



# Soil Gas Control

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## 9.1.1.7. Radon

(1) In addition to all other requirements, a building in the following designated areas shall be designed and constructed so that the annual average concentration of radon 222 does not exceed 200 Bq/m<sup>3</sup> of air and the annual average concentration of the short lived daughters of radon 222 does not exceed 0.02 working levels inside the building for,

- (a) the City of Elliot Lake in the Territorial District of Algoma,
- (b) the Township of Faraday in the County of Hastings, and
- (c) the geographic Township of Hyman in the Territorial District of Sudbury.

## 9.13.4. Soil Gas Control (See Note A-9.13.4.)

### 9.13.4.1. Application and Scope

(1) This Subsection applies to

- (a) wall, roof and floor assemblies separating conditioned space from the ground, and
- (b) the rough-in to allow the future protection of conditioned space that is separated from the ground by a wall, roof or floor assembly.

(2) This Subsection addresses the leakage of soil gas from the ground into the building.

(3) In areas of the province where radon gases are known to be a problem, the building shall be designed and constructed to meet the radon limitations in Article 9.1.1.7.



#### **9.13.4.2. Protection from Soil Gas Ingress**

(1) Except as provided in Sentence (2), all wall, roof and floor assemblies in contact with the ground shall be constructed to resist the leakage of soil gas from the ground into the building in accordance with Subsection 9.25.3. or MMAH Supplementary Standard SB-9, "Requirements for Soil Gas Control."

(1.1) Construction to resist leakage of soil gas into the building is not required for garages and unenclosed portions of buildings.

(1.2) Where polyethylene is used to provide a barrier to soil gas ingress through floors-on-ground, it shall conform to CAN/CGSB-51.34-M, "Vapour Barrier, Polyethylene Sheet, for Use in Building Construction."

(2) Unless the space between the air barrier system and the ground is designed to be accessible for the future installation of a subfloor depressurization system, dwelling units and buildings containing residential occupancies shall be provided with the rough-in for a radon extraction system conforming to Article 9.13.4.3.

(3) Where buildings are used for occupancies other than those described in Sentence (2), protection from radon ingress and the means to address high radon concentrations in the future shall conform to

(a) Article 9.13.4.3., or

(b) Parts 5 and 6. (See Article 5.4.1.1. and 6.2.1.1.)

(See Note A-9.13.4.2.(3))

#### **9.13.4.3. Providing for the Rough-in for a Subfloor Depressurization System (See Note A-9.13.4.3.)**

(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 (See Note A-9.13.4.3.(2)(b) and (3)(b)(i))
- (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 in 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, (See Note A-9.13.4.3.(2)(b) and (3)(b)(i))
  - (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.



### Objectives:

This Subsection has been amended to harmonize with 2020 NBC requirements. The new provisions expand and provide clarity on the requirements for soil gas control.

Radon gas is a naturally occurring radioactive gas that comes from the breakdown of uranium in the ground. While radon is found in every building in Canada, exposure to higher concentrations has significant health effects. The Government of Canada radon guideline is set at 200 Bq/m<sup>3</sup>. Remedial measures should be undertaken whenever the average annual radon concentration exceeds the Canadian guideline in normally occupied areas of buildings. For further information please see this link - <https://www.canada.ca/en/health-canada/services/health-risks-safety/radiation/radon/action-guides/provinces-territories.html>

**Example of a gas-permeable layer – Sentence 9.13.4.3.(2)** – Photo from Buildings Brach August 2024 Presentation – Introducing Key Changes for Part 9, Housing and Small Buildings



**Acceptable Configurations (Article 9.13.4.3.)** – Diagram from Buildings Branch August 2024 Presentation – Introducing Key Changes for Part 9, Housing and Small Buildings

