



# Radon

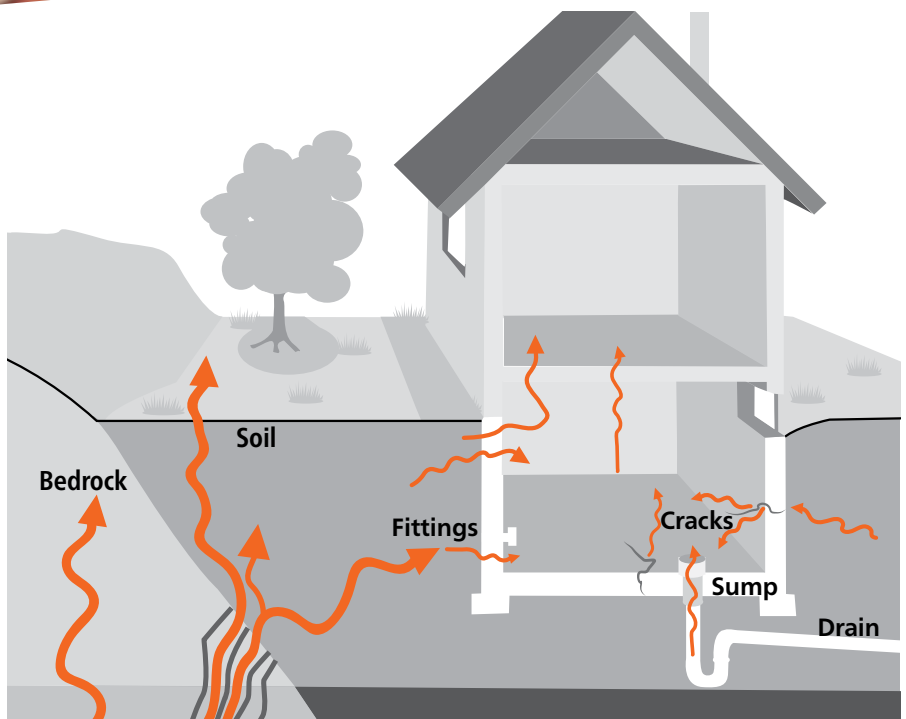
TEST YOUR HOME STUDY:

## ASSESSING RADON LEVELS IN YORK REGION

### WHAT IS RADON?

RADON IS A RADIOACTIVE, ODOURLESS, NATURALLY OCCURRING GAS THAT IS RELEASED INTO THE AIR WHEN URANIUM IN ROCK AND SOIL BREAKS DOWN.

Although radon concentrations are low outdoors, they can build up in enclosed spaces such as homes and can accumulate in poorly ventilated areas, like basements. Radon enters homes through cracks and openings in the foundation. Weather, local soil and bedrock conditions, and building design can also impact indoor radon levels.



Adapted with the permission from Natural Resources Canada 2008, courtesy of the Geological Survey of Canada

## HOW RADON IMPACTS YOUR HEALTH

Radon is the second leading cause of lung cancer, after smoking, contributing to around 13% of lung cancer deaths each year in Ontario<sup>1</sup>. After entering a home, radon breaks down in the air into radioactive particles which you can breathe in. These particles can break down further causing damage that can lead to lung cancer.

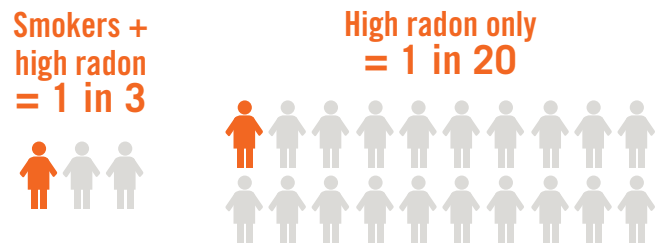
There is no safe level of radon, but being exposed to radon does not mean you will develop lung cancer.

Your risk increases with:

- Smoking
- Exposure to high levels of radon
- Exposure to radon for a long period of time

Health Canada currently has a radon guideline<sup>2</sup> of 200 Bq/m<sup>3</sup>. When levels are above this homes should be fixed to reduce radon levels.

Figure 1. Risk of lung cancer for smokers and non-smokers exposed to high levels of radon (800 Bq/m<sup>3</sup>).



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Reducing your exposure to radon and other risk factors (e.g. smoking) will greatly reduce your risk. With radon levels of 200 Bq/m<sup>3</sup>, the risk of developing lung cancer over a lifetime can increase from 2% for non-smokers to 17% for smokers.<sup>4</sup> The lifetime risk increases at even higher radon levels (Fig 1).

**Learn more about quitting smoking at [york.ca](http://york.ca)**

## YORK REGION RADON STUDY

York Region Public Health initiated a study in 2017 to assess radon levels in residential homes. This study measured radon concentrations in households across York Region for at least a 91-day period between November 2017 and August 2018. Additional information was collected on risk factors (e.g. smoking habits, housing characteristics) from those who participated in the study. The study also surveyed radon awareness to get a better understanding of residents' knowledge and perceptions of radon.

### RESIDENTS HAD HIGH AWARENESS OF RADON:

The radon awareness survey was completed by 936 York Region residents, of which, 74% indicated they had heard of radon gas prior to the study, and 87% correctly identified it is a gas that comes from the ground and can cause lung cancer (Fig. 2). Although general awareness of radon was relatively high, 38% of participants did not know radon could be present in their home.

Figure 2: Study participants' knowledge on radon.

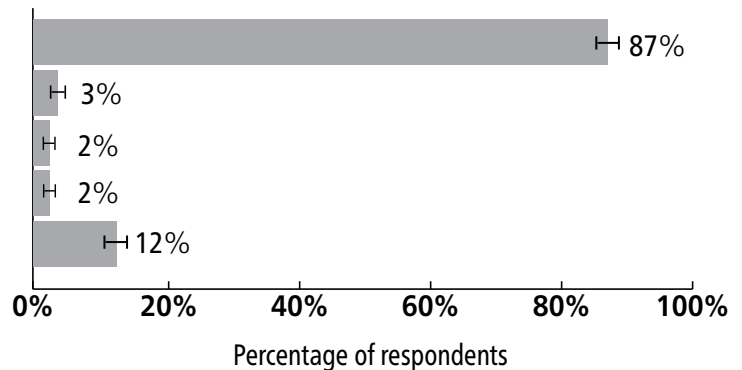
A gas that comes from the ground and causes lung cancer

A gas that comes from carpet, paint or furniture

A gas used to pressurize gas tanks

Radon is none of the above

I don't know



**The majority of York Region homes tested had low levels of radon, well below the Health Canada guideline:**

In total, 490 participants returned their radon test kits for an overall response rate of 88%. Of the returned test kits, there were 474 homes with valid test results for analysis and the average household radon concentration was 47.4 Bq/m<sup>3</sup>. One home (0.2%) was above the Health Canada guideline of 200 Bq/m<sup>3</sup> and 30 homes (6.3%) were above 100 Bq/m<sup>3</sup> (Fig. 3). Some housing characteristics were linked with higher radon levels (e.g. presence of an unsealed sump pump/hole or cracks in the foundation or basement floor), but these housing characteristics did not greatly increase radon levels.

Figure 3. Distribution of radon test results in York Region homes.

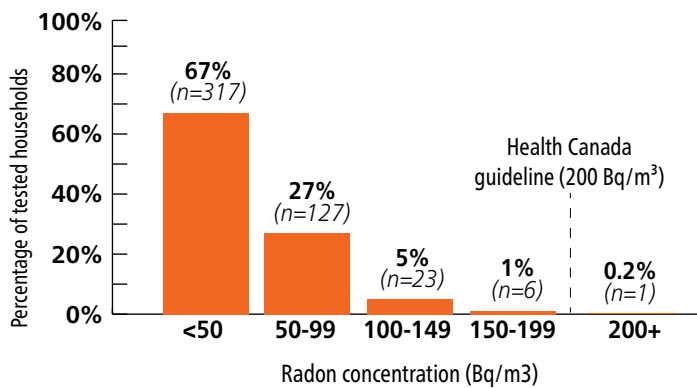
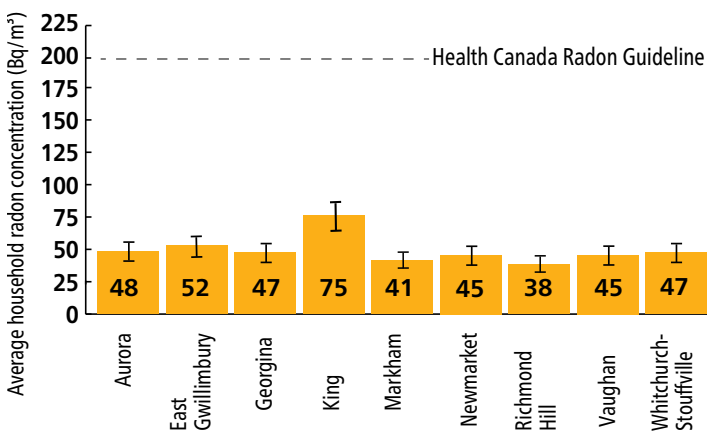


Figure 4. Average radon levels of homes tested by local municipality in York Region.



Overall, the radon levels observed in York Region were relatively low with almost all homes below the Health Canada guideline of 200 Bq/m<sup>3</sup>. Based on the findings, a follow up study was not recommended.

While these results suggest low levels of radon in York Region, the only way to know what the radon levels are in a home is to test for it. Residents are still encouraged to test their home to better understand their risk from radon exposure.

**KNOW YOUR RADON RISK, TEST YOUR HOME**

To find out what your risk may be, we recommend residents test their homes. Radon is easy to test for and it can be done either by purchasing a radon test kit or hiring a radon measurement professional. It is recommended to test for at least three months in the fall and/or winter.

**Where to buy a test kit or hire a professional:**

Visit <https://takeactiononradon.ca/test/> for more information on where you can purchase a test kit or find a professional to test your home.

**How to set up a test kit:**

Visit Health Canada’s Guide for [Radon Measurements in Residential Dwellings \(Homes\)](#) for more information on how to test your home.

**How to reduce radon levels in your home:**

If your test results show elevated radon levels, consult with a certified radon mitigation specialist to see what you can do to reduce radon levels in your home.

- Contact the Canadian National Radon Proficiency Program (C-NRPP) at 1-855-722-6777 (email: info@c-nrpp.ca), or the Canadian Association of Radon Scientists and Technologists (CARST) at info@carst.ca for a certified mitigation specialist.
- For more information on remediating your home to reduce radon, see Health Canada’s Radon - [Radon - Reduction Guide for Canadians](#)

## REFERENCES

1. Peterson E. Lung cancer risk from radon in Ontario, Canada: How many lung cancers can we prevent? *Cancer Causes Control* [serial online]. 2013 [cited 2018 Aug 17];24(11). Available from: [https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3824583/pdf/10552\\_2013\\_Article\\_278.pdf](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3824583/pdf/10552_2013_Article_278.pdf)
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4. Radon Working Group. Report of the radon working group on a new radon guideline for Canada. Ottawa: Her Majesty the Queen in Right of Canada; 2006 [cited 2013 Nov 20]. Available from: [http://www.mtpinnacle.com/pdfs/WG\\_Report\\_2006-03-10\\_en.pdf](http://www.mtpinnacle.com/pdfs/WG_Report_2006-03-10_en.pdf)

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