
How risk, data and spatial patterns support policy in Canada

Colin Gutter M.Sc.
Physical Scientist
Radiation Protection Bureau



Health
Canada

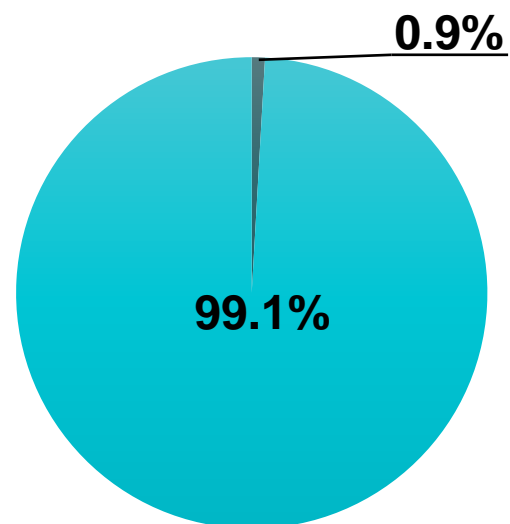
Santé
Canada

Canada

Radon in Canada

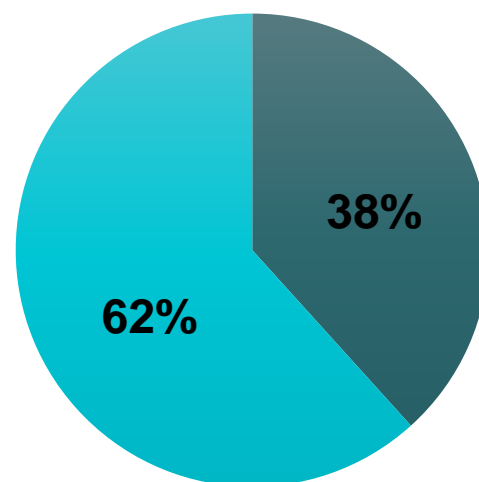
Vancouver, BC

Housing above 200 Bq/m³ ■
below 200 Bq/m³ ■



Halifax, NS

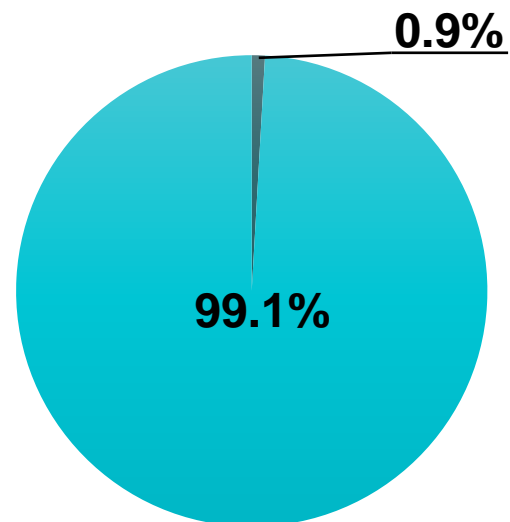
Housing above 200 Bq/m³ ■
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Radon in Canada

Vancouver, BC

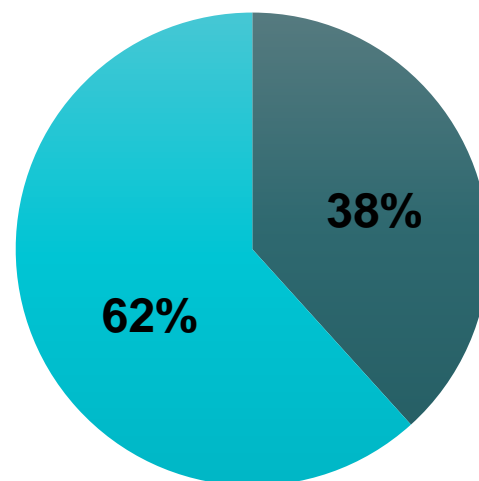
Housing above 200 Bq/m³ ■
below 200 Bq/m³ ■



About 1 in 5 homes
will be above 200
Bq/m³

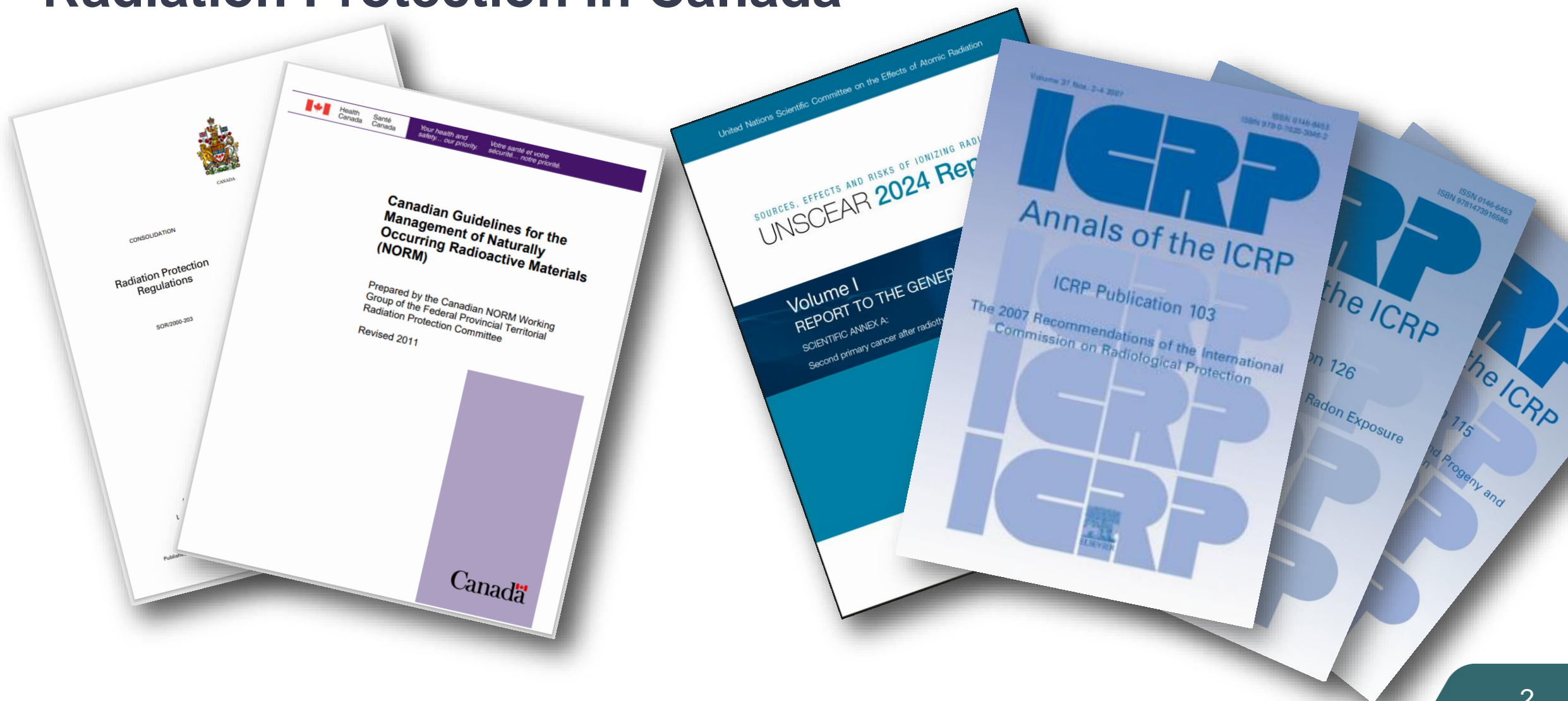
Halifax, NS

Housing above 200 Bq/m³ ■
below 200 Bq/m³ ■



>3000 Rn lung cancer
deaths per year

Radiation Protection in Canada



Radiation Protection in Canada

National Radon Program

- ◆ 2004 proposal to lower radon reference level from 800 Bq/m³ to 200 Bq/m³

Radiation Protection in Canada

National Radon Program

- ◆ 2004 proposal to lower radon reference level from 800 Bq/m³ to 200 Bq/m³
- ◆ 2007 Established National Radon Program & updated Federal Radon Guideline
 - ◆ Provide a national strategy to achieve compliance and implementing the new guideline

**REPORT OF THE RADON WORKING GROUP
ON A NEW RADON GUIDELINE FOR CANADA**

REV. 03-10-2006

Submitted to the
**FEDERAL PROVINCIAL TERRITORIAL
RADIATION PROTECTION COMMITTEE**

March 10, 2006

Radiation Protection in Canada

Federal Radon Guideline

Radon Guideline in Canada

200 Bq/m³

Places where we spend
more than 4 hours per day.

- you take corrective action sooner, the higher the radon level is
- the corrective action should reduce the radon concentration as much as is practicable
- the construction of new buildings use techniques that minimize radon entry and will help remove radon after the construction is finished, if necessary

[Health Canada Radon Guideline](#)

Organization of the program - 2007



Organization of the program - 2025



National Radon Program **National Strategy**

- ◆ Reduce knowledge gaps through research and data collection
- ◆ Provide expert guidance for each area of focus, and act as a single source of information
- ◆ Engage and enable provinces and other partners to encourage relevant programs and policies
- ◆ Increase awareness and enable action for the public

National Strategy

Reduction Approaches

Updating Building Codes

To reduce radon in new construction – ex.
Inclusion of passive stack



Federal Radon Action Plan

Engaging other relevant departments to encourage the inclusion of radon in relevant programs, policies and outreach

Radon Research

Testing, mitigation, health impacts; filling the gaps to support program, policy and public guidance



Radon Action Guides

A 'turn-key' resource that PTs and Municipalities can use to develop customized Radon Action Plans

Radon Health Economic Analysis

Looking at practical radon interventions – measured in cost per 'quality adjusted life years' (QALY)



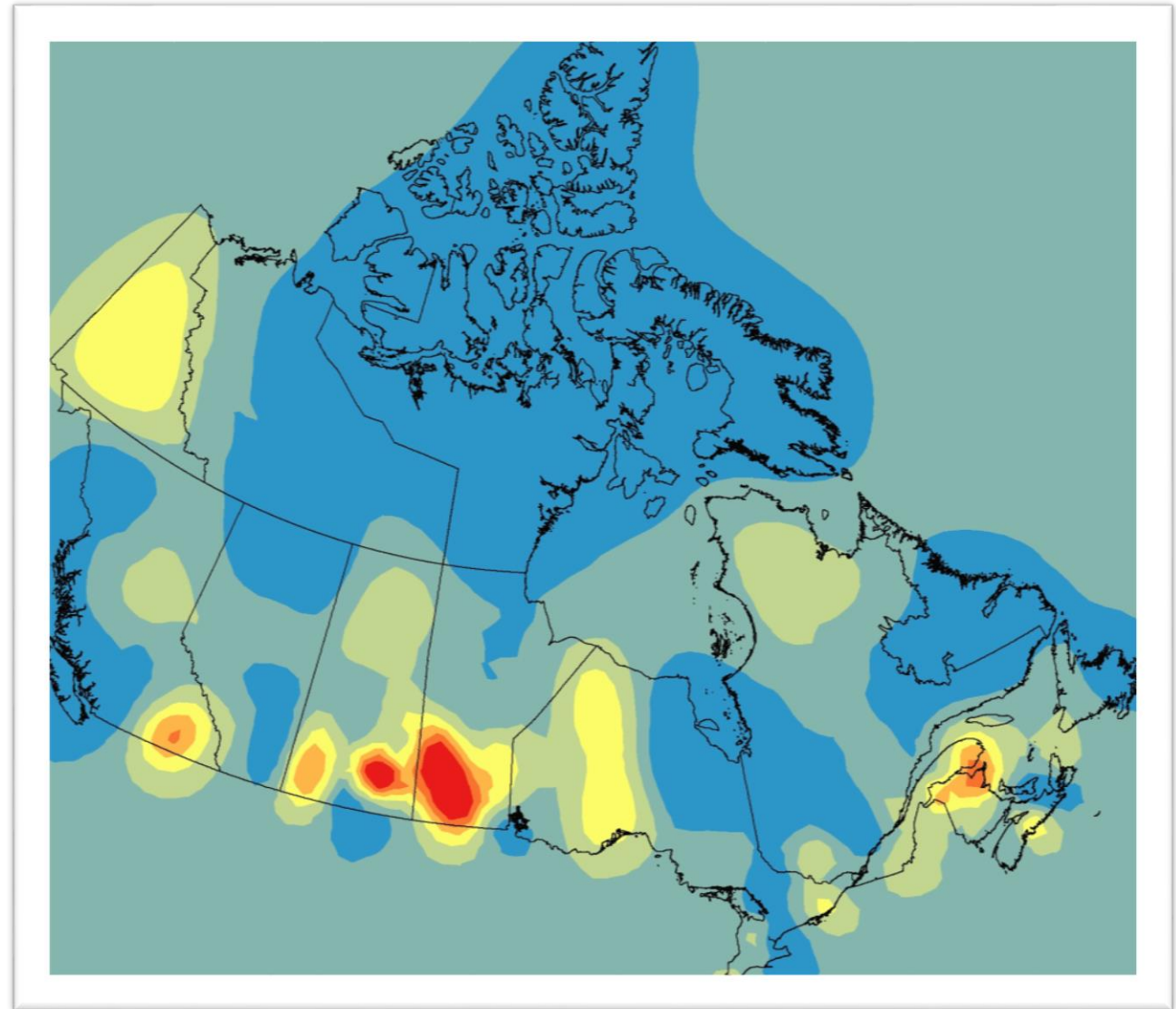
Radon Behaviour Postcard Project

Development of behaviourally informed postcards to increase awareness and radon reduction action. Over 10 million postcards delivered since 2020.

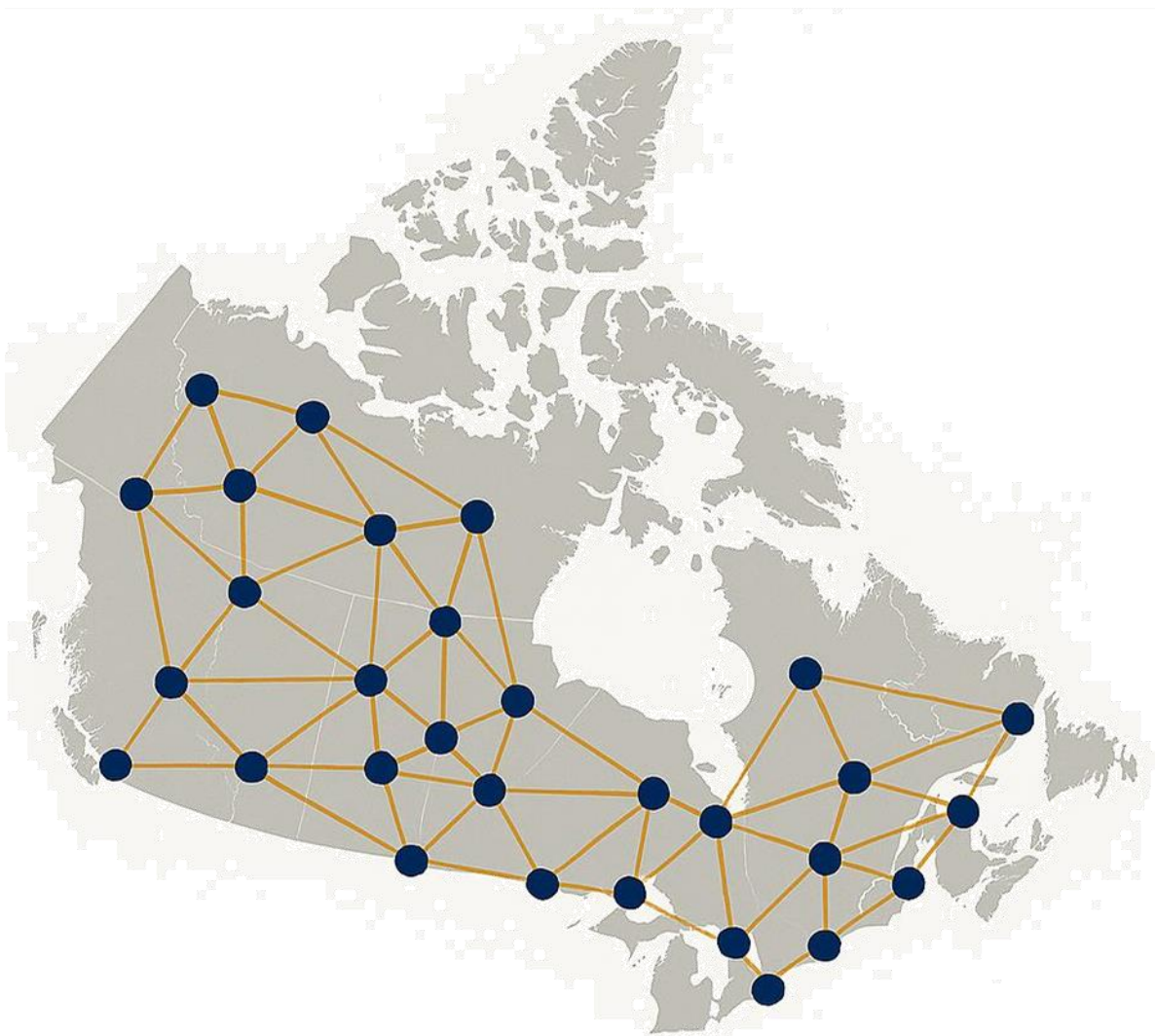
National Strategy Database & Mapping

Then

- ◆ Increase the understanding of radon levels across Canada
- ◆ Determining exposure potentials



National Strategy Database & Mapping



Now

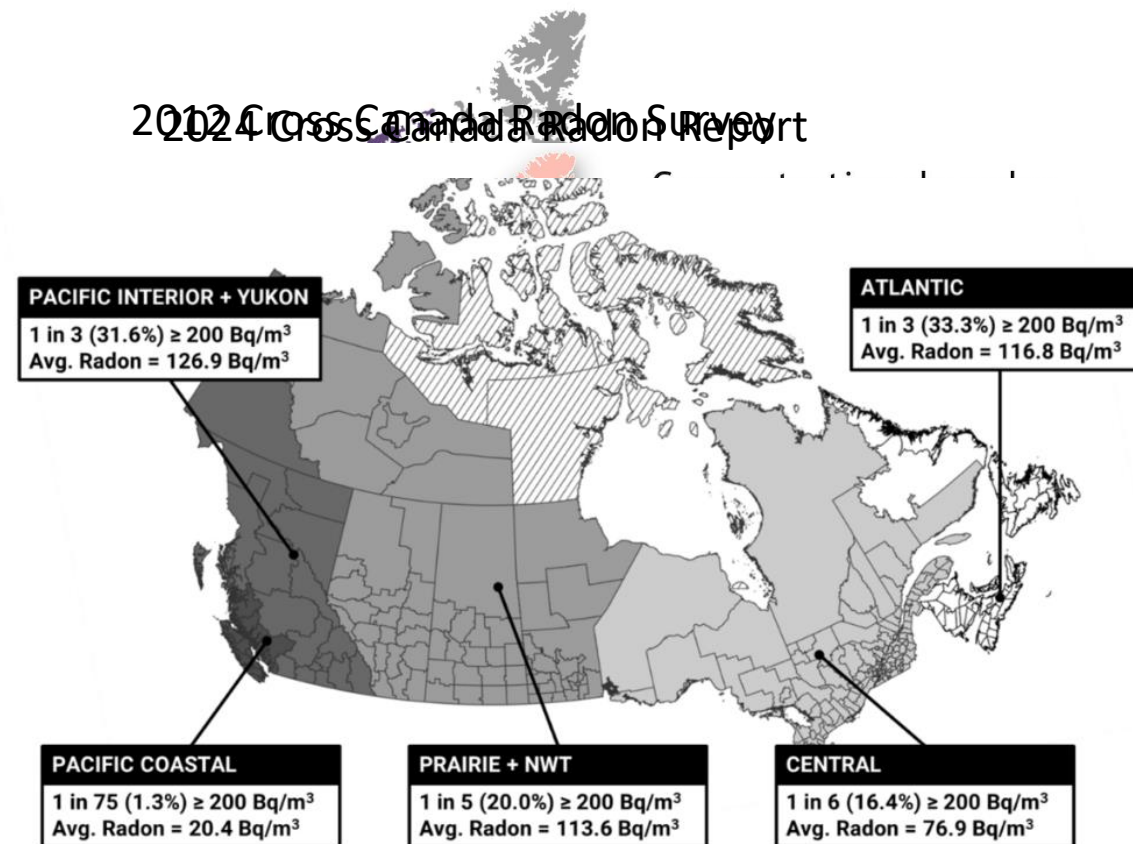
- ◆ Focus on smaller scales, and targeted questions
- ◆ Bidirectional data sharing agreements with provincial/territorial governments and universities
 - ◆ Eg) INRS, UoC, UoW, BC-CDC
- ◆ Supporting database and mapping initiatives (ex. **British Columbia Radon Repository, Cross Canada Radon Report**)

Database & Mapping Initiatives

National Surveys

- ◆ 2009 Federal Building
 - ◆ ~21 000 buildings tested
- ◆ 2012 Residential
 - ◆ ~13 000 test randomly distributed across health regions
 - ◆ First of its kind in Canada
- ◆ 2024 Residential
 - ◆ ~65 000 tests collected from various research and private partners

2024 Cross-Canada Radon Survey

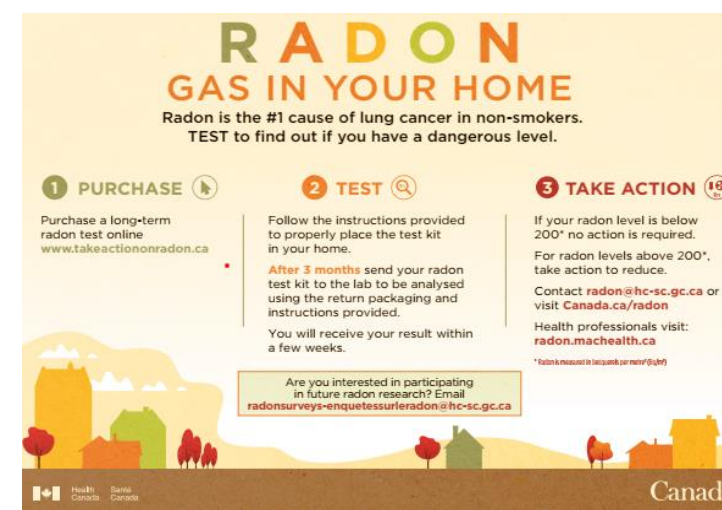


Ratio of indoor radon concentrations between Public to Residential buildings (based on CCRS and FBS)

Post Card Campaign

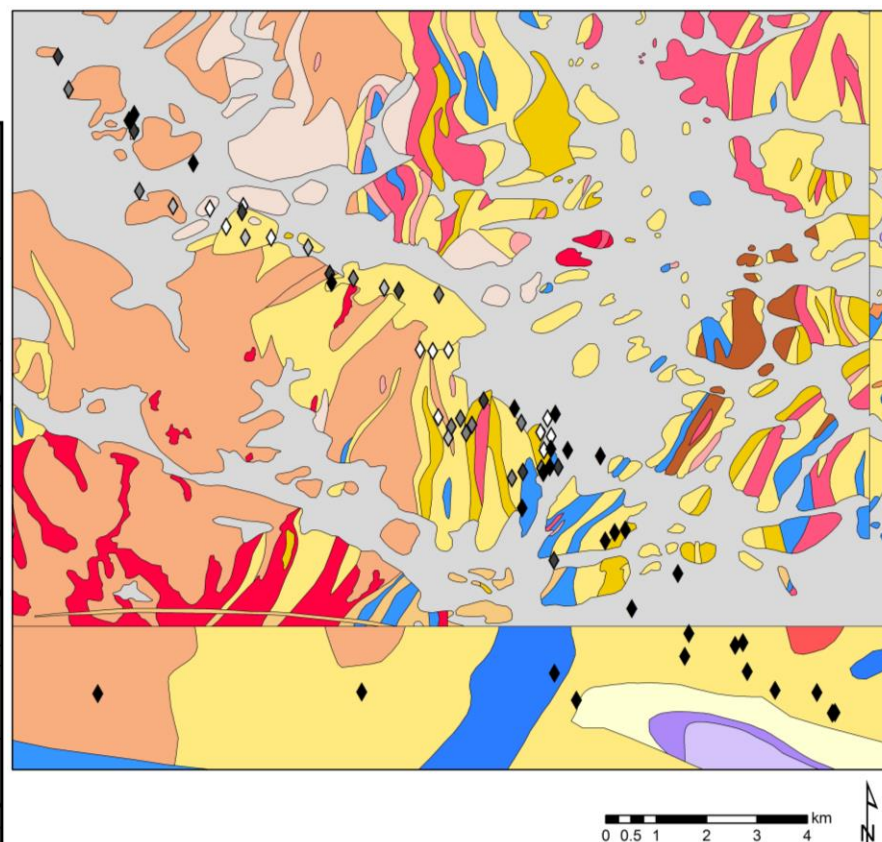
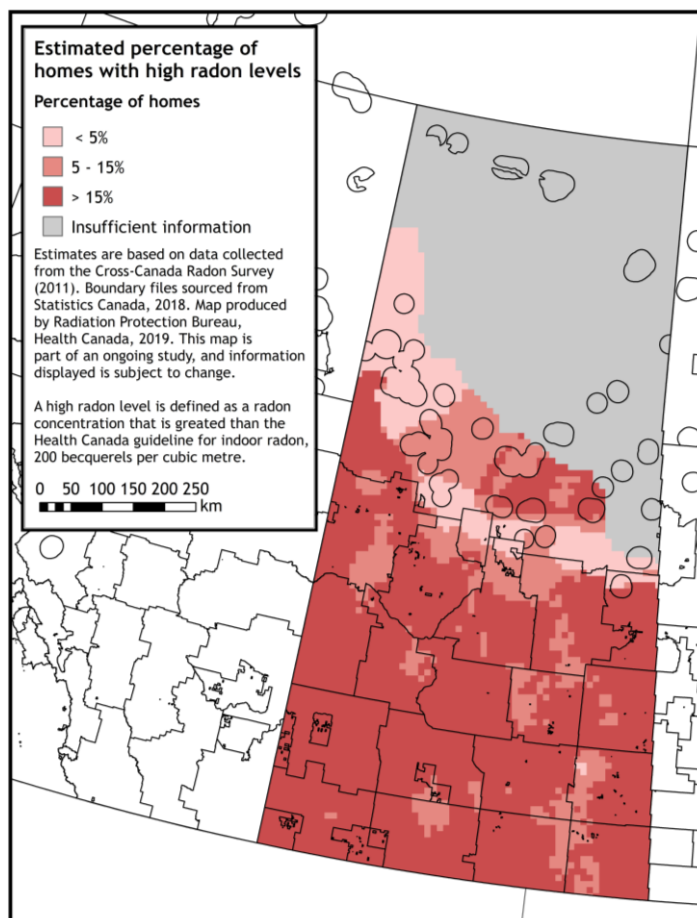
Outreach Support

- ◆ **Target Areas:** Higher prevalence of radon to ensure that messaging reached residents that need it the most
- ◆ **A/B testing:** Refine messaging to be more impactful and engaging
- ◆ Achieve continues **strong digital engagement**, solid test kit uptake, and clear evidence of regional responsiveness, even among new audiences

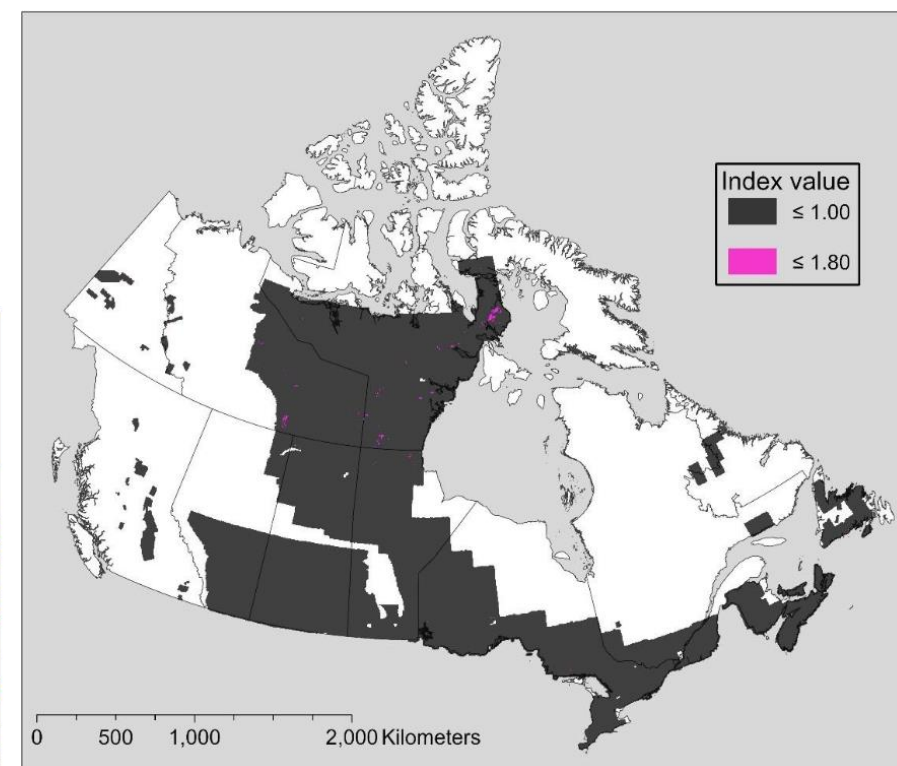


Research Support

Estimating radon exposure from
bedrock geology in Saskatchewan



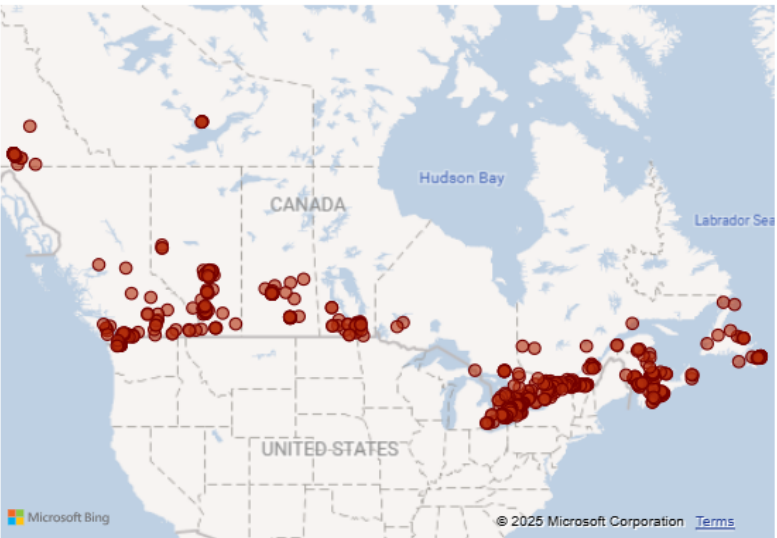
Effects of indoor Rn from private wells
in Chelsea, Quebec



Activity concentration index of eU
from airborne γ -ray spectroscopy

Research Support

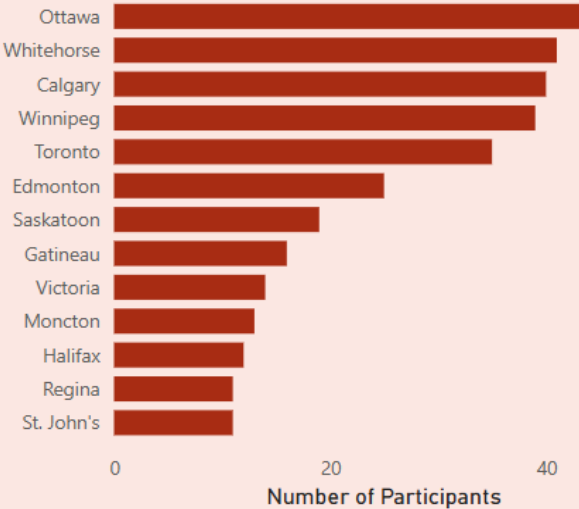
Seasonal Variation Survey Participant Overview



Province

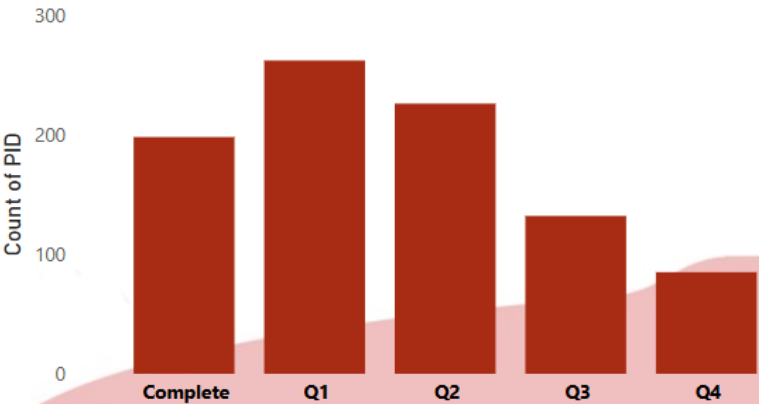
- ☐ AB
- ☐ BC
- ☐ MB
- ☐ NB
- ☐ NL
- ☐ NS
- ☐ NT
- ☐ ON
- ☐ PE
- ☐ PEI
- ☐ QC
- ☐ SK

Number of Participants by Municipality



**June 2025
snapshot**

Participants Progression in the Survey



903
Number of Participants

384

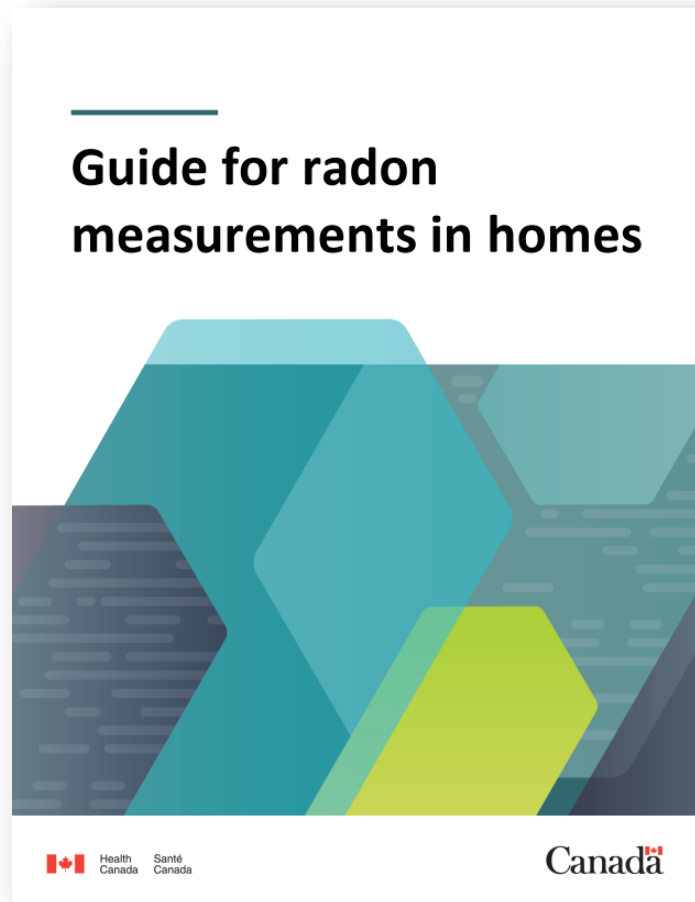
Number of Municipalities

13

Provinces and Territories

Research effects on guidance

Measurement Guidance



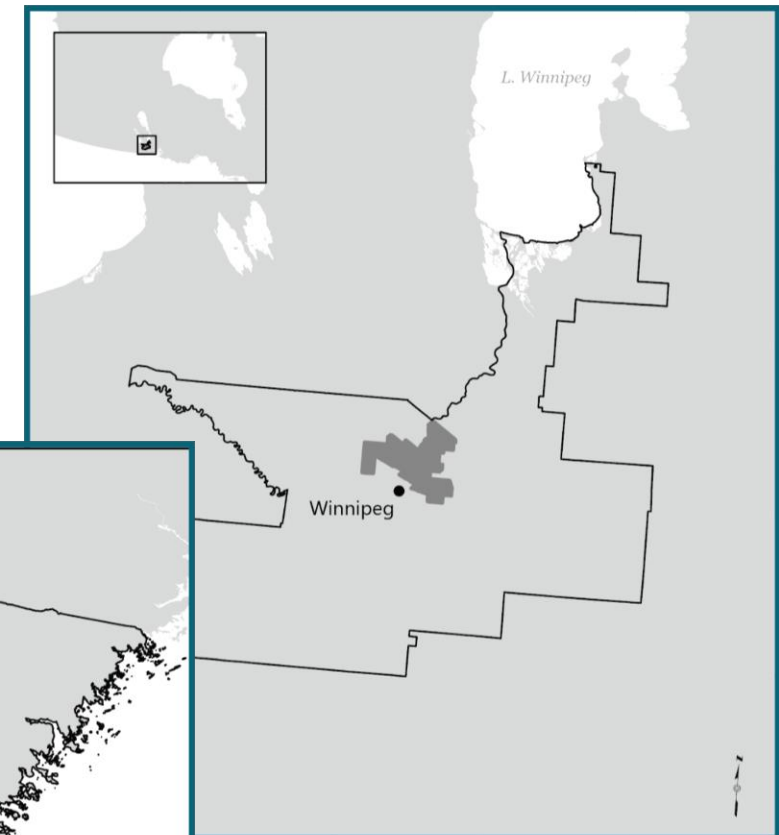
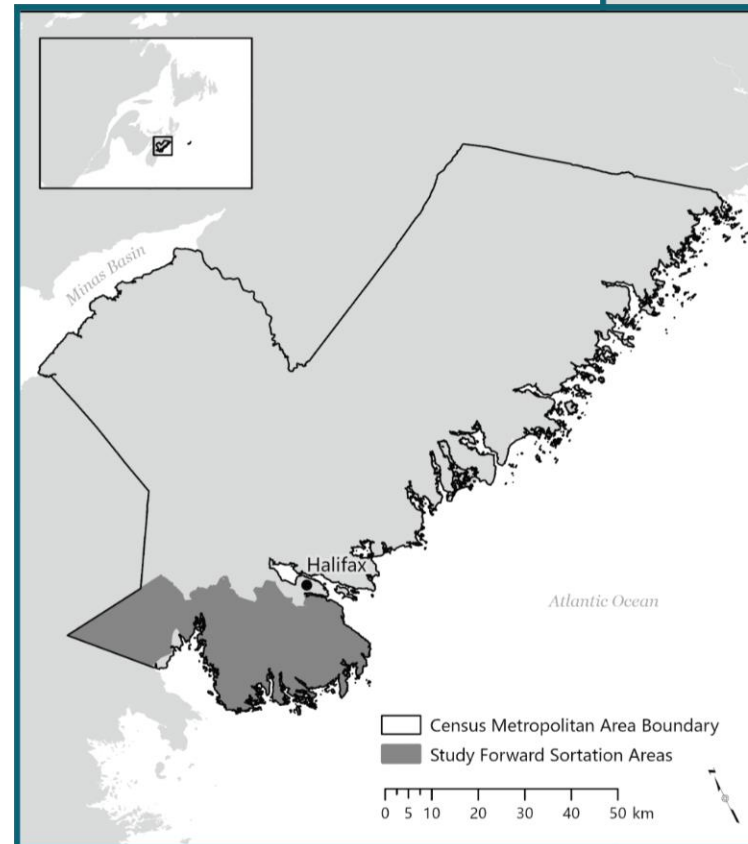
[Guide for radon measurements in homes](#)

- Reduce barriers, and increase accessibility
- 2024 – simplified the guidance on time frames, approved ERMS
- Next is determining effects of seasonality to determine if testing can occur year round

Research effects on guidance

National Building Code

- Study conducted in Winnipeg and Halifax
- Done to test the efficacy of a radon impermeable barrier and rough in
- No difference between the two groups in Winnipeg, In Halifax the **newer builds had higher radon**
- Meaningful evidence for changing the national building code.

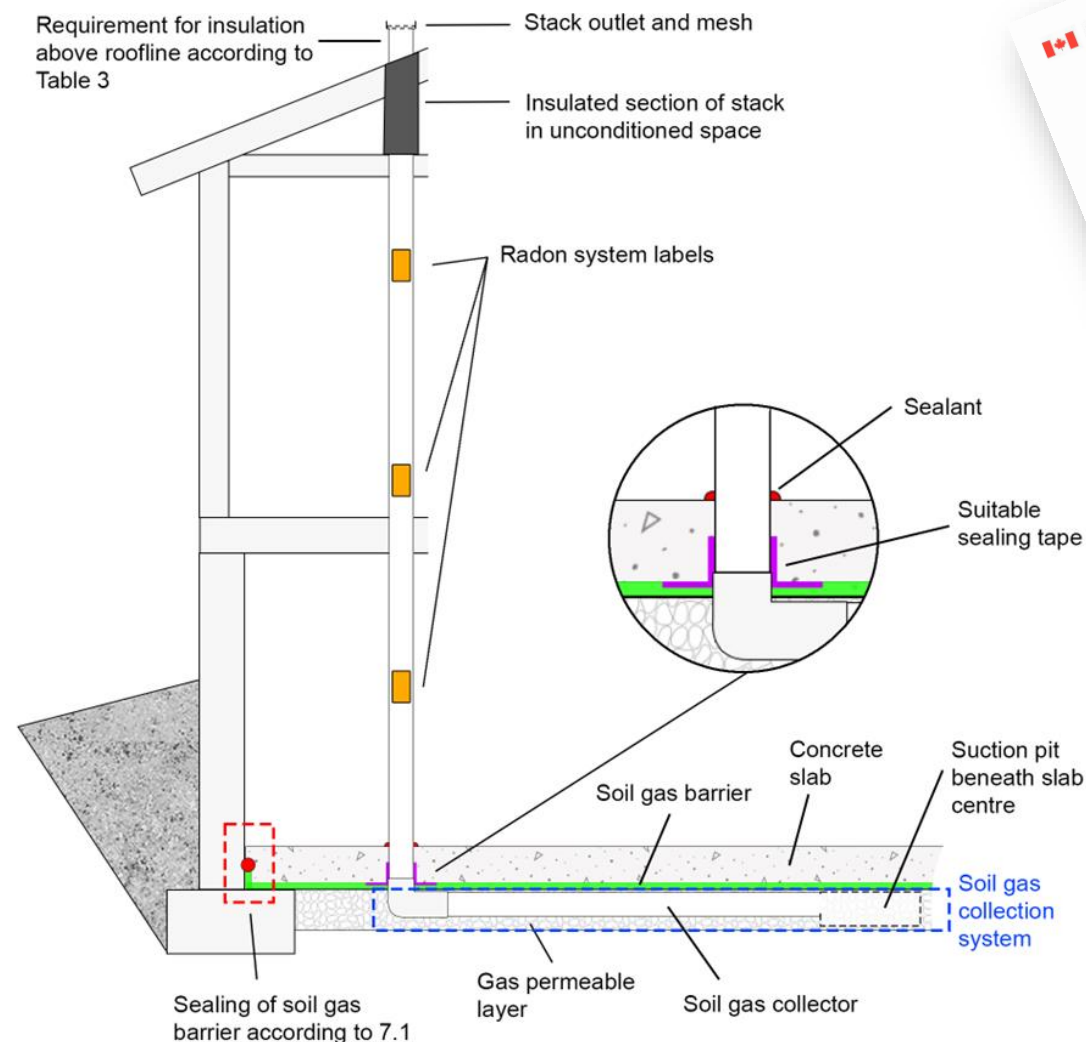


J. Gaskin, 2019

Research effects on guidance

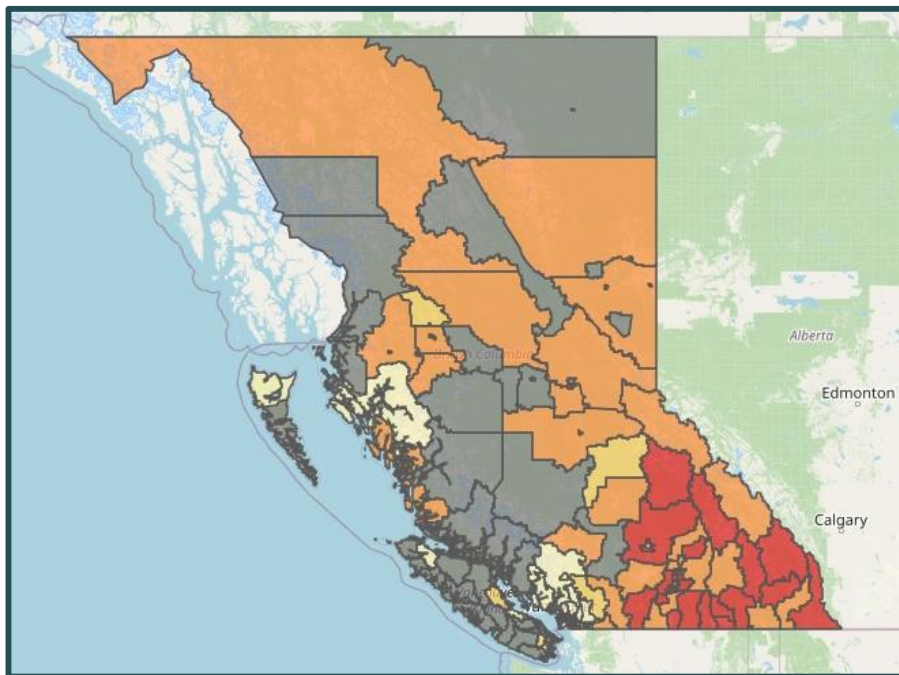
National Building Code

- Passive stack** technical requirements from CGSB 149.11 included in proposed change to National Building Code (NBC) for 2025 (PCF 1713)
- Inclusion of passive stack in 2025 NBC awaiting approval

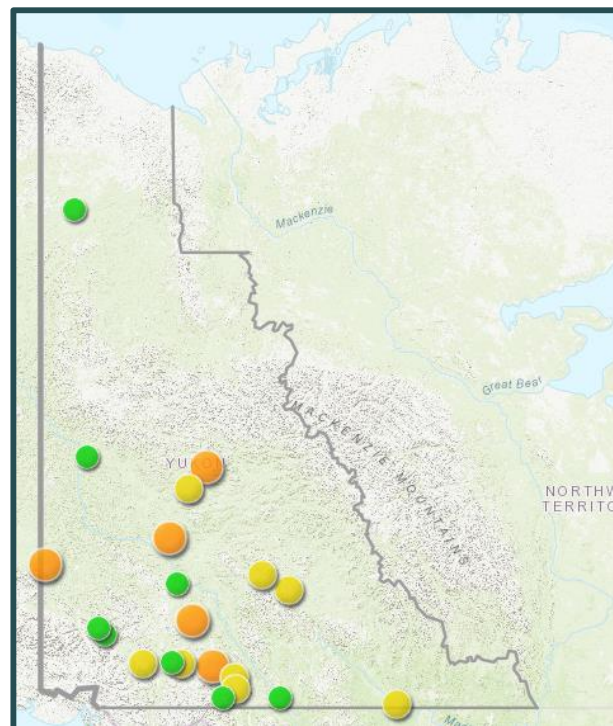


Database & Mapping

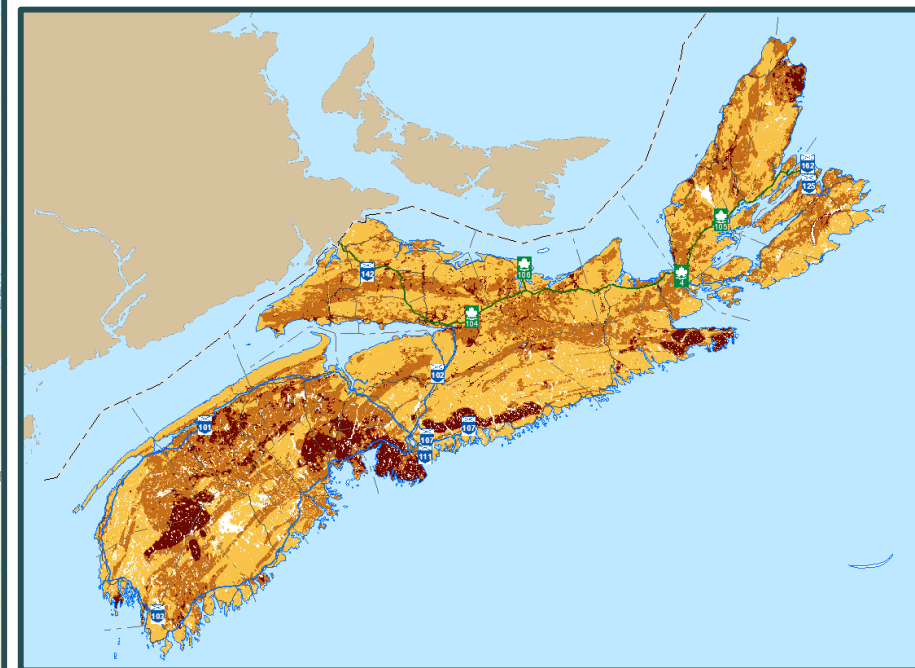
Working with provinces



British Columbia,
[BC Provincial Health
Services Authority](#)



Yukon,
[Yukon Government](#)



Nova Scotia,
[NS Dept. Natural
Resources & Renewables](#)

