

Radon Awareness Meeting

Otty Lake Association

I bring you greetings and congratulations from Alan Whitehead President of CARST



Both Alan and I would like to congratulate the organizers on the effort and time to create this meeting. You have put in time volunteering your time away from your family and friends to raise radon awareness in this community

You bring light where their was none!!



No Place in Canada

Is free of "Radiation" from Radon

- Outdoors 10 Bq/m³
- Average Indoor 45 Bq/m³

Dr Aaron Goodarzi

 Dr. Goodarzi is the Canadian Research Chair for Genome Damage and Instability Disease and is both the Education Lead and Microscopy Lead for the University of Calgary's Arnie Charbonneau Cancer Institute.
 <u>https://www.youtube.com/watch?v=tHoITOI1d</u> <u>8k</u>

Radon Characteristics



Inert Gas; not chemically reactive (noble)



More dense than other gases



Radioactive



Naturally Occurring



Colorless



Odorless



Tasteless

Radiation from Radon Causes 16% of Lung Cancers

- Radon kills 3200
 Canadians/Year (HC)
- Radon kills 800-1500
 Ontarions/Year (PHO)
- Lifetime cost of each lung cancer
 \$1,002,175. (WHSC)

Canadian Death Rates 2012



Radon is a Known Human Carcinogen



Alpha particles from the radon decay products can damage lung tissue.



Increased risk of lung cancer is the main health effect.



Because radon is a Level 1 carcinogen, Health Canada **recommends ALL homeowners test.**



Radon entry

Most houses really suck!

2 ways

Basement effect

Stack effect



Your House

Neighbours house

No relationship between radon levels

It is what is underneath home 4 radon emitting rocks or 40

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How do we fix high levels of radon?

- Depressurize under slab of building &/or membrane crawlspace
 - Reverse flow preventing soil gas entry
 - p to 99% reduction
- Add more fresh air (HRV)
 - Only if solving multiple problems
 - Needs to be properly Engineered
 - Max reduction 50%, much higher cost
 - Piped to high use rooms (bedroom, TV etc
 - Huge energy cost



How do we fix high levels of radon?

- Pressurize building
 - Many modern workplaces do this
- Designers looking to control stack effect
 - avoid sick building syndrome
- Happened to fix soil gas entry
- Energy Conservation can mess this up causing high radon



If radon source is your well water

- 3 systems
- Airwell (in well)
- Bubbler (in house)
- Carbon filter (in house)



3 terminologies that get interchanged incorrectly

Active Soil Depressurization (ASD)



Sub Slab Depressurisation (SSD)

$$\leftarrow$$

Sub Membrane Depressurization (SMD)

Radon Entry Less Likely in Homes with Pier Foundations (this home had 740 Bq/m³)



How ?

Mitigation

typically 1 day work



For a Certified trained crew



Post mitigation testing

• Short term

Long term





The Consensus Among Experts: Radon is a serious public health concern.

- Health Canada
- Canadian Medical Association
- Canadian Lung Association
- Center for Disease Control (CDC)
- National Council on Radiation Protection and Measurement
- World Health Organization (WHO)
- EPA (Environmental Protection Agency)

Questions?