

WA and International Residential Codes including radon gas control

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Hi [REDACTED] - the development must conform to WA and International Residential Code regulations ...

WASHINGTON STATE BUILDING CODE CHAPTER 51-51 WAC
2021 INTERNATIONAL RESIDENTIAL CODE First Edition
Washington State Building Code Council First Edition Effective July 1, 2023

https://www.sbcc.wa.gov/sites/default/files/2023-05/2021%20IRC%20Insert%20Pages%201st%20Printing_0.pdf

Authority: **The International Residential Code** (Chapter 51-51 WAC) is adopted by the Washington State Building Code Council pursuant to Chapters 19.27 and 70.92 RCW. The Washington State Building Code was first adopted by reference by the Washington State Legislature in 1974. In 1985, the Legislature delegated the responsibility of adoption and amendment of these codes to the State Building Code Council. The first adoption of the International Residential Code was in 2004.

B. Local Amendments: Any jurisdiction may amend the State Building Code provided the amendments do not reduce the minimum performance standards of the codes. There are two areas where local amendments are limited or prohibited:

Prohibited Amendments: Residential provisions of the State Energy Code (WAC 51-11R and WAC 51-11C); any provision of the International Building Code or International Residential Code affecting accessibility; and standards specifically adopted in Chapters 19.27 and 19.27A WAC cannot be amended by any local jurisdiction.

Residential Amendments: Amendments by local jurisdictions which affect the construction of single family and multi-family residential buildings must be reviewed and approved by the State Building Code Council before such amendments can be enforced. The State Building Code Act provides the following definition:

Multi-family residential building: means common wall residential buildings that consist of four or fewer units, that do not exceed two stories in height, that are less than 5,000 square feet in area, and that have a one-hour fire-resistive occupancy separation between units.

R101.2 Scope. The provisions of the International Residential Code for One- and Two-Family Dwellings shall apply to the construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, removal and demolition of detached one- and two-family dwellings, adult family homes, and townhouses not more than three stories above grade plane in height with a separate means of egress and their accessory structures not more than three stories above grade plane in height.

Confirming that the Townhouses are allowed by these standards...

TOWNHOUSE UNIT. A single-family dwelling unit in a townhouse that extends from foundation to roof and that has a yard or public way on not less than two sides that extends at least 50 percent of the length of each of these two sides.

R313.1 Townhouse automatic fire sprinkler systems. An automatic residential fire sprinkler system shall be installed in a townhouse unit. EXCEPTIONS: Townhouse buildings containing no more than four townhouse units.

Garage heat detectors are required.

R314.2.3 New attached garages. A heat detector or heat alarm rated for the ambient outdoor temperatures and humidity shall be installed in new garages that are attached to or located under new and existing dwellings. Heat detectors and heat alarms shall be installed in a central location and in accordance with the manufacturer's instructions.

The regulations include Radon control. Spokane is a high radon potential zone. Rock such as granite, **basalt**, obsidian, pumice, gneiss, schist, and limestone are some of the rocks that **release Radon gas during the natural breakdown. Therefore any geographical location that the bedrock is predominately made up of these fore-mentioned rocks are almost guaranteed to have Radon present.**

Radon can move through cracks in rocks and through pore spaces in soils. Because radon is a gas, it has much greater mobility than uranium and radium, which are fixed in the solid matter in rocks and soils. Radon can more easily leave the rocks and soils, by escaping into fractures and openings in rocks and into the pore spaces between grains of soil. Fractures in any soil or rock allow radon to move more quickly. Homes in areas with drier, highly permeable soils and bedrock, such as hill slopes, mouths and bottoms of canyons, coarse glacial deposits, and fractured or cavernous bed-rock, may have high levels of indoor radon. Even if the radon content of the air in the soil or fracture is in the normal range (200-2,000 pCi/L), the permeability of these areas permits radon-bearing air to move greater distances before it decays and thus contributes to high indoor radon. Some radon atoms remain trapped in the soil and decay to form lead; other atoms escape quickly into the air.

According to Ash Place PPLT SEPA Checklist "This project may contain blasting and rock crushing," This could potentially release Radon gas.

<https://pubs.usgs.gov/gip/7000018/report.pdf>

R332.1 Protection against radon. The radon control provisions of Appendix F of this code shall apply to buildings constructed in high radon potential counties (zone 1) designated in Table AF101(1). The radon control provisions of Appendix F of this code shall also apply to all buildings constructed using the provisions of Section R408.3 Unvented crawl space compliance method.

AF101.1 General. This appendix contains requirements for new construction in jurisdictions where radon-resistant construction is required. Inclusion of this appendix by jurisdictions shall be required in high radon potential counties as determined in Figure AF101 and as listed in Table AF101(1). Unvented crawl spaces are not permitted in any high radon potential county. In other areas, requirements of this appendix apply to any structure constructed with unvented crawl spaces as specified in R408.3.

TABLE AF101(1) HIGH RADON POTENTIAL (ZONE 1) COUNTIES a WASHINGTON: Clark, Ferry, Okanogan, Pend Oreille, Skamania, Spokane, Stevens.

a. EPA recommends that this county listing be supplemented with other available state and local data to further understand the radon potential of Zone 1 areas.

AF103.1 General. The following construction techniques are intended to resist radon entry and prepare the building for post-construction radon mitigation, if necessary (see Figure AF103). These techniques are required in high radon potential counties designated in Table AF101(1).

[FIGURE AF101 EPA MAP OF RADON ZONES LEGEND]



ZONE 1 HIGH POTENTIAL (GREATER THAN 4 pCi/L)^a [Red/Darkest]
 ZONE 2 MODERATE POTENTIAL (FROM 2 TO 4 pCi/L) [Orange/Midrange]
 ZONE 3 LOW POTENTIAL (LESS THAN 2 pCi/L) [Yellow/Lightest]

a. pCi/L standard for picocuries per liter of radon gas. EPA recommends that all homes that measure 4 pCi/L and greater be mitigated.

The United States Environmental Protection Agency and the United States Geological Survey have evaluated the radon potential in the United States and have developed a map of radon zones designed to assist building officials in deciding whether radon-resistant features are applicable in new construction.

The map assigns each of the 3,141 counties in the United States to one of three zones based on radon potential. Each zone designation reflects the average short-term radon measurement that can be expected to be measured in a building without the implementation of radon control methods. The radon zone designation of highest priority is Zone 1. Table 1 of this appendix lists the Zone 1 counties illustrated on the map. More detailed information can be obtained from state-specific booklets (EPA-402-R-93-021 through 070) available through State Radon Offices or from U.S. EPA Regional Offices.

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