

## PROPOSED CHANGE

## MODIFICATION PROPOSÉE

NBC05-DivB-09.32.03.08.(01)(08)(10)-add-replace-HSB-soil\_gas\_ed.doc

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### Comment

### Commentaires

Document	NBC 2005 CNB	Document
Provision	9.32.3.8.(1) and (8); 9.32.3.8.(10)-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	Procès-verbaux

### EXISTING PROVISION

#### 9.32.3.8. Protection Against Depressurization

(See Appendix A.)

**1)** This Article applies to any *dwelling unit* that

- a) contains a fuel-fired space- or water-heating *appliance* of other than *direct-vented* or *mechanically vented* types, or
- b) is located in an area where *soil gas* is deemed to be a problem and does not incorporate an active *soil gas* mitigation system.

**2)** Except as provided in Sentences (8) and (9), any mechanical air exhausting device, other than the principal ventilation fan operating at a rate not greater than the maximum permitted by Table 9.32.3.3., shall be provided with outdoor makeup air supplied by a fan rated to deliver outdoor air to the *dwelling unit* at a rate

- a) not less than the exhaust capacity of the device, and
- b) not greater than that exhaust capacity plus 10%.

**3)** An outdoor makeup air supply fan required by Sentence (2) shall be wired so that it is activated whenever the device for which it supplies outdoor makeup air is activated.

**4)** The outdoor makeup air required by Sentence (2) shall be

- a) introduced to a normally unoccupied area in the *dwelling unit*, or
- b) tempered to at least 12°C before being introduced to occupied areas or to a *supply duct* system.

**5)** If the outdoor makeup air required by Sentence (2) is not tempered upstream of the supply fan, the supply fan required by Sentence (2) shall be approved by the manufacturer for the handling of untempered outdoor air.

**6)** A carbon monoxide alarm conforming to CAN/CSA-6.19, "Residential Carbon Monoxide Alarming Devices," shall be mechanically fixed on or near the ceiling in each room containing a solid-fuel-burning *appliance*. (See also Article 9.32.3.9.)

**7)** Where a carbon monoxide alarm required by Sentence (6) is powered by the *dwelling unit's* electrical system, there shall be no disconnect switch between the overcurrent device and the carbon monoxide alarm.

**8)** The provision of makeup air as described in Sentence (2) is not required in a *dwelling unit* with solid-fuel-burning *appliances*, where

- a) all other fuel-fired *appliances* are *direct-vented* or *mechanically vented*, and
- b) the *dwelling unit* is located in an area where *soil gas* is deemed not to be a problem or it incorporates an active *soil gas* mitigation system.

**9)** The provision of makeup air as described in Sentence (2) is not required if it can be shown using the test procedures in CAN/CGSB-51.71, "The Spillage Test: Method to Determine the Potential for Pressure-Induced Spillage from Vented, Fuel-Fired, Space Heating Appliances, Water Heaters and Fireplaces," that the maximum depressurization levels to which fuel-fired space- or water-heating *appliances* and their venting systems will be exposed will not exceed the limits set out in CAN/CGSB-51.71 for the categories of fuel-fired *appliances* and venting systems installed in the *dwelling unit*.

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### PROPOSED CHANGE

Replace Sentences 9.32.3.8.(1), (2) and (8) and Add new Sentence 9.32.3.8.(10) as follows:

Other Code Provisions Affected: None

#### 9.32.3.8. Protection Against Depressurization

(See Appendix A.)

**1)** This Article applies to any *dwelling unit* that

~~a) contains a fuel-fired space- or water-heating *appliance* of other than *direct-vented* or *mechanically vented* types.~~

~~b) is located in an area where soil gas is deemed to be a problem and does not incorporate an active soil gas mitigation system.~~

**2)** Except as provided in Sentences (8) ~~to (10) and (9)~~, any mechanical air exhausting device, other than the principal ventilation fan operating at a rate not greater than the maximum permitted by Table 9.32.3.3., shall be provided with outdoor makeup air supplied by a fan rated to deliver outdoor air to the *dwelling unit* at a rate

a) not less than the exhaust capacity of the device, and

b) not greater than that exhaust capacity plus 10%.

**8)** The provision of makeup air as described in Sentence (2) is not required in a *dwelling unit* with solid-fuel-burning *appliances*, where

~~a) all other fuel-fired *appliances* are *direct-vented* or *mechanically vented*.~~

~~b) the *dwelling unit* is located in an area where soil gas is deemed not to be a problem or it incorporates an active soil gas mitigation system.~~

**10)** The provision of makeup air as described in Sentence (2) is not required for mechanical exhausting devices operating a subfloor depressurization system installed for the purpose of reducing the risk of radon ingress.

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### RATIONALE

#### Problem

##### General

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

##### Technical

Deleting Clauses (1)(b) and (8)(b):

Currently, makeup air has to be provided for every mechanical exhausting device (including subfloor depressurization equipment) in areas where radon is known to be a problem. The burden of proof (“where radon is deemed to be a problem”) is problematic because no data are available for a geographic risk assessment and testing a building for radon before an occupancy permit can be given is highly impractical.

The exception for subfloor depressurization systems in Sentence (8) only applies to dwelling units incorporating solid-fuel-burning appliances.

##### Adding Sentence (10)

Fans in active soil gas depressurization systems often operate in the range of 70-165 L/s (150-350 cfm), which might not be strong enough to depressurize a building considering that the displaced air has to travel through the cracks in the slab and the gravel under the slab and sometimes through a plastic sheet. In addition, these fans are installed to mitigate the risk of radon ingress into the building.

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### Justification – Explanation

#### General

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

#### Technical

##### Deleting Clauses (1)(b) and (8)(b):

The proposed approach for protection against radon ingress (see separate proposed change for Subsection 9.13.4.) will address the risk of radon ingress from the soil.

The risk of depressurizing a house by running a subfloor depressurization system is considerably small, especially considering that this system is used to mitigate another risk.

##### Adding Sentence (10)

The proposed exemption for fans operating subfloor depressurization systems from being categorized as exhausting appliances according to Table 9.32.3.3. would be generally applicable to all instances where makeup air is required and would eliminate the costly addition of makeup air equipment over and above the cost of installing, activating and operating a subfloor depressurization system.

#### Editorial

Adding Sentence (10) has made editorial revisions necessary in Sentence (2).

### Cost implications

Reduction – This proposed change will eliminate the cost of installing and operating makeup air supply fans and will avoid the cost of a radon test and the delay of finalizing sales due to the lengthy period for such a test (1 to 3 months in the heating period) in which a house can not be passed on to the owner.

### Enforcement implications

These proposed changes will reduce the burden on the enforcement community to assess the risk for radon in their respective jurisdictions.

### Who is affected

Builders, HVAC installers, building inspectors, designers, specification writers.

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

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**Provision:** 9.32.3.8.(1)

**Analysis:**

**Attributions**

N/A

**Objective**

N/A

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

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**Provision:** 9.32.3.8.(2)

**Analysis:**

**Attributions**

[F53-OH1.1]

**Objective**

OH1 Indoor Conditions

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

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**Provision:** 9.32.3.8.(2)

**Analysis:**

**Attributions**

(b) [F53,F63-OS2.3]

**Objective**

OS2 Structural Safety

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

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**Provision:** 9.32.3.8.(2)

**Analysis:**

**Attributions**

(a) [F43,F50,F53-OS3.4]

**Objective**

OS3 Safety in Use

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

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**Provision:** 9.32.3.8.(8)

**Analysis:**

**Attributions**

N/A

**Objective**

N/A

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

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**Provision:** [9.32.3.8.\(10\)](#)

**Analysis:** New

**Attributions**

[N/A](#)

**Objective**

[N/A](#)

[Comment](#)

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