Radon "The Silent Killer"

Protecting Family at Home, School and Work

Alan J. Whitehead, Radon Environmental Management
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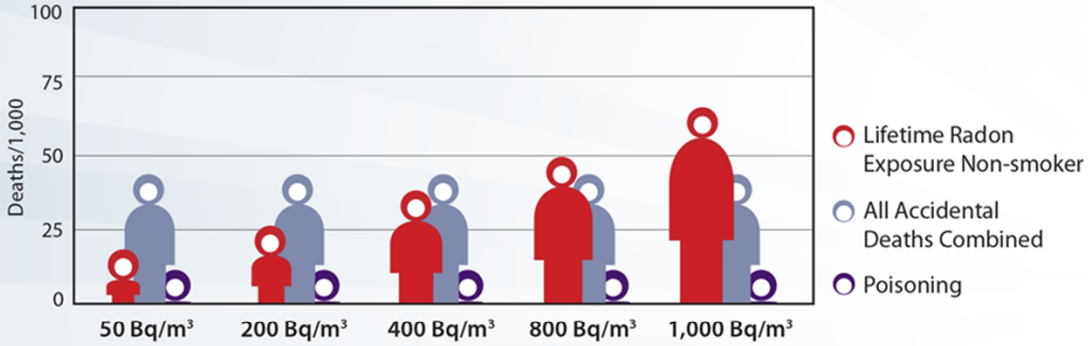
Radon Environmental Management
Committed to a healthy future



"Saving lives is our mission.

Raising awareness is our passion."

- Alan Whitehead, President & CEO

Radon Environmental is a building and health sciences company focused on reducing public exposures to radon gas. The leading environmental cause of lung cancer is radon exposure.

The company is investigating and developing new and innovative approaches to minimizing public exposure.

Radon Environmental: The Company

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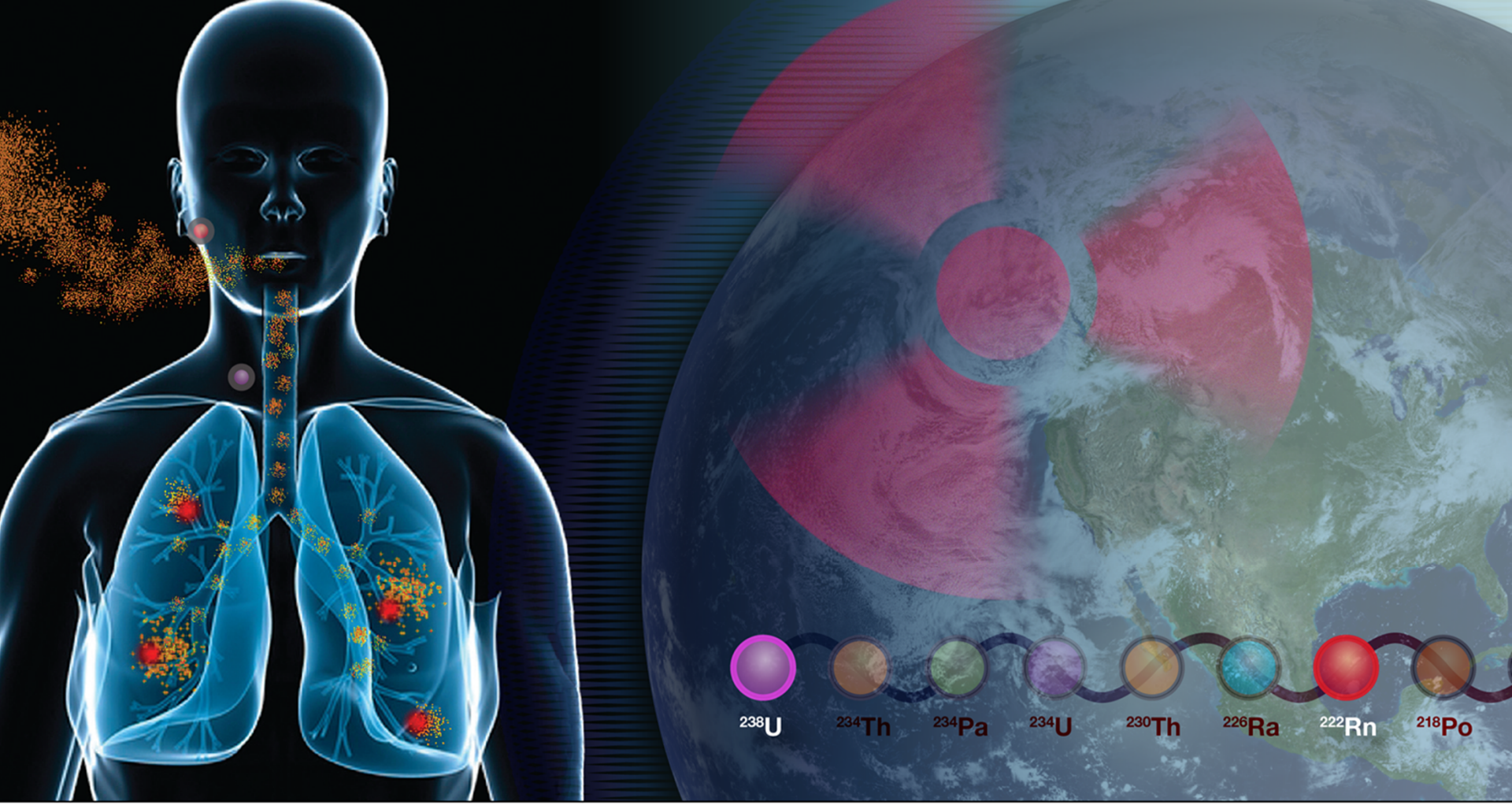

Radon is a radioactive gas, spontaneously released from rocks and soils during the decay of uranium. Traces of these naturally-occurring radioactive materials have been present in the earth's crust since the formation of the planet.

Radon is present to some degree in all indoor environments.

What is Radon?

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"The lower the radon concentration in a home, the lower the risk as there is no known threshold below which radon exposures carries no risk."

- WHO Handbook on Indoor Radon

The World Health Organization, US Environmental Protection Agency, Public Health England, and Health Canada set guidelines for radon exposure.

The WHO recommends that countries adopt reference levels of 100 Bq/m^3.
The David Suzuki Foundation and Public Health Ontario also recommends the Canadian guideline for indoor radon be set at a level of 100 Bq/m^3.

Radon Safety Around the World

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RADON-INDUCED LUNG CANCER STATISTICS *

	Canada	USA	World
Annual lung cancer deaths	20,100	158,000	1.38 million
Percent lung cancer deaths attributable to radon exposure	16%	14%	14%
Estimated annual radon-induced lung cancer deaths	**3,200**	**22,100**	**192,500**

* Canadian Cancer Statistics 2012
Health Effects of Exposure to Radon: BEIR VI
WHO Handbook on Indoor Radon

There is a preventable health care burden due to inadequate public awareness of radon - a recognized Class A carcinogen.

Health Canada reduced the radon action guideline fourfold in 2007 from 800 Bq/m^3 to 200 Bq/m^3. Health Canada advocates testing for all homes, and mitigation if above 200 Bq/m^3.

The Science is Indisputable

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RISK DWELLINGS:

Homes
Schools
Daycares
Workplaces

AFFECTED SECTORS:

Building
Trades
Home Buyers
Real Estate

Radon is present in all indoor air environments. It affects the air quality of homes, schools and workplaces. Air quality is a concern to new home builders, home inspectors and potential home buyers. Employers must ensure their workers are not exposed to harmful substances in the workplace.

Who is At Risk

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Response in Canada to radon prevention is increasing within community health units, lung associations, the Centre for Disease Control, and Health Canada. Health Canada conducted a cross-Canada survey of radon levels in homes and public buildings in 2010. Testing pilot projects are underway in BC's radon hotspots.

Risk Response and Testing

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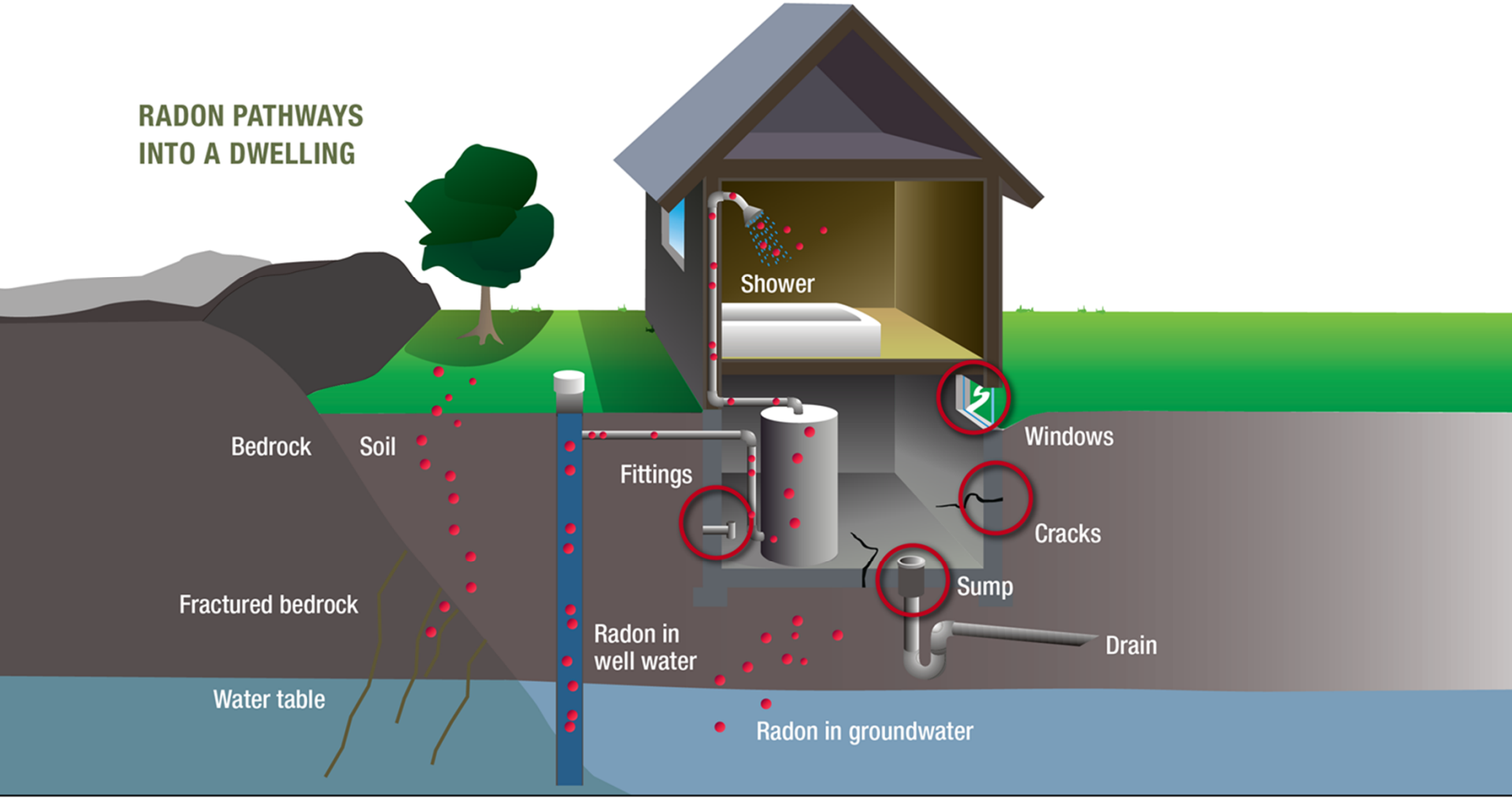

The 2010 National Building Code includes measures that mitigate the risk from radon exposure. The 2012 BC Building Code has new requirements for radon-resistant new construction.

New developments protecting Canadians: Bill 11 Ontario Radon Awareness & Prevention Act, and Tarion's New Home Warranty.

Building Codes and New Policies

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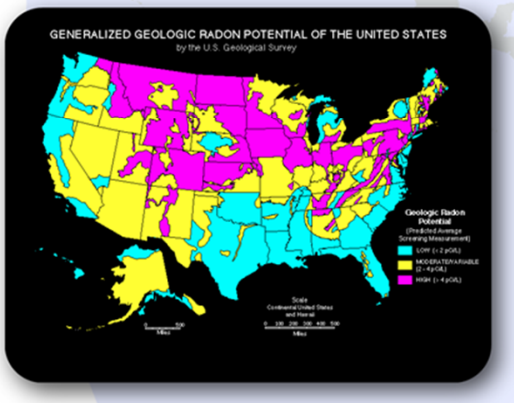

COUNTRY STATUS WORLDWIDE

National radon mapping program

Newly published radon map

For the past 20 years, the United States has lead the way in radon public awareness and education. In 1993 the USGS published the “Generalized Geologic Radon Potential Map of the United States,” which has since served as a model for other countries.

Radon Maps Around the World

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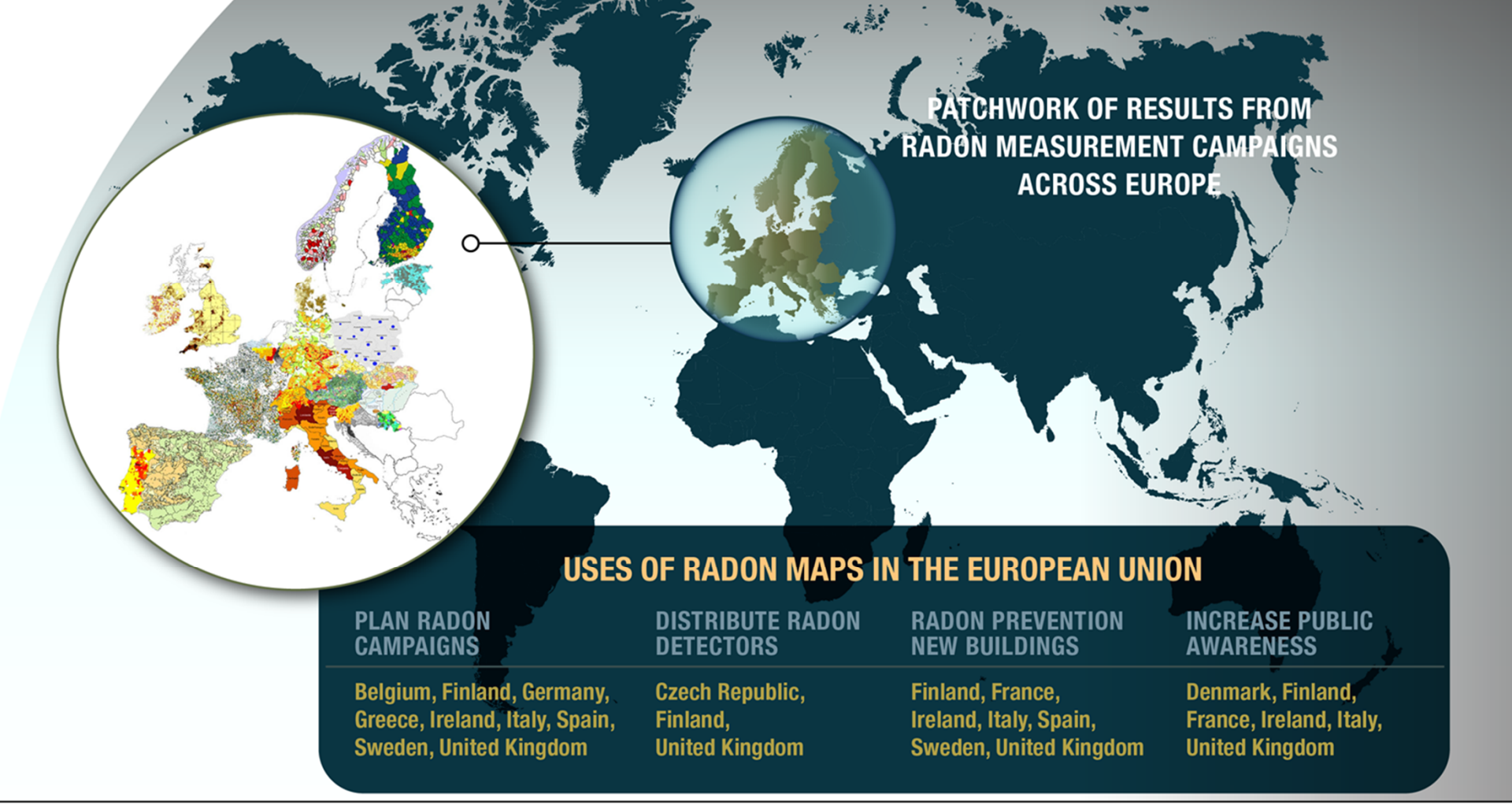

Natural hazards like radon have a strong spatio-temporal component. Because of this, maps play a decisive role in risk communication.

The European Union uses radon map prediction to plan their campaigns, distribute detectors, prevent radon in new dwellings, and increase public awareness.

Maps for Risk Communication

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In 2010 our team of geoscience professionals developed the first geologic Radon Potential Map of Canada with the objective of identifying and prioritizing hazard zones.

This geographical picture of radon risk is now a tool to drive major testing and mitigation activities across the country.

A Radon Potential Map for Canada

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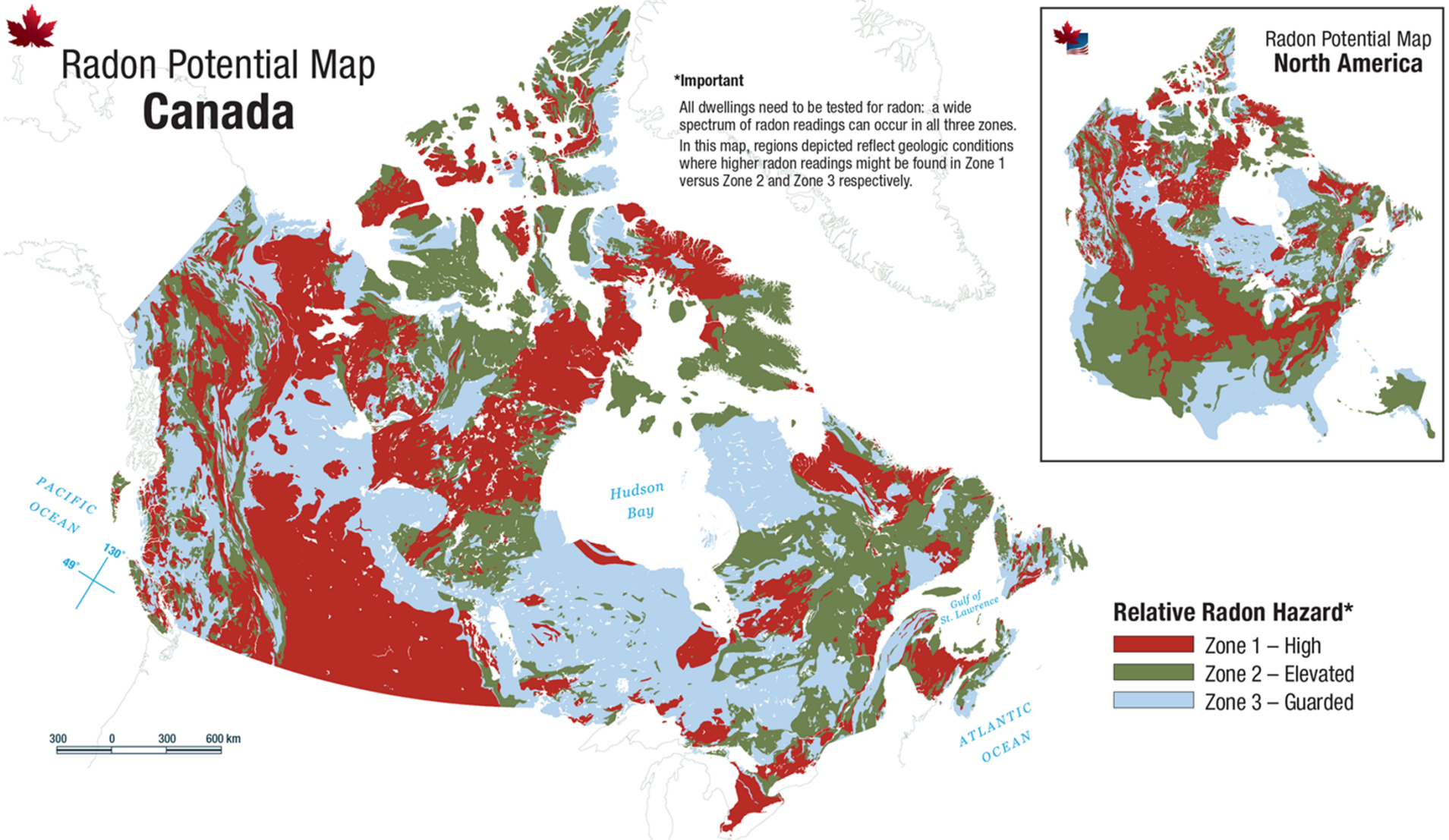

Approximately 80% of the most densely populated areas of Canada are in elevated or high radon potential zones.

The Canada map matched seamlessly with the US Geological Survey map, providing a North American picture.

Mapping Methodology

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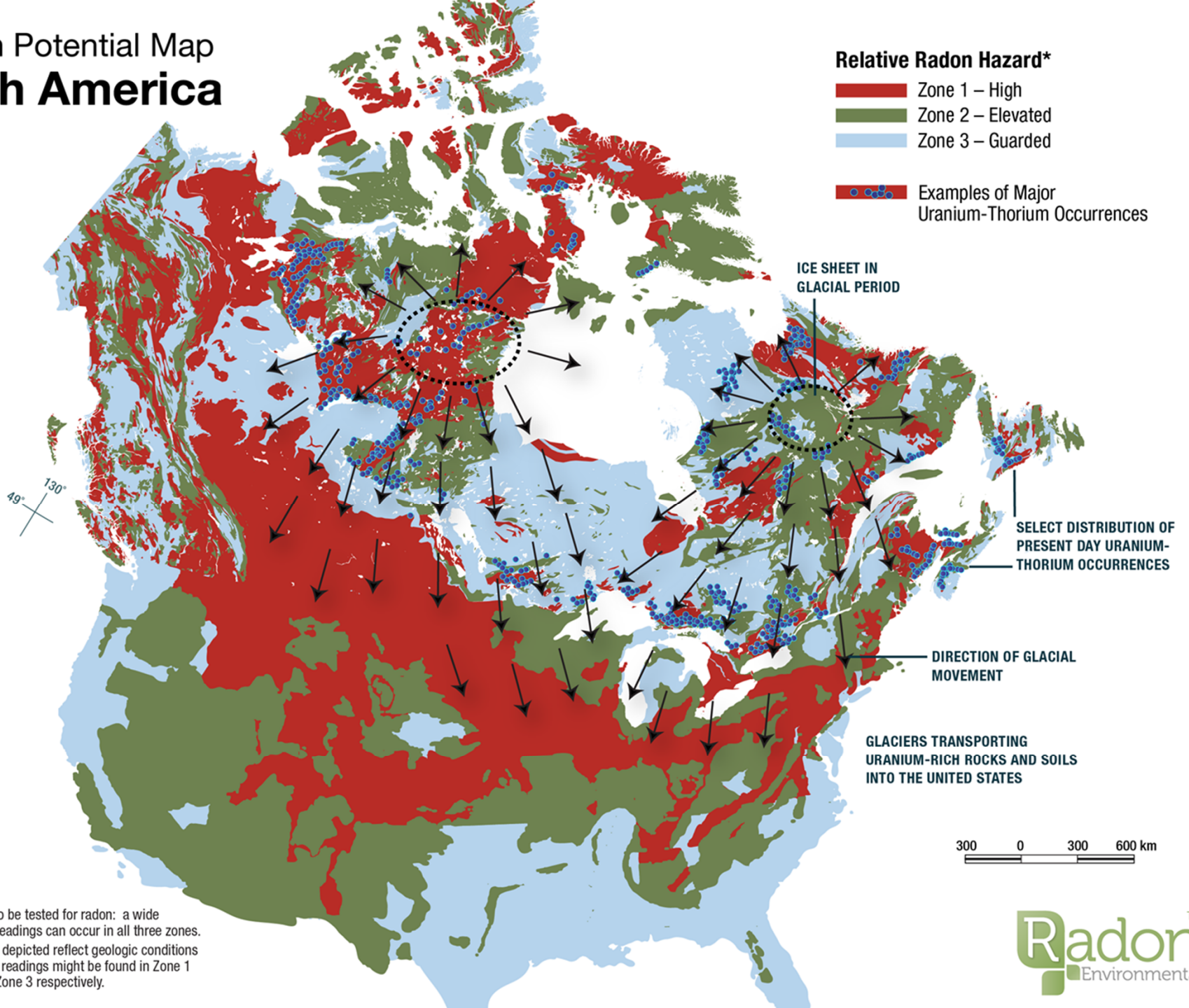
Radon Potential Map
North America



***Important**

All dwellings need to be tested for radon: a wide spectrum of radon readings can occur in all three zones.

In this map, regions depicted reflect geologic conditions where higher radon readings might be found in Zone 1 versus Zone 2 and Zone 3 respectively.

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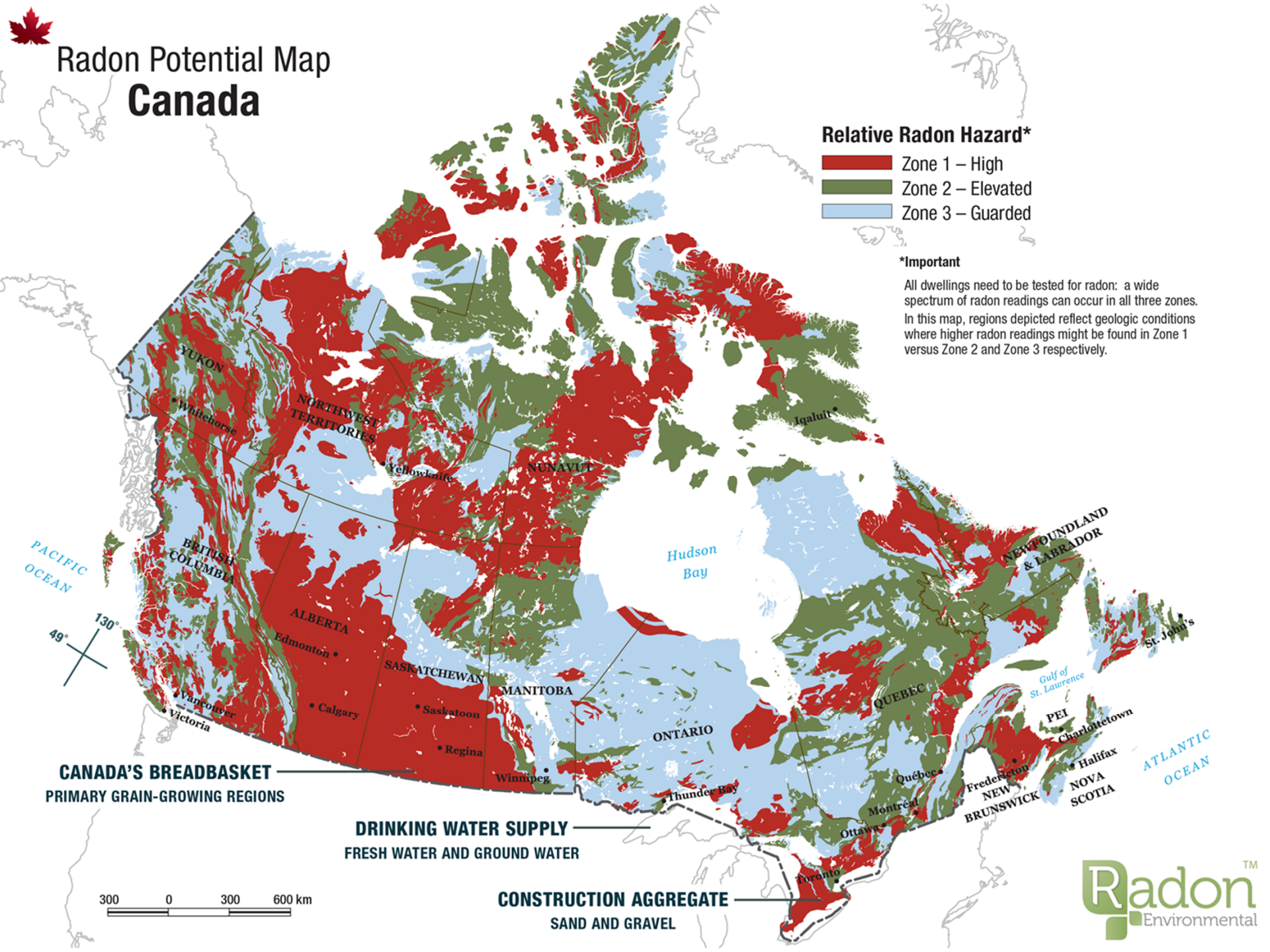
Radon Potential Map
Canada



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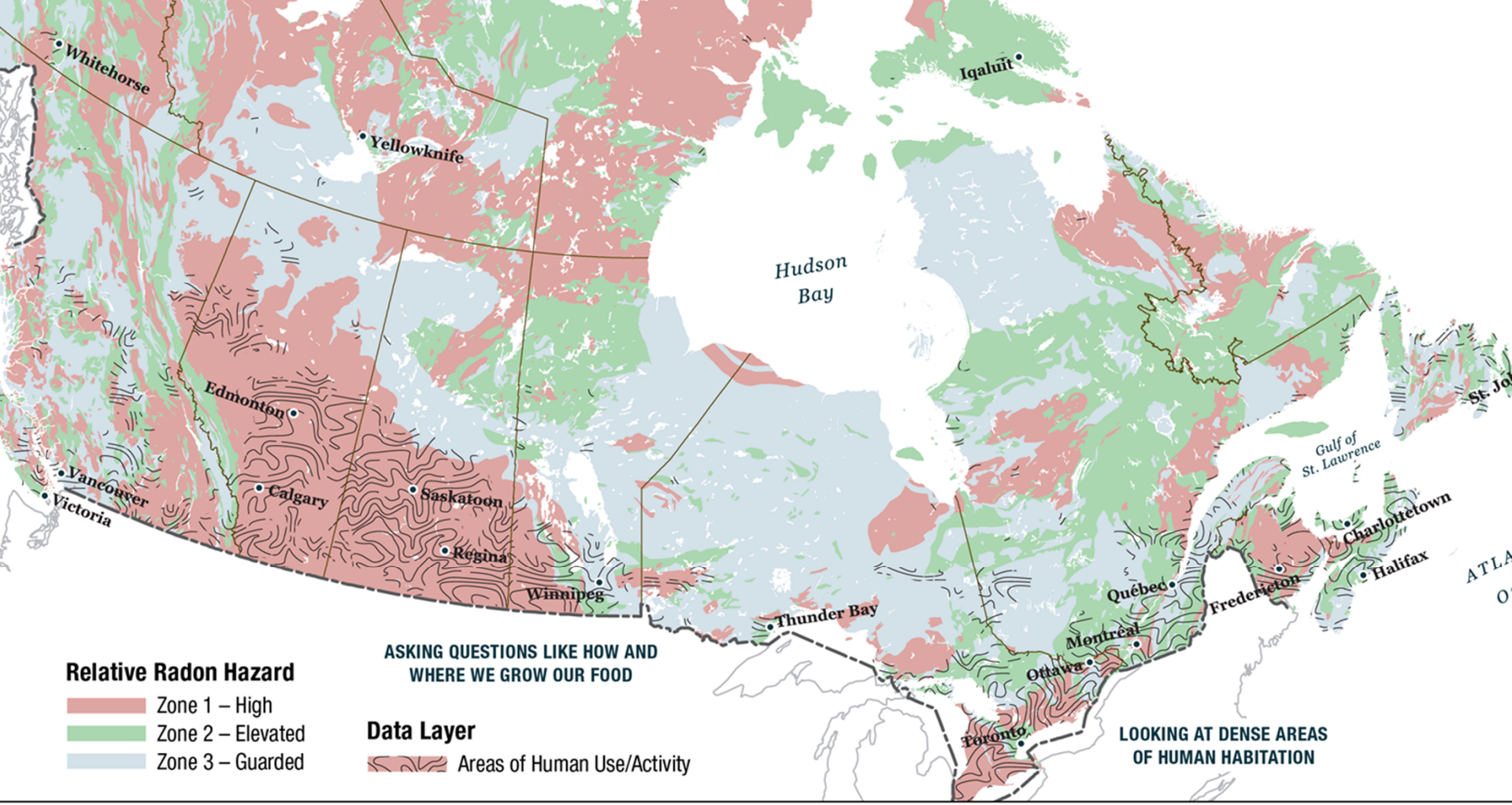

With the map it's possible to examine relationships between potential radon hazards and populations – a factor in urban and rural planning.

Is the chosen site for a seniors community, public school or hospital in a high radon hazard zone? The map can be a tool for responsible decision-making.

Relationships: Assessing Impact

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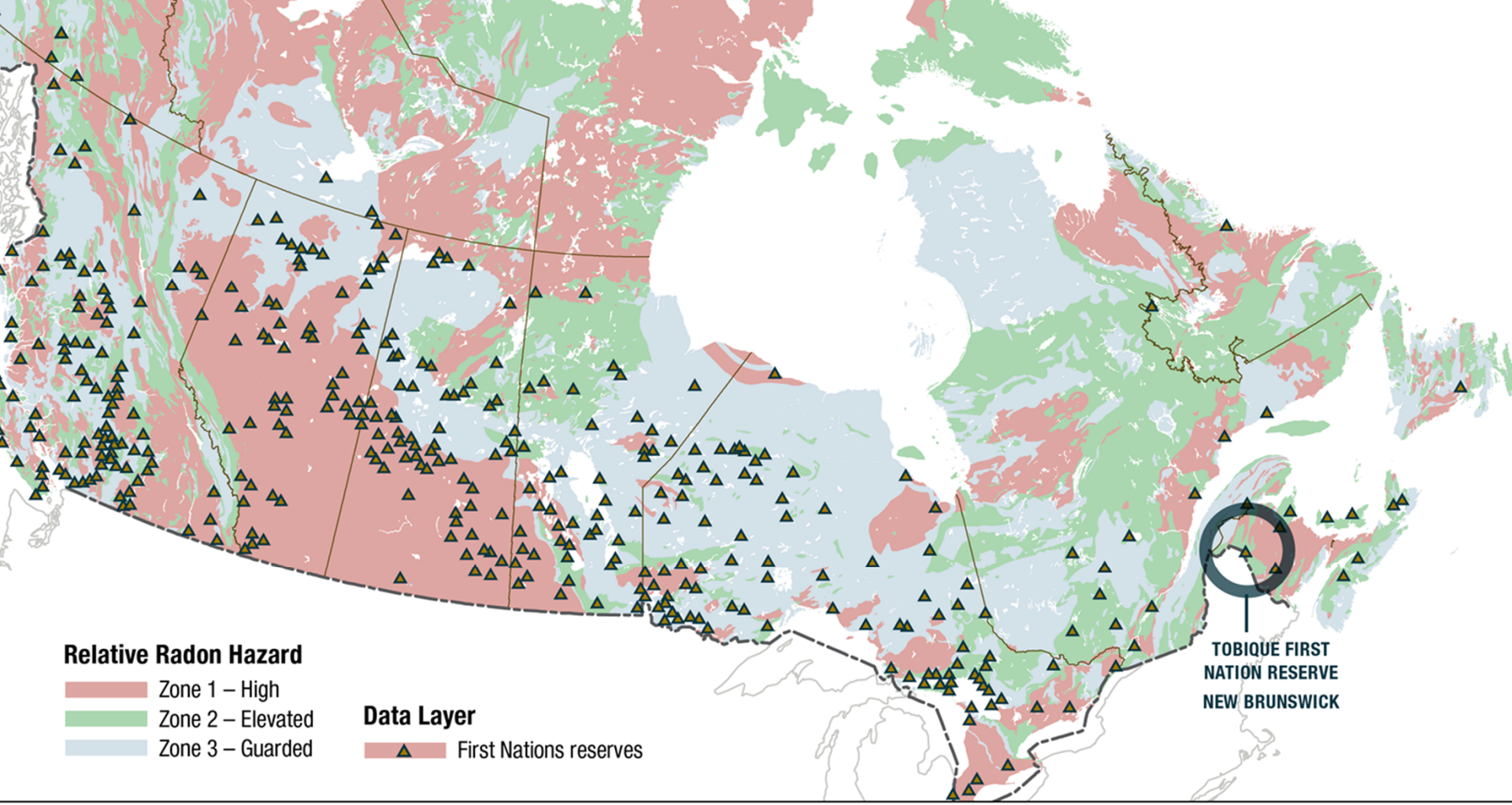

Many First Nations reserves in Canada are located in high radon hazard zones. These communities need to know to test for radon and mitigate their risk - how will governments act?

The Tobique First Nation in NB is a typical example, where a large percentage of homes and buildings were found to have high radon levels.

Relationships: Assessing Impact

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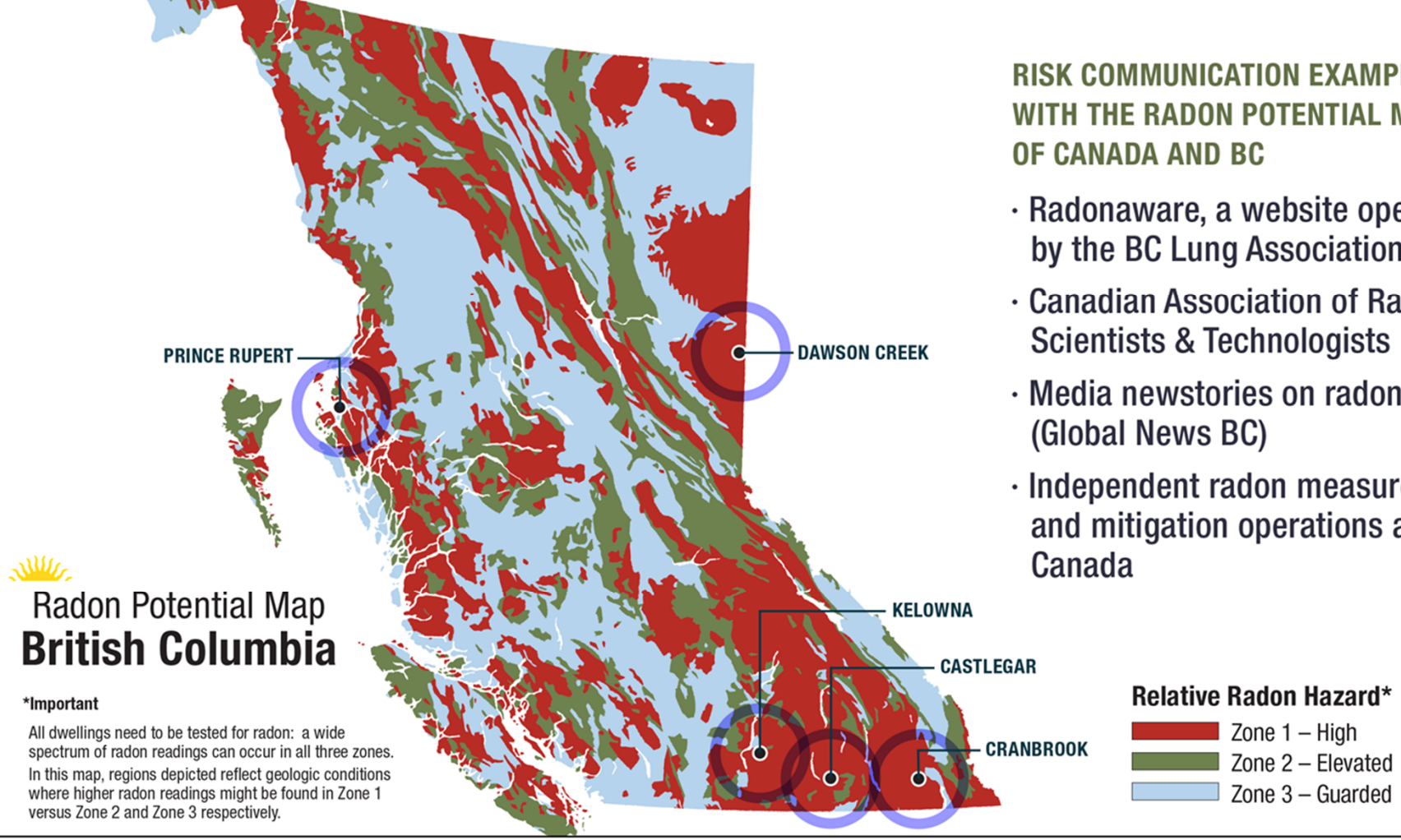

RISK COMMUNICATION EXAMPLES WITH THE RADON POTENTIAL MAPS OF CANADA AND BC

- Radonaware, a website operated by the BC Lung Association
- Canadian Association of Radon Scientists & Technologists
- Media newstories on radon (Global News BC)
- Independent radon measurement and mitigation operations across Canada

Responding to the demand from local health authorities, provincial maps were created. Municipal mapping programs are underway for planners in the Ottawa and Sudbury regions.

The Radon Potential Map of Canada and its regional maps are being used by various organizations in education and awareness campaigns.

Regional Radon Mapping

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The only way to determine the radon level in an indoor space is to test. From the geologic maps, certain regions can be seen to have a higher potential for radon than others. However, indoor radon levels are influenced by additional variables, such as building construction and materials, air exchange, radon in water, and seasonal conditions.

Necessary Action: Testing

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ALPHA TRACK TECHONOLOGY IS THE MOST COMMON TYPE OF RADON MONITORING WORLDWIDE*

*WHO Report: Survey on Radon Guidelines, Programmes and Activities.

Some one-time-test radon detectors in Canada are approved by the Canadian National Radon Proficiency Program (C-NRPP) and Health Canada.

Within both the consumer and professional categories, the Radtrak alpha track radon gas monitor by Landauer is an approved, low-cost, accurate device.

Measurement Instruments

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Measurement devices also include continuous radon monitors and true radon detectors, which are analogous to carbon monoxide detectors.

The first true radon detector in Canada is the Victoria™ radon alarm, which, like the Radtrak alpha track monitor, is economical, reliable and simple to use. Continuous monitors like the Pro Series 3 are popular with homeowners.

Measurement Instruments

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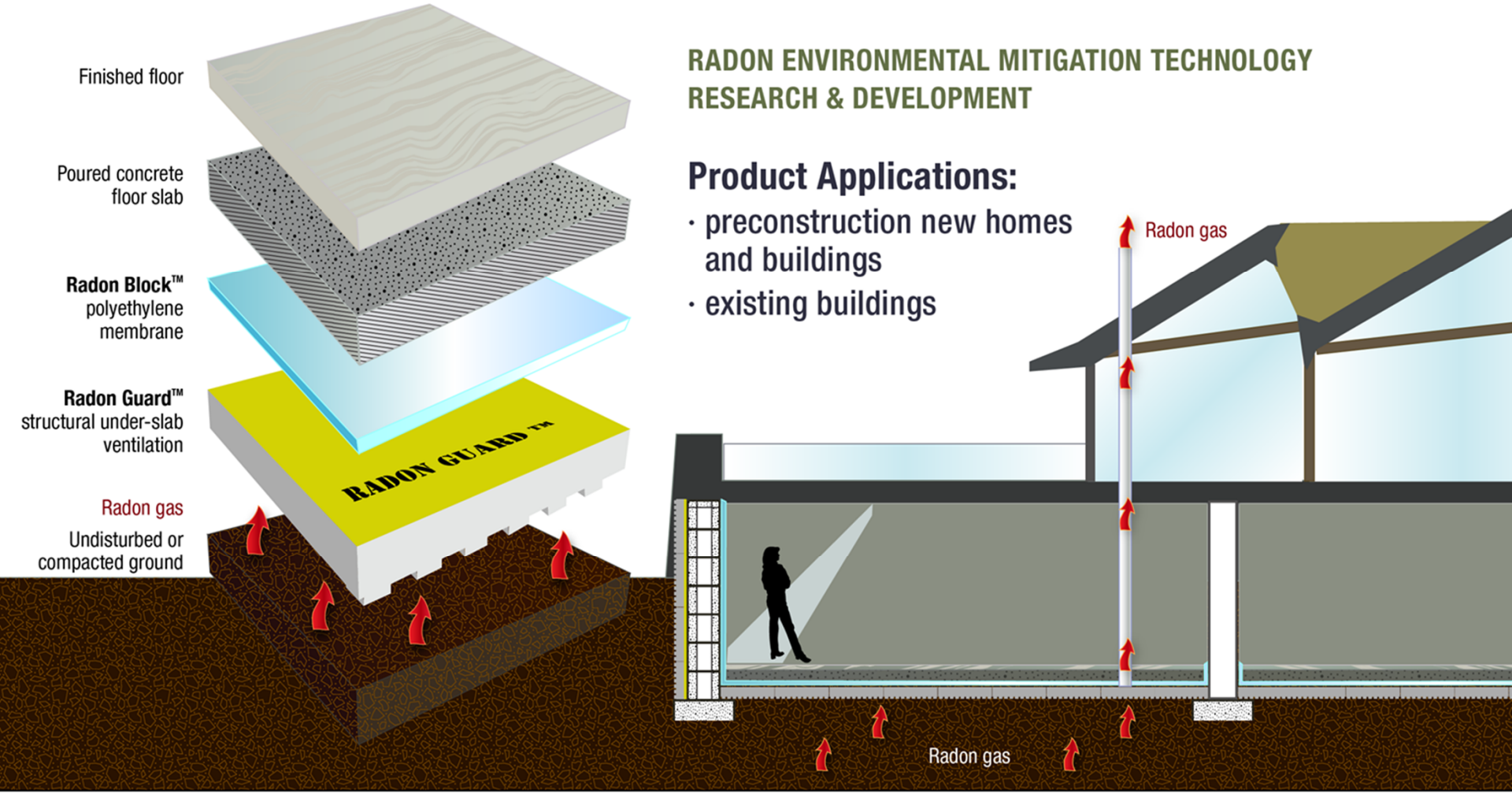

Radon Environmental is developing new mitigation technologies to improve methods of keeping poisonous gases away from indoor spaces. Radon Guard™ combined with the polyethylene membrane Radon Block™ provides a level of protection far superior to existing standard building materials.

Mitigation Technologies

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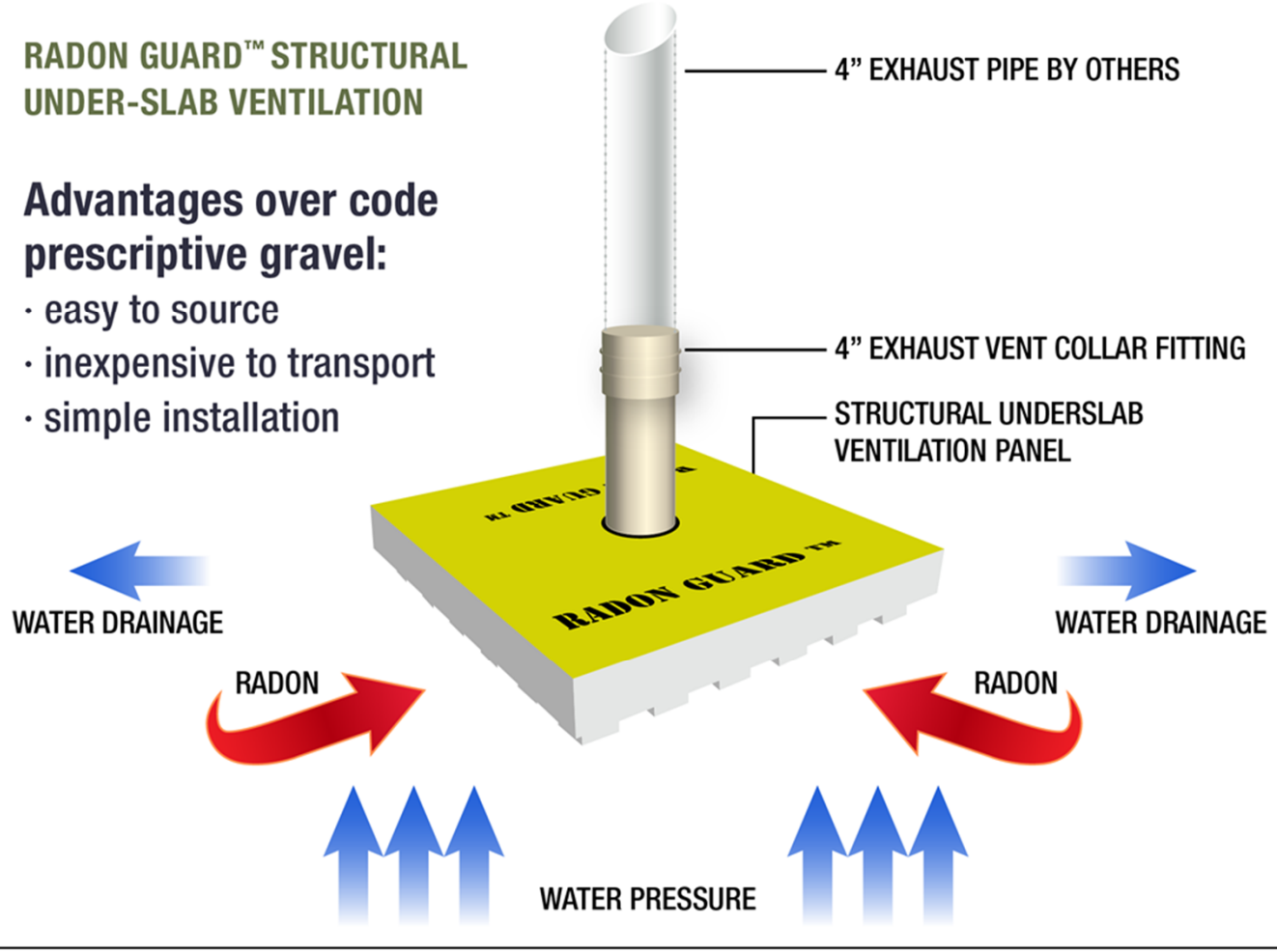

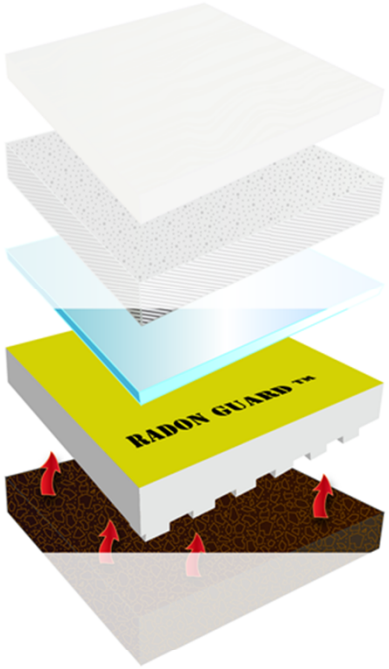

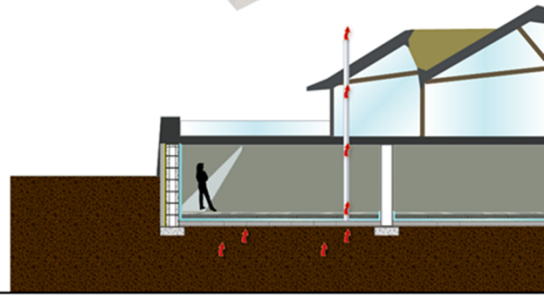

Radon Guard™ is a new, patent pending, structural under-slab ventilation panel system that allows for soil gas removal, insulation, and a capillary break between the ground and air barrier system.

The CCMC has now certified Radon Guard™ to be National Building Code 2010 compliant as a replacement/alternative for the code prescriptive solution.

Mitigation Technologies: Radon Guard™

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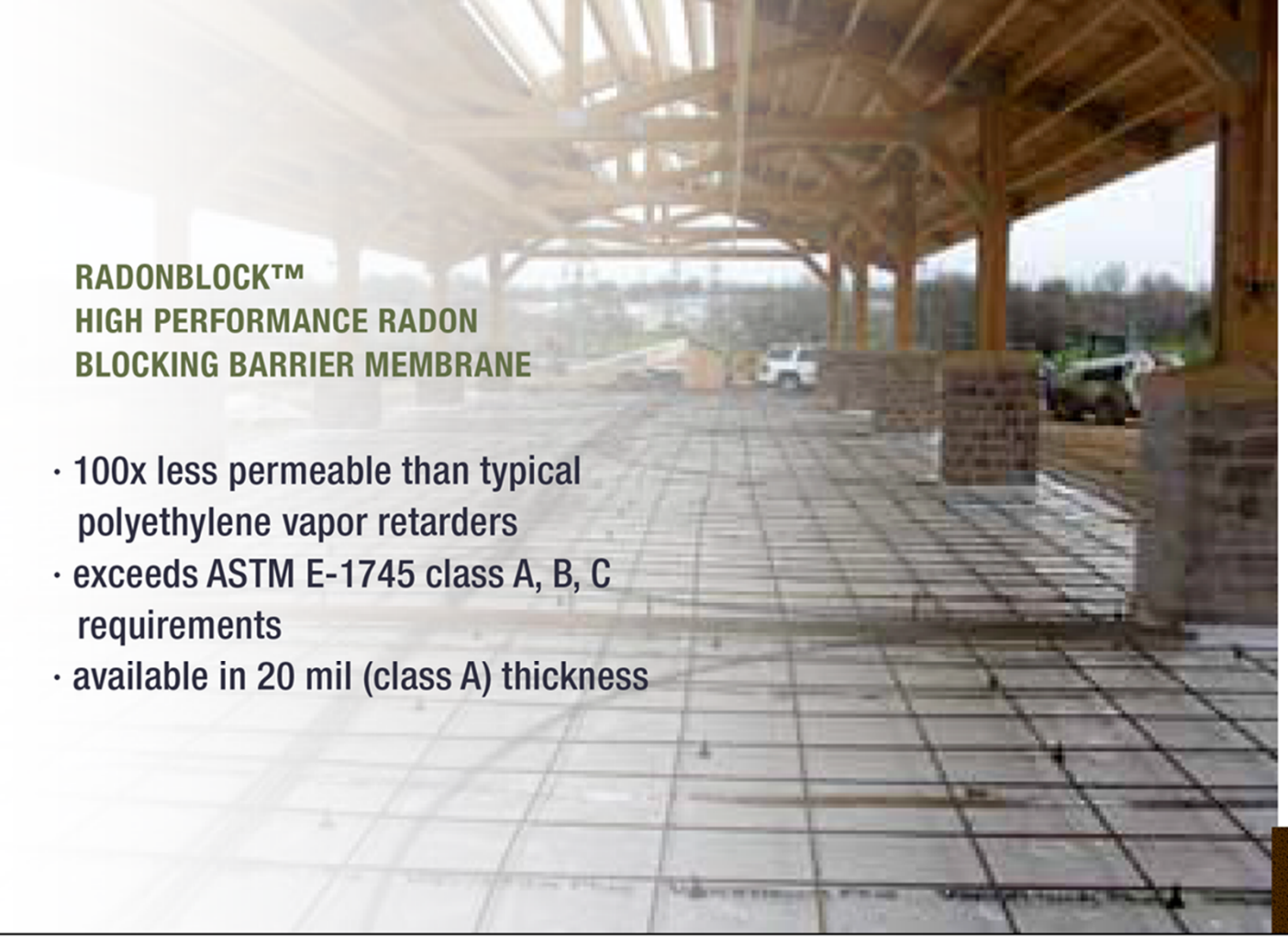

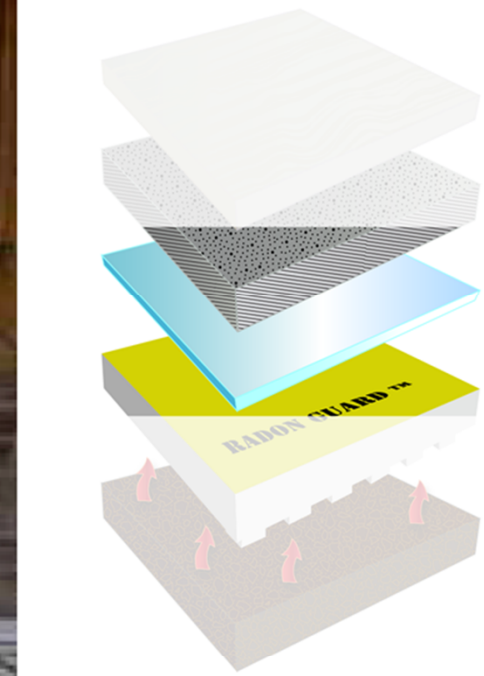

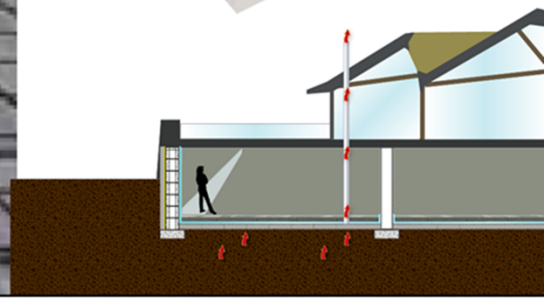

RadonBlock™ is a highly resilient, high performance underslab/vertical wall barrier specifically designed to block radon, and other toxic soil gases like methane, from migrating through the ground and concrete slab.

It is more than 100 times less permeable than typical 4mm polyethylene vapor retarders against radon, methane, and other harmful VOCs.

Mitigation Technologies: RadonBlock™

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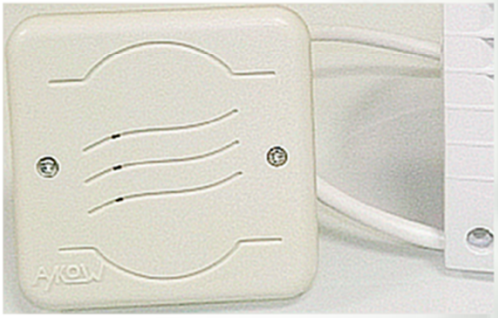
RADOSTAT™ RESPONSIVE MITIGATION DRIVING DEVICE

- pilots any active ventilation system for radon elimination
- real-time protection from radon peaks using nuclear sensor technology
- discreet design, integrated into existing ventilation system



Reducing indoor radon is commonly done in North America by a system called sub-slab depressurization, which is either an active or passive system to exhaust soil gas outside the building.

A less invasive method is now available with the Radostat™ that effectively dilutes radon concentrations by piloting a building's existing ventilation system.

Mitigation Strategies

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Radon is naturally-occurring and present in every indoor environment to some degree.

The hazard comes as a result of the way we build and maintain our homes, work and learning spaces. Exposure and the risk of lung cancer is totally preventable.

A Preventable Risk

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