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Radon in Canada: Understanding Regulation and Building Codes Webinar Q&A

These are questions we did not get the opportunity to answer during the webinar. Please note, the answers below are based on our readings and experience and are not legal or medical advice.

Q: Are there building code provisions for houses where the ground water is the significant radon source?

A: The first step is always to test the radon in air. There are no building code provisions that deal with the water as the source of radon. It hasn't been shown as a significant issue in most of Canada. There is a small region where high levels of radon are coming from the water, but only one area. First priority is test the air in the home and fix the radon in air levels. Next would be to assess if elevated levels are coming from the water and test the radon levels in water.

Q: How was the data to indicate that the radon is the second cause of lung cancer collected?

A: Radon is considered the second leading cause of lung cancer because decades of epidemiological research have shown a clear and consistent link between long-term radon exposure and lung cancer risk. The earliest evidence came from large studies of underground miners, where researchers measured radon levels in mines, followed workers for many years, and found a strong dose response relationship that remained even after accounting for smoking. Later, high quality residential case control studies measured radon directly in people's homes and compared lung cancer patients with matched individuals without cancer. These studies, conducted across North America, Europe, and China, confirmed that lung cancer risk increases with radon concentration even at typical household levels, and the magnitude of risk matched what was predicted from miner data. When these risk estimates are combined with population-level indoor radon measurements and smoking prevalence, scientists can calculate how many lung cancer deaths are attributable to radon each year. Across many countries, including Canada, these calculations show that radon accounts for roughly 10 to 16 percent of lung cancer deaths, which places radon firmly behind smoking and ahead of other environmental or occupational carcinogens as a cause of lung cancer. For more information, see references 1-5 from https://academic.oup.com/rpd/article/185/2/143/5281266.

Q: Canada 200 Bq/m^3, US 148, Word Health Org. 100. Why is Canada so high?

A: Although this was answered in the webinar, it is posted again to give proper reference. Please see section 6.3 of WHO handbook on indoor radon: a public health perspective and 3.3.4 of ICRP 126.

Q: How do you measure the radon in homes; which method is preferred for precision?

A: Due to the wide range of fluctuation in radon levels, it is recommended to test for a minimum of 91 days using an alpha track detector, electret ion chamber, or an electronic radon monitor that has passed C-NRPP performance testing. Please see https://www.canada.ca/en/health-canada/services/publications/health-risks-safety/guide-radon-measurements-residential-dwellings.html for more details, including links to where to obtain the kits.

Q: Do you think it's a conflict of interest for radon remediation companies to offer radon testing?

A: It does not automatically create a conflict of interest when a company offers both radon testing and radon mitigation, but it can create the potential for one if strong quality controls are not in place. This is why Canada uses a national certification system through C-NRPP, supported by CARST, which sets training requirements, testing protocols, equipment standards, and a code of ethics. These safeguards help ensure that both testing and mitigation are carried out responsibly and transparently, and many reputable companies provide both services within this certified framework. If one is concerned, they can select to have their testing performed by a company not associated with the mitigation company.

Q: How does a HRV/ERV affect radon levels in a home?

A: If the air pressure inside a home is lower than the gas pressure inside the soil, soil gases will enter the home if there is a point of entry. If the HRV/ERV system is not balanced, it can increase the amount of soil gases entering the home. Whether that leads to a net increase in the amount of radon and radon progeny in the home would be determined by whether it also did a better job of removing these from the home. Here is a very recent study on the topic by National Research Canada: Frontiers | Ventilation approaches and radon control in Canadian houses

It is highly recommended that people who have an HRV/ERV system in their homes use an electronic monitor to track radon levels. This is so they will be notified if the HRV/ERV gets out of balance and the radon levels increase.