



U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

WASHINGTON, DC 20410-7000

OFFICE OF COMMUNITY PLANNING
AND DEVELOPMENT

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Issued:

Expires: This Notice is effective
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SUBJECT: Departmental Policy for Addressing Radon in the Environmental Review Process

I. Purpose

The purpose of this Notice is to clarify that radon must be considered in the contamination analysis for 24 CFR Parts 50 and 58; to provide guidance on recommended best practices for considering radon; and to identify the U.S. Department of Housing and Urban Development (HUD) programs that have established specific radon guidance. This Notice does not impose radon testing requirements; however, it does include guidance on strategies for considering radon in the site contamination analysis. Following this Notice, HUD will undertake rulemaking to establish radon testing and mitigation requirements for HUD-assisted projects.

II. Radon and its health effects

Radon is a radioactive gas that forms when radium and certain other radioactive metals break down in rocks, soil, and water.¹ It is found in nearly all soils and moves through the soil to the air and into structures through cracks and other areas of permeability. Building materials and groundwater may also be a source of indoor radon. Once inside, radon concentrations can build to high levels, regardless of the age, condition, or design of the building.

¹ National Institute of Health, Periodic Table, Element Summary, "Radon" (accessed March 1, 2022), <https://pubchem.ncbi.nlm.nih.gov/element/Radon#section=History>.

The most common pathway for human exposure to radon is inhalation indoors. When inhaled, some radon gas remains trapped in the lungs, and sensitive lung tissue can be exposed to radiation as it decays. Radon is the number one cause of lung cancer in non-smokers and the second leading cause of lung cancer overall.² The risk of adverse health effects from radon in indoor air depends largely on two main variables: the level of radon exposure and the length of time exposed. Many radon-induced lung cancers can be prevented by testing and reducing radon levels in existing buildings and by using radon resistant construction techniques for all new construction.³

The goal for mitigating radon in buildings is to reduce radon concentrations in indoor air as low as reasonably achievable and practicable considering the efficacy of current industry-standard radon reduction systems and environmental conditions (e.g., geology and climate). The most effective strategy to protect the health and safety of occupants is to prevent radon from entering the building by using radon resistant construction techniques; another effective strategy is to reduce the level of radon inside existing buildings by installing and operating a radon reduction system. An effective radon reduction system achieves two main goals: it reduces the concentration of radon gas in the home by venting it safely outside the structure and removes the radon gas from under the foundation before it can come into the home.

III. Considering radon in the environmental review

HUD's environmental regulations at 24 CFR 58.5(i)(2)(i) and (ii)⁴ state that,

[i]t is HUD policy that all properties that are being proposed for use in HUD programs **be free of hazardous materials, contamination, toxic chemicals and gases, and radioactive substances**, where a hazard could affect the health and safety of occupants or conflict with the intended utilization of the property.

The environmental review of multifamily housing . . . , **must include the evaluation of** . . . other evidence of contamination on or near the site, to ensure that occupants of proposed sites are not adversely affected by any of the hazards listed in paragraph (i)(2)(i) of this section.

As radon is a radioactive substance, HUD or the RE must consider it as part of the site contamination analysis for projects that:

- Require an environmental review at the level of *Categorically Excluded Subject to 50.4 or 58.5* ("CEST"), *Environmental Assessment*, or *Environmental Impact Statement*; and
- Involve structures that are occupied or are intended to be occupied at least four (4) hours a day.

² U.S. Environmental Protection Agency, "Health Risk of Radon" (November 29, 2021), <https://www.epa.gov/radon/health-risk-radon>.

³ <https://www.epa.gov/radon/health-risk-radon>.

⁴ HUD's contamination policy at 24 CFR 50.3(i)(1) and (2) implements the same substantive policy with slightly different text, <https://www.ecfr.gov/current/title-24/subtitle-A/part-50/subpart-A/section-50.3>.

- HUD’s contamination policy does not apply to projects that are Categorically Excluded Not Subject to 50.4 or 58.5 (“CENST”)

HUD encourages environmental review preparers to follow U.S. Environmental Protection Agency (EPA) recommendations about assessing and mitigating radon risk. For the purpose of risk comparison the average radon concentration in outdoor air is 0.04 pCi/L and the average radon concentration level in indoor air in buildings in the United States (U.S.) is 1.3 pCi/L.⁵ Because more people are exposed to moderate levels of radon most radon-induced lung cancer results from long-term exposure to low or moderate radon levels in the home.⁶ For this reason the EPA recommends homeowners/property owners considering mitigating indoor radon levels that measure between 2 pCi/L and 4 pCi/L). Indoor air radon levels vary across the U.S. and from parcel to parcel due to differences in geology, climate, seasonal variation, building construction, and other conditions. Additionally, because radon cannot be seen, tasted, or smelled; therefore, the only method for determining the precise radon level in a specific building is to test the indoor air. HUD recommends the following best practices and alternative strategies for determining radon risk.

Exemptions from radon consideration:

- Buildings with no ground contact and open air between the ground and the building.
- Buildings that are not residential and will not be occupied for more than 4 hours per day.
- Properties with existing mitigation systems must be evaluated to ensure that the Operations, Maintenance and Monitoring Plan document the system is functioning properly.
- Buildings tested within 1 year of project approval and the result was below 4 pCi/L.

a. Recommended best practice for considering radon in the established contamination analysis

The current best practice for understanding the radon levels in indoor air is to measure indoor air in existing buildings using the American National Standards Institute/American Association of Radon Scientists and Technologists (ANSI/AARST) radon testing standards for single- and multi- family buildings, schools, and large buildings.⁷ The ANSI/AARST testing standard includes providing a Radon Report to the owner. If test results are at or above 4 pCi/L⁸, cite to the ANSI/AARST mitigation standard for the building type as the mitigation plan in the contamination analysis. The mitigation standard includes providing an Operations, Maintenance, and Monitoring (OM&M) Plan to the owner. Both the Radon Report and the OM&M Plan must comply with the applicable Standard.

Document the consideration: Note the test results in the contamination analysis and include the Radon Report as documentation in the Environmental Review Record (ERR). If

⁵ <https://www.epa.gov/radon/health-risk-radon>.

⁶ World Health Organization, *Handbook on Indoor Radon; A Public Health Perspective* (January 1, 2009). p. x, 2, <https://www.who.int/publications/i/item/9789241547673>.

⁷ ANSI/AARST Standards, (In lieu of developing a federal radon testing standard, the EPA references the ANSI/AARST Standards, accessed March 1, 2022), <https://standards.aarst.org/>.

⁸ <https://www.epa.gov/radon/health-risk-radon>.

mitigation is required, document the post mitigation test results in the contamination analysis and include the OM&M Plan in the ERR.

The ANSI/AARST testing and mitigation standards can be viewed online for free and are intended to be implemented by licensed radon professionals. To find a licensed radon professional in your area contact the State/Tribe's radon program office,⁹ National Radon Proficiency Program (NRPP),¹⁰ or the National Radon Safety Board (NRSB).¹¹

Contact the State/Tribal radon office or health department to ensure the project complies with State/Tribal requirements.¹² Where requirements conflict, follow the requirement most protective of human health.

b. Suggested alternative strategies for considering radon levels at a project site

Although this Notice establishes HUD's Departmental policy that radon must be considered in the site contamination analysis, at this time radon testing is not the only strategy for considering the risk that occupants may be exposed to high radon levels.¹³ HUD will propose radon testing and mitigation requirements in a separate rulemaking action that will include tribal consultation and public notice and comment. In the interim, the following alternative strategies¹⁴ may be used to consider the radon risk at a project site. These strategies are intended for use where testing by a licensed professional is not otherwise required.¹⁵ Review the HUD program office guidance in Section IV to ensure the strategy used to consider radon in the contamination analysis complies with specific program office requirements for the project. Contact the State/Tribal radon program office (or health department), as needed, for assistance with obtaining and interpreting available science-based information about radon levels in the area.

- i. EPA radon map and other available science-based information. Because of the characteristics of radon gas (See Section II above), the following strategies do not determine the radon level in a specific building. However, using the EPA developed state radon zone map¹⁶ in combination with other available science-based information may provide enough information to determine whether the project site is located in an area identified as having a high potential for elevated radon levels. Science-based information includes, but is not limited to:
 1. State/Tribe-generated radon information, such as surveys of radon levels from collecting radon measurement data or geological studies that identify high risk areas.

⁹ The National Radon Services Program, "State Radon Programs Information" (accessed March 1, 2022), <https://sosradon.org/state%20program%20contacts>.

¹⁰ NRPP (accessed March 1, 2022), <https://nrpp.info/>.

¹¹ NRSB (accessed March 1, 2022), <https://www.nrsb.org/>.

¹² <https://sosradon.org/state%20program%20contacts>.

¹³ High levels of radon are those that are at or above 4 pCi/L.

¹⁴ Alternative to measuring radon levels in indoor air using the ANSI/AARST standards.

¹⁵ For example, the project may be subject to state/tribe radon requirements as well.

¹⁶ *Information about EPA Map of Radon Zones*, <https://www.epa.gov/radon/epa-map-radon-zones-and-supplemental-information>

2. Department of Health and Human Services, Centers for Disease Control and Prevention (CDC), “National Environmental Public Health Tracking, Radon Testing” map.¹⁷ The CDC’s, “Radon Testing Map” provides radon testing data from national radon testing laboratories that can be viewed by state or county. Radon test data ranges from 1988 to the present.
3. EPA’s radon map and state specific geologic studies undertaken for the purposes of developing the radon map. The studies may provide more detailed information about specific areas of the state. The EPA map was developed in 1993 using geology, aerial radioactivity, and soil parameters.

The goal of using the EPA radon map and other available information is to develop an informed decision on whether the project site is located in area that may be impacted by high radon levels (4 pCi/L or higher).¹⁸

- ii. Do-it-yourself (DIY) radon test kits may be used to measure radon levels in single-family dwellings or by tenants to test individual units in buildings with five or more units. For example, a DIY test kit may be used to test individual units in a four-plex residential building. DIY radon test kits may be available for low or no cost through State/Tribal radon program offices and are available to purchase through the National Radon Program Services website (low cost).¹⁹ Use a test device that is recommended by the National Radon Services Program, the EPA²⁰ or your State/Tribe radon program office. Before conducting the DIY test, review the entire test kit instructions and read the EPA’s, *Citizen Guide to Radon*.²¹ Contact the National Radon Services Program helpline, the State/Tribal radon program office or the local health department or contact for assistance.²²
- iii. In remote areas where timeframes for shipping radon tests to labs may cause invalid results or there are no trained radon professionals, the local government may decide to purchase radon monitoring equipment and train staff to use it.
- iv. Other strategies: Cite to the sources used for the evaluation, state the radon level determination, and include the supporting documents in the ERR.

¹⁷ CDC, “National Environmental Public Health Tracking, Radon Testing” (October 21, 2020), <https://www.cdc.gov/nceh/tracking/topics/RadonTesting.htm>.

¹⁸ For example, the EPA radon map was developed is intended to help governments and other organizations target risk reduction activities and resources. <https://www.epa.gov/radon/epa-maps-radon-zones-and-supporting-documents-state>.

¹⁹ National Radon Program Services (accessed March 1, 2022), <https://sosradon.org/purchase-kits>.

²⁰ EPA, <https://www.epa.gov/radon/find-radon-test-kit-or-measurement-and-mitigation-professional>.

²¹ EPA, “A Citizen’s Guide to Radon: The Guide to Protecting Yourself and Your Family from Radon” (EPA 402/K-12/002, December 2016), <https://www.epa.gov/radon/publications-about-radon>.

²² The National Radon Program Services which has phone, email, and mail connections, is operated by Kansas State University for the US EPA (accessed March 1, 2022), <https://sosradon.org/Contact>. (The phone numbers may also be reached by persons with hearing or speech difficulties by dialing 711 via teletype (TTY) or telecommunications device for the deaf (TDD)).

c. Documenting the environmental review record

HUD or RE must document the radon evaluation in the Environmental Review Record (ERR). A radon evaluation includes stating the radon levels (specific level if a test device was utilized or the area wide level for other strategies this could be a range and/or the EPA's radon zone designation), a description of the strategy used, and supporting documentation. If the HUD Environmental Review Online System (HEROS) was used to document the ERR, note the radon level information and description of strategy used in the Contamination and Toxic Substances factor Compliance Determination screen and upload supporting documentation. Office of Housing projects use the Housing Requirements screen for Housing programs). Examples of radon evaluation documentation: include:

- ANSI/AARST standard: If the ANSI/AARST standard was followed, a copy of the test report/mitigation plan as described in the standard in the ERR. For Office of Housing programs, follow program guidance requirements on timing and documentation.
- Strategies ##ii - iv: Describe the strategy used to determine the radon risk at the project site and include supporting documentation (EPA radon map, State/Tribe test data). Where radon levels are 4 pCi/L or higher, contact the state/tribe radon program office, the National Radon Program Services (<https://sosradon.org/main>), or refer to the EPA's Radon website, (<https://www.epa.gov/radon>) for assistance with developing a mitigation plan.

A mitigation plan²³ should consider the risk to occupants; establish a reasonable timeframe for implementing the plan (i.e., align radon testing activities with the annual plan or 5-year plan that is already completed for HUD funded activities); and, where feasible, require testing by a licensed radon professional. In an area where there are no licensed radon professionals, there may be other personnel, such as trained staff, other professionals (i.e., engineers, geologist, scientists, public health staff) who have experience conducting radon testing or have the relevant skills and knowledge to follow the device instructions, ANSI/AARST test protocols and mitigation standards, if applicable.

ERR Examples describing how radon was considered:

- The project is located in EPA Zone 1, state test results data for properties located in the neighborhood show radon levels ranging from 5 - 10 pCi/L, and 75% of the tests are above 5 pCi/L. The City has targeted this neighborhood for homeowner rehabilitation assistance and will incorporate radon testing into project activities. The mitigation plan will be site by site depending on test results.
- The Tribe is located in Oklahoma, Zone 3 that is identified on the EPA state map as having a low potential for elevated radon risk. There is no other available evidence of radon levels in the area. The Tribal government is in the process of developing a radon testing plan for the housing within its jurisdiction. A copy of the radon test plan is attached.

²³ Example of an areawide radon testing plan: Home Forward, Multnomah County, Oregon at: <http://homeforward.org/content/radon-information>.

IV. HUD program office documents addressing radon

Current HUD program office guidance regarding radon testing and mitigation is listed below. Each HUD program office is responsible for issuing program-specific radon guidance. Program guidance may be updated as Departmental policies develop; be sure to use the most current guidance. For questions concerning program office guidance, contact your program office representative.

- Office of Housing, Multifamily Housing, Multifamily Accelerated Processing Guide (4430.G), Section 9.6.3, https://www.hud.gov/program_offices/administration/hudclips/guidebooks/hsg-gb4430
- Office of Housing, Office of Residential Care Facilities, Healthcare Mortgage Insurance Program Handbook (4232.1), Section 7.8, Rev-1), or most recent edition, <https://www.hud.gov/sites/documents/42321S2C7HSGH.PDF>
- Office of Housing, Office of Recapitalization, Rental Assistance Demonstration (RAD) Program (Notice H-2019-09 PIH-2019- 23 (HA)), https://www.hud.gov/sites/dfiles/Housing/documents/H-2019-09-PIH-2019-23_RAD_Notice%20Rev4_20190905.pdf. Supplemental guidance may be found at, <https://www.hud.gov/RAD/library/notices>
 - Quick Reference Guide, Environmental Review Requirements for RAD Conversions (2020), <https://www.hudexchange.info/resource/4216/environmental-review-requirements-for-rad-transactions/> check for future guidance at, <https://www.radresource.net/index.cfm>
- Office of Public and Indian Housing (PIH), Radon Information for PIH Programs (Notice 2013-06 (HA)), <https://www.hud.gov/sites/documents/PIH2013-06.PDF>.
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V. Resources

- EPA radon website, <https://www.epa.gov/radon>
 - EPA radon map: <https://www.epa.gov/radon/epa-map-radon-zones-and-supplemental-information#radonmap>
- National Radon Program Services, <https://sosradon.org/>
 - Operate by cooperative agreement with the EPA
 - Provide comprehensive radon information, links to state radon programs and radon testing and mitigation information, and access to radon helplines
- CDC, National Center for Environmental Health, Radon, <https://www.cdc.gov/radon/>
 - NCEH map: <https://www.cdc.gov/nceh/tracking/topics/RadonTesting.htm>
- ANSI/AARST radon testing protocols and mitigation standards, <https://standards.aarst.org/>
- [HUD 3-part radon webinar series sponsored by the Office of Lead Hazard Control and Healthy Homes and Public and Indian Housing, available at https://www.hudexchange.info/programs/radon/.](https://www.hudexchange.info/programs/radon/)
- Office of Lead Hazard Control and Healthy Homes, About Radon, https://www.hud.gov/program_offices/healthy_homes/healthyhomes/radon

- OEE Radon webpage, <https://www.hudexchange.info/programs/environmental-review/site-contamination/radon/>

For questions concerning this Notice, contact the appropriate OEE field environmental office staff, <https://www.hudexchange.info/programs/environmental-review/hud-environmental-staff-contacts/>.

DRAFT

Internal HUD Distribution:						
Email from James.A.Crawford@hud.gov Dep. Sec. wants to review document once program office comments reconciled.						
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