

# **RADON ACTION GUIDE APPENDIX: Provincial / Territorial Tools and Resources**

**Prepared by: National Radon Program, Health Canada**

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## 1. International Examples of Radon Action Plans

The European Union's [Basic Safety Standards Directive](#) (BSS-Directive) requires member states to adopt radon action plans. It specifies necessary components.

There is extensive literature on radon action plans by individual states. Some easily accessible plans include:

- [UK National Radon Action Plan](#)
- [Czech Republic National Radon Action Plan](#) (English)
- [Federal Republic of Germany Radon Action Plan for the sustainable reduction of radon exposure](#) (English)
- [French national action plans for radon risk management](#) (French)

Further guidance on developing radon action plans is provided in the [Flow Chart for the Development of a Radon Action Plan](#) prepared by the International Atomic Energy Agency (IAEA).

The World Health Organization's [Global Health Observatory](#) provides a [Radon Data Repository](#) that lists countries by national action plans, regulations and other activities.

### 1.1 Understanding Components of a Radon Action Plan in Canada's Federal System

Because of the division of powers in Canada, each federal and provincial/territorial government are needed to ensure comprehensive coverage of the radon issue. Table 1 sets out the key components of a radon plan (column 1), showing how this is provided in the BSS-Directive (column 2) and implemented in the United Kingdom (column 3).

The Table shows (column 4) how, for Canada, there will be distinct roles for the federal and provincial-territorial governments given Canada's constitutional division of powers. Column 4 also provides an assessment of where the federal government has acted, and where further provincial/territorial action is needed.

Table 1: Components of a Radon Action Plan			
Key Components of a Radon Action Plan	<a href="#">BSS Directive Annex XVIII</a>	<a href="#">UK National Radon Plan (2018)</a>	Canadian Federal-Provincial Division of Powers and Existing Action
<b>Goals</b>			
Long-term goals in terms of reducing lung cancer risk attributable to radon exposure	Section (s.) 13	s. 2, p. 6	Goals possible at federal and P/T level. No clear radon reduction goals yet pronounced by federal or any P/T government. Further discussion in P/T Radon Action Guide (RAG) section 2.2.
<b>Surveillance</b>			
Surveys to estimate distribution of indoor radon concentrations	s. 1	s.1.2.1, p.3; s. 4.2.1, p. 18	Surveys can be done by any level of government. Federal: see <a href="#">Cross-Canada Survey of Radon Concentrations in Homes (2012)</a> , but insufficient numbers for most communities. See RAG 3.1 and this Appendix, <a href="#">s. 4</a> for details on existing radon testing, mapping and database initiatives at the provincial/territorial level and municipal level in Canada.
Financial support for surveys	s. 12	s.1.2.1, p. 3	Financial support possible from any level government. See RAG 3.1 and this Appendix, <a href="#">s. 4</a> for examples of government funded testing, mapping and database initiatives in Canada.
Database of radon measurements	s. 1	s.1.2.1, p.3	Possible by any level of government. Some initiatives in B.C., Nova Scotia, Yukon but so far insufficient. See RAG 3.1 and this Appendix, <a href="#">s. 4</a> .
Published radon risk maps and as an online interactive resource	Not found	s. 3.1.2, p. 8; s. 3.2.2, p. 12	Possible by any level of government. Some maps available federally by Health Canada, and the Canadian – National Radon Proficiency Program (C-NRPP), and for B.C., Nova Scotia and the Yukon. For further examples of mapping initiatives in Canada see RAG 3.1 and this Appendix, <a href="#">s. 4</a> .
Delineation (approach, data, criteria) of high radon risk areas	s. 2	s. 3.1.2, p. 8; s. 3.2.2, p. 12	Possible by any level of government. Some efforts in B.C. Building Code (see this Appendix, <a href="#">s. 8</a> ), in <a href="#">Nova Scotia Radon Risk Map</a> , and individual action in some Ontario municipalities (see this Appendix, <a href="#">s. 4</a> ).
Maintaining and developing the evidence base on radon	Not found	s. 3.8, p. 16	Possible by any level of government. Federally, the National Radon Program employs researchers. Provincial support exists through support for academic researchers in higher educational institutions. See also testing and database initiatives—RAG 3.1 and this Appendix, <a href="#">s. 4</a> .
<b>Reference Levels in Dwellings, Workplaces and other Buildings</b>			
Setting a national radon reference level	s. 4	s. 3.1.1, p. 8	Health Canada has set a <a href="#">National Radon Guideline of 200 Bq/m<sup>3</sup></a> . For workplaces, the <a href="#">NORM Guidelines</a> recommend 200 Bq/m <sup>3</sup> .

Education and Awareness			
General education and awareness	s. 10	3.1.6, p. 11; and 3.6.1 to 3.6.3, p. 14-15	Possible by any level of government. Federal action includes efforts by Health Canada's National Radon Program, and <a href="#">Take Action on Radon</a> Alberta's <a href="#">Radon Awareness and Testing Act, SA 2017, c R-2.5</a> requires the government to develop educational materials. See this Appendix, <a href="#">s. 5</a> for examples.
Informing local decision-makers	s. 10	s.4.2.4, p. 18	Primarily provincial responsibility given jurisdiction for health administration and regulation of indoor spaces. Few known Canadian examples outside of Ontario's Health Standards (discussed at this Appendix, <a href="#">s.5</a> ). Also see RAG 2.4 on collaboration, partnership and engagement.
Targeted to smokers	s. 10	Not found	Possible by any level of government. Health Canada has produced education materials – <a href="#">Radon - Another Reason to Quit</a> . No known Provincial/Territorial programs. See RAG 3.10.
Guidance on testing and mitigation	s. 11	s. 3.1.3, p.9	Possible by any level of government. Health Canada, and the Canadian General Standards Board (CGSB) have created Canada wide guidance documents, see RAG 3.2 and this Appendix, <a href="#">s. 5</a> .
Training of professionals (such as the building trades)	Not found	s. 3.6.4, p. 15	Possible by any level of government. C-NRPP operates nationally to provide training and certification. See RAG 3.3 and this Appendix, <a href="#">s. 6</a> . See also Continuing Credit Courses for Professionals, this Appendix, <a href="#">s. 5</a> .
Reduction Strategies for New Construction			
Building Codes	s. 8	Regulations for new buildings (s. 3.3, p. 13)	Federally, the National Building Code serves as a model and includes some radon provisions. Building Codes are provincial/territorial jurisdiction. Most provincial/territorial building codes have some radon provisions. See RAG 3.5 and this Appendix, <a href="#">s.8</a> .
Post construction remediation (e.g. New Home Warranty)	s. 7	Not found	New Home Warranty is provincial/territorial jurisdiction. The only known Canadian example of explicit protection for radon in New Home Warranty is from Tarion in Ontario. See RAG 3.5 and this Appendix, <a href="#">s.8</a> .
Reduction Strategies for Occupied Spaces			
Reduction strategies for radon reduction in older buildings	s. 6	s.3.1.4 to 3.1.6, p. 10-11; 3.2, p. 12	Any level of government can offer subsidies and incentives, and test/mitigate its own buildings (see RAG 3.4, and this Appendix, <a href="#">s. 7</a> ). Regulation of rental accommodation and workplaces primarily provincial/territorial responsibility. For rented homes, see RAG 3.7 and this Appendix, <a href="#">s.10</a> . For workplaces, RAG 3.8 and this Appendix, <a href="#">s. 11</a> .
Ensuring services (and validation of quality) for radon measurements in homes	s.6, 11	s. 3.1.4, p. 10	Any level of government can offer industry support. At the national level, C-NRPP certifies radon testers and mitigators, and approves devices and laboratories for testers and mitigators to use. The Canadian Association of Radon Scientists and Technologists (CARST) serves as an industry association for C-NRPP certified testers and others. There

			are very few programs at the provincial/territorial level. For discussion of industry support programs at the provincial/territorial level, see RAG, 3.3, for certification of professionals see this Appendix, <u>s. 6</u> .
Ensuring services (and validation of quality) for radon mitigation	s.6, 11	s. 3.1.4, p. 10	Any level of government can offer industry support. At the national level, C-NRPP certifies radon testers and mitigators and approves devices and laboratories for testers and mitigators to use. CARST serves as an industry association for C-NRPP certified testers and others. There are very few programs at the provincial/territorial level. For discussion of support programs at the provincial/territorial level, see RAG, 3.3, for certification of professionals see this Appendix, <u>s. 6</u> .
Quality controls (such as certification) of testing professionals	s.11	s. 3.1.4, p. 10; 4.2.2, p. 18	Professional regulation is a provincial responsibility. The need for provincial regulation is discussed in RAG 3.3 and this Appendix, <u>s.6</u> .
Quality controls (such as certification) of mitigation professionals	s.11	s. 3.1.4, p. 10; 4.2.2, p. 18	Professional regulation is a provincial responsibility. The need for provincial regulation is discussed in RAG 3.3 and this Appendix, <u>s. 6</u> .
Financial support for remedial measures	s.12	Not found	Possible by any level of government. Most appropriate for provinces and territories as part of health care spending. See this Appendix, <u>s. 9</u> .
Renters protection	Not specified, but s.6 refers to 'dwellings'	s. 3.1.5, p. 11	Tenant protection is a provincial responsibility. For suggested provincial-territorial action See RAG 3.7 and this Appendix, <u>s.10</u> .
Linkages to Indoor Air Quality and Energy Efficiency	s.14	s.1.2.6, p. 5	Possible by any level of government. See RAG 3.9 and this Appendix, <u>s.12</u> for examples of programs.
<b>Plan Implementation</b>			
Assignment of responsibilities (governmental and non-governmental), coordination mechanisms	s. 5	Not found	Nationally, Health Canada's National Radon Program provides Pan-Canadian coordination. See RAG 2.4 and 2.5 on coordination, collaboration and finding a home for radon programs.
Available resources for implementation of the action plan	s. 5	Not found	At this time, provincial and territorial Radon Action Plans have not been initiated in Canada.

Schedules for reviews of the action plan	s. 9	s. 4.1	At this time, provincial and territorial Radon Action Plans have not been initiated in Canada.
Stakeholder Engagement	Not found	s.3.6.5, p. 16	At this time, provincial and territorial Radon Action Plans have not been initiated in Canada.

## 2. Radon Action in Other Frameworks, Strategies and Plans

### 2.1 Chronic Disease and Cancer Strategies

These strategies outline goals, principles, and administrative steps to address cancer in the population. Radon can easily be identified as a problem, with the strategy incorporating planning initiatives to address elevated radon levels. In this way a Radon Action Plan can be made one component of larger strategies to prevent cancer or chronic diseases more broadly.

One example is the [Chronic Disease Prevention Strategy](#) (Cancer Care Ontario). This identifies radon as a problem, and specifically builds on a report identifying the [Environmental Burden of Cancer in Ontario](#) (Public Health Ontario). This report identifies radon as one of three carcinogens that collectively cause 90% of the environmental burden of cancer in Ontario (p. 3). Extensive statistics are supplied on the role of radon in causing cancer in Ontario. Suggestions are provided on programs for reducing exposure to elevated radon.

Other provinces have chronic disease and action plans which could be modified to incorporate radon, including:

- [The Way Forward: The Chronic Disease Action Plan](#) (Government of Newfoundland and Labrador, Health and Community Services)
- [Gaining Ground: A Provincial Cancer Control Policy Framework for Newfoundland and Labrador](#) (Government of Newfoundland and Labrador)
- [Changing Our Future: Alberta's Cancer Plan to 2030](#) (Government of Alberta)
- [2016-2021 Manitoba Cancer Plan](#) (Cancer Care Manitoba, Action Cancer Manitoba)

## 2.2 Healthy City and Healthy Communities Strategies

Canada is seeing increased awareness of the importance of the built environment in shaping the physical, psychological and social health of individuals and their communities. Land-use patterns, transportation networks, public spaces, and natural settings can all impact on physical activity, psychological well-being, and healthier outcomes for people. These strategies can directly include radon by drawing attention to the importance of indoor environments and buildings to public health. Healthy City and Healthy Communities Strategies can directly incorporate action items in this Radon Action Guide as well action items described in the **Radon Action Guide for Municipalities**.

One example of a policy document on healthy communities that references radon is the [Healthy Built Environment Linkages Toolkit](#) from the B.C. Centre for Disease Control. It provides specific recommendations for how municipalities can address radon.

As well, Ontario's [Healthy Environments and Climate Change Guideline, 2018](#) (Ministry of Health and Long term Care) is intended to assist Boards of Health to develop approaches for promoting healthy built and natural environments, to enhance population health and mitigate environmental health risks. It identifies radon as an important environmental cause of cancer and restates requirements on local boards to provide public education on radon (p. 4). It also references guides to addressing radon (p. 7).

## 2.3 Public Health Standards and Guidelines

Some provinces, such as Ontario, have [Public Health Standards](#). These identify minimum expectations for public health programs and services. Boards of Health are accountable for implementing the Standards, including the protocols and guidelines that are referenced in the Standards. In Ontario these specify radon as a topic of concern and direct Boards of Health to provide education to the public on the topic (p. 34-35).

In turn, some health units in Ontario have surveyed radon at the municipal level to determine whether radon is a local problem. Examples include:

- [Thunder Bay District Health Unit](#)
- [Kingston, Frontenac and Lennox & Addington Public Health](#)
- [Windsor-Essex Health Unit](#)
- [Southwestern Public Health](#)



## 3. Support for Municipal Radon Action

### 3.1 Municipal Law Frameworks

Municipalities are ‘creatures of the provinces’ in the sense that municipalities only have the legal powers that are provided by provincial or territorial legislation. Existing powers of municipalities to address radon are spelt out in **Radon Action in Municipal Law: Understanding the Legal Powers of Cities and Towns in Canada**. Provinces and territories provide sufficient legislative powers to municipalities to address radon. Most provinces’ and territories’ municipal legislation mentions protecting health and safety as part of the general purposes of a municipality or allows for bylaws concerning health.

Table 2: Municipal Powers to Protect Health in Canada	
British Columbia	<a href="#"><i>Community Charter</i>, SBC 2003, c 26, s. 8(3)(i)</a>
Alberta	<a href="#"><i>Municipal Government Act</i>, RSA 2000, c M-26, s. 3(c) and 7(a)</a>
Saskatchewan	<a href="#"><i>Municipalities Act</i>, SS 2005, c M-36.1, s. 4(2), and s. 8(1)(b); <i>The Cities Act</i>, SS 2002, c C-11.1, s. 4(2) and (8(1)(b); <i>The Northern Municipalities Act</i>, 2010, SS 2010, c N-5.2 s. 4(2) and 8(1)(b);</a>
Manitoba	<a href="#"><i>Municipal Act</i>, CCSM c M225 s. 232(1) (a)</a>
Ontario	<a href="#"><i>Municipal Act</i>, 2001, SO 2001, c 25, ss. 10 (1), 10(2)(6), 11(1) and 11(2)(6)</a>
Quebec	<a href="#"><i>Municipal Powers Act</i>, CQLR c C-47.1, ss. 4, 19 to 54, 55, 63 to 65</a>
New Brunswick	<a href="#"><i>Local Governance Act</i>, SNB 2017, c 18, s. 10 (1)(a)</a>
Prince Edward Island	<a href="#"><i>Municipal Government Act</i>, RSPEI 1988, c M-12.1, s. 180</a>
Nova Scotia	<a href="#"><i>Municipal Government Act</i>, SNS 1998, c 18 s. 172 (1)(a).</a>
Northwest Territories	<a href="#"><i>Hamlets Act</i>, SNWT 2003, c 22, Sch C s. 72(1)(a); <i>Cities, Towns and Villages Act</i>, SNWT 2003, c 22, Sch B s. 70(1)(a); <i>Charter Communities Act</i> SNWT 2003, c 22, Sch A s. 74(1)(a);</a>
Yukon	<a href="#"><i>Municipal Act</i>, RSY 2002, c 154 s. 265(a)</a>
Nunavut	<a href="#"><i>Hamlets Act</i>, RSNWT (Nu) 1988, c H-1 s. 54.2, 102 (a) <i>Cities, Towns and Villages Act</i>, RSNWT (Nu) 1988, c C-8, 1 s. 54.2, 102 (a)</a>
Newfoundland	N/A

However, there are specific steps that provinces and territories can take to ensure that municipalities do not have to worry that bylaws will be contested in court.

### 3.2 Specific Amendments to Municipal Law –Learning from Anti-Smoking laws

Through the 1990s many municipalities in Canada came to adopt bylaws prohibiting smoking in public spaces such as restaurants, shopping malls, and workplaces. In this period, provinces and territories also enacted amendments to municipal law frameworks explicitly stating that municipalities had the legal power to pass bylaws to prohibit smoking. This was likely to prevent any possible court challenges. For much of the twentieth century, municipalities were confined to acting only where provincial laws explicitly gave permission. There was a worry that without specific legal provisions allowing municipalities to pass anti-smoking bylaws, such bylaws would be struck down by the courts.

The courts have found that anti-smoking bylaws can be supported by very general powers to regulate to protect health (*Restaurant and Food Services Association of British Columbia and the Yukon v. Vancouver (City)*). As well, since the 2000s, courts have become much more willing to defer to municipalities (*United Taxi Drivers' Fellowship of Southern Alberta v. Calgary (City)*). Provinces and territories have continued to ensure provisions allowing municipalities to have anti-smoking bylaws, even after passing provincial legislation that duplicates municipal efforts. While not strictly necessary, this continues to clarify that municipalities can take action, reduces potential conflicts between municipal and provincial-territorial law, and provides added assurance to municipalities concerning court challenges to their efforts.

Table 3: Municipal Law and Anti-Smoking Provisions in Canada		
	Municipal Law Enabling Anti-Smoking Bylaws	Provincial legislation with prohibitions on smoking in enclosed public spaces
British Columbia	<a href="#"><i>Municipalities Enabling and Validating Act (No. 2)</i></a> , SBC 1990, c 61, s.40; <a href="#"><i>Municipalities Enabling and Validating Act (No. 3)</i></a> , S.B.C. 2001, c. 44 s. 2,	<a href="#"><i>Tobacco and Vapour Products Control Act</i></a> s.2.3
Alberta	<a href="#"><i>Tobacco and Smoking Reduction Act</i></a> , SA 2005, c T-3.8, s. 10	<a href="#"><i>Tobacco and Smoking Reduction Act</i></a> , SA 2005, c T-3.8
Saskatchewan	<a href="#"><i>The Tobacco and Vapour Products Control Act</i></a> , SS 2001, c T-14.1. s. 33, 35, and 36; <a href="#"><i>Northern Municipalities Act</i></a> , SS 1983, c N-5.1 s. 108.1, <a href="#"><i>Rural Municipality Act, 1989</i></a> , SS 1989-90, c R-26.1, s. 215.1 ; <a href="#"><i>The Urban Municipality Act, 1984</i></a> , SS 1983-84, c U-11, s. 142	<a href="#"><i>The Tobacco and Vapour Products Control Act</i></a> , SS 2001, c T-14.1

Manitoba	<a href="#"><u>The Smoking and Vapour Products Control Act</u></a> , CCSM c. S150, <a href="#"><u>s.6</u></a>	<a href="#"><u>The Smoking and Vapour Products Control Act</u></a> , CCSM c. S150
Ontario	<a href="#"><u>Municipal Act, 2001</u></a> , SO 2001, c 25, s. 115 (1)	<a href="#"><u>Smoke-Free Ontario Act, 2017</u></a> , SO 2017 c 26, Sch 3
Quebec	n/a	<a href="#"><u>Tobacco Control Act</u></a> , CQLR c L-6.2,
New Brunswick	<a href="#"><u>New Brunswick Municipalities Act</u></a> , c. M-22, R.S.N.B. s. 11(1)	<a href="#"><u>Smoke-free Places Act</u></a> , RSNB 2011, c 222
Prince Edward Island	<a href="#"><u>Smoke-free Places Act</u></a> , RSPEI 1988, c S-4.2, s. 3	<a href="#"><u>Smoke-free Places Act</u></a> , RSPEI 1988, c S-4.2
Nova Scotia	<a href="#"><u>Smoke-free Places Act</u></a> , SNS 2002, c 12, s. 16	<a href="#"><u>Smoke-free Places Act</u></a> , SNS 2002, c 12
Newfoundland and Labrador	<a href="#"><u>Smoke-free Environment Act, 2005</u></a> , SNL 2005, c S-16.2, s. 12	<a href="#"><u>Smoke-free Environment Act, 2005</u></a> , SNL 2005, c S-16.2,
Nunavut	<a href="#"><u>Cities, Towns and Villages Act</u></a> , RSNWT (Nu) 1988, c C-8, s. 54.6	<a href="#"><u>Tobacco Control and Smoke-Free Places Act</u></a> , SNu 2003, c 13
Northwest Territories	<a href="#"><u>Smoking Control and Reduction Act</u></a> , SNWT 2019, c 29 s. 4.	<a href="#"><u>Smoking Control and Reduction Act</u></a> , SNWT 2019, c 29
Yukon	<a href="#"><u>Tobacco and Vaping Products Control and Regulation Act</u></a> , SY 2019, c14 s. 39(1)	<a href="#"><u>Tobacco and Vaping Products Control and Regulation Act</u></a> , SY 2019, c14

### 3.3 Model Language for Radon in Municipal Law and Conflict of Law Provisions

Potential amendments to municipal and/or local government acts and city charters may be to the effect that:

**A municipality or local government may make regulations or by-laws respecting the control and mitigation of radon gas exposure.**

Any specific radon legislation should also include provisions enabling municipal action, to the effect that:

**A municipality and/or local government may make a bylaw governing radon and in the event of conflict between municipal and provincial/territorial law, the stricter law will apply.**

### 3.4 Ensure Procedures for Consultation and Agreement on Bylaws When Needed

In British Columbia, the [Community Charter](#) SBC 2003, c. 26 provides for subject areas (or 'spheres') that involve the concurrent authority of local governments and the provinces, including public health (s. 9(1)(a), and 8(3)(i)), and environment (s. 9 (1)b and 8(3)(j)). There is a special procedure for municipalities to inform the provincial government of intended changes and, in the case of public health bylaws, to consult with regional health boards or medical health officers (9(1)(a), 9(3)(a), 9(3)(4), and the [Public Health Bylaws Regulation](#), BC Reg 42/2004). At an operational level, provincial governments should ensure relevant staff in municipal affairs and/or health ministries are prepared to approve municipal bylaw making and policy changes around radon.

## 4. Testing, Databases, and Mapping

### 4.1 Testing as Awareness

- [Take Action on Radon 100 Test Kit Challenge](#)
  - This Health Canada supported campaign distributes 100 test kits to approximately 20 communities per year.
- [Yukon Radon Awareness Campaign](#)
  - The Yukon Housing Corporation, in partnership with Yukon Lung Association, Health Canada, and Yukon Health and Social Services delivered a radon awareness campaign that included free radon kits and testing in remote communities (2019 - present).
- [Donna Schmidt Lung Cancer Prevention Society](#)
  - In British Columbia, this non-profit, volunteer driven society, provides radon test kits through the library offices of the Regional District of Central Kootenay in Creston, Nakusp, and Nelson.

### 4.2 Community Testing Initiatives

These initiatives aim to assess radon prevalence in a community through sample testing of homes and other buildings (ranging from approximately 400 to 1,100 tests depending on community characteristics). They also improve awareness.

- Ontario Health Units, in support of policy changes related to building codes. Examples include:
  - [Thunder Bay District Health Unit](#)

- [Kingston, Frontenac and Lennox & Addington Public Health](#)
- [Windsor-Essex Health Unit](#)
- [York Region Public Health](#)
- [BC Lung Association, Radon Community Testing: BC Municipalities and Regional Districts](#)

### 4.3 Citizen Science Projects

- [Evict Radon](#)
  - This includes significant public education and outreach materials.
- [Simon Fraser University Citizen Science Project for Radon Gas](#)

### 4.4 Database and Mapping Initiatives

#### Public maps in Canada

- [Health Canada Radon Map](#)
- [Nova Scotia Radon Map](#)
- [C-NRPP Radon Database and Map](#)

#### International Examples

- [EPA Map of Radon Zones](#)
- [United Kingdom Maps of Radon](#)
- [Connaître le potentiel radon de ma commune](#) (République Française. Institut de Radioprotection et de sûreté nucléaire)
- [Radon in the soil and air in Germany](#) (German Federal Office for Radiation Protection)
- [WHO Existence of National Radon Map](#)

#### Other Maps, Data Sets and Working Groups

- [Radon and Thoron Data from Canadian Homes](#)
- [British Columbia Centre for Disease Control BC Radon Data Repository](#)
- [Canadian Radon Mapping Working Group](#)
- [Radon Environmental: Mapping Radon Risk](#) (for purchase)
- [United Kingdom Radon Data: Radon Potential Dataset](#) (British Geological Survey)

## 5. Education and Awareness

A key component of addressing radon is ensuring that people know that it is a health risk and have the tools to act to remedy it. Many government agencies in Canada and around the world have radon education programs, information portals and outreach resources.

### 5.1 Radon Web Pages

#### Canada (Federal)

- [Take Action on Radon Resources of Stakeholders](#)
- [Health Canada Materials to Share or Print](#)

#### Canada (Provincial and Territorial)

- [Public Health Ontario](#)
- [Cancer Care Ontario, Risk of Residential Radon Varies Geographically](#)
- [Health Link BC](#)
- [Manitoba, Health, Seniors and Active Living](#)
- [Nova Scotia Environmental Health](#)

#### Canada (Municipal and Regional)

- [Peterborough Public Health](#)
- [Algoma Public Health](#)
- [Grey Bruce Public Health](#)
- [Toronto, Ontario](#)
- [Edmonton, Alberta](#)
- [Guelph, Ontario](#)
- [Chelsea, Quebec](#)

#### International

- [European Radon Association](#)
- [Ireland Environmental Protection Agency](#)
- [US Environmental Protection Agency](#)
- [Public Health England](#)

### 5.2 Government Resolutions

Educational programs can be strengthened by broad resolutions, such as legislation and declarations recognizing November as Radon Action Month in Canada.

- [Health Canada Radon Action Month and Lung Cancer Awareness Month](#)
- [Legislative Gazette Part I, November 1, 2019, No. 44, 2577-2624](#)  
(Saskatchewan)

- [Edmonton, Alberta](#)
- [Chelsea, QC](#)

In the United States, the Environmental Protection Agency declares [January Radon Action Month](#) and the Center for Disease Control focuses on [Radon Awareness Week](#) in late January.

### 5.3 Targeting At-Risk Audiences

- The Canadian Partnership for Children's and Health provides [radon information targeted at families](#).
- Health Canada targets smokers with [RADON - Another Reason to Quit](#)

### 5.4 Public Health Studies

Public Health Ontario undertook specific studies on the [Environmental Burden of Cancer](#). This was accompanied by an academic article, [Lung cancer risk of radon in Ontario, Canada: how many lung cancers can we prevent?](#), and production of accessible materials, [Public Health Ontario: Radon Risks and Realities](#). A further result was the incorporation of radon education and awareness into Ontario's [Public Health Standards](#).

### 5.5 Courses for Professionals

- Continuing credit courses for real estate agents are provided by the [Alberta Real Estate Council](#) [British Columbia Real Estate Association](#) and the [Nova Scotia Real Estate Commission](#).
- McMaster University, together with Health Canada, the Ontario College of Family Physicians and the Clean Air Partnership, have designed [a free, certified program for doctors](#).
- C-NRPP Training for Building Professionals (including Municipal Inspectors): [Controlling Radon in New Canadian Homes \(CRNCH\): CNRPP-EL-9](#)

### 5.6 Radon Laws that Mandate Governments to Make Educational Materials

Alberta's [Radon Awareness and Testing Act, SA 2017, c R-2.5](#) (not yet signed into force), requires the government to develop educational materials explaining the health risks associated with exposure to radon for the public, and for purchasers in residential real estate transactions. The materials are to be developed in consultation with not-for-profit organizations, other levels of government and other stakeholders. They will



identify methods of testing for radon and ways to reduce the risks of exposure to radon and encourage homeowners to test and mitigate. There are also provisions for government to communicate with the public, implement a public awareness campaign, partner with not-for-profit organizations to distribute educational materials; provide educational materials for use in schools; and other methods.

Eight U.S. States have similar laws mandating public education, including:

- California [Cal. Bus. & Prof. Code § 10084.1](#)
- Colorado [Col. Rev. Stat. 25-11-114\(2\)](#)
- Florida [Fla. Stat. Ann. § 404.056 \(3\)](#)
- Montana [Mont. Code Ann. § 75-3-605](#)
- New Hampshire [N.H. Rev. Stat. Ann. § 125:9 \(X\)](#)
- Utah [UT Code Ann. § 26-7-7](#)
- Virginia [VA. Code Ann. § 32.1-229](#)
- Wisconsin [Wisconsin Statutes § 254.34 \(h\)](#)

## **5.7 Canadian Guidance and Protocols on Testing and Mitigation**

### **Health Canada**

- [Government of Canada Radon Guideline](#)
- [Radon - Reduction Guide for Canadians](#)
- [Guide for Radon Measurements in Residential Dwellings \(Homes\)](#)
- [Summary Report on Active Soil Depressurization \(ASD\) Field Study](#)
- [Cross-Canada Survey of Radon Concentrations in Homes - Final Report](#)
- [Residential Radon Mitigation Actions Follow-Up Study: Public Summary](#)
- [Reducing Radon Levels in Existing Homes: A Canadian Guide for Professional Contractors](#)
- [Guide for Radon Measurements in Public Buildings \(Schools, Hospitals, Care Facilities, Detention Centres\)](#)

### **Canadian General Standards Board**

- Radon mitigation options for existing low-rise residential buildings. [CAN/CGSB-149.12-2017](#) (For purchase)
- [Radon control options for new construction in low-rise residential buildings. CAN/CGSB-149.11-2019](#)

## **6. Recognizing Certified Radon Professionals**



## 6.1. Professional Certification Requirements

In the United States, radon has been treated primarily as an issue of consumer protection. One outcome is that a central emphasis has been on mandatory certification of radon professionals. The following Table lists states with requirements for radon certification and the applicable statutes and/or codes.

<b>Table 4: US States with Mandatory Certification for Radon Professionals</b>	
State	Radon certification statute and/or codes
California	<a href="#">Cal. Bus. &amp; Prof. Code. Radon Certification. Sec. 106750 - 106795</a>
Connecticut	<a href="#">Conn. Gen. Stat. Ann. Sec. 20-420</a>
District of Columbia	<a href="#">D.C. Code Ann. Sec. 28-4201</a>
Florida	<a href="#">Fla. Stat. Ann. Sec. 404.056 (2)</a>
Illinois	<a href="#">Ill. Ann. Stat. Ch. 420 Sec. 44/25. Radon Industry Licensing Act. Ill. Ann. Stat. Ch. II 422.10. Regulations for Radon Service Providers</a>
Indiana	<a href="#">IN Code § 16-41-38-2 (2019)</a> <a href="#">IN. Code Ann. 5.1-1-22</a>
Iowa	<a href="#">Iowa Code Ann. Sec. 64144.3(136B). Radon Testing</a>
Kansas	<a href="#">Kan. Stat. Ann. Sec. 48-16a01. Radon Certification Law</a>
Kentucky	<a href="#">KY. Rev. Stat. Ann. Sec. 211.9101- 211.9135</a>
Maine	ME. Rev. Stat. Ann. tit. 22 Radon Registration Act <a href="#">Sec. 772</a> to <a href="#">Sec 784</a>
Maryland	<a href="#">MD Env Code § 8-305 (2018)</a>
Minnesota	<a href="#">Minnesota Statutes Sec. 144.4961 Minnesota Radon Licensing Act.</a>
Montana	<a href="#">Mont. Code Ann. Sec. 75-3-603. Montana Radon Control Act, Radon Testing and Mitigation Proficiency Listing Requirements</a>
Nebraska	<a href="#">Neb. Rev. Stat. 38-121 (kk)</a>
New Hampshire	<a href="#">N.H. Rev. Stat. Ann. Sec. 310-A:189-a</a>
New Jersey	<a href="#">N.J. Stat. Ann. Sec. 7:28-27.1</a> Certification of Radon Testers and Mitigators. <a href="#">N.J. Stat. Ann. 26:2D-71</a> Radiation Protection Act
New York	<a href="#">N.Y. Comp. Codes R. &amp; Regs. tit. 9 § 7930.3</a>
Ohio	<a href="#">Omo. Rev. Code Ann. Sec. 3723.02</a>
Pennsylvania	<a href="#">PA. Stat. Ann. tit. 68. 7503 (a)(5)</a> Radon Certification Act (act of July 9, 1987, <a href="#">P.L. 238, No. 43</a> ); <a href="#">25 Pa. Code Chapter 240</a> .
Rhode Island	<a href="#">R.I. Gen. Laws. Sec. 23-61-5</a>
Tennessee	<a href="#">Tenn. Code Ann. Sec. 62-6-302</a>
Utah	<a href="#">Utah Code Ann. Sec. 58-55-305</a>
Virginia	<a href="#">VA. Code Ann. Sec. 54.1-201</a> , <a href="#">VA. Code Ann. 32.1-229.01</a>
West Virginia	<a href="#">W. VA. Code Sec. 16-34-1</a>

The wording of the statutes and codes varies considerably. However, it is possible to piece together general requirements which can also be used by Canadian provinces and territories seeking to implement a mandatory certification program.

- There are restrictions on any person testing and mitigating radon for a fee unless they are certified pursuant to a state approved program.
- Civil and criminal penalties are in place for persons who conducting radon testing or mitigation work without certification.

- Exceptions are made to ensure people can, on their own, test buildings they occupy, own, or lease.
- States approve certification and training through the [National Radon Safety Board](#) and/or the [National Radon Proficiency Program](#) (In Canada's [C-NRPP](#) has already been created to serve as an analogous program, providing training and examinations as a condition to certification).
- There are specific requirements of persons who are certified, such as:
  - qualifying education and exams,
  - registration,
  - following the law,
  - following technical standards for conducting testing and mitigation,
  - continuing education,
  - submitting quality assurance/quality control,
  - using approved devices, and,
  - worker safety plans (In Canada C-NRPP imposes these requirements on its members).

In Canada, C-NRPP is already positioned to maintain national standards for radon professionals, and currently provides training, examinations, certification, registration, and technical standards. Provincial and territorial legislation covering radon professionals can make use of an already existing structure. This can be accomplished by the requirement (in legislation or regulation) that radon testing and mitigation services performed for a fee be done by C-NRPP certified professionals.

## 6.2 Professional Contribution to Radon Databases and Maps

Good databases of radon test results are an important component of understanding radon prevalence. These in turn can contribute to maps and other forms of public information that can guide homeowners, landlords, real estate professionals and others to be vigilant around radon. One important tool for building databases is to require radon testing and mitigation professionals to submit test results to centralized databases.

U.S. states require radon professionals to report test results to government agencies.

<b>Table 5: US States with Reporting Requirements for Radon Professionals or Laboratories</b>	
Florida	Florida Statutes, 2020 s. <a href="#">404.056(2)(c)</a>
Illinois	<a href="#">420 ILCS 44/30</a> Ill. Admin. Code <a href="#">Section 422.110</a>
Indiana	<a href="#">410 Ind. Admin. Code 5.1-1-25</a> (d) and (f)
Iowa	Iowa Code Ann. Sec. 64144.3 ( <a href="#">136B.2</a> )
Kansas	<a href="#">Kan. Stat. § 48-16a10</a>
Maine	Maine Rev. Stat., tit. <a href="#">22 (2) §778</a>
Minnesota	Minn. Admin. Rules <a href="#">4620.7800</a>
Nebraska	Nebraska Administrative Code <a href="#">180- 11-004.01</a> , <a href="#">11-010</a>
New Jersey	N.J. Admin. Code <a href="#">§ 7:28-27.28</a> ; New Jersey Statutes <a href="#">26:2D-74</a>
New York	10 N.Y. Codes Rules & Reg. <a href="#">Section 16.130</a>
Ohio	Ohio Admin. Code <a href="#">3701-69-13</a>
Pennsylvania	<a href="#">25 Pa. Code § 240.303</a>
Rhode Island	<a href="#">216-50-15 R.I. Code R. § 2.7.7</a>

While each of these statutes or codes are written differently it is possible to describe general characteristics and best practices.

- A requirement of certified radon professionals is that they report all radon test results to a government agency on a regular basis (such as monthly or within a time frame such as 30 or 45 days after conducting the test).
- Some contents of the report are specified such as:
  - the radon levels detected
  - the location, age, and description of the building
  - location in the building where test performed
  - the name and certification numbers of the certified radon measurement business and individual who performed the measurements
  - Start and end dates for measurements
  - Whether a radon reduction system is currently in use, the type and identification tag/numbers
  - The type of test performed, device used, and laboratory used
- A prescribed method for submitting data (such as type of computer file) to facilitate ease of database construction.
- Resolution of potential privacy and freedom of information issues. This can take the form of requirements to obtain consent of clients to share radon tests with

model language for a consent form (see Kansas and New Jersey). In other cases, there are explicit exemptions from Freedom of Information requests for radon data held by government agencies (Illinois).

- Some states impose requirements directly on labs (Indiana, Minnesota, Nebraska).

Canadian provinces and territories that wish to create reporting requirements should consult with [C-NRPP](#) and the [Canadian Radon Database and Mapping Working Group](#) on reporting requirements, methods for submitting data, and privacy and freedom of information concerns. Working with national standard setting organizations and groups can ensure national harmonization of standards and best practices are met.

## 7. Government Buildings and Operations

The federal government has conducted and reports on [Radon Testing in Federal Buildings](#).

Examples of radon testing of government buildings at the provincial level:

- Nova Scotia. See [Environment and Labour Annual Accountability Report for the Fiscal Year 2007-2008](#) at p. 12
- [Prince Edward Island](#)
- [Alberta](#)
- [British Columbia](#)

CAREX Canada's, 2017 [Radon in schools: A summary of testing efforts across Canada](#) documents radon testing across Canada. All public schools have been tested in Nova Scotia, Prince Edward Island, New Brunswick, Saskatchewan, Quebec, and [Yukon](#). Some schools have been tested in British Columbia, Alberta, Ontario, and Northwest Territories.

Section 10 of this Appendix discusses initiatives for testing and mitigating social housing.

## 8. Reducing Radon in New Homes

### 8.1 Building Codes

Table 6: Building Codes in Canada and Radon System Requirements				
Building Code	If Limited Area of Application	Soil Gas Barrier only	Radon rough-in with stub only	Passive sub-slab depressurization
National Building Code of Canada, 2015			Explained <a href="#">here</a>	
<u>Provinces and territories that follow the National Building Code:</u> Saskatchewan, Manitoba, New Brunswick, Nova Scotia, Newfoundland and Labrador, Northwest Territories, Yukon, Nunavut. PEI in major municipalities.			Explained <a href="#">here</a>	
British Columbia Building Code, 2018	Select municipalities predominantly east of Coast Mountains, see <a href="#">Table C-4 Locations in British Columbia Requiring Radon Rough-Ins</a>			<a href="#">s. 9.13.4</a>
<a href="#">National Building Code – 2019 Alberta Edition</a>			Explained <a href="#">here</a> , to be augmented with testing and other design as per <b>6.2.1.1</b> and “ <a href="#">good engineering practice</a> ”	

Ontario Building Code, 2017 in Conjunction with Supplementary Standard SB-9, providing three options	Areas of Ontario with known radon problem	<a href="#">s.9.13.4.2.4(a)</a> and Supplementary Standard SB-9, explained <a href="#">here</a> (with Voluntary radon gas testing)	Supplementary Standard SB-9, explained <a href="#">here</a>	<a href="#">9.13.4.2. 4(b)</a> and Supplementary Standard SB-9, explained <a href="#">here</a>
Quebec Construction Code		<a href="#">Quebec Construction Code A-9.13.2.1.(3)</a> (prior to Sept 2020)	<a href="#">Quebec Construction Code, 9.13.4.6.</a> (as of September 2020),	<a href="#">Quebec Construction Code, 9.13.4.6.</a> (as of September 2020), if test results show need

A British Columbia study found the radon rough-in stub was generally insufficient.

- [A Comparison of Three Radon Systems in British Columbia Homes: Conclusions and Recommendations for the British Columbia Building Code](#)

This led to [changes to the BC Code to require an outside venting pipe](#).

Current best practices in mitigation are outlined in the [Canadian General Standard Board's 2019 "Radon control options for new construction in low-rise residential buildings"](#) and should be referenced in building codes. The standard provides detailed technical prescriptions for radon mitigation strategies.

## 8.2 New Home Warranty

New Home Warranty providers will normally cover failures of builders to follow the Building Code, and this should include radon provisions.

Tarion treats high radon as a major structural defect, as discussed in Tarion's [Radon and Your New Home Warranty](#). Tarion explicitly warrants construction against levels of radon exceeding 200 Bq/m<sup>3</sup> for seven years.

Radon will likely fall within other New Home Warranty systems given that:

- The National Radon Guideline provides a clear standard for health in a home.
- High radon is considered to be a latent defect by many real estate councils and associations.
- Building Code provisions on radon are part of a suite of measures relating to ensuring that the building envelope offers suitable protection from water and gas ingress.

## 9. Reducing Radon in Owner Occupied Homes

### 9.1 Real Estate Transactions

**General information:** Many Canadian organizations now offer general information to the public on radon and real estate.

- The Canadian Real Estate Association has a [Homeowners Guide to Radon](#) and a general information page entitled: [More Time at Home? Test for Radon](#)
- Health Canada has an information page on [Radon and Real Estate](#)
- The Canadian Association of Radon Scientists and Technologists has prepared [materials directed at real estate agents](#) including an [online webinar recording](#), and [CARST's Guideline for Radon Measurements during Real-Estate Transactions](#)

**Real estate licensee duties:** Real estate agents are also typically members of professional regulatory organizations. As real estate licensees (or association members) they have professional duties around radon. This includes not only disclosing radon as a known latent defects to buyers, but generally being apprised of, and able to guide clients concerning, environmental conditions in homes. Real estate licensees should also help clients negotiate who will pay for any needed testing and mitigation.

Real Estate Councils and Associations in Canada that have issued directions and materials to licensees that clarify duties, including:

- Real Estate Council of Alberta: [a bulletin](#), [general information on radon](#), [fact sheets](#), [checklists](#), and requirements to study radon as part of [re-licensing requirements in 2019](#).
- Real Estate Council of British Columbia; [Radon Precautions for Real Estate Professionals](#) including checklists.
- Real Estate Association of British Columbia. [Practice tips](#) and [FAQ](#) and [online course](#).
- New Brunswick Real Estate Association [Radon: What you Need to Know](#).
- Nova Scotia Real Estate Commission. [Online course](#).

The British Columbia Lung Association conducted its [own law and policy research](#), including [recommendations for real estate licensees](#) (substantially matching those of the Real Estate Council of British Columbia) and a [summary for policymakers](#).

**Holdback Clauses:** Health Canada recommends a 3-month (long-term) radon test because radon levels fluctuate over time. Shorter tests may thus not accurately capture average radon levels. A three month waiting period can cause significant problems for real estate transactions and radon testing may not be possible during the subject removal period. A buyer may be uncomfortable moving forward with the purchase without knowing radon levels or wish to conduct the test themselves once they occupy the home. A holdback clause in the Contract for Purchase and Sale can allow a radon test to be completed after the property transfers and for a release of funds from seller to buyer to cover the cost of testing and if necessary, mitigation.

Holdback clauses are provided as a possible solution in guidance for licensees by:

- [Real Estate Council of British Columbia](#)
- [Real Estate Council of Alberta](#)
- [New Brunswick Real Estate Association](#).

**Property Disclosure Statements:** In some Canadian provinces, Property Disclosure Statements include a line for radon.

- [Nova Scotia](#)
- [New Brunswick](#)
- [Quebec](#), with [Instructions](#)
- [British Columbia](#)

As well, 37 states in the United States of America have laws requiring homeowners to disclose radon information to potential home buyers, see Environmental Law Institute's [Database of Radon Laws](#).

Property Disclosure Statements should offer sellers the ability to clearly indicate:

- The date and duration of the test (and whether a long term 3-month test has been conducted).
- Whether the homeowner or CNRPP certified professional conducted the test.
- The type of equipment or device used.
- Whether there has been mitigation, and by whom (including space to specify a CNRPP certified professional).

**Written Radon Warnings Delivered to Buyers:** Some U.S. states require that sellers provide buyers with written warnings concerning radon. These can specifically notify the buyer that:

- There is a risk of dangerous levels of indoor radon gas in the home.



- Radon is a Class-A human carcinogen and is the leading cause of lung cancer in non-smokers.
- The seller is required to disclose to the buyer any known elevated radon readings.
- Public health officials recommend that the buyer test for radon.
- Elevated radon concentrations can easily be reduced by certified radon mitigators.

<b>Table 7: US States with Requirements for Radon Warning Statements</b>	
Delaware	<a href="#">6 DE Code § 2572A (2017)</a>
Illinois	<a href="#">420 ILCS 46/10</a>
Iowa	<a href="#">Iowa Code §§ 193E—14.1(543B)</a>
Kansas	<a href="#">Kansas Statutes Minn Stat. § 58-3078a</a>
Minnesota	<a href="#">Minn Stat. 144.496</a>
Montana	<a href="#">Mont. Code Ann. § 75-3-606</a>
New Hampshire	<a href="#">NH Rev Stat § 477:4-a (2015)</a>
Rhode Island	<a href="#">Rhode Island General Laws §§ § 5-20.8-2</a>

In Minnesota, the law directs the Health Department to create a publication, [Radon In Real Estate Transactions](#), which sellers must give to buyers. In Iowa, the law directs sellers to give buyers the [Iowa Radon Home-Buyers and Sellers Fact Sheet](#).

Some states require that the buyer signs off on having received the information, including Delaware, Illinois, Iowa, and Montana (see Table 7 for links).

## 9.2 Subsidies and Financing and other Aid for Homeowners

**Prizes:** [Radon Reduction Sweepstakes](#) – Take Action on Radon and the Canadian Association of Radon Scientists and Technologists offered a \$1,000 prize (in 10 regions) towards the cost of mitigation.

### Distribution of Free or Subsidized Test Kits

- Take Action on radon's [100 Test Kit Challenge](#) distributes 100 free test kits to 10 or more Canadian municipalities a year
- [The Donna Schmidt Lung Cancer Prevention Society](#) (charity in the Kootenays Region of British Columbia)

- Ontario health boards have distributed free test kits as part of community testing – see [Section 4](#), Testing, Databases, and Mapping
- [State of Pennsylvania and the American Lung Association](#) targeted free distribution for high risk zones
- The [Wyoming Department of Health](#) offers free home radon test kits
- The Canadian municipalities of [Chelsea, QC](#) and [Saint Joseph du Lac, QC](#) sell subsidized test kits

**Free Air Quality Inspections:** The City of Fort Collins, Colorado has a [Healthy Homes](#) program, which offers free indoor air quality testing in residents homes, including for radon, as well as self-assessment tools.

**Tax Credits for Mitigation:** Saskatchewan's [renovation tax credit](#) now includes radon mitigation.

**Loan Programs:** [Manitoba Hydro's Energy Finance Plan](#) provides an on-bill financing loan for upgrades to gas and electrical systems and includes radon mitigation.

#### **Direct Subsidies**

- The [Habitation Durable](#) program in Quebec offers financial subsidies to home renovations, including radon, and applies in Dixville, Piessisville, Ham-Sud, Dixville, Petite-Rivière-St-François, St-Valérien, Varennes and Victoriaville.
- After participating in Take Action on Radon's 100 Test Kit Challenge, [the City of Vaudreuil-Dorion](#) began selling radon detectors for just \$5, including analysis and shipping. It will reimburse 50 per cent of the cost of installing a radon mitigation system to a maximum of \$500 per residence.

## 10. Rented Homes

### 10.1. Existing Landlord-Tenant Law in Canada

All Canadian provinces and territories have landlord tenant (or residential tenancy) legislation that provides rental accommodation should be habitable and in good repair and comply with the law, and right to remedies for tenants.

Table 8: Good Repair Provisions in Provincial and Territorial Residential Tenancy Law		
British Columbia	<a href="#"><i>Residential Tenancy Act</i> S.B.C. 2002</a>	<a href="#">s. 32(1)</a>
Alberta	<a href="#">Residential Tenancies Act, SA 2004, c R-17.1 (RTA)</a> <a href="#">Housing Regulation, Alta Reg 173/1999</a> <a href="#">Minimum Housing and Health Standards (MHHS)</a>	<a href="#">RTA s. 16(c)</a> , <a href="#">HR. s. 3(1)</a> , <a href="#">4</a> , <a href="#">MHHS, s. 4</a>
Saskatchewan	<a href="#">Residential Tenancies Act, 2006, SS 2006, c R-22.0001</a>	s. 49 (1)
Manitoba	<a href="#">The Residential Tenancies Act, CCSM c R119</a>	<a href="#">s. 59 (1)</a>
Ontario	<a href="#">Residential Tenancies Act, 2006, SO 2006, c 17</a>	<a href="#">s. 20</a>
Quebec	<a href="#">Civil Code of Québec, CQLR c CCQ-1991</a>	<a href="#">Ss 1910, 1913.</a>
New Brunswick	<a href="#">Residential Tenancies Act, SNB 1975, c R-10.2</a>	<a href="#">s. 3</a>
Prince Edward Island	<a href="#">Rental of Residential Property Act, c. R-13.1</a>	s. 6(1)
Nova Scotia	<a href="#">Residential Tenancies Act, RSNS 1989, c. 401</a>	s. 9
Newfoundland and Labrador	<a href="#">Residential Tenancies Act SNL 2000 c. R-14.1</a>	<a href="#">s. 8(1)</a>
Nunavut	<a href="#">Residential Tenancies Act, RSNWT (Nu) 1988, c R-5</a>	s. 30(1)
Northwest Territories	<a href="#">Residential Tenancies Act, RSNWT 1988, c R-5</a>	s. 30 (1)
Yukon	<a href="#">Residential Landlord and Tenant Act, SY 2012, c. 20</a>	s. 33(1)

Administrative decision makers have ruled that these provisions are violated by radon levels over Health Canada Guidelines.

- Ontario Landlord Tenant Board:  
[CET-67599-17 \(Re\) 2017 CanLII 60362](#)
- Quebec Régie de Logement:  
[Barak c. Osterrath 2012 CanLII 150609](#)

[\*Pickard c. Arnold\*, 2015 CanLII 129833](#)

[\*Bramley c. Vanwynsberghe\*, 2017 QCRDL 11313](#)

[\*Vanderwerf c. Dolan\*, 2019 QCRDL 37417](#)

## 10.2. Current Property Manager Duties

As real estate licensees, rental property managers must disclose known latent defects to prospective and current tenants, including radon levels over 200 Bq/m<sup>3</sup>. Guidance is provided in:

- [Radon Checklist for Rental Property Managers](#) (Real Estate Council of British Columbia)
- [Radon Checklist –Property Managers \(Residential\)](#) (Real Estate Council of Alberta)

## 10.3. Potential Reforms to Residential Tenancies Law and Regulations

**Make explicit in law that radon is a contaminant or hazard.**

Tenants will be better protected and landlords more likely to act when there is a clear statement in law concerning the need to test and mitigate when the long-term average radon reading is at 200 Bq/m<sup>3</sup> or over.

The United Kingdom's [Home \(Fitness for Human Habitation\) Act, 2018](#) gives renters the right to go to court to obtain an order for landlords to make repairs. The associated [Guide for Tenants](#) make clear that elevated radon negatively affects accommodation (and so render it unfit for human habitation). Radon has long been considered a hazard in rental housing in the UK, under the Housing Act, 2004, and associated [Housing Health and Safety Rating System](#).

In Canada, provinces and territories have diverse systems for ensuring standards in rental housing, but in most cases standards—including for radon—could be specified by regulation rather than legislative chance.

- Ontario's [Residential Tenancies Act, s. 224\(1\)](#) provides for maintenance standards in a local municipality if there is no municipal property standards by law that applies. [Ontario Regulation 517/06, Maintenance Standards](#) details requirements such as homes being damp-proof, free of fungus and rot, having toilets, sinks and showers and indoor heating to 20 degrees Celsius.
- Newfoundland's [Occupancy and Maintenance Regulations, CNLR 1021/96](#), spell out conditions for human habitation for select municipalities.

- Some provinces and territories provide minimum standards for rental accommodation in regulations that accompany residential tenancy laws. These typically include issues such as access to running water, and sufficient heating. Radon testing and mitigation could be added. Examples include:
  - [Residential Tenancies Regulation, YOIC 2015/193](#) (Yukon)
- In some cases the regulations merely specify that the landlord must provide and maintain the residential property in a reasonable state of decoration and repair.
  - [Residential Tenancy Regulation, BC Reg 477/2003](#) (British Columbia)
  - [Residential Tenancies Regulations, 2007, RRS c R-22.0001 Reg 1](#) (Saskatchewan)

These regulations could be expanded to provide details of what reasonable repair consist in, including ensuring radon levels are below 200 Bq/m<sup>3</sup>.

- In some provinces rental housing standards are provided in regulations under Public Health Acts.
  - [Rental Accommodation Regulations, PEI Reg EC142/70](#) (Prince Edward Island)
  - [Health Hazards Regulation, BC Reg 216/2011](#) (British Columbia)
  - [Housing Regulation 173/1999](#), in conjunction with the [Minimum Housing and Health Standards](#) (Alberta)
  - [Dwellings and Buildings Regulation 322/88 R](#) (Manitoba)

When these regulations are updated to include radon testing and mitigation, effort should be made to ensure landlords and tenants know they spell out minimum standards in law for the condition of repair of rental accommodation.

### **Specify that landlords need to test for radon and disclose results to tenants.**

Current law on material latent defects implies that landlords should inform tenants of known high radon levels. However, explicit direction in law can do more to ensure that landlords test and inform tenants. In turn, tenants will be informed as to the radon levels in their home. Landlords should be directed to follow [Health Canada's Guide for Radon Measurements in Residential Dwellings \(Homes\)](#). Radon levels can change over time, and it should be emphasized that testing should be repeatedly periodically, such as every ten years.

U.S. states with rules on testing and disclosure rules for radon and rental accommodation include:

- Illinois [420 ILCS 46/10, Radon Awareness Act](#)
- Maine [14 M.R.S.A. Section 6030-D](#)

### **Direct landlords to provide a written notice to tenants concerning radon risks.**

This can be prepared by public health agencies and describes the risks of radon as well as renters' rights. Ideally, standard form rental agreements will include formal recognition by the tenant that they have received this information (such as through initials). Examples include:

- Illinois [420 ILCS 46/10, Radon Awareness Act](#)
- Maine [14 M.R.S.A. Section 6030-D](#)

### **Direct landlords to use certified mitigation professionals.**

It is a good idea to require landlords to use independent, certified testing and mitigation professionals. If radon testers and mitigators are certified, they can also be directed to report test results and mitigation activity to the state. Absent such a law, a rental housing policy should require such reporting by landlords. This will also assist provinces in tracking compliance with the law and in furthering radon policy in general through improving databases and maps. [Section 6](#) of this Appendix, lists U.S. states with mandatory certification requirements for mitigators and with requirements that mitigators release data to state agencies.

### **Ensure access to justice for renters.**

Renters can face many obstacles to redress against landlords. As part of ensuring renters have protections against high radon, provinces and territories can also assess whether the landlord-tenant system works to ensure access to justice. Key issues include: proper funding to the residential tenancy departments to hold investigations, support for housing advocates and tenants organizations, reliable and consistent enforcement, ensuring the availability of hearings for all types of people, independence and training of arbitrators, access to databases of written decisions, and remote access (such as through teleconferencing or computers) to tribunals for persons in rural and remote areas. Examples of analysis of access to justice issues for renters includes:

- Analysis by the [National Collaborating Centre for Determinants of Health](#) (Ontario)
- Work by the [Community Legal Assistance Society](#) and the [City of Vancouver's Renters' Advisory Committee](#) (British Columbia)

## 10.4. Public Health Acts

Public Health Acts generally provide that public health officials can obtain consent from occupants of private residences to enter premises, and then inspect, request information and documents and conduct tests on the premises. If an inspection reveals a health hazard or a contravention of the law, public health officials can issue orders, including having the building vacated, requiring work to be done, or removing health hazards.

Public Health Acts and policies could be updated to help reduce radon risks for renters in the following ways.

### **Clear statements that elevated radon is a health hazard or otherwise violates housing standards for public health reasons.**

As noted above, in some provinces rental housing standards are provided in regulations under *Public Health Acts*.

- [Rental Accommodation Regulations, PEI Reg EC142/70](#) (Prince Edward Island)
- [Health Hazards Regulation, BC Reg 216/2011](#) (British Columbia)
- [Housing Regulation 173/1999](#), in conjunction with the [Minimum Housing and Health Standards](#) (Alberta)
- [Dwellings and Buildings Regulation 322/88 R](#) (Manitoba)

These regulations can be updated to clarify that Canada's Radon Guideline of 200 Bq/m<sup>3</sup> is an important component of housing and maintenance standards. Alternatively, if housing standards (including those pertaining to radon) are provided elsewhere, such as in Residential Tenancies legislation, it should be made clear that public health officials can investigate and issue orders concerning housing standards.

Clear language can be provided to the effect that violations of housing standards are health hazards.

- Prince Edward Island's [Rental Accommodation Regulations, PEI Reg EC142/70](#) clearly states:

15. A contravention or failure to meet the requirements of these regulations may constitute a health hazard.

### **Language that requires property owners to carry out repairs and make units safe.**

- Alberta's [Housing Regulation 173/1999](#) provides:



3(1) Subject to subsection (3) and section 4, an owner shall ensure that (a) the housing premises are (i) structurally sound, (ii) in a safe condition, (iii) in good repair, and (iv) maintained in a waterproof, windproof and weatherproof condition;

- Prince Edward Island's [Rental Accommodation Regulations, PEI Reg EC142/70](#) provides:

9 The owner of any dwelling shall, when necessary (a) carry out repairs or alterations weatherproof, damp-proof, vermin-proof, safe and sanitary in every respect;

- Manitoba's [Dwellings and Buildings Regulation, Man Reg 322/88](#) states:

15(2) No owner of a dwelling shall let it or a dwelling unit therein to any person unless...

(d) the foundation is weather tight, rodent proof, and in good repair;...

(j) the walls and ceilings are free from major cracks and crevices that, in the opinion of a medical officer or inspector, may create a condition detrimental to the health of the occupant;

**Mandate to respond to renters' complaints, inspect residential tenancies, and make orders against landlords.**

- Manitoba' Health Protection Unit's [Safe Housing Program](#) responds to concerns from tenants and the general public. Public Health Inspectors inspect rental houses, apartments, hotels, and other types of accommodations to determine whether these places are satisfactory and free from health hazards. Inspectors enforce and apply the regulations to ensure that housing units provide safe and healthy living environments.

It is suggested that as part of this mandate there be specific budget and staff allocated to address radon in rental accommodation, and radon specific training for public health officials (such as through C-NRPP).

### **10.5. Working with Municipalities to Help Renters**

Many municipalities have standards of maintenance bylaws that specify some minimum environmental conditions within rented homes. Provinces can provide specific wording in municipal law allowing local governments to make standards of maintenance bylaws. For examples see:

- [Local Government Act, RSBC 2015, c 1 s. 298\(1\)\(n\)](#) (British Columbia)
- [Municipal Act, CCSM c M225 s. 232\(1\)\(c\)](#) and 233(a) (Manitoba)
- [Building Code Act, S.O. 1992, c.23, s. 15.1](#) (Ontario\_



- [Act respecting land use planning and development](#), CQLR c A-19.1 [s. 145.41](#) (Quebec)
- [Local Government Act](#), SNB 2017, c. 18 [s. 10\(1\)\(e\)](#) (New Brunswick)
- [Municipal Government Act](#), RSPEI 1988, c M-12.1 [s. 180\(i\)](#) (Prince Edward Island)

In some cases there is a process for approval of standards of maintenance bylaws.

- New Brunswick's [Local Governance Act](#), SNB 2017, c 18 [s. 17\(b\)](#)

Provinces can provide specific language directing municipalities to receive complaints, make investigations and issue orders against landlords.

- [Residential Tenancies Act](#), 2006, SO 2006, c. 17 [s. 224 to 225](#) (Ontario)
- [Act respecting land use planning and development](#), CQLR c A-19.1 [s. 145.41](#) (Quebec)
- [Residential Properties Maintenance and Occupancy Code Approval Regulation](#), NB Reg 84-86, s. 3 (New Brunswick)
- [Occupancy and Maintenance Regulations](#), CNLR 1021/96, [s. 41](#) (Newfoundland and Labrador)

Municipalities can be encouraged to have standard of maintenance bylaws that protect renters, including from radon.

Provinces and territories can encourage municipalities to enact and enforce standards of maintenance bylaws that include radon, and if necessary, take steps to ensure that municipalities have the power to enact and enforce such standards.

In some cases, provinces already provide explicit guidance to municipalities that include indoor conditions. British Columbia has a [guidance document on Standards of Maintenance Bylaws](#) and a [Sample Standards of Maintenance Bylaw](#). In New Brunswick, the [Residential Properties Maintenance and Occupancy Code Approval Regulation](#), NB Reg 84-86 specifies contents for standards of maintenance bylaws. Any model standards or explicit direction to municipalities on standard of maintenance bylaws can be updated to include radon.

## 10.6. Radon Testing and Mitigation Initiatives in Social Housing

### Test and mitigation government owned social housing.

This has been done by:

- [Société d'habitation du Québec](#)
- Manitoba Housing and Renewal Corporation, see [Annual Report of the Department of Housing and Community Development for the Province of Manitoba 2014/15](#) at p. 55
- Yukon Housing Corporation, see [Yukon Housing Corporation Annual Report 2018-19](#), page 24
- [Kingston Social Housing](#)

### Ensure performance guides for health and safety standards for social housing discuss radon:

- [BC Housing Design Guidelines and Construction Standards](#)

### Tie financing of social housing to testing and mitigation.

In the United States, the [Department of Housing and Urban Development \(HUD\)](#) [requires radon testing](#) as a condition for multifamily social housing developments receiving federal funds. This has also been adopted by [Minnesota Housing](#)

## 11. Work, Study, and Care Spaces

### 11.1 Workplaces

Many countries have general workplace laws that also cover schools and daycares such as Norway's [Radiation Act and Guide](#) and the United Kingdom's [Ionising Radiation Regulations 2017 \(IRR17\)](#), explained on the UK government Health and Safety Executive website for [radon in the workplace](#).

There are a number of routes that occupational health and safety law and regulation can take to cover radon.

**Federal guidance:** Federal legislation can provide some guidance for provinces and territories in setting limits to radon and doses of ionizing radiation.

- The [Nuclear Safety and Control Act, SC 1997, c 9](#) sets out allowable effective doses of radiation for workers in the nuclear fuel chain. The [Radiation Protection](#)

[Regulations, SOR/2000-203](#), specifies that this should include radiation doses from radon.

- [The Canadian Guidelines for the Management of Naturally Occurring Radioactive Materials \(NORM\)](#) (or “NORM Guidelines”) seeks to ensure workers outside the nuclear fuel chain have similar protections to those within the nuclear fuel chain. It provides 200 Bq/m<sup>3</sup> as the action level in workplaces, with the goal of mitigation to achieve levels as low as reasonably achievable below 200 Bq/m<sup>3</sup>.
- The [Canada Occupational Health and Safety Regulations, SOR/86-304](#), at s. 10.26(4) applies to workers under federal jurisdiction. It says that no worker other than a nuclear energy worker should be exposed to a yearly average of over 800 Bq/m<sup>3</sup>. This provision is outdated and in the process of being updated.

### **Direct Regulation of Radon Exposure**

Provinces and territories can directly specify allowable average radon levels in indoor workspaces.

- [Occupational Health Regulations, YOIC 1986D/164](#) ss. 43 to 46 (Yukon)
- [Underground Mine Regulation, NB Reg 96-105](#), s. 62 (New Brunswick)
- [Mines and Mining Plants, RRO 1990, Reg 854, ss. 288 to 293](#) (Ontario)
- [Mine Health and Safety Regulations, NWT Reg 125-95](#) at ss. 9.76 to 9.96, (see also [Mine Health and Safety Regulations, NWT Reg \(Nu\) 125-95](#) at ss. 9.76 to 9.96)

Provinces and territories should consider updating radon specific workplace legislation to conform to the NORM Guidelines and to cover all workplaces.

### **Workplace Restrictions on Exposure to Ionizing Radiation**

Some provinces directly regulate exposure to ionizing radiation in the workplace.

- [Occupational Health and Safety Regulation, BC Reg 296/97](#) s. 7.19 (British Columbia)
- [Regulation respecting occupational health and safety, CQLR c S-2.1, r 13](#) s. 144 (Quebec)
- [Occupational Health and Safety Code 2009 Order, Alta Reg 87/2009](#), s. 291 (Alberta)

Governments and/or Workers Compensation Boards should be careful to provide guidance on allowable limits to exposure and how workers exposure to elevated radon

concentrations in air translates into radiation dose. Workers who are not governed by the Nuclear Safety and Control Act should still receive similar protections from radiation. Here guidance can be found in the [NORM Guidelines](#) and the International Commission on Radiological Protection's [Summary of Recommendations on Radon](#).

## General Duty Clauses

All provinces and territories occupational health and safety regulation contains catch all clauses to the effect that employers should ensure workers are healthy and safe, and that workplaces and workplace practices are designed to prevent or reduce the risk of occupational injury.

All provinces and territories can consider following the lead of Ontario's Ministry of Labour, Training and Skills Development. It has issued [policy guidance on radon](#) which states that the general duty clause is to be interpreted as applying the [NORM Guidelines](#) to all workplaces.

## List radon induced lung cancer as an occupational disease.

Worker's compensation legislation throughout Canada features lists of workplace diseases that are covered, and in some cases, radon induced lung cancer is explicitly listed. This makes it easier for workers to receive compensation, as it may mean the burden of proving the cause of the illness is reduced.

Provinces which list diseases caused by ionizing radiation

- [Workplace Health, Safety and Compensation Act, RSNL 1990, c W-11, s. 90\(2\); Workplace Health, Safety and Compensation Regulations, CNLR 1025/96 s.23\(25\)](#) (Newfoundland and Labrador)
- [Workers' Compensation Act, SNS 1994-95, c 10 s. 15\(1\)](#) (Nova Scotia)
- [Workers' Compensation Act, RSA 2000, c W-15 s. 24\(6\); The Workers' Compensation Regulation, Alta Reg 325/2002 s. 20\(1\), and Schedule B](#) (Alberta)

Provinces which list radon and lung cancer.

- [Workers Compensation Act, RSBC 2019, c 1, ss. 136 to 138 and Schedule 1](#)

By explicitly listing radon, provinces can both aid workers and send a message to employers to take radon seriously. Provision should be made for the chronic nature of the risk that radon poses—compensation systems should recognize that there is often a long-term gap between exposure and onset of disease.

## 11.2 Schools

- CAREX Canada has a comprehensive report, [Radon in Schools: A Summary of Testing Efforts Across Canada](#)
- Norway not only requires radon testing and mitigation in schools but uses a stronger 100 Bq/m<sup>3</sup> action level than for homes (at 200 Bq/m<sup>3</sup>): [Norway Forskrift 16. desember 2016 nr. 1659 om strålevern og bruk av stråling](#), Section 6 and explanatory notes to Section 6

U.S. states with mandatory school testing:

Table 9: US States with Mandatory School Testing	
Colorado	<a href="#">6 Colo. Code Regs. 1010-6:8.1(E2)</a>
Connecticut	<a href="#">Conn. Gen. Stat. Ann. § 19a-37b</a> ; <a href="#">Conn. Gen. Stat. Ann. § 10-220 (d)</a> ; <a href="#">Conn. Gen. Stat. Ann. § 10-291(b)(1)</a>
Florida	<a href="#">Fla. Stat. Ann. § 404.056 (4)</a>
Illinois	<a href="#">Il. Ann. Stat. Ch. 105 § 10-20.48</a>
New Jersey	<a href="#">N.J. Stat. Ann. § 18A:20-40</a>
Rhode Island	<a href="#">R.I. Gen. Laws §§ 23-61-4</a> ; <a href="#">R.I. Gen. Laws. § 1.04-3</a> ; 216 R.I. Admin. Code <a href="#">50-15-2.3.1 A(13)</a> and <a href="#">50-15-2.5</a>
Tennessee	<a href="#">Tenn. Code Ann. § 49-2-121</a>
Virginia	<a href="#">VA. Code Ann. § 22.1-138</a>
West Virginia	<a href="#">W. VA. Code §18-9E-3 (d)</a>

## 11.3. Daycares

### Mandatory Childcare Testing

- Alberta's [Radon Awareness and Testing Act, SA 2017, c R-2.5](#) (not yet in force) states:

**3(1)** Prior to a licence being issued or renewed for a child care program under Part 1 of the [Early Learning and Child Care Act](#), the statutory director under that Act shall require an applicant to provide the statutory director with the results of a radon test completed within one year immediately preceding the submission of the application within the premises where the child care program will be provided.

**(2)** If the results of the radon test completed under subsection (1) exceed the acceptable radon level prescribed by the regulations, the statutory director shall require the applicant to provide a plan to reduce the radon level in accordance with the prescribed standards.

- British Columbia's Interior Health Authority (servicing the Southeast of the province, including major cities such as Kelowna) ordered childcare facilities to test for radon in 2017. It relied on the [Community Care and Assisted Living Act](#).

[S.B.C. 2002, c. 75 s.11\(3\)](#) which empowers medical health officers to attach terms and conditions to a license and to revoke licenses if there is a risk to persons in the care of such facilities.

- Testing in childcare facilities has been mandated in some U.S. states.

<b>Table 10: Mandatory Testing in Childcares in US States</b>	
Connecticut	<a href="#">Conn. Gen. Stat. Ann. § 19a-79-7a (17)</a>
Colorado	<a href="#">6 Colo. Code Regs. 1010-7:7.14.2</a>
Florida	<a href="#">Fla. Stat. Ann. § 404.056 (4)</a>
Illinois	<a href="#">Ill. Ann. Stat. Ch. 225 § 10/5.8</a>
Idaho	<a href="#">Idaho Admin. Code 16.06.02.726</a>
Iowa	<a href="#">Iowa Admin. Code 441-109.11 (7)</a>
Maryland	<a href="#">Md. Regs. 14.31.06.07(4)</a>
Michigan	<a href="#">Mich. Admin. Code r. 400.1934</a>
New Jersey,	<a href="#">N.J. Stat. Ann. § 30:5B-5.2</a>
New York	18 N.Y. Code Rules & Regs. <a href="#">416.2(a)(13)</a> , and <a href="#">418-1.2(a)(6)</a> plus <a href="#">New York State Office and Children Family Services radon guidance</a>
Rhode Island	216 R.I. Admin. Code <a href="#">50-15-2.3.1 A(13)</a> and <a href="#">50-15-2.5</a>

## 12. Energy Efficiency

The following guides, standards and programs include radon.

### 12.1. Energy Efficiency Guides

- Natural Resources Canada, 2018. [Keeping the Heat In, s. 1.4.3](#)
- [BC Housing Design Guidelines and Construction Standards](#)

### 12.2. Home Renovation Subsidies and Incentives

- The Saskatchewan Provincial Government's [Home Renovation Tax Credit](#) allows homeowners to claim a 10.5% tax credit on up to \$20,000 of eligible home renovation expenses. The eligible expenses include the cost of labour, professional services, and the building materials required for radon reduction measures.
- [Habitation Durable](#) provides financial incentives for residents of Victoriaville, Dixville, Piessisville, Ham-Sud, Dixville, Petite-Rivière-St-François, St-Valérien, and Varennes. It includes both a range of energy efficiency upgrades as well as radon.

### 12.3. Financing for Retrofits and Repairs

- [Yukon Housing Corporation Home Repair Loan](#) program with reduced interest up to \$50,000 at interest rates of prime + 1% amortized over 15 years.

- [Manitoba Hydro Energy Finance Plan](#) is an 'on bill' financing program for upgrades to energy systems in homes. It includes financing for radon mitigation.

#### **12.4. Green Certification Standards**

- Natural Resources Canada, 2012. [R-2000 Standard](#).
- LEED. See [Direction on Radon Resistant Construction Techniques to Meet Prerequisite EQ 9.1 in LEED Canada for Homes](#) (Canada Green Building Council) and [Reference Guide for Homes Design and Construction](#), page 364
- [Exigences Techniques, Colets, Maison et Petit Bâtiment Multilogement](#) (Novoclimat)
- [BOMA BEST Sustainable Buildings 3.0 Universal Questionnaire](#) (BOMA BEST Building Environmental Standards)

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