RADON REMINDER

QUESTION ONE

- You have heard of Radon Gas and know what it is
- True or False

QUESTION TWO

- Radon Gas is a naturally occurring **radioactive** gas that surrounds us at all times inside or outside

- True or False

QUESTION THREE

- You would be comfortable storing a locked canister of Radon Gas with a concentration of 75 Becquerels (Bq)/m3 in your childs bedroom closet

- True or False

QUESTION FOUR

- On average, how many people in Canada do you think die **each day** from Radon related lung cancer?

- 1 or 5 or 8

LAST QUESTION

- Have you tested your own home for Radon Gas?

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TAKE ACTION ON RADON VIDEO

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WHAT IS RADON?

- Radon is a radioactive gas that occurs naturally when the uranium in rock and soil breaks down.
- It is invisible, odourless and tasteless.
- When Radon is released from the ground into the outdoor air, it is diluted and is not a concern.
- However, in enclosed spaces, like homes, it can sometimes accumulate to high levels, which can be a risk to the health of you and your family.

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WHAT ARE THE HEALTH EFFECTS OF RADON EXPOSURE?

- Exposure to high levels of Radon in indoor air results in an increased risk of developing lung cancer.
- The risk of cancer depends on the level of Radon and how long a person is exposed to those levels.
- Long-term exposure to Radon is the 2nd leading cause of lung cancer after smoking and the leading cause of lung cancer for people who have never smoked.
- Indoor exposure to the gas can be expected to cause more than 3,000 (16%) lung cancers deaths each year in Canada.
- Radon exposure and smoking tobacco can significantly increase the risk of lung cancer (Radon + Smoking = dangerous combination!)

HOW DOES RADON ENTER YOUR HOME?

- The Radon concentration in soil gas depends on the concentration of uranium in the soil beneath and around the building
- Radon supply rate depends on:
  - the resistance of the ground to gas movement, which is affected by bedrock type, soil type and structure, soil moisture, and freezing;
  - the building foundation design, construction and condition;
  - the pressure differences between the inside of a building and the soil surrounding the foundation

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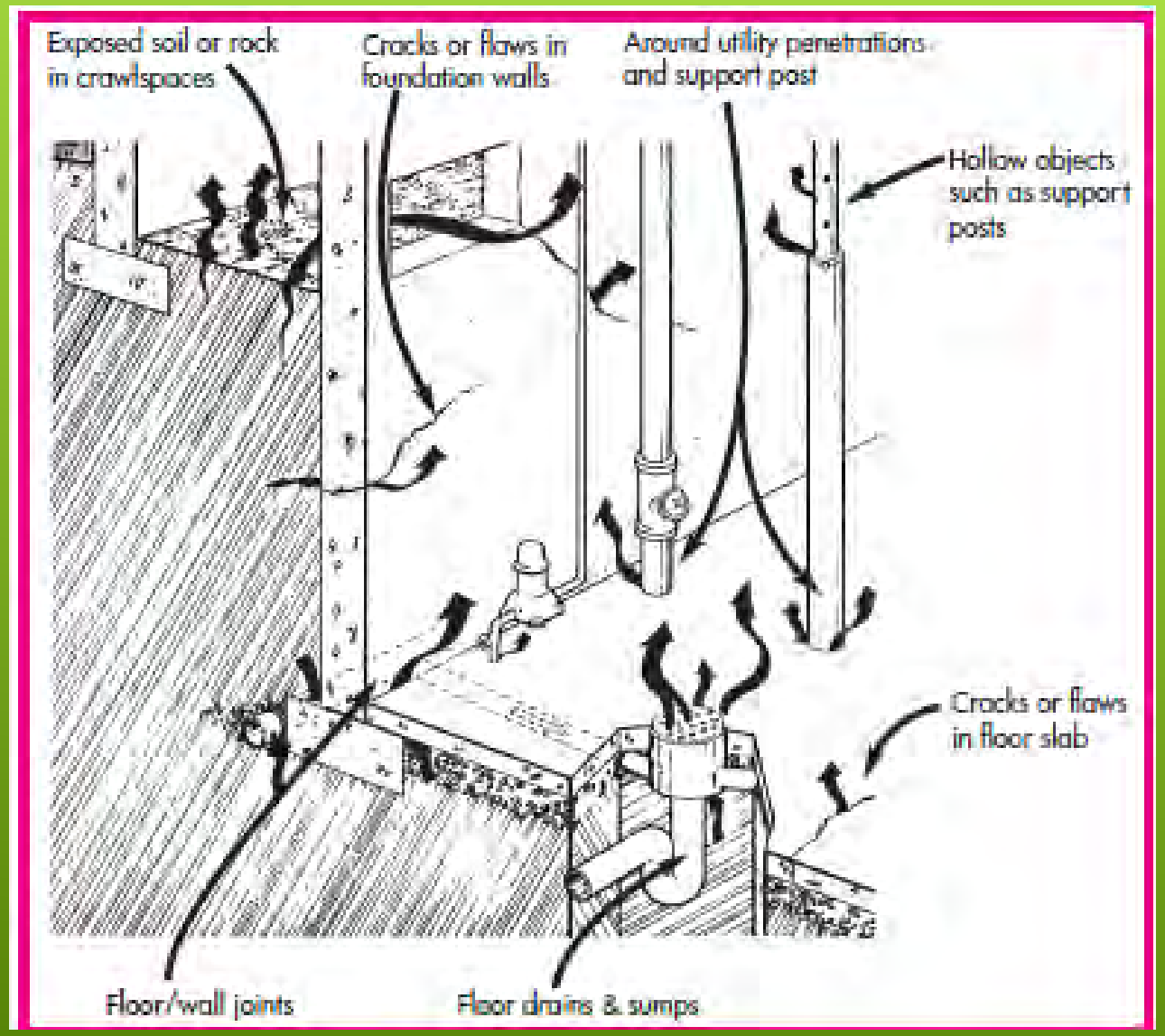
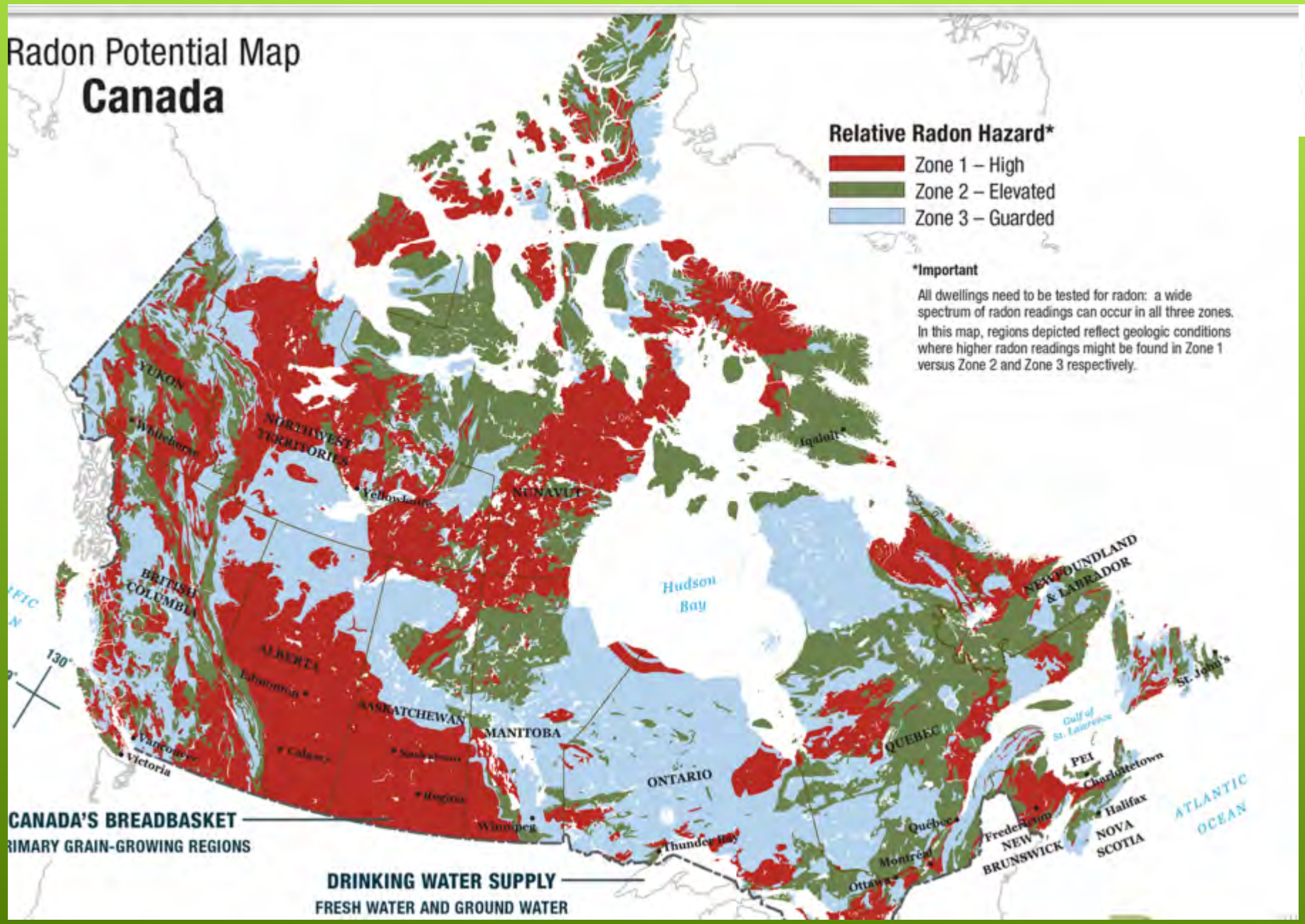


SOIL GASES, INCLUDING RADON ENTER THROUGH OPENINGS IN THE FOUNDATION SUCH AS:

- Construction joints,
- Gaps around service pipes and support posts,
- Floor drains and sumps,
- Cracks in foundation walls and in floor slabs, and
- Openings in concrete block walls

WHAT ARE THE ODDS?

- 7% of the 14,000 homes tested by Health Canada had levels of Radon above the acceptable level of 200 Becquerels per cubic metre of air (Bq/m^3)
- In Ontario 8.2 % above 200 Bq/m^3
- Thunder Bay District Health Unit: 12.0% (of 50 participants)
- Northwestern Health Unit: 13.9% (of 88 participants)
- Thunder Bay: 17% (based on recent Health Unit Study on 465 of 500 test kits issued)



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Source: Radon "The Silent Killer" Protecting Family at Home, School and Work Alan J. Whitehead, Radon Environmental Management 2014 BCBEC Conference & AGM September 24th 2014

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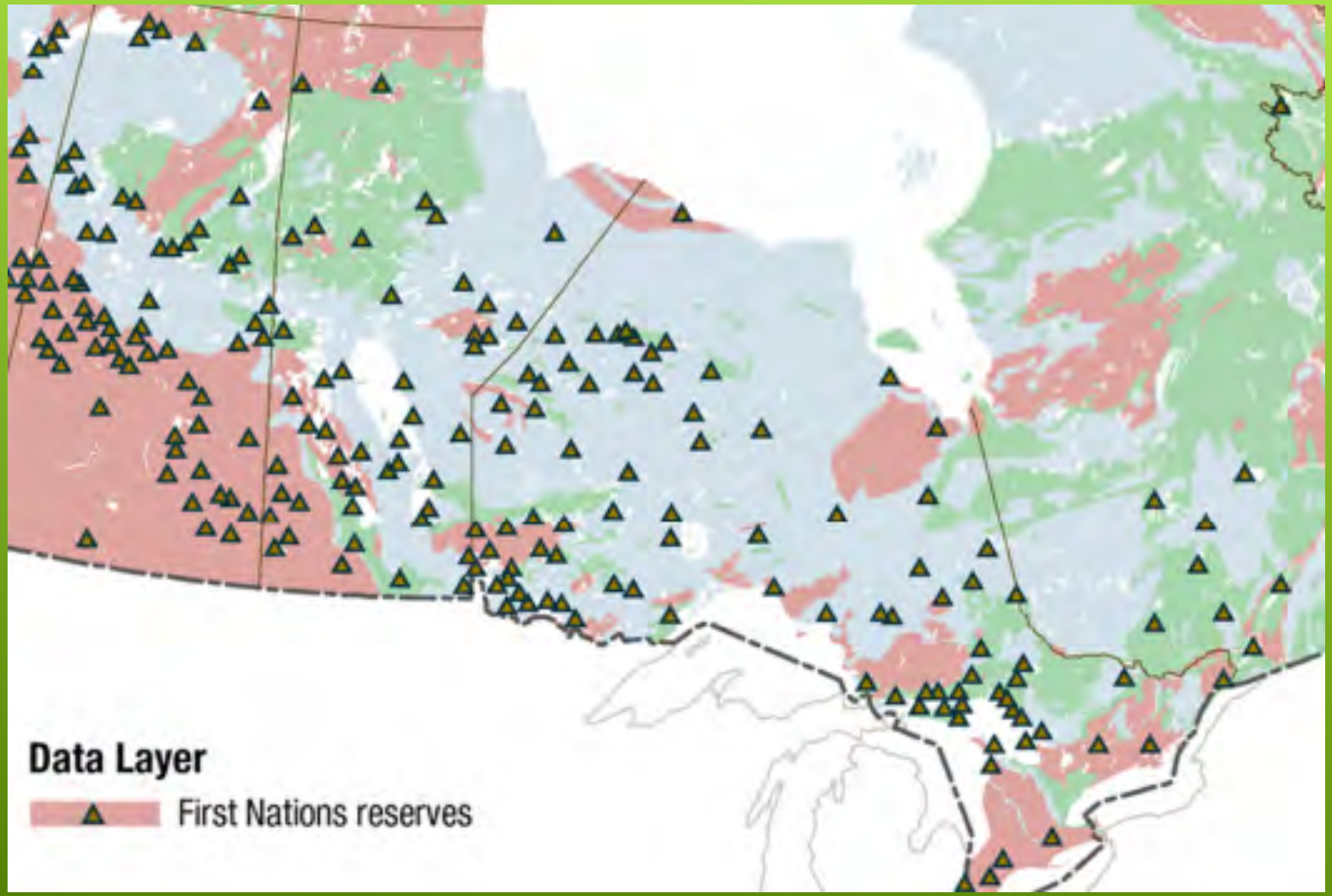

FIRST NATIONS IN ONTARIO

- Based on recent verbal from the First Nations and Inuit Health Branch of Health Canada – Over the last 4 or 5 years more than 50% of the First Nations Communities in Ontario have worked with Health Canada to test the common band buildings on a voluntary basis. Three buildings have been found to have Radon Gas concentrations above the Mitigation Guideline of 200 bq/m^3.

HOW DO YOU KNOW IF YOUR HOME IS AFFECTED?

- ONLY ONE RELIABLE WAY: **LONG TERM TESTING**
- **BECAUSE:**
  - Radon levels fluctuate both in the short-term (hours to days) and seasonally.
  - In order for results to be indicative of annual radon exposure, the test needs to be conducted for a period of at least three months (ideally during the heating season).
- deploy the detector in the lowest lived-in level of the home where someone spends at least 4 hours a day.

WHAT SHOULD YOU DO?

- If the result of the long term measurement is greater than 200 Bq/m3, Health Canada recommends that remedial action be undertaken within 2 years.
- If greater than 600 Bq/m3, remedial action be undertaken within 1 year.
- Mitigation method chosen is influenced by:
  - the required concentration reduction,
  - the building/foundation type, and
  - cost

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RADON MITIGATION 101

- Mitigation of high levels of radon gas in a home may be accomplished using two basic methods. Either:
  1. high levels of radon are kept from entering the building,
  2. or the radon which has already entered the home is diluted with outdoor air.
- **A phased approach to mitigation often works such as starting with a proper sump cover.**
- **An established method of keeping radon from entering a building is Active Soil Depressurization (ASD).**
- **A Heat Recovery Ventilator (HRV) may also be effective against lower levels of Radon by dilution methods**

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ACTIVE SOIL DEPRESSURIZATION (ASD) CONTINUED

- Typical attic fan installation
- 4" PVC piping with 10-20 yr fan life
- No special electrical hookup
- Typical Radon tight sump cover
- System costs between $2-5K

ACTIVE SOIL DEPRESSURIZATION (ASD).

You can't seal out Radon **BUT**:

- All accessible entry routes should be sealed to increase the efficiency of the ASD system and to reduce associated heating and cooling energy penalties
- Sumps shall be provided with rigid lids that are sealed and any penetrations through the lid shall be sealed. Where the sump basin penetrates the slab, it shall be sealed with a compatible sealant.

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ACTIVE SOIL DEPRESSURIZATION (ASD) IN HOMES WITH CRAWL SPACES

- In dwellings without a concrete slab, a flexible air barrier membrane maybe installed and sealed over crawl space floor
- Perforated piping is laid under the membrane to act as the gas collector and fan suction is connected to piping

RADON RESOURCES

- Take Action On Radon - Take Action
- Health Canada – Radon
- EcoSuperior in Thunder Bay for displays and selling test kits
- C-NRPP (Canadian National Radon Proficiency Program)
- TBT Engineering with C-NRPP Professionals for Measurement and Mitigation

- THANK YOU!