

# ICC 700-2020 National Green Building Standard®



INTERNATIONAL  
CODE  
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## Radon language from 2020 National Green Building Standard

[Notes<sup>1</sup>:

- Radon system is required for Radon Zone 1. Radon system is optional for Radon Zones 2 and 3.
- The AHJ (authority having jurisdiction) can choose to set their radon zone.
- Radon system is either IRC Appendix F or section 902.3.1 below.
- Radon system is required for single and multifamily.
- Testing is required in Radon Zone 1.
- Figure 9(1) named below is the same map and counties by radon zone as in the IRC Appendix F.
- References to sections of the IRC (International Residential Code) are using sections from 2018 IRC.]

**902.3 Radon reduction measures.** Radon reduction measures are in accordance with IRC Appendix F or § 902.3.1. Radon Zones as identified by the AHJ or, if the zone is not identified by the AHJ, as defined in Figure 9(1).

**902.3.1 Radon reduction option.** This option requires § 902.3.1.1 through § 902.3.1.7.

**902.3.1.1 Soil-gas barriers and base course.** A base course in accordance with IRC Section 506.2.2 shall be installed below slabs and foundations. There shall be a continuous gas-permeable base course under each soil-gas retarder that is separated by foundation walls or footings. Between slabs and the base course, damp proofing or water proofing shall be installed in accordance with IRC Section 406. Punctures, tears and gaps around penetrations of the soil-gas retarder shall be repaired or covered with an additional soil-gas retarder. The soil-gas retarder shall be a continuous 6-mil (0.15 mm) polyethylene or an approved equivalent.

**902.3.1.2 Soil gas collection.** There shall be an unobstructed path for soil gas flow between the void space installed in the base course and the vent through the roof. Soil gases below the foundation shall be collected by a perforated pipe with a diameter of not less than 4 in. (10 cm) and not less than 5 ft. (1.5 m) in total length. A tee fitting or equivalent method shall provide two horizontal openings to the radon collection. The tee fitting shall be designed to prevent clogging of the radon collection path. Alternately the soil gas collection shall be by approved radon collection mats or an equivalent approved method.

**902.3.1.3 Soil gas entry routes.** Openings in slabs, soil-gas retarders, and joints such as, but not limited to, plumbing, ground water control systems, soil-gas vent pipes, piping and structural supports, shall be sealed against air leakage at the penetrations. The sealant shall be a polyurethane caulk, expanding foam or other approved method. Foundation walls shall comply with IRC Section 103.2.3. Sumps shall be sealed in accordance with IRC Section 103.2.2. Sump pits and sump lids intended for ground water control shall not be connected to the sub-slab soil-gas exhaust system.

**902.3.1.4 Soil gas vent.** A gas-tight pipe vent shall extend from the soil gas permeable layer through the roof. The vent pipe size shall not be reduced at any location as it goes from gas collection to the roof. The vent pipe size shall not be reduced at any location as it goes from gas collection to the roof. Exposed and visible interior vent pipes shall be identified with not less than one label reading “Radon Reduction System” on each floor and in habitable attics.

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<sup>1</sup> Craig Conner from 2020 National Green Building Standard.

**902.3.1.5 Vent pipe diameter.** The minimum vent pipe diameter shall be as specified in Table 902.3.1.5.

**Table 902.3.1.5  
Maximum Vented Foundation Area**

<b>Maximum area vented</b>	<b>Nominal pipe diameter</b>
2,500 ft <sup>2</sup> (232 m <sup>2</sup> )	3 in. (7.6 cm)
4,000 ft <sup>2</sup> (372 m <sup>2</sup> )	4 in. (10 cm)
Unlimited	6 in. (15.2 cm)

**902.3.1.6 Multiple vented areas.** In dwellings where interior footings or other barriers separate the soil-gas permeable layer, each area shall be fitted with an individual vent pipe. Vent pipes shall connect to a single vent that terminates above the roof or each individual vent pipe shall terminate separately above the roof.

**902.3.1.7 Fan.** Each sub-slab soil-gas exhaust system shall include a fan, or dedicated space for the post-construction installation of a fan. The electrical supply for the fan shall be located within 6 ft. (1.8 m) of the fan. Fan is not required to be on a dedicated circuit.

**902.3.2 Radon testing.** Radon testing is mandatory for Zone 1.

**Exceptions:** 1) Testing is not mandatory where the authority having jurisdiction has defined the radon zone as Zone 2 or 3; and 2) testing is not mandatory where the occupied space is located above an unenclosed open space.

(1) Testing specifications. Testing is performed as specified in (a) through (j). Testing of a representative sample shall be permitted for multifamily buildings only.

- (a) Testing is performed after the residence passes its airtightness test.
- (b) Testing is performed after the radon control system installation is complete. If the system has an active fan, the residence shall be tested with the fan operating.
- (c) Testing is performed at the lowest level within a dwelling unit which will be occupied, even if the space is not finished.
- (d) Testing is not performed in a closet, hallway, stairway, laundry room, furnace room, kitchen or bathroom.
- (e) Testing is performed with a commercially available test kit or with a continuous radon monitor that can be calibrated. Testing shall be in accordance with the testing device manufacturer's instructions.
- (f) Testing shall be performed by the builder, a registered design professional, or an approved third party.
- (g) Testing shall extend at least 48 hours or to the minimum specified by the manufacturer, whichever is longer.
- (h) Written radon test results shall be provided by the test lab or testing party. Written test results shall be included with construction documents.
- (i) An additional pre-paid test kit shall be provided for the homeowner to use when they choose. The test kit shall include mailing or emailing the results from the testing lab to the homeowner.
- (j) Where the radon test result is 4 pCi/L or greater, the fan for the radon vent pipe shall be installed.

**13.107.9 Radon system.** Commercial spaces in building located in Zone 1 shall comply with § 902.3.