City of Parksville

Radon Control Installation Guidelines

As of March 8, 2024, the new BC Building Code requires that all new buildings designed under Part 9 of the Code that contain conditioned space, must have a roughed-in radon mitigation system installed. The following information will provide clarification for typical installations to ensure minimum building code standards are met.

What is Radon?

Radon is a colourless, odourless, radioactive gas that occurs naturally as a result of the decay of radium. It is found to varying degrees as a component of soil gas in all regions of Canada and is known to enter dwelling units by infiltration into basements and crawl spaces. The presence of radon in sufficient quantity can lead to an increased risk of lung cancer. The potential for high levels of radon infiltration is very difficult to evaluate prior to construction and thus a radon problem may only become apparent once the building is completed and occupied. Installation of a system to remove or reduce radon ingress would be difficult and costly after a building is finished; therefore, various sections of Part 9 of the BC Building Code require the application of radon exclusion measures.

What do I have to do?

The current code requirement is for a passive rough-in to accommodate the future installation of a subfloor depressurization system. A rough-in consists of a gas-permeable layer, separated from the conditioned space, connected to a pipe that is ready for the installation of a fan. The pipe must extend up and terminate outside the building.

What is a passive system? (excerpt from CAN/CGSB-149.11)

Level 2 full passive vertical radon stack provides moderate protection and includes all provisions of Level 1, with the addition of extending the pipe stub to create a full, vertical passive (without a fan) radon stack system that runs upwards through the inside of the building envelope and vents above the roof. Level 2 is a complete passive soil depressurization radon reduction system.

Does it need to be inspected?

Inspection of the system will consist of two parts: the first will be to view the subfloor pipe installation at the perimeter drain/rain water leader inspection, and further at the underslab poly inspection to ensure all penetrations are sealed. Second, the remainder of the above ground system will be viewed at the plumbing rough in inspection to ensure compliance will all building code provisions.

What you'll find on the following pages are an excerpt from the 2024 BC Building Code and some diagrams of common installation requirements.

City of Parksville

Rough-in for a Subfloor Depressurization System

(See Note A-9.13.4.3.)

1) Floors-on-ground shall accommodate the future installation of a subfloor depressurization system by installing a radon vent pipe, and a contiguous gas-permeable layer between the *air barrier system* and the ground consisting of

a) a material or materials that allow effective depressurization of that space (see Sentence 9.16.2.1.(1)), or

10% of material that would pass a 4 mm sieve.

2) The radon vent pipe required by Sentence (1) shall

a) be sealed to maintain the integrity of the *air barrier system*, with no perforations along the pipe above the *air barrier system*,

b) have one or more inlets that allows for the effective depressurization of the gas-permeable layer (see Note A-9.13.4.3.(2)(b) and (3)(b)), and

c) permit connection to depressurization equipment,

d) where it passes through *conditioned space*, be completely surrounded by *conditioned space*,

e) consist of pipe and fittings in accordance with 7.1.3 of CAN/CGSB-149.11, "Radon control options for new construction in low-rise residential buildings ,"

f) terminate outside the *building* in a manner that does not constitute a hazard,

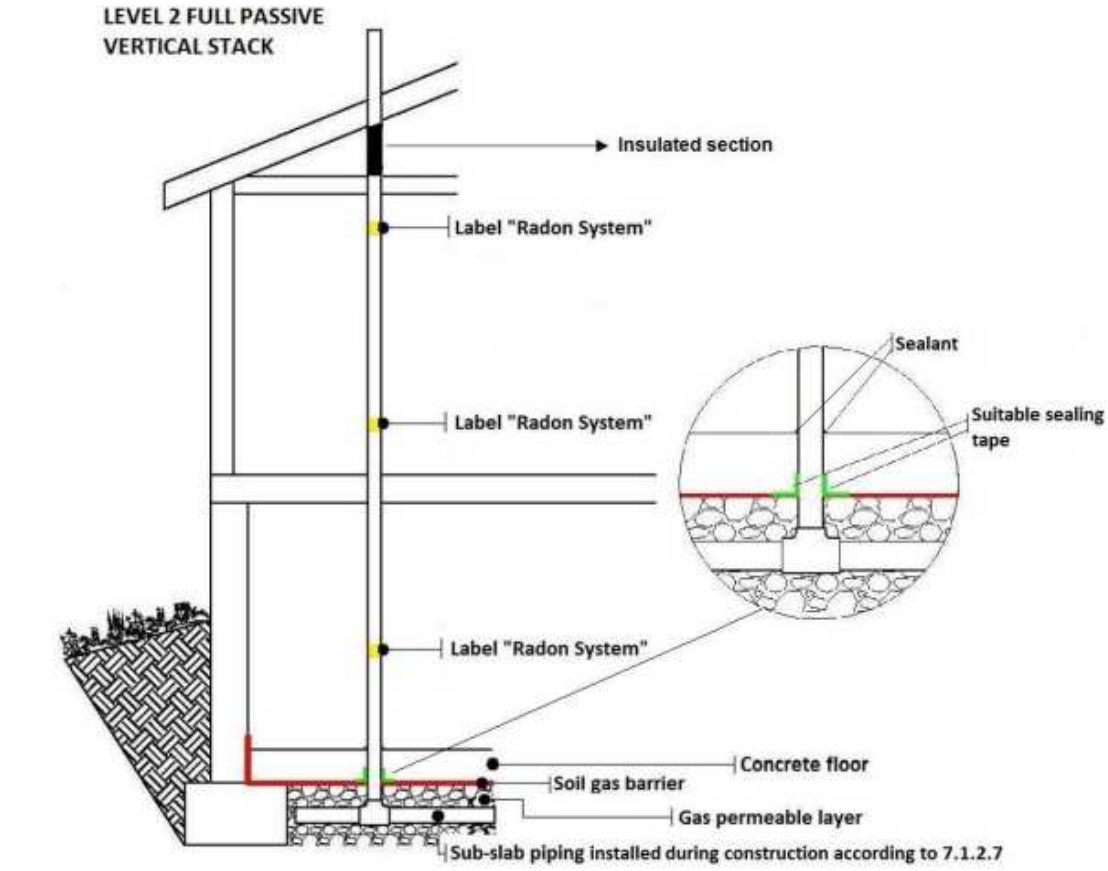
g) be installed to prevent the accumulation of moisture and away from locations where snow and ice accumulate, and

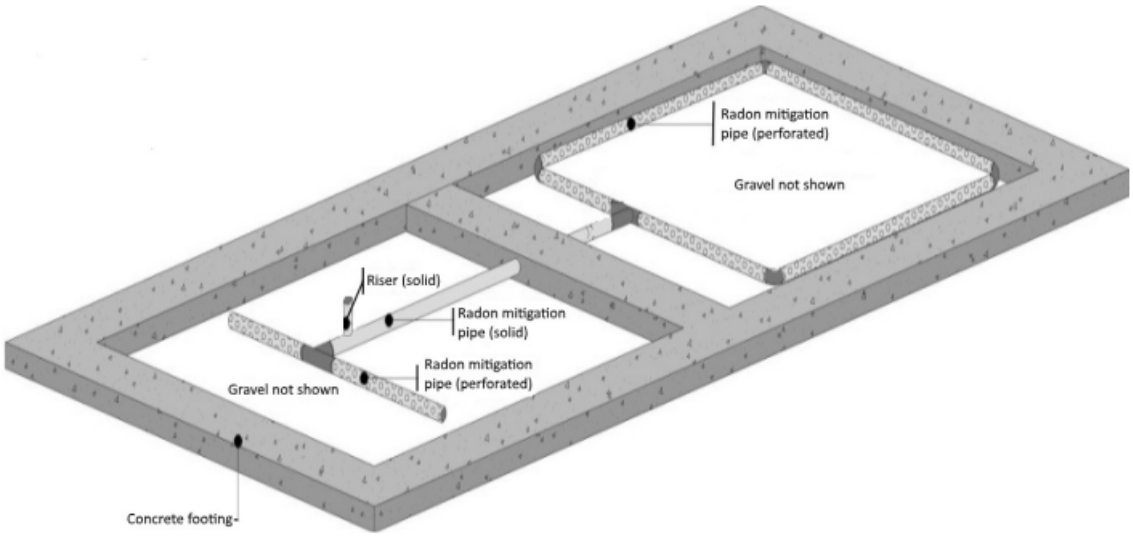
h) be clearly labeled every 1.8 m and at every change in direction to indicate that it is intended only for the future removal of radon from below the floor-on-ground.

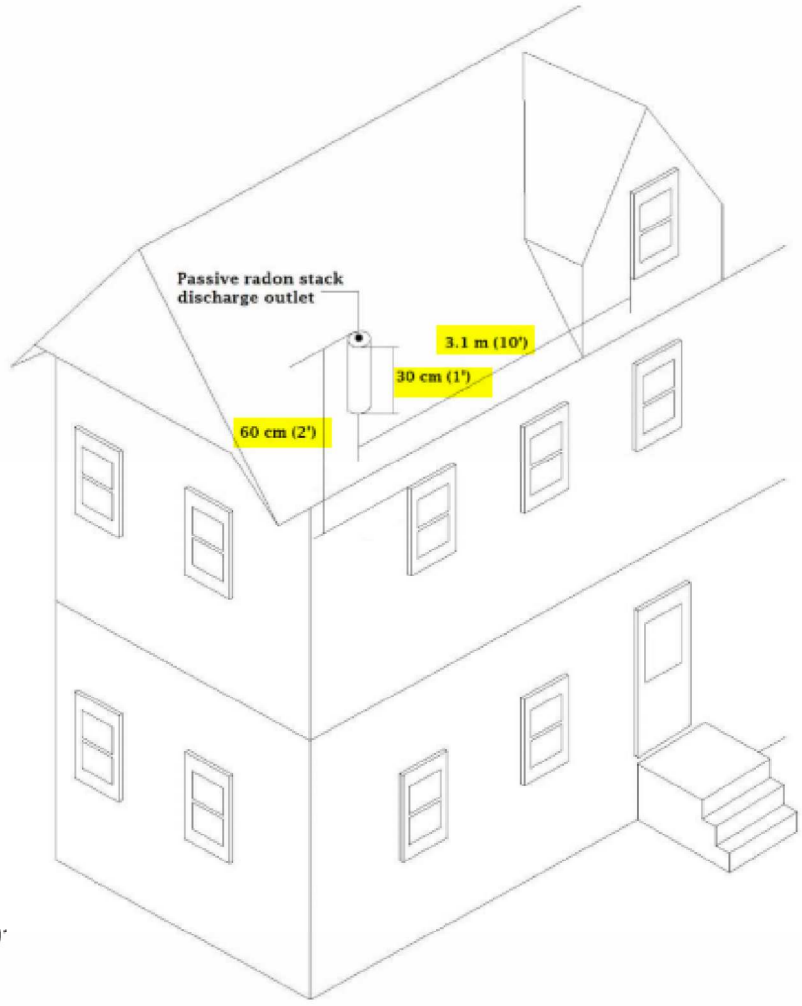
3) A radon vent pipe shall be deemed to comply with

a) Clause (2)(b) where its inlet or inlets below the *air barrier system* are located at or near the centre of the floor-on-ground with gas-permeable material extending not less than 100 mm beyond any inlet, and, and

b) Clause (2)(f) where it terminates outside the *building*, not less than 1.8 m from a property line, and located in accordance with either 7.2.4.6 or 7.3.4 of CAN/CGSB-149.11, "Radon control options for new construction in low-rise residential buildings ," with the opening of the pipe fitted with a corrosion-resistant screen or grille with a mesh opening size of 10 mm to 12.5 mm or a product of equivalent air flow performance.


LEVEL 2 FULL PASSIVE
VERTICAL STACK
Insulated section
Label "Radon System"
Label "Radon System"
Label "Radon System"
Sealant
Suitable sealing tape
Concrete floor
Soil gas barrier
Gas permeable layer
Sub-slab piping installed during construction according to 7.1.2.7


Radon mitigation pipe (perforated)
Gravel not shown
Riser (solid)
Radon mitigation pipe (solid)
Radon mitigation pipe (perforated)
Gravel not shown
Concrete footing



CAN/CGSB-149.11-20

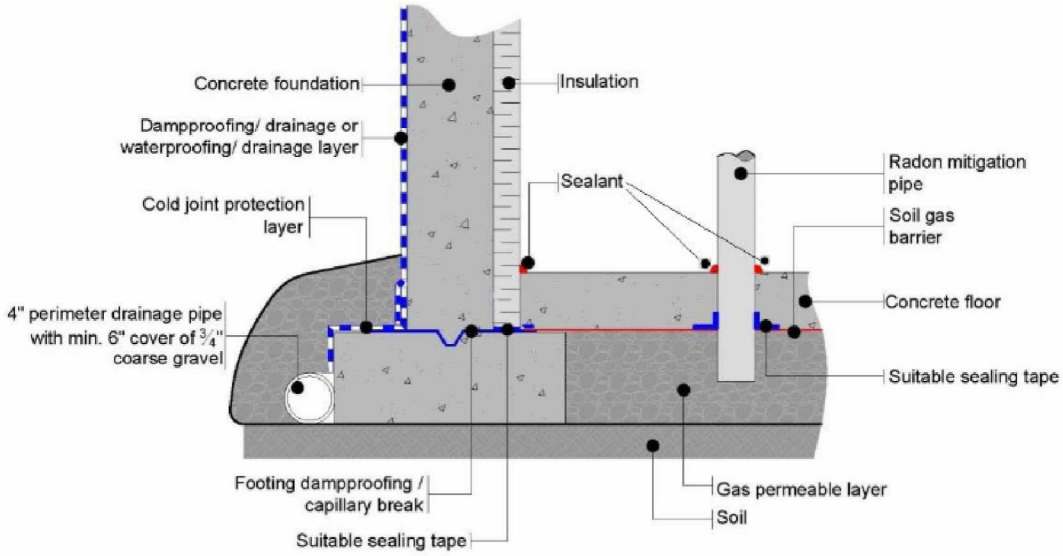


Figure 7.1.4.5.7 — Sealing sub-slab membrane horizontally to concrete footing when insulation is between the foundation wall and floor slab