



Interoffice Memorandum

Date: June 21, 2023

To: Mayor and Council
From: Keegan Gennings, Chief Building Official
Subject: **Radon Mitigation Requirements for New Construction**

Radon is a radioactive gas that you cannot see, smell or taste and can get into your home undetected. It is the second leading cause of lung cancer after smoking and the leading cause of lung cancer for non-smokers. When radon escapes from the ground into the outdoor air it is diluted to low concentrations and is no cause for concern. However, when radon enters an enclosed space, like a home, it can accumulate to high levels (exceeding 200 Bq/m³) and become a health hazard.

As radon breaks down, it forms radioactive particles that can get lodged into your lung tissue as you breathe. The radon particles release energy that can damage your lung cells and has the potential to result in cancer. However, not everyone exposed to radon will develop lung cancer, and the time between exposure and the onset of the disease can take many years.

For most of the year, the air pressure inside your home is lower than the pressure in the soil surrounding your foundation. This difference in pressure can draw air and other gases in the soil, including radon, into the house.

Gas containing radon can enter your home at any opening where the house is in contact with the soil. These openings can be present even in well-built and new houses.

Potential entry routes for radon in homes with poured concrete foundations include cracks, areas with exposed soil or rocks, openings for utility fixtures or hollow objects such as support posts.

Almost all homes have some radon. However, the levels can vary dramatically even between homes located next to each other.

On December 21, 2022 the Region's Public Health staff provided a presentation to Chief Building Officials of Niagara (CBON) to outline concerns that they have about radon and provided the following:

In the Niagara Region, several sampling studies have been done to assess radon levels. In the years 2009 thru 2011, Health Canada conducted a study, and determined that for every 100 houses in Niagara Region, 2% were found to have levels greater than 200 Bq/m³, and 10% were found to have levels greater than 100 Bq/m³. The City of Port Colborne also conducted a separate study, and found that 9% of homes tested had levels greater than 200 Bq/m³, and 21% had levels greater than 100 Bq/m³. It is estimated that 13.3% of lung cancer deaths in

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Niagara Region are due to Radon. Further, 5-10 deaths per year could be prevented through radon remediation thru the Health Canada or World Health Organization (WHO) standards, with further lives saved if radon levels are reduced even further.

In February 2023, the Medical Officer of Health for the Niagara Region sent a letter to CBON recommending implementation of the radon mitigation measures during home construction. As a result of the letter, CBON decided to implement Ontario Building Code (OBC) Regulations for Radon Mitigation for all new construction, and additions to low-rise residential buildings. Builders will be able to select the method of mitigation from the three Building Code options:

Option #1

☐ rough-in soil gas pipe, and mandatory radon gas testing

Option #2

☐ soil gas barrier on the foundation walls and under the basement floor slab

Option #3

☐ active sub-slab depressurization system

On March 1, 2023, CBON provided a letter to the Niagara Home Builders Association (NHBA) advising that the radon mitigation regulations within the OBC will be implemented and requested a meeting with the NHBA.

The representative from the NHBA association attended the March CBON meeting, where the radon provisions and its related impacts were discussed.

CBON and representatives from Radon Canada held a lunch and learn session with members of the NHBA on May 2, 2023 with most of the Region's Chief Building Officials present. At this session the July 1, 2023 implementation date was presented to the Niagara Home Builders.

To assist with future permit applications a Radon Mitigation Option Form has been created, which allows applicants to select the option to implement. This form will be submitted with the Building Permit applications.

All of which is respectfully submitted



Keegan Gennings
Chief Building Official