

## 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.

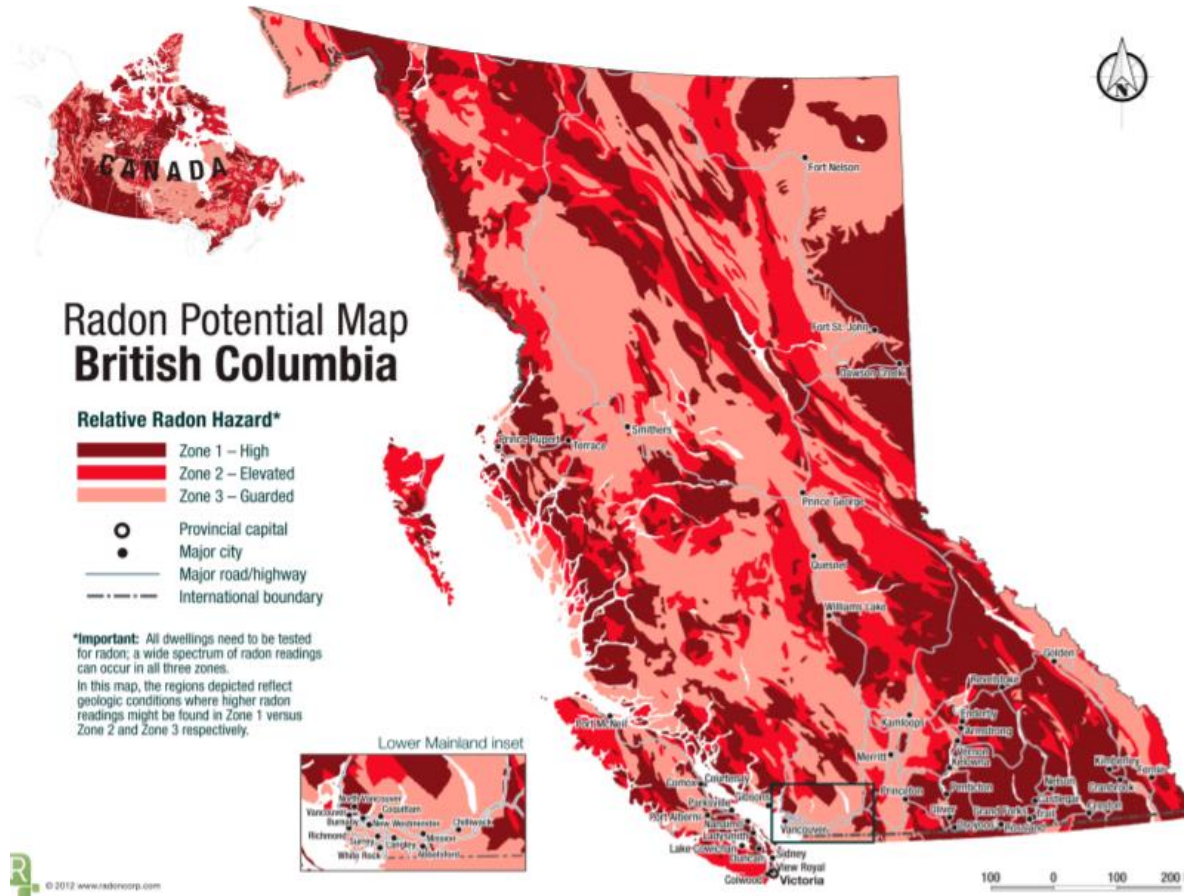
### 2. WHERE IS RADON FOUND IN BC?

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.

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<sup>1</sup> <https://www.canada.ca/en/health-canada/services/health-risks-safety/radiation/radon.html>

The [Radon Potential Map](#) draws on underlying geographical data and indicates that there can be a wide spectrum of readings in all three zones.



The British Columbia Building Code now requires radon mitigation systems to be built into new homes in municipalities where radon is a known risk. If your municipality is listed in the Code (at Table C-4 Locations in British Columbia Requiring Radon Rough-Ins at [http://free.bcpublications.ca/civix/document/id/public/bcbc2018/bcbc\\_2018dbacr2](http://free.bcpublications.ca/civix/document/id/public/bcbc2018/bcbc_2018dbacr2)) this is a good indication that you should take the problem seriously.

As awareness of radon grows, different organizations are working to improve maps based on indoor radon readings. Currently, maps are available from:

- [The BC Centre for Disease Control](#)
- [The Canadian National Radon Proficiency Program](#) and from
- [Health Canada](#)

### 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 Guideline](https://www.canada.ca/en/health-canada/services/environmental-workplace-health/radiation/radon/government-canada-radon-guideline.html) (Link here: <https://www.canada.ca/en/health-canada/services/environmental-workplace-health/radiation/radon/government-canada-radon-guideline.html>)

Radon concentrations are measured in becquerels 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 21,000 Canadians will die from lung cancer (about 1 in 15 people).<sup>3</sup> Radon can thus be linked to approximately 3,360 deaths per year, or a bit over of 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 area. 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.

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<sup>2</sup> Chen, J., Moir, D. and Whyte, J., 2012. Canadian population risk of radon induced lung cancer: a re-assessment based on the recent cross-Canada radon survey. *Radiation protection dosimetry*, 152(1-3), pp.9-13.

<sup>3</sup> Canadian Cancer Society, 2020. Lung Cancer. available at <https://www.cancer.ca/en/cancer-information/cancer-type/lung/statistics/?region=pe>

<sup>4</sup> based on Statistics Canada measures of 283,706 deaths in 2018. see Deaths by Month. at <https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1310070801>

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 database and maps which build more precise knowledge of where radon is a higher priority. These organizations include the British Columbia Lung Association (here: <https://thelungassociationbc.squarespace.com>), and the Donna Schmidt Lung Cancer Prevention Society (<http://dsradonprevention.org>).

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: <https://takeactiononradon.ca/test/radon-test-kits>.

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 at the CNRPP website, at: <https://c-nrpp.ca/find-a-professional>.

Realtors can advise clients that they can do their own testing but should not take on the role of testing for their clients.

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 time 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 occurs when homes are bought and sold. Realtors 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 here:

<https://carst.ca/resources/CNRPP%20RealEstate%20Assessment.pdf>; and more

detailed guidance here: [CARST's Guideline for Conducting a Radon Assessment as Part of a Real-Estate Transaction of a Residential Dwelling in Canada.](#)

## 7. HOW CAN I FIX RADON?

There is no need to worry if tests show you have high radon. 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 on their website at: <https://c-nrpp.ca/find-a-professional>.

Health Canada recommends using a certified contractor. If you want up to date guidance on the best methods for installing radon systems, consult the Canadian General Standards Board's "Radon mitigation options for existing low-rise residential buildings" located here: <https://carst.ca/resources/Documents/P29-149-012-2017-eng.pdf>.

## 8. DO WE NEED TO UPDATE THE PROPERTY DISCLOSURE STATEMENT (PDS) FOR LISTINGS THAT ARE ALREADY ACTIVE? OR CAN WE STILL USE THE OLD FORM.

In the case of a new listing (or a re-listing), Realtors should always use the latest version of the Property Disclosure Statement (PDS), as it always has the latest questions developed by BCREA to help Realtors and consumers through the real estate transaction.

If the Seller has already signed a PDS on the old form, you should discuss with your seller whether they want to sign the latest version instead. As the PDS is not a mandatory form, it is up to the seller if they want to complete a new form. You should check with your real estate board to determine if they might require the most current version to be used.

Keep in mind that Sellers should make sure to update the form 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. WHAT SHOULD A REALTOR® DO WITH PAST CLIENT LISTINGS THAT MAY HAVE ALREADY SOLD WHERE THE PREVIOUS PDS WAS USED – DO THEY HAVE TO GO BACK TO THEIR CLIENTS TO DISCUSS WHETHER THERE HAVE BEEN OR CURRENTLY ARE RADON ISSUES?

In the case of a property that has already sold and an older version of the PDS was used, the Contract of Purchase and Sale that was entered into and the PDS that was previously provided (and incorporated into the signed Contract of Purchase and Sale) should speak for themselves.

Remember, the PDS is not a mandatory form and therefore the seller is not required to make additional disclosure other than what it has committed to doing under the CPS and the PDS (to the extent signed and delivered to the buyer).

Similarly, the seller would not be required to complete and deliver a PDS in the new form with additional disclosure as a result of the new form. However, even with the old version of the PDS form if the seller was aware of a latent defect, they would have been required to make the disclosure.

The buyer's Realtor may want to consider discussing radon and recommending to the buyer that they have the property's radon levels tested.

## 10. 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 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.

## 11. 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.

## 12. WHAT CAN REALTORS DO TO UPHOLD THE 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.

In 2012 the Real Estate Council of British Columbia amended the Practice Standards to be give some direction on radon. (here:

<https://www.recbc.ca/professionals/knowledge-base/guidelines/contract-clauses>)

It's important to be able to advise your clients and advise them to seek professional advice.

### **WORKING WITH SELLERS**

- Ask sellers if they have had radon testing done. If they have, ask for a copy of the test results. If test results fall below 100 Bq/m<sup>3</sup>, this is an added selling feature.
- If it is 200 Bq/m<sup>3</sup> or higher and remediation hasn't been done, be sure your client understands the duty to disclose this as a material latent defect.
- If your seller has already done remediation using a C-NRPP certified professional, ask for confirmation that the work has been done and that the radon levels are now in safe zones. Completed remediation is another selling point to highlight.
- In cases where remediation hasn't been done, you can add value to your client by connecting them with a certified radon mitigation professional to get the work done.

### **WORKING WITH BUYERS**

- Discuss radon with your buyers, ensure they are aware of the risks, and what can be done about them, including testing and the limits of short-term testing, or considering provisions for a holdback clause for radon testing and mitigation.
- If clients are buying a new home, they should be aware that radon systems are required in the Building Code in many parts of British Columbia. (Check Division B, Appendix C, Table C-4 at [http://free.bcpublications.ca/civix/document/id/public/bcbc2018/bcbc\\_2018dbacr2](http://free.bcpublications.ca/civix/document/id/public/bcbc2018/bcbc_2018dbacr2) or available online free of charge through <https://www.bcpublications.ca/BCPublications/>) However, new homes need to be tested to see if the existing radon system is adequate or needs to be upgraded.

- Know your local radon risks, and whether your municipality has been identified as having known radon problems.
- Make sure your buyer knows that major renovations can impact radon levels in a home. For instance, some buildings have only low radon due to being drafty. Once energy efficiency retrofits are performed, the building may be 'tight' and develop elevated radon. Radon testing is recommended after major renovations, especially in known radon prone areas.

### 13. WHAT ELSE CAN REALTORS DO?

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

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.
- 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 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 Association. For more information on their radon programming, visit <https://bc.lung.ca/how-we-can-help/healthy-indoor-environments-program>.*

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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 available at <https://www.refbc.com/sites/default/files/2019-REFBC-BeyondTheTransaction.pdf>