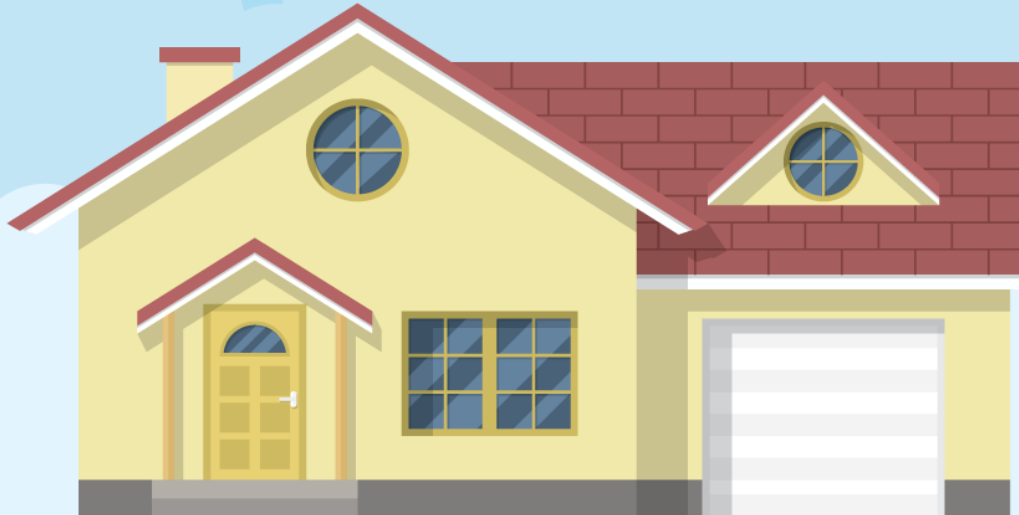


Radon Information for Real Estate Agents



The Real Estate Agent is Key

As radon awareness across Canada grows, you may find that more and more homeowners are starting to ask about radon, and more homes will have some type of radon system installed. The best way for you to help your clients is to be informed about radon so that you can answer their questions knowledgeably and know where to direct them for additional information and support.



Every home can be fixed

As clients start asking you about radon, the biggest questions on their minds are likely to be how radon affects their home, their pocket book and their health.... though not necessarily in that order.

The most important message for you as a real estate agent to convey is that they can go ahead and fall in love with their dream home! No matter what the radon levels are once they move in and test the home, there is a way to reduce high radon levels and every home can be fixed.

C-NRPP is Canada's national certification program for Radon Professionals:

Health Canada and CARST (the Canadian Association of Radon Scientists & Technologists) developed the certification program so that building owners had someone to help with testing and reducing radon levels.

To find a certified professional, head to: www.c-nrpp.ca/find-a-professional

Radon Measurement Professionals will help with testing a building for radon.
Radon Mitigation Professionals will help with fixing a building's high radon.

A certified radon professional provides you with an impartial third-party to give you reliable advice.

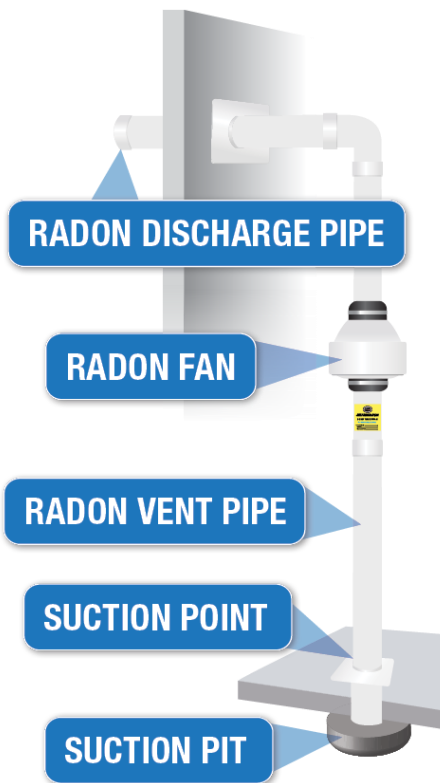


Let's start with some of the most common radon control and radon mitigation systems, to help you understand what they are and how they work.

Radon Mitigation System

A radon mitigation system is the most effective method to reduce radon levels in a home. It can be called by many names, but we want to focus on what it does.

Radon is a radioactive gas which comes from the ground into a home through contact with the soil.



A radon mitigation system provides a pathway for the gas to reach the outdoor air without entering the home.

Using a fan, a radon mitigation system creates an active pathway for radon, as well as moisture and other soil gases, to move directly from beneath the slab of the house to the outside air without entering the building.

Additional Benefits: Homeowners often find that once a radon mitigation system has been installed, their use of dehumidifiers reduces, smells are gone and the air quality is better. This is because a radon mitigation system is effective in removing other substances and moisture that had been entering the home from the soil in addition to radon.

RESEARCH:

Health Canada has conducted research to confirm that a **radon mitigation system** is the most effective method of reducing radon levels.

HIRING a certified professional LOWERS RADON BY UP TO 90%

INCREASING home ventilation LOWERS RADON BY 25-50%

SEALING cracks LOWERS RADON BY AN AVERAGE 13%

Find online at:

<https://www.canada.ca/en/health-canada/services/publications/health-risks-safety/residential-radon-mitigation-actions-follow-up-study.html>

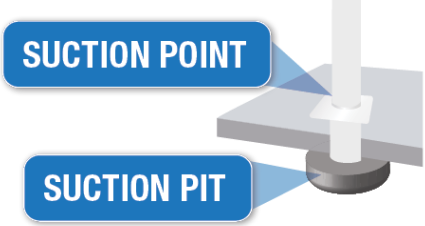
RESEARCH:

Health Canada has conducted research to confirm that when a radon pipe exits the building, the radon quickly disperses leaving radon levels very low in the outside air.

Find online at:

<https://www.canada.ca/en/health-canada/services/environmental-workplace-health/radiation/radon/summary-report-active-soil-depressurization-field-study.html>

Radon Control in New Homes:



Radon Rough-in:
 Purpose is make it easier and more cost effective to install a radon mitigation system should one be required.

In most provinces across Canada, the building code states that new homes must have a **radon rough-in** system. What do homeowners need to know? First off, the radon rough-in does not reduce radon; it's simply the beginning of a system. The rough-in is included in new construction to make it easier and more cost effective to install a radon mitigation system should one be required.

Homeowners need to test their home for radon and then decide if the radon rough-in needs to be finished into a Radon Mitigation System.

NOTE FOR BC: The building code in BC is divided into two approaches. It either has **NO** radon rough-in or it requires an **extended radon rough-in** which means the pipe extends to exit the building. This requirement is listed in a table in the building code entitled Table C-4.

The National Building Code states:

A home must have a radon barrier

A home must have a layer of gravel beneath the radon barrier (this provides air movement for an eventual radon mitigation system)

A home must have a radon rough-in stub pipe that connects under the concrete floor slab to the middle of the house. The stub pipe that sticks up from the slab doesn't have to be located in the middle of the basement; it can have pipe under the concrete slab which leads to the middle. Ideally this rough-in will be located in a maintenance room or furnace room so that a finished pipe and fan can be added to complete into a radon mitigation system if required.

A radon rough-in stub pipe must be properly labeled.

REGIONAL DIFFERENCES:
 Most provinces adopt the National Building Code. The differences are:
 Ontario has only adopted it in various municipalities.
 Quebec has not adopted the radon control measures.
 British Columbia has added an extension so that the rough-in pipe extends outside the building.

ONTARIO:

If you're working in Ontario, it's essential to inform homeowners about Tarion's Home Warranty radon coverage. If a long-term radon test indicates that radon levels within a home exceed Health Canada's actionable level of 200 Bq/m³, then **Tarion will cover the costs required to mitigate a home up to a limit of \$15,000.**



What is radon:

Being exposed to high levels of radon gas today makes us more likely to develop lung cancer in years to come.

Radon is a gas. It starts in the ground as uranium (a solid mineral), then becomes radium (still a solid), and finally radon (a gas). As a gas, radon moves through the ground and up to the surface.

When radon filters out into the outside air, it dilutes to levels that are not a health concern.

When radon enters our homes, it can build up to dangerously high levels, which is why we need to test indoor spaces.

What do we do about it

Measure and fix

It's almost that easy. The catch is to make sure you use the right devices and techniques to measure. Make sure that you test in an occupied space using a C-NRPP certified device; make sure you ask questions first to ensure you know the device will be accurate and you know how and where to place the device. If you're not getting the information you need, or if you're uncertain, consult with a C-NRPP certified company or contact C-NRPP directly.



Test Durations

Another important aspect of the radon measurement is the duration of the test. This is not something that should be tested for quickly.

Long-Term Radon Measurement – is a radon test which is of duration of longer than 90 days

Radon levels can vary day to day and hour by hour. We recommend basing a decision for mitigation on a radon test that will most accurately predict an occupant's annual exposure level. Health Canada and C-NRPP recommend basing a decision to mitigate on a long-term radon measurement during the heating season while the home is occupied.

Short-Term Radon Measurement – is a radon test which is of duration of at least 48 hours but up to 90 days

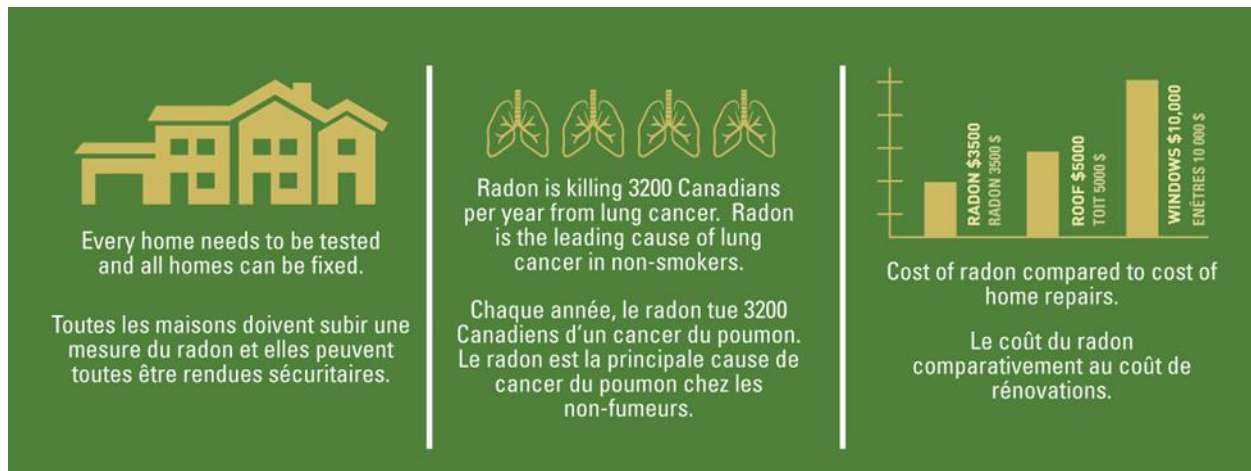
A short-term radon measurement can be conducted using greatly different test lengths. The minimum duration of a short-term radon measurement is 48 hours and it can last as long as 90 days, the longer the duration of the test, the more representative of the average annual radon concentration.

Short term measurements should always be part of a two-step process of short-term and long-term follow up measurement. C-NRPP and Health Canada strongly recommend that any and all short-term radon measurements be followed up with a long-term radon measurement.

You can hire a professional to test for radon, but make sure they are C-NRPP certified. They will use a certified device and place it properly.

If a home tests high for radon, it can be fixed. However, not every contractor is trained and qualified in radon mitigation. It's important to consult a C-NRPP Professional (www.c-nrpp.ca/find-a-professional) who will design a radon mitigation system specific to the home.

With a properly installed Radon Mitigation System, a home with a radon level of 2000 Bq/m³ can be reduced to 50 Bq/m³. It's a proven technique that works. The cost to install is similar to the cost of installing a new furnace in a home. It's a one-time expense with minimal ongoing operating costs.



There are so many different detectors how do I choose?

There are typically four different types of radon detectors/monitors we use in Canada.

Alpha Track detectors – these are used for long-term radon measurements. They are one use detectors and must be mailed back to the lab for analysis and then the lab will email or mail a report to the client. Each manufacturer has a different shape of canister, but they all use the same technology inside. You can find a list of C-NRPP listed devices online at <https://takeactiononradon.ca/test/radon-test-kits/>



E-Perm detectors – these can be used for long-term or short-term measurements. They are analyzed by the company who dispatched the devices. Typically used by C-NRPP professionals to place and analyze. You can find a list of C-NRPP measurement professionals online at: <https://takeactiononradon.ca/test/find-a-radon-measurement-professional/>



Continuous Radon Monitors - these can be used for long-term or short-term however due to the cost of the devices they are usually only used for short-term measurements. They provide an hourly read out of radon levels. They are typically used by C-NRPP radon professionals for diagnostics, commercial building measurements or for short-term measurements in homes. You can find a list of C-NRPP measurement professionals online at: <https://takeactiononradon.ca/test/find-a-radon-measurement-professional/>



Digital Radon Monitors - these can be used for long-term or short-term by homeowners. They provide homeowners with more instant feedback on radon levels, however we still caution homeowners to use long-term radon measurements (minimum 91 days) to determine a need for radon mitigation. Some devices connect to a smart phone and provide a variety of radon levels including short-term levels and integrated long-term radon levels. These detectors are not currently being evaluated on consistency or accuracy and so in Canada they are not recommended, however we expect to provide analysis in 2020 on comparison of detectors. They can typically be purchased online by any company that also sells long-term detectors and you can find a list online at <https://takeactiononradon.ca/test/radon-test-kits/>



Digital radon monitors

How do we know RADON is a health issue?

Research in miners (especially uranium miners) first alerted researchers to radon as a health concern, but subsequent research in homes confirmed that radon wasn't just an occupational hazard for miners. The elevated radon levels that can be found in homes also have a serious impact on our health.

Radon releases radioactive energy which can alter the DNA in lung cells, leading to lung cancer.

The relationship between radon and lung cancer is linear, which means that as the radon exposure increases (exposure = radon level x time) the risk also increases.

The combination of high radon levels and smoking greatly increases the overall risk of developing lung cancer.

Smokers who are exposed to high radon have a 1 in 3 risk of lung cancer.



Smokers who are exposed to low radon have a 1 in 20 risk of lung cancer.



What are the options for Home Sellers?

If you are considering selling your house and you want to make sure that the radon levels are looked after, you can test for radon prior to listing your house.

The process is:

Test – Fix – Test Again - Sell a Healthy Home

By using a C-NRPP Measurement professional and a long-term radon test (91 days), you will have a test report that you can provide to the potential purchaser to show that you have tested using a third-party professional. If your original test shows you need to reduce your radon levels, have a C-NRPP Mitigation professional install the system to make sure it is done properly and then test again to confirm it was effective in lowering levels.



What are the options for Purchasers?

If you are considering purchasing a new home, remember that every home can be fixed. You can be confident that you can move in, test, and mitigate if required. When you are considering your budget for your home purchase and initial renovations, be sure to add testing and mitigation to the top of your spending priority list.

If you want to know how much to reserve for a potential mitigation system, contact a certified professional to get an estimate.

Then move in and:

Test – Fix – Test Again – Enjoy your Healthy Home

By using a C-NRPP Measurement professional and a long-term radon test (91 days) you will be able to determine if installing a radon mitigation system is required. If your original test shows you need to reduce your radon levels, have a C-NRPP Mitigation professional install the system to make sure it is done properly and then test again to confirm it was effective in lowering levels.

Another Option? – Radon Screening Assessment

Due to the time constraints frequently experienced during a real estate transaction, long-term radon measurements are often not practical during the time a house is for sale. If a long-term radon measurement has not been conducted prior to a house being listed, a **Radon Screening Assessment** can provide important information on whether funds may be required to cover the installation of a radon mitigation system. It's important to remember that even after a home has been assessed using a radon screening assessment, it must still be tested using a long-term radon test once the new owners take possession of the house.

Specific protocols have been developed for conducting a **Radon Screening Assessment**, and for reporting the results using a Green, Yellow, or Red guideline as follows:

Green Test Result

A Green Test Result indicates a radon screening assessment of less than 75 Bq/m³ or less during the heating season and 50 Bq/m³ or less outside the heating season. A “Green” test indicates a likelihood that the annual average radon concentration in the dwelling is below 200 Bq/m³. A follow-up long-term radon measurement conducted during the next heating season by the new occupant would confirm necessity of installation of a radon mitigation system.



Yellow Test Result

A Yellow Test Result indicates a radon screening assessment of greater than 75 Bq/m³ (or 50 Bq/m³ in Summer) up to and including 400 Bq/m³. This result indicates that there is a higher likelihood that the annual average radon concentration is above 200 Bq/m³. A follow-up long-term radon measurement conducted during the next heating season by the new occupant would confirm necessity of installation of a radon mitigation system.

Red Test Result

A Red Test Result indicates a radon assessment of greater than 400 Bq/m³. This result indicates a strong likelihood that the annual average radon concentration is above 200 Bq/m³. A follow-up long-term radon measurement conducted during the next heating season by the new occupant would confirm necessity of installation of a radon mitigation system.

Certified Company Name
 Address
 Contact information
 C-NRPP Certification #

Radon Assessment Report

Report Date: August 6, 2018

Customer Contact Information: First Name Mailing Address Phone Email	Test Site: 11 Canoe Street Prairie Town, SK S0V 2K4 Device Location: Basement Bedroom	Radon Assessment Result: <div style="background-color: yellow; padding: 10px; border: 1px solid black; text-align: center;"> Yellow <small>See below for explanation and recommendations.</small> </div>
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Test Device Used: Detector type (S/N of Voltage Meter if applicable) C-NRPP Listed

Quality Assurance Plan in place.

Detector S/N	Detector Type	Analyzed By: or Calibration Expiry Date	Test Start Date	Test End Date	Test Duration	Test Result (Bq/m ³)
123456	Continuous Radon Monitor	February 6, 2019	3:05pm July 30, 2018	3:30pm August 4, 2018	5 Days	90

Recommendations: A test reported as “Yellow” (greater than 75 Bq/m³ during the heating season or 50 Bq/m³ outside the heating season and up to and including 400 Bq/m³) indicates that a radon remediation may be warranted and consideration should be made for a long-term follow-up test and installation of a radon mitigation system. Purchase negotiations should take the potential cost of a mitigation system into account (for example; setting funds in escrow).

See following pages for additional information.

A Green Test Result indicates a radon screening assessment of 75 Bq/m³ or less during the heating season and 50 Bq/m³ or less outside the heating season. It is important to note that a “Green” test does not guarantee that the annual average radon concentration in the dwelling is below 200 Bq/m³.

A Yellow Test Result indicates a radon screening assessment of greater than 75 Bq/m³ during the heating season or 50 Bq/m³ outside the heating season, up to and including 400 Bq/m³.

A Red Test Result indicates a radon screening assessment of greater than 400 Bq/m³.

This radon screening assessment report provides an indication of whether indoor radon levels are likely to exceed 200 Bq/m³. This is not a radon measurement result; a long-term radon measurement should be conducted once the new owner occupies the house. This radon screening assessment was conducted in the liveable space of the main dwelling, and does not provide an indication of radon levels of other attached or detached buildings on the property.

Where can I go for more information?

Health Canada Publications:

Radon - What you need to know,

<http://www.hc-sc.gc.ca/ewh-semt/pubs/contaminants/radon/index-eng.php>

Radon Reduction Guide for Canadians,

http://www.hc-sc.gc.ca/ewh-semt/pubs/radiation/radon_canadians-canadiens/index-eng.php

Health Canada Research Papers:

Summary Report on Active Soil Depressurization (ASD) Field Study

<https://www.canada.ca/en/health-canada/services/environmental-workplace-health/radiation/radon/summary-report-active-soil-depressurization-field-study.html>

Residential Radon Mitigation Actions Follow-Up Study

<https://www.canada.ca/en/health-canada/services/publications/health-risks-safety/residential-radon-mitigation-actions-follow-up-study.html>

Lung Association - <https://www.lung.ca/lung-health/air-quality/indoor-air-quality/radon>

Canadian Cancer Society - <http://www.cancer.ca/en/prevention-and-screening/reduce-cancer-risk/make-informed-decisions/know-your-environment/test-your-home-for-radon/?region=on>

Canadian Association of Radon Scientists and Technologists (CARST)

– www.carst.ca/real-estate

Canadian National Radon Proficiency Program (C-NRPP) – www.c-nrpp.ca

Take Action on Radon – www.takeactiononradon.ca

Canadian Real Estate Association (CREA) - https://www.crea.ca/wp-content/uploads/2016/02/A_Homeowners_Guide_to_Radon_CREA.pdf