

PROPOSED CHANGE

MODIFICATION PROPOSÉE

NBC05-DivB-09.13.04.01.-insert-replace-HSB-09_13_04_02_application_SC_ed.doc

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Comment

Commentaires

Document	NBC 2005 CNB	Document
Provision	9.13.4.1.; 9.13.4.2.-insert 2010	Exigence
Committee	ES-HSB Joint Task Group on Protection Against Radon Ingress	Comité
Minutes	2 st TG meeting, 3 rd TG meeting, 4 th Task Group meeting	Procès-verbaux

EXISTING PROVISION

9.13.4. Soil Gas Control

(See Appendix A.)

9.13.4.1. Required Soil Gas Control

- 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*.
- 2) Construction to resist the leakage of *soil* gas into the *building* is not required for
 - a) garages and unenclosed portions of *buildings*, or
 - b) *buildings* constructed in areas where it can be demonstrated that *soil* gas does not constitute a hazard.
- 3) Where *soil* gas control is required, a *soil* gas barrier shall be installed at walls and roofs in contact with the ground, in accordance with Articles 9.13.4.3. and 9.13.4.4.
- 4) Where *soil* gas control is required, it shall consist of one of the following measures at floors in contact with the ground:
 - a) a *soil* gas barrier installed according to Articles 9.13.4.5. and 9.13.4.7., or
 - b) where the *building* contains a single *dwelling unit* only, a subfloor depressurization system installed according to Article 9.13.4.6.

(See Appendix A.)

PROPOSED CHANGE

Replace Article 9.13.4.1. and Insert new Article 9.13.4.2. as follows:

Other Code Provisions Affected: None

9.13.4. Soil Gas Control

(See Appendix A.)

9.13.4.1. Application and Scope

- 1) This Subsection applies to
 - a) wall, roof and floor assemblies ~~in contact with~~ separating conditioned space from the ground, and
 - b) the rough-in to allow the future protection of conditioned space in contact with the ground.
- 2) This Subsection addresses the leakage of *soil* gas from the ground into the *building*.

9.13.4.2. Protection from Soil Gas Ingress

- 1) All wall, roof and floor assemblies in contact with the ground shall be protected by an air barrier system conforming to Subsection 9.25.3.
- 2) 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.-2010.

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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.-2010, or

b) Part 5 and Part 6 (see Articles 5.4.1.1. and 6.2.1.1.).

(See Appendix A.)

RATIONALE

Problem

General

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

Technical

The NBC currently exempts buildings from the radon requirements with the wording “where it can be demonstrated that soil gas does not constitute a hazard.” Such a demonstration would be very onerous, if not impossible, before the construction of a building is complete. The Task Group on Protection Against Radon Ingress was advised by Health Canada that the development of a cross-Canada radon map might take 3 to 5 years. In the absence of quantitative information, it is very difficult to establish the risk of radon ingress.

Justification – Explanation

General

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

Technical

It is difficult to address the risk of radon ingress based on geographic location because of the absence of comprehensive radon data across Canada. It is therefore also problematic to give blanket exemptions from requirements for the protection from radon ingress because the only viable way to determine the radon concentration in a building is to perform a test once the building is complete.

Proposed Article 9.13.4.2. addresses the Health Canada guideline (i.e. “*The construction of new dwellings should employ techniques that will minimize radon entry and will facilitate post-construction radon removal, should this subsequently prove necessary.*”) by:

- providing a link to existing requirements for the continuity of an air barrier system in below-ground assemblies, which have been moved from Articles 9.13.4.2.-9.13.4.5.-2005 and 9.13.4.7.-2005 to Subsection 9.25.3.-2010;
- requiring that all dwelling units be provided with the rough-in for a depressurization system which would facilitate the mitigation of high indoor radon concentrations should this become necessary;
- requiring that buildings other than dwelling units be protected in conformance with Part 5 and Part 6.

Editorial

Proposed Article 9.13.4.1. separates the existing scope and application into two sentences and has a new title.

Cost implications

Requiring the installation of the rough-in (proposed Sentence 9.13.4.2.(2)) would offset the need for the installation and operation of an entire depressurization system in buildings where this is not necessary. The construction of a rough-in for these systems (a pipe stub, labelled and capped) is relatively inexpensive where floor slabs are constructed over coarse gravel. Where the gravel under the slab is not current practice, the cost of these requirements is considerably higher.

The requirements for the continuity of an air barrier system in below-ground assemblies are not new. They have been clarified and have been moved to Subsection 9.25.3., which already contained provisions for (above-ground) assemblies. Where it is not current practice to provide a polyethylene air barrier under the slab, there is an increased construction cost.

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The requirement to design the protection from radon ingress for buildings other than dwelling units is new. The determination of cost is difficult as design possibilities vary and because the provision of the rough-in to facilitate radon mitigation may not be as simple as in houses and dwelling units.

More detailed cost data are provided in related proposed changes:

- NBC05-DivB-09.13.04.-move-HSB-to_09_25_03.doc (providing and installing polyethylene sheet under the slab)
- NBC05-DivB-09.13.04.06.-replace-move-HSB-pipe_stub.doc (the rough-in of a pipe)

Enforcement implications

Facilitates enforcement as the basic requirements (air barriers) and the application have been clarified. The enforcement of these requirements can be achieved within the available enforcement infrastructure.

Who is affected

Designers, specification writers, and inspectors.

OBJECTIVE-BASED ANALYSIS OF NEW OR CHANGED PROVISION

Provision: [9.13.4.1.\(1\)](#)

Analysis: New

Attributions

[N/A](#)

Objective

[N/A](#)

Provision: [9.13.4.1.\(2\)](#)

Analysis: New

Attributions

[N/A](#)

Objective

[N/A](#)

Provision: [9.13.4.2.\(1\)](#)

Analysis: New

Attributions

[N/A](#)

Objective

[N/A](#)

Provision: [9.13.4.2.\(1\)](#)

Analysis: New

Attributions

[\[F40-OH1.1\]](#)

Objective

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[Indoor Conditions](#)

Provision: [9.13.4.2.\(2\)](#)

Analysis: New

Attributions

[\[F40-OH1.1\]](#)

Objective

[Indoor Conditions](#)

Provision: [9.13.4.2.\(3\)](#)

Analysis: New

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[\[F40-OH1.1\]](#)

Objective

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Comment

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