

RADON: Municipal Building Inspectors and the Law



What Is Radon Gas?

Radon occurs naturally when uranium breaks down in rock and soil. It is an invisible, odourless and tasteless gas.

When radon leaves the ground it is usually diluted in air and is relatively harmless. However, radon can seep into people's homes. It can accumulate in higher concentrations, posing a health risk. About 7% of homes in Canada have radon over the [National Radon Guideline](#) of 200 Bq/m³. In some communities in British Columbia more than half of homes have high radon.

In many municipalities in BC, the Building Code now requires steps to address radon in new homes. If municipal inspectors are negligent in inspecting radon systems, they may be liable to future home occupants.

BRITISH COLUMBIA LUNG ASSOCIATION

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Radon and Human Health

Radon is naturally occurring radiation and when breathed in it can cause lung cancer. Radon gas is the #1 cause of lung cancer in non-smokers. High radon causes approximately 3,360 deaths per year in Canada. Health Canada research estimates that with lifetime exposure at 800 Bq/m³, the lifetime lung cancer risk would be one in 20 for non-smokers, and one in three for smokers.

For radon test results between 200 and 600 Bq/m³, Health Canada recommends taking steps to reduce the radon level within two years. If results are greater than 600 Bq/m³, Health Canada recommends to reduce the level within one year.

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Avoiding High Radon in New Homes

Elevated radon can be avoided in new construction through putting in a radon mitigation system. The best systems use "sub-slab depressurization". A hole in the building foundation and a vent pipe ensures low pressure on the ground floor does not result in radon being sucked into the space. Best practices in radon mitigation are described in Canadian General Standards Board (CGSB) [Radon control options for new construction in low-rise residential buildings, CAN/CGSB-149.11-2019](#)

The BC Building Code has provisions for radon prevention in select municipalities mostly east of the Coast Mountains (s. 9.13.4

Division B Appendix C Climatic and Seismic Information for Building Design in British Columbia. Table C-4 -Locations in British Columbia Requiring Radon Rough-Ins

100 Mile House Abbotsford Ashcroft Atlin Barriere Burns Lake Cache Creek Castlegar Carmi Chetwynd Clearwater Cranbrook Crescent Valley Dawson Creek Dease Lake Dog Creek Duncan Elko Fernie Fort Nelson Fort St. John Genelle Glacier Golden Grand Forks Greenwood Hope Invermere Kamloops Kaslo Kelowna Kimberley Lillooet Little Fort Lytton Mackenzie McBride McLeod Lake Merritt Montrose Nakusp Nelson Osoyoos Penticton Prince George Princeton Quesnel Revelstoke Rossland Salmon Arm Sechelt Smith River Smithers Stewart Taylor Terrace Trail Valemont Vaverby Vernon Whistler Williams Lake

section 1.1.3.3 (2) allows other towns to be added if they choose

and Table C-4 of Division B, Appendix C). Prescriptive standards calls for the hole and vent pipe but not a complete system. To prevent high radon, it remains necessary to test the building, and if radon levels remain high, complete the subfloor depressurization system by adding a fan.

Testing for Radon

Radon levels can vary significantly from building to building and radon above the National Radon Guideline can occur in any region of the province.

Health Canada has developed a [radon risk map](#) but more community level data is still needed to estimate radon risks for each community.

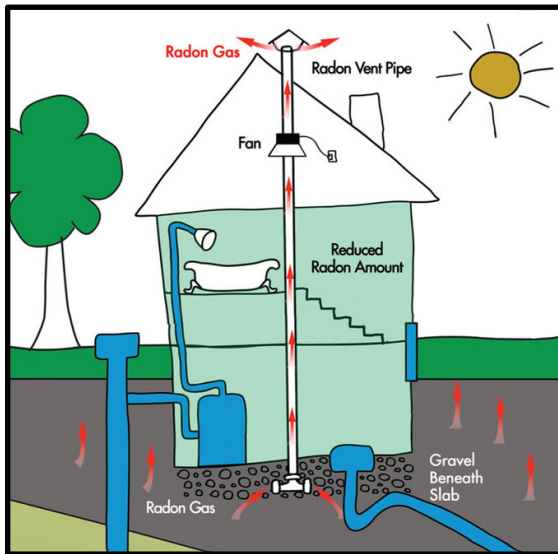
Health Canada advises that all homes be tested for radon.

Digital monitors are available offering short-term tests. These give a momentary snapshot, and users should know that radon levels can vary significantly over time in a home.

Best practice involves placing long-term 'alpha tracker' home testing kits in the lowest inhabited rooms for 91 days (i.e. the basement). These hockey-puck sized units cost \$20 to \$60 and are available at leading retailers or from the British Columbia Lung Association at our [website](#), by email: info@bc.lung.ca, or by phone: 604.731.LUNG (5864). New homes need to be tested for radon.

Radon in Older Homes

.In older homes, if the radon reading turns out to be higher than 200 Bq/m³, professional radon mitigators can put a system in place in one or two days. The [Canadian National Radon Proficiency Program](#) (C-NRPP) has lists of certified radon mitigation professionals by community. It is particularly important to test for radon after energy efficiency upgrades to make sure any improvements do not trap radon gas.



Duty of Care

Professionals like engineers, architects and contractors need to ensure the homes they design or build are safe. If a building is designed in a way that allows high radon, future residents may sue to cover the costs of repair, or even develop lung cancer and then sue. Professionals need to anticipate whether a building may become dangerous and take reasonable care to ensure it is safe.

Municipal Building Inspectors' Liabilities

In some cases municipalities will rely on Letters of Assurance from engineers and architects.

However, municipalities may still inspect buildings before issuing occupancy permits.

Municipal inspectors have a duty of care when conducting inspections. If inspectors are negligent in their duties, they can be liable. They may have to pay costs to ensure homes do not have high radon or compensation when people contract lung cancer from radon exposure.

What Should Municipalities Do?

Municipalities should take steps to address radon, including adopting Radon Action Plans. These can include better community testing to ensure local radon levels are known.

Municipalities should also make sure inspectors understand the issues surrounding radon, including helping them receive certification from C-NRPP.

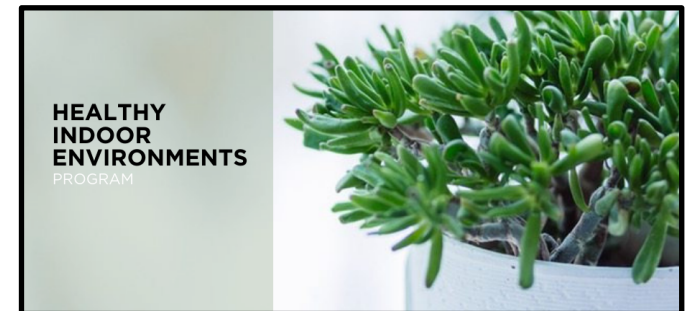
Municipalities can work with builders and developers to ensure new homes fully address radon.

If inspectors find defects such as elevated radon, ensure the defect is fixed.

Legal Opinion

This is an abridged version of a more detailed legal opinion, titled **RADON: Rights and Liabilities in Construction Law** which includes further information, resources and legal analysis. It is located at: <https://bc.lung.ca/programs-initiatives/healthy-indoor-environments-program/current-projects/radon-rights-and-duties>

For information on our programming see <https://bc.lung.ca/programs-initiatives/healthy-indoor-environments-program> or contact healthyindoor@bc.lung.ca



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