

## PROPOSED CHANGE

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## MODIFICATION PROPOSÉE

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### Comment

### Commentaires

Document	NBC 2005 CNB	Document
Provision	A-9.13.4.3.-add 2010	Exigence
Committee	ES-HSB Joint Task Group on Protection Against Radon Ingress	Comité
Minutes	1 <sup>st</sup> meeting of JTG, 3 <sup>rd</sup> meeting of JTG Radon, 2005-07 HSB meeting	Procès-verbaux

### EXISTING PROVISION

None

### PROPOSED CHANGE

Add new Appendix Note A-9.13.4.3. as follows:

**Other Code Provisions Affected: None**

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

##### **Testing for Radon**

Radon testing should be carried out once construction is complete and in accordance with Health Canada's "Guide for Radon Measurements in Residential Dwellings (Homes)." If applicable, remediation should be carried out according to the CMHC/HC booklet "Radon: A Guide for Canadian Homeowners."

Where a continuous readout monitor is used for testing or monitoring, it should be capable of displaying the results in Bq/m<sup>3</sup> and calculating at least 30-day averages. It should be located as recommended by the manufacturer and installed within the lowest area of the building intended to be occupied for more than 4 hours per day. Also, the monitor should be listed as a certified device by the National Environmental Health Association - National Radon Proficiency Program (NEHA-NRPP) and the National Radon Safety Board (NRSB).

In the "Guide for Radon Measurements in Residential Dwellings (Homes)," Health Canada specifies an annual average radon concentration of 200 Bq/m<sup>3</sup> as a guideline. If the results of testing indicate a concentration exceeding this guideline, remediative action should be taken, such as completing the rest of the sub-slab depressurization system.

The house should be re-tested for radon after completion of the depressurization system.

##### **Completing the Subfloor Depressurization System**

Subfloor depressurization systems have been found to be very effective in controlling the entry of radon into buildings and are recommended by Health Canada. Article 9.13.4.3.-2010 requires that a rough-in be provided for the future installation of a sub-slab depressurization system. The activation of the depressurization system, which may become necessary if testing confirms elevated radon concentrations, will involve extending the vent pipe and installing an exhaust fan.

##### **Extending the Vent Pipe**

The extension of the pipe should be at least 100 mm in diameter and should be insulated to minimize condensation.

If the pipe discharges independently through the roof, it should

- be located no less than 3 m from any other opening, and
- extend no less than 200 mm above the roof's surface.

Alternatively, the pipe can discharge through an attic gable or an exterior wall. In the latter case, because the exhausted air may contain unacceptable concentrations of radon, re-infiltration of exhausted air into occupied space should be avoided by locating the discharge pipe

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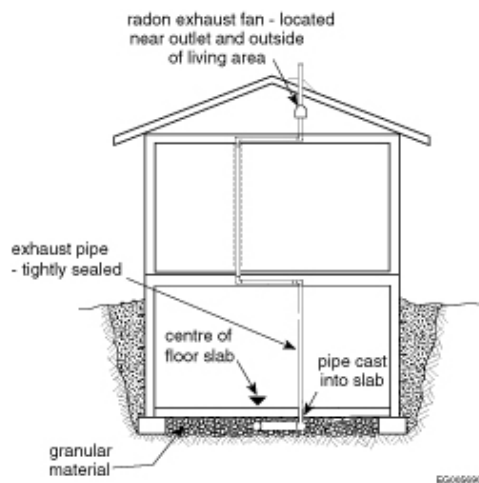
- [no less than 300 mm above grade,](#)
- [no closer than 3 m from any other opening, and](#)
- [no less than 2 m from the property line.](#)

[The exhaust opening should be protected against the entry of animals and the ingress of precipitation by the use of louvres, weather cowls or other suitable means.](#)

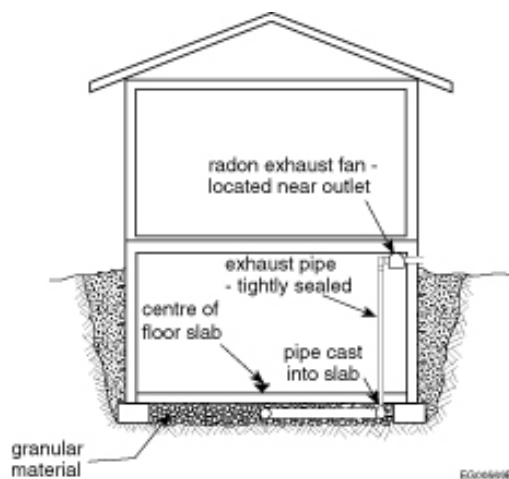
### Installing the Exhaust Fan

[An exhaust fan of a type recommended by the manufacturer as suitable for radon mitigation and as capable of continuous operation should be connected to the radon vent pipe.](#)

[Ideally, the exhaust fan should be located outside living space where the noise it generates will not annoy occupants. It is also best to locate the fan as close as possible to the discharge pipe so that the pressurized portion of the system downstream of the fan is not located in or adjacent to living space. If the pressurized portion of the system were to pass through living space, then a leak in the system could spill high concentrations of radon into the living space. Where the fan is connected to the discharge pipe within conditioned space, the number of joints in the pipe leading from that fan to the exterior should be minimized.](#)



**Figure A-9.13.4.3.-A**  
**Configuration of a depressurization system – venting at roof level**



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### Figure A-9.13.4.3.-B

#### Configuration of a depressurization system – venting through the side wall

#### Other Design Considerations

Where a subfloor depressurization system is being operated at high flow rates, excessive amounts of cold air may be drawn from the outside through the drainage system during the winter months, which may cause the soil beneath the footings to freeze, which could cause damage to the building, or which may cause condensation on the inside of the foundation wall, which could have adverse effects on the health of occupants. Where such conditions are known to exist, measures should be taken to minimize such potential adverse effects.

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### RATIONALE

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#### **Problem**

##### General

See the Summary of Significant Proposed Changes to NBC Parts 5, 6 and 9.

##### Technical

The current requirements for a test according to the EPA test protocol are not enforceable at the time of construction.

The current requirements for measures to ensure that any decrease in the soil temperature caused by a subfloor depressurization system will not adversely affect the foundation cannot be enforced at the time of construction. No performance criteria are provided nor is any further guidance on how to achieve this.

Proposed changes to Article 9.13.4.6. necessitate the updating of portions of Appendix Note A-9.13.4.6.-2005, which are re-used in this proposed appendix note.

#### **Justification – Explanation**

##### General

See the Summary of Significant Proposed Changes to NBC Parts 5, 6 and 9.

##### Technical

The current requirement for measures to ensure that any decrease in the soil temperature caused by a subfloor depressurization system will not adversely affect the foundation has been moved into Appendix Note A-9.13.4.3.-2010 because it can be an important consideration in designs that involve a connection of the subfloor depressurization system to the footing drainage system.

The proposed changes to the appendix note are consistent with the proposed changes to the related Code requirements (see separate proposed change for Article 9.13.4.3.-2010). The information on how to activate and test the subfloor depressurization system has been updated.

References to CMHC and Health Canada documents have been added that offer additional guidance on radon measurement and remediation strategies.

The Task Group determined that the provision of the rough-in should be the responsibility of the builder, and the testing and operation of a subfloor depressurization system should be that of the owner/operator of the building.

#### **Cost implications**

There are no cost implications for appendix notes as the information provided is meant as guidance only.

#### **Enforcement implications**

Appendix notes facilitate enforcement as they provide further information on Code requirements.

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**Who is affected**

Designers, specification writers, and inspectors.

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**OBJECTIVE-BASED ANALYSIS OF NEW OR CHANGED PROVISION**

Provision: A-9.13.4.3.

Analysis: N/A

[Comment](#)

[Commentaires](#)