

RADON: Builders, Contractors 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 which produces ionizing radiation.

When radon leaves the ground it is usually diluted in air and is relatively harmless. However, radon can seep into your home through small cracks and openings where the building contacts the soil. In some homes it can accumulate in higher concentrations, posing a health risk.

About 7% of homes in Canada have radon over the Government of Canada's Radon Guideline of 200 Bq/m³. In some communities in British Columbia more than half of homes have high radon. Radon testing is easy and techniques to lower radon levels are effective and can save lives.

Radon can be addressed at the construction stage through building in radon mitigation systems. Builders need to understand radon and how to prevent it, and can face legal ramifications if they don't.

Radon and Your Health

Radon is naturally occurring ionizing radiation and when breathed in can cause lung cancer. Radon gas is the #1 cause of lung cancer in non-smokers. 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 3 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.

It Is Easy To Test for Radon

The only way to know radon levels in your home is to test. Radon is easily tested for using long term 'alpha tracker' home testing kits that cost \$20 to \$60. Testing kits are hockey-puck sized units available at leading retailers. The British Columbia Lung Association also sells test kits at our [website](http://www.bclung.ca) by email: info@bc.lung.ca or by phone: 604.731.LUNG (5864).

Mitigating High Radon

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

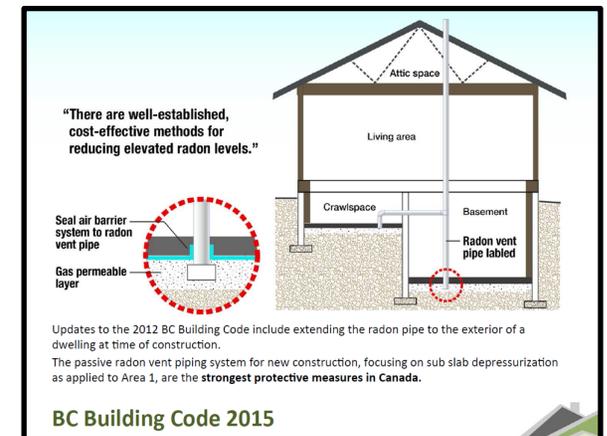
described in Canadian General Standards Board (CGSB) [Radon control options for new construction in low-rise residential buildings, CAN/CGSB-149.11-2019](#)

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 in your community. British Columbia Building Code

BC Building Code

The BC Building Code has provisions for radon prevention in select municipalities, mostly east of the Coast Mountains (s. 9.13.4). This calls for the hole and vent pipe but not a complete system. We recommend builders and contractors use C-NRPP certified mitigators to ensure radon protection in new buildings.

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.



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 Roseland 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

New Home Warranty

High radon is **considered a latent defect by the Real Estate Council of BC.**

As well, the Occupational Health and Safety Regulation, BC Reg 296/97 has protections against ionizing radiation.

What counts as a defect for a real estate transaction should also count as a defect under BC's *Homeowners Protection Act*.

It is highly likely that BC courts will find that radon over the Government of Canada Radon Guideline of 200 Bq/m³ represents a defect in materials, labour or building envelope.

Builders and Contractors' Liability

Builders and contractors can be liable for issues relating to high radon:

- Builders/contractors owe a duty of care to the occupants of a building if it is foreseeable that failure to take reasonable care could give rise to defects (like radon)

that pose a real and substantial danger to the occupants' health and safety.

- Builders/contractors can be held liable to pay economic loss damages, including paying to repair the defect (high radon) and restore the building to a non-dangerous state. They can be liable to future owners of the home as well.
- If a contractor negligently fails to comply with the Building Code's radon provisions, home warranty providers may ask them to repair the home
- Even if builders/contractors follow the Building Code, or where there is no information about radon in a Building Code provision, a builder/contractor could still be found to have breached the standard of care concerning high radon. The courts use an objective standard separate from the Building Code.
- Claims could also be brought against builders and contractors for physical harm and death due to chronic exposure to high radon causing lung cancer. These claims could be filed even after the Home Warranty legislation runs out.

Engineers and architects should address radon in building design but home builders need to take care to ensure the Building Code is followed and radon systems are properly installed.

Funding provided by



What Should Builders and Contractors Do?

Ensure that engineers and architects address radon in building design.

Use CNRPP certified mitigators for radon systems.

Builders should help new occupants test for radon, such as through leaving them with a radon test kit and instructions for its use. . If high radon is found, builders should help occupants mitigate any high radon.

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

