



## Introduction

Some workers have gotten used to thinking about radiation, such as miners, nuclear power workers, and X-ray technicians. However, our knowledge of radon gas as a widely pervasive source of radiation has increased in the last decades and we now know that it can accumulate in any type of building. Radon is the leading cause of lung cancer, after smoking, and is responsible for 16 percent of lung cancer deaths in Canada. Workers in schools, daycares, offices and other workplaces and those who work from home need to take radon seriously.

Radon is easy to test and fix, and workers have the right to be protected from radon. Its time for WorkSafeBC to step up to the plate. We have produced a detailed report titled ***Radon in BC: Employers' Duties, Worker Strategies, and WorkSafeBC Policies***. This brief details our recommendations for policy change at WorkSafeBC.

## Ionizing Radiation

The Occupational Health and Safety Regulation has clear rules on ionizing radiation that apply to all workplaces (s. 7.19 to 7.25). Radon is ionizing radiation and more needs to be done to make workers in BC appreciate the risks. WorkSafeBC can issue policy documents making clear that the OHSR radiation provisions cover radon.

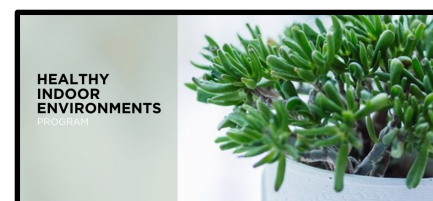
Right now, the OHSR treats exposure to radiation in terms of effective dose. Workplace radiation should be kept as low as reasonably achievable (s. 7.19). If radiation levels exceed an effective dose of 1 millisievert (mSv) in a year, employers need to introduce control plans and explain them to workers.

Scientists have worked out how to calculate the effective radiation dose a person will receive if exposed to concentrations of radon in air. Conservative estimates are that exposure to air at 200 Bq/m<sup>3</sup> in a full time job for a year will give slightly over 1 mSv effective dose. Health Canada has set the Radon Guideline at 200 Bq/m<sup>3</sup> and applies it to homes as well as workplaces. WorkSafeBC can set a workplace guideline of 200 Bq/m<sup>3</sup> as broadly consistent with its existing radiation protection measures as well as Canada's Radon Guideline. The [Canadian National Radon Proficiency Program](#) (C-NRPP) has lists of certified radon mitigation professionals by community—in almost all cases radon mitigators can lower levels below 200 Bq/m<sup>3</sup>.

WorkSafeBC needs to make clear that there is nothing natural about elevated radon in buildings. (The OHSR excludes employers for responsibility from natural background radiation, unless WorkSafeBC says otherwise, at s. 7.18(2)). Outdoor background rates are typically quite low and average indoor background concentrations of radon are about 45 Bq/m<sup>3</sup>. Radon above Canada's Guideline is the result of poor building design and is no more natural than roofs with holes that let in the rain.



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## General Duty Clause

All provinces and territories have general duty clauses that, in very general language, require employers to minimize hazards. The OHSR provides, at section 2.2. that: “Despite the absence of a specific requirement, all work must be carried out without undue risk of injury or occupational disease to any person” and at section 4.1: “A workplace must be planned, constructed, used and maintained to protect from danger any person working at the workplace.” Ontario has set an example and [interprets the general duty clause](#) to mean employers should work to ensure radon levels below 200 Bq/m<sup>3</sup>. WorkSafeBC could adopt a similar policy.

## Exposure Controls

OHSR sections 5.48 to 5.59 are concerned with controlling exposures. There are provisions for workplace monitoring (s. 5.53); workers’ right to see results (s. 5.53(5)), and provisions for exposure control plans. Unfortunately, OHSR references an outside organization for different chemical exposures, the American Conference of Governmental Industrial Hygienists (ACGIH). That organization has outdated threshold limit values (TLVs) for radon. WorkSafeBC has the power to exclude or provide different standards and publishes a table of exposure limits for various chemical, biological and physical agents that differ from the TLVs established by the ACGIH. WorkSafeBC also publishes a *Table of Exposure Limits for Chemical and Biological Substances* that aims to show all exposure limits for British Columbia workplaces. WorkSafeBC should include radon in the *Table of Exposure Limits for Chemical and Biological Substances*. It should provide concentrations that are consistent with other parts of the OHSR as well as Health Canada guidance on radon

## Guidance for Employers

WorkSafeBC should also make clear the need for testing in workplaces in areas with high radon prevalence, including home workplaces. We suggest all workplaces should be tested if they are in geographical locations where over 10 percent of residences tested having levels of 200 Bq/m<sup>3</sup>. Such locations can be found on the [BC Centre for Disease Control’s Radon Map](#). Testing should follow [Health Canada’s Guide for Radon Measurements in Public Buildings](#). If high radon is found, professional mitigators can fix the problem. There still remains a chance that some workplaces outside of higher risk zones may have high radon, either through chance occurrence, or because some structures are particularly prone to radon (such as mines, caves, underground vaults or fish hatcheries). WorkSafeBC should specify further conditions that give rise to an obligation for employers to test, such as type of industry or employers being presented high readings on a short term digital monitor by employees.

## Exposure Registry

WorkSafeBC has created exposure registries as a way for workers, employers and others to register exposure to a harmful substance or agent or work. Registry forms should be updated to include radon. Under OHSR section 7.25 employers must maintain records of radiation surveys and make this available to WorkSafeBC. WorkSafeBC can create a structured program for collecting radon data, which contribute to the province-wide database now held by the BCCDC.

## Updating Information and Resources

WorkSafeBC’s current public resources need updating. This includes webpages that mention radon, occupational cancers, and on identifying hazards. Radon should be identified as a fixable problem in the *Safety Inspections Workbook*, *Prevention Manual*, publications on *Working from Home*, and the *Occupational Disease Initiative*.

**Further Information** is provided in ***Radon in BC: Employers’ Duties, Worker Strategies, and WorkSafeBC Policies***. To learn more please visit our website on [Radon in the Workplace](#) or contact us at [healthyindoor@bc.lung.ca](mailto:healthyindoor@bc.lung.ca)

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