadian Cancer Society, 2020 Lung Cancer](#).

<sup>4</sup> based on [Statistics Canada measures of 283,706 deaths in 2018](#). see Deaths by Month.

With no smell, no colour and no taste, the only way to know how much radon is in home is to test for it.

It's important to discuss radon with your clients to help ensure their interests are protected and that they are making informed decisions around the due diligence they may want to undertake.

## 5. WHO IS QUALIFIED TO TEST FOR RADON?

It is not difficult to test for radon. In Canada, the standard way is to purchase a small plastic testing device—coined a “hockey puck” –once you have it, you take it from its package and place it in a good location in your home for 91 days. You then send the device back to a lab. A list of reputable suppliers is available [here](#).

Some companies now also sell ‘real time’ monitors which tell you radon levels at a particular moment in time. These help people “see” radon and how it fluctuates over time but create the risk that people will think a short snapshot reflects average readings in a home.

Some people prefer to have professionals do the testing. During real estate transactions, this might make the parties more comfortable. Canada has a certification program for radon professionals—the Canadian National Radon Proficiency Program (C-NRPP). There are two types of certification, one for radon testers and another for mitigation professionals. Certified mitigators can also test. Radon professionals are located throughout Canada and a list of professionals can be found on the [CNRPP website](#).

REALTORS® should not take on the role of testing but can advise clients to buy radon detectors and deploy them to learn radon levels.

REALTORS® may also see radon mitigation systems in homes. REALTORS® can learn to recognize these systems but are not qualified to assess whether these systems are working. REALTORS® should defer to certified radon professionals to assess existing radon systems. Increasingly, and as radon becomes more of a concern in the real estate process, home inspectors are also upgrading their skill set by becoming qualified as radon-testing professionals through CNRPP.

## 6. HOW LONG DOES IT TAKE TO TEST FOR RADON?

There are both short and long-term testing.

### **LONG-TERM TESTING**

Health Canada recommends a long-term test. It is inexpensive and can be accomplished by the homeowner or a certified radon measurement professional.

For long-term testing:

- The period should be 91 Days or more (indoor radon levels can fluctuate day-to-day and also vary by season).
- It should be conducted in months when the heat is usually on (in late Fall to early spring).
- Tests should be placed in an occupied area (4 hours a day or more).
- Proper testing devices should be used.

A three-month test is more accurate and representative of a person's annual average exposure and should be used to determine if a home's radon concentration exceeds the Canadian guideline of 200 Becquerel per cubic metre (Bq/m<sup>3</sup>).

## SHORT-TERM TESTING

Short-term testing is often conducted by people who are eager to find out if a potential radon problem exists. They are popular in the United States and often occur when homes are bought and sold. REALTORS<sup>®</sup> should inform their clients that Health Canada does not support short-term testing. Longer-term tests provide a more representative annual average for radon exposure.

In order to provide services for people who still want short-term testing, the Canadian Association of Radon Scientists and Technologists (CARST) has provided guidance on when short-term tests may be used. An initial short-term test can provide guidance on whether high radon is likely to be a problem but should always be followed up with a long-term radon test. CARST provides an explanatory one-page guide for REALTORS<sup>®</sup> [here](#), and more detailed guidance at [CARST's Guideline for Conducting a Radon Assessment as Part of a Real-Estate Transaction of a Residential Dwelling in Canada](#).

## 7. CAN HIGH LEVELS OF RADON BE FIXED?

If you get high radon results, professional radon mitigators can almost always reduce radon levels in a home to below 100 Bq/m<sup>3</sup> which is considered a safe level. Professional installation of a radon reduction system is relatively inexpensive and can be assessed and quoted by a certified mitigator.

Mitigators will visit the home, run tests and likely install a radon mitigation system. This usually involves installing a vent pipe and small electric fan that draws radon from below the concrete slab and directs it out of the home.

Other measures mitigators might take include:

- Increasing ventilation to allow an exchange of air.
- Sealing all cracks and openings in foundation walls and floors, and around pipes and drains.
- 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.
- Renovate existing basement floors, particularly earth floors.

The Canadian National Radon Proficiency Program (C-NRPP) certifies radon mitigation professionals. Certified mitigation professionals have taken specialized courses, passed exams, regularly update their knowledge through continuing education and carry \$ 2 million Commercial General Liability and \$ 2 million Errors and Omissions Insurance. Radon-testing professionals are located throughout Canada and a list of professionals can be found [here](#).

Health Canada recommends using a certified contractor. For those interested in receiving technical guidance on installing radon systems, CNRPP and BC Lung recommend the document "[Radon control options for new construction in low-rise residential building](#)".

## 8. DO WE NEED TO UPDATE THE PROPERTY DISCLOSURE STATEMENT (PDS) IF A HOME IS TESTED AFTER LISTING THE PROPERTY?

Sellers should make sure to update the Property Disclosure Statement if they become aware of new information that might affect their responses on the PDS, as this will help them to keep their disclosure accurate. Before a Contract of Purchase and Sale is signed, you should encourage your seller to update the PDS by either completing a new form (in which case you should make sure you do not refer to or distribute the old one) or marking up the original form (in which case you should ensure that the changes are clearly identified and the date that the changes made are indicated).

If a Contract of Purchase and Sale has been entered into and the PDS has been incorporated by reference, you should advise your client to obtain legal advice about what and how they are required to disclose to the buyers. Note that in the

PDS, sellers commit prior to closing to disclose any important changes to the information in the PDS of which the seller becomes.

If you have any other questions about the PDS, the proper version to use or amending the seller's disclosure, you should speak to your managing broker.

## 9. ARE SELLERS REQUIRED TO TEST THEIR HOME FOR RADON?

There are no strict legal requirements for sellers to test their home for radon. However, if a seller knows that radon is a problem, they have a duty to inform potential buyers of the material latent defect.

Also, REALTORS® should be aware that in some parts of British Columbia a high proportion of homes have elevated radon. Even if a seller has never tested for radon, the buyer's REALTOR® should notify their client that radon may be a problem.

As the awareness of the dangers of high radon increases, buyers will be more likely to ask about radon gas levels in a home either before or during the purchase process.

Knowing a home's radon level can help avoid roadblocks during real estate transactions.

As awareness of radon grows, having a home tested and, if necessary mitigated, is likely to be a good selling feature.

## 10. HOW CAN REALTORS® HELP BUYERS AND SELLERS NEGOTIATE UNCERTAINTY ABOUT RADON?

In many cases both sellers and buyers will be unsure about radon levels in a home. A buyer may want to consider adding a holdback clause for radon. This could be included in the Contract for Purchase and Sale and states that the estimated cost of testing and mitigating for radon is to be held back. (The parties can ask local mitigation professionals for a high-end estimate). If the buyer tests and finds radon is not a problem, the funds are then released to the seller. Alternatively, if the buyer discovers that a home needs a radon system, they can draw the amounts to hire a mitigator from the holdback.

## 11. WHAT CAN REALTORS® DO TO UPHOLD PROFESSIONAL STANDARDS AND MITIGATE RISKS WHEN IT COMES TO RADON?

REALTORS® are expected to demonstrate competency and apply reasonable care and skill when providing real estate services to their client. This includes being knowledgeable about environmental conditions and taking the appropriate steps to alert their clients of known health or environmental concerns. As such it's important to discuss Radon, Radon testing and remediation with your clients.

BC Financial Services Authority has deemed that radon levels above 200 Bq/m<sup>3</sup> is a latent defect, as it presents a health and safety risk, and therefore must be disclosed.

BCFSA provides guidance to help discuss the importance of radon with your clients:

- [Radon Checklist for Sellers' Agents](#)
- [Radon Checklist for Buyers' Agents](#)
- [Radon Checklist for Rental Property Managers](#)

Additional radon information for BC Real Estate professionals can be found [here](#).

## 12. WHAT ELSE CAN REALTORS® DO?

By making yourself knowledgeable about radon and spreading the word, you can make a difference and help save lives.

The [Radon for REALTORS®](#) Course can help deepen understanding of radon and how it relates to the real estate transaction.

REALTORS® are in a unique position to educate their clients about health and safety in a home. Steps to consider include:

- Keep informational booklets about radon available for clients who visit the office (Health Canada, CNRPP and the Canadian Association of Radon Scientists have promotional materials).
- Discuss radon and provide information to clients early on.
- Provide the [radon checklist](#) to consumers.
- Purchase radon detectors and give them as gifts to colleagues and clients.
- Support lung health organizations and their initiatives to build a provincial radon policy.
- Think of yourself as a healthy home ambassador - be prepared and willing to discuss radon and other indoor air quality concerns and to spread the word.

Radon action can be a way to enact "Quality of Life Principles" and social responsibility into your real estate practice. This can help you and your brokerage

feel better about the work you do, while also building a brand and reputation with the public and the local community.<sup>5</sup>

*In preparing this document we would like to acknowledge the help of Dr. Noah Quastel, Director of Law and Policy, Healthy Indoor Environments at the British Columbia Lung Foundation. For more information on their radon programming, visit [BC Lung Foundation](#).*

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<sup>5</sup> Real Estate Foundation of British Columbia and Strandberg Consulting, 2019. [Beyond the Transaction: Enhancing Professional Excellence in Real Estate in BC](#)