# BUILDERS' BULLETIN

**RADON – OBC Part 9**

## What is Radon?

Radon is a naturally occurring radioactive gas formed by the breakdown of uranium in soil, rock, and groundwater. It is colorless, odorless, and tasteless, making it undetectable without specialized testing. Health Canada reports that it is the #1 cause of lung cancer in non-smokers. With increased public awareness of these risks in the built environment, the 2024 Ontario Building Code (OBC) has been updated to improve health and safety measures relating to radon.

## How is Radon Addressed in Part 9 of the 2024 OBC?

All new Part 9 residential buildings and additions are now required by the OBC to include a rough-in pipe to provide for a future subfloor (below-slab) depressurization system. Part 9 residential buildings include, but are not limited to:

- detached houses
- additional dwelling units (ADUs)
- semi-detached dwellings
- row townhouses
- stacked townhouses
- multi-residential buildings

This rough-in allows for the addition of a future radon mitigation system and eliminates the need to breech the foundation to retrofit a system which can result in potential damages or increased costs.

The OBC requirements for the rough-in are as follows:

**9.13.4.3 Providing for the Rough-in for a Subfloor Depressurization System**

(1) Floors-on-ground shall be provided with a rough-in for subfloor depressurization consisting of

(a) a gas-permeable layer, an inlet and an outlet as described in Sentence (2), or

(b) clean granular material and a pipe as described in Sentence (3).

(2) The rough-in referred to in Clause (1)(a) shall include

(a) a gas-permeable layer installed in the space between the air barrier and the ground to allow the depressurization of that space,

(b) an inlet that allows for the effective depressurization of the gas-permeable layer, and

(c) An outlet in the conditioned space that

(i) permits connection to depressurization equipment,

(ii) is sealed to maintain the integrity of the air barrier system, and

(iii) is clearly labeled to indicate that it is intended only for the removal of radon from below the floor-on-ground.

(3) The rough-in referred to in Clause (1)(b) shall include

(a) clean granular material installed below the floor-on-ground in accordance with Sentence 9.16.2.1.(1), and

(b) pipe not less than 100 mm in diameter installed through the floor, such that

(i) its bottom end opens into the granular layer required Clause (a) at or near the centre of the floor and not less than 100 mm of granular material projects beyond the terminus of the pipe measured along its axis

(ii) its top end permits connection to depressurization equipment and is provided with an airtight cap, and

(iii) the pipe is clearly labeled near the cap and, if applicable, every 1.8 m and at every change in direction to indicate that it is intended only for the removal of radon from below the floor-on-ground.

Additional requirements and example details that can be found in the MMAH Supplemental Standard SB-9 include, but are not limited to, the following:

**3.1 Soil Gas Barriers in Floors**

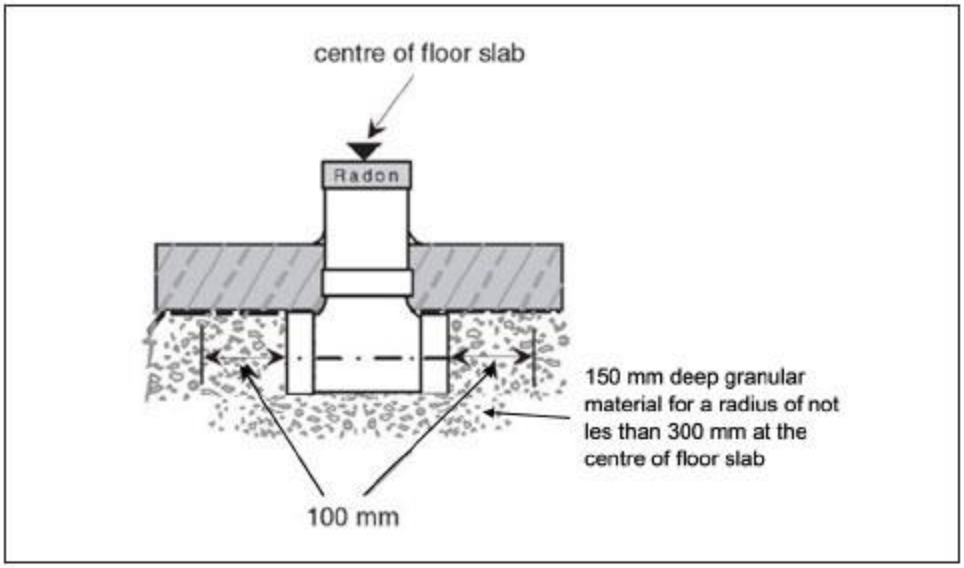
(2) Where the soil gas barrier is sheet material below a slab-on-ground, joints in the barrier shall be lapped not less than 300 mm.

**3.2 Sealing of the Perimeter and Penetrations**

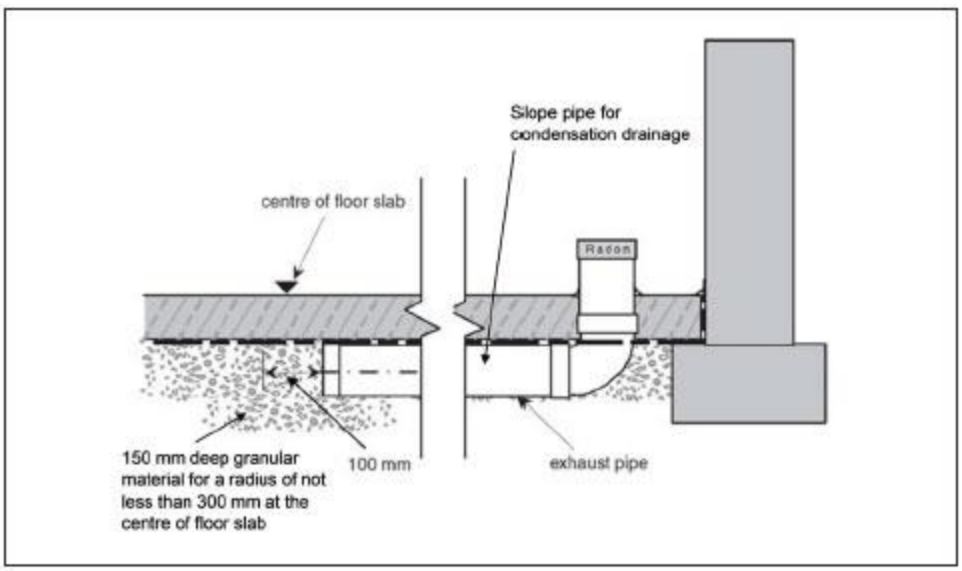
(1) A floor-on-ground shall be sealed around its perimeter to the inner surfaces of adjacent walls using flexible sealant.

(2) All penetrations of a floor-on-ground by pipes or other objects shall be sealed against soil gas leakage. *[Including the perimeter of all columns and the interior of tubular columns.]*

## Example Details from SB-9




*Through the floor slab near the centre of the slab*




*Adjacent to an exterior wall and extending under the slab and terminating at or near the center*

## Application

The requirement for the radon rough-in will be administered by the City of Greater Sudbury as follows:

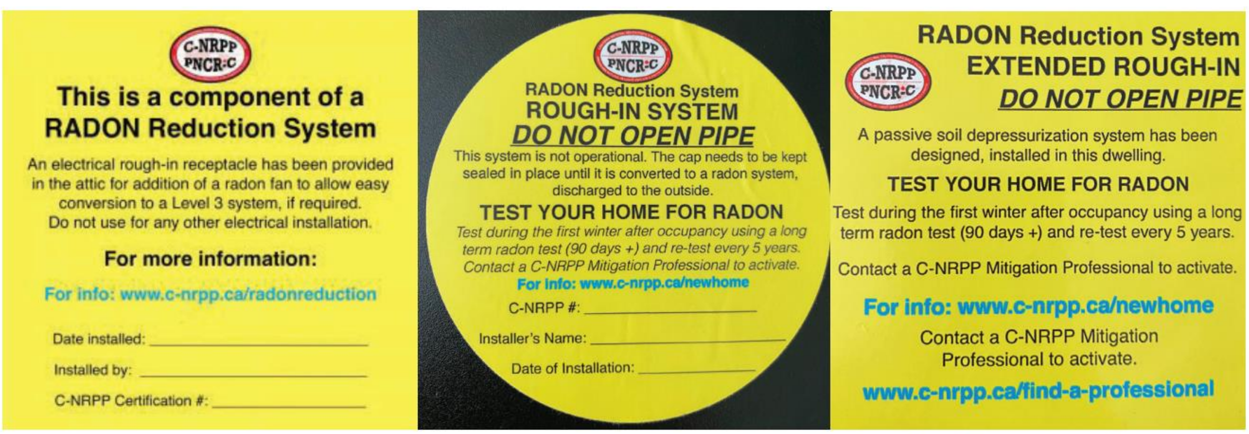
### Materials

The radon **pipe** rough-in is to consist of white 100 mm BDS pipe with sealed joints and sealed cap. The rough in outlet is to extend a minimum of 300 mm above the finished floor.

The **soil gas barrier** is to be minimum 6 mil polyethylene sheet.

The **granular material** is to meet 9.16.2.1. which states that it is to be “coarse and clean granular material containing not more than 10% of material that will pass a 4 mm sieve”. This would refer to a clear stone of pea size (9.5 mm) or larger.

The **label** is to be located near or on the cap and shall be of the format noted below. Labels can be obtained from the Canadian – National Radon Proficiency Program (C-NRPP).




*Examples of radon labels from C-NRPP.*

### Inspection

An inspection will be required after rough-in of the pipe is complete, and prior to pouring of the concrete slab. This *new inspection* is in addition to the existing requirements.

At the time of inspection, the radon rough-in pipe shall be installed with the required granular material in place and with the soil barrier installed and sealed as outlined above.

## Other Items of Note

- In addition to the requirements above, when determining the appropriate location of the rough-in outlet, consideration must be given to the potential future installation of an active depressurization system with respect its location within the design floor layout, location of services such as power outlets, proximity to exterior HVAC intakes and outlets, etc.;

- The City of Greater Sudbury will not require a radon rough-in for additions under 20 $m^2$ unless the proposed addition includes a bedroom;

- Where the space below the slab (the subfloor/sub-slab) that is to be depressurized is compartmentalized into separate areas by the presence of footings, continuous interior foundation walls, etc., provision shall be made to connect all sub-slab spaces to the rough-in system with an intake at the centre of each area.

For additional assistance or questions relating to this information, please contact Building Services via telephone at 705-674-4455 Ext. 4278 or via email:

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