2017 Radon Mitigation Policy
Multifamily Rental Properties

Background

Radon is a colorless, odorless radioactive gas that seeps up from the earth. When inhaled, it gives off radioactive particles that can damage the cells that line the lung.

Long term exposure to radon can lead to lung cancer. In fact, more than 21,000 lung cancer deaths in the US each year are caused by radon, making it a serious health concern for Minnesotans.

In Minnesota, two in five homes have radon levels that pose a significant health risk, and nearly 80% of Minnesota counties are rated high radon zones. Some factors that further contribute to Minnesota's high radon levels include:

Minnesota's geology produces an ongoing supply of radon.
Minnesota's climate affects how our homes are built and operate

Requirements

All multifamily projects receiving funding from Minnesota Housing shall meet the following requirements.

Note: All Radon testing/measurement shall be provided by a person certified by the National Radon Proficiency Program (NRPP) or the National Radon Safety Board (NRSB)

New Construction

All new multifamily type buildings without underground parking shall provide a Passive sub-slab depressurization system. For the purpose of system design, the subfloor preparation, vent pipe, electric outlet and other requirements under the Minnesota State Building Code for Single Family new construction and other applicable residential structures shall apply to new multifamily construction with the following amendments:

Vertical Vent Pipes with electric outlet:

- An electric outlet shall be provided at the top/ attic location of each vertical vent pipe to allow conversion to an Active System.
- Provide at least one 4” diameter (in lieu of 3”) vertical vent pipe per 3,000 square feet of building foot print
- Townhome Buildings
  - At townhome buildings without a continuous gas-permeable material below the concrete slab between dwelling units, at least one 4” diameter vertical vent pipe per dwelling unit shall be provided.
  - If the gas-permeable material below the concrete slab is connected and continuous at townhome buildings, one 4” diameter vertical vent pipe per 3,000 square feet of building footprint shall be provided. Horizontal sleeves (4” in diameter at 10’-0” on center) through foundations and footings are allowed as part of a connected and continuous gas-permeable material and Radon control system.

An exterior Radon mitigation system is not allowed.

All ground-connected dwelling units and at least 10% of randomly selected dwelling units on upper level floors (at least one per each floor) shall be tested when the project is complete (prior to initial occupancy). If testing finds Radon levels to be 4 pC/l or greater, the Passive system shall be converted to an Active system by:
Adding a fan which remains in full operation continuously and is approved by manufacturer for Radon use.
In apartment buildings with common area, the continuously operating fan shall be tied to a common area power source.
In rental townhome (without common space) buildings, the continuously operating fan(s) shall be tied to a common power source (meter) or tied to a unit meter with a sub-meter to allow power cost to be prorated among all units with the building.
Testing protocols shall be as per the American National Standards Institute – American Association of Radon Scientist and Technologist (ANSI-AARST) Standard: "Protocol for Conducting Radon and Radon Decay Product Measurements in Multifamily Buildings" (ANSI/AARST MAMF 2012).

- Where to Test. In summary, ANSI/AARST MAMF 2012 requires:
  - "…a measurement in each ground contact apartment, dwelling and those rooms that are used as office space"
  - "On upper floors, conduct a measurement in at least one apartment on each floor, include measurements in at least 10% of the dwellings on each of the higher floors."

Substantial Rehab

All multifamily Substantial Rehab projects shall provide, at a minimum, a Passive sub-slab depressurization system which meets the requirements defined under the Minnesota State Building Code for Single Family new construction and other applicable residential structures with the following amendments:

Vertical Pipe installation shall be provided per the following Prescriptive or Performance approaches.

- A Prescriptive approach shall include:
  - At least one 4" diameter (in lieu of 3") vertical vent pipe per 3,000 square feet of building foot print; or,
  - At least one 4" diameter vertical vent pipe per dwelling unit (at townhomes).
  - At each vertical pipe location, the pipe shall extend 1" below the concrete slab into a suction pit (void area), that is a minimum 3' in diameter and 1' deep.

Or, a Performance approach which involves a custom analysis and design by a Radon Contractor/ Mitigation Service Provider.
Testing protocols shall be as per the ANSI-AARST "Protocols for Radon Measurement in Homes Standard" MAH (current version).
All ground-connected dwelling units and at least 10% of randomly selected dwelling units on upper level floors (at least one per each floor) shall be tested when the project is complete (prior to initial occupancy). If testing finds radon levels to be 4 pC/l or greater, the Passive system shall be converted to an Active system by:
Adding a fan which remains in full operation continuously and is approved by manufacturer for Radon use.
In apartment buildings with common area, the continuously operating fan shall be tied to a common area power source.

In rental townhome (without common space) buildings, the continuously operating fan(s) shall be tied to a common power source (meter) or tied to a unit meter with a sub-meter to allow power cost to be prorated among all units with the building.

Moderate Rehab

Radon testing and/or Radon control are not required by Minnesota Housing.
Exceptions:

Radon testing shall be provided if required by a loan insurer or as part of a federally required environmental review or assessment.
Projects receiving HUD Multifamily Accelerated Process (MAP) funding shall provide a Radon Report/ Test per HUD Office of Multifamily Development Radon Policy (Notice H 2013-03).
If voluntary testing is conducted or if testing is required for any other reason, it shall follow the testing protocol and Radon control noted above for Substantial Rehab
If testing finds Radon levels to be 4 pC/l or greater, an Active Radon mitigation system shall be installed with following procedures:

- Consult with a Radon contractor or mitigation service provider to identify and design a Radon control system; and/ or
- Consult with the Minnesota Department of Health, Indoor Environments & Radiation Section, Indoor Air Unit (see Radon Technical Assistance in the "Resources and Links" below).
- Underground Garages Serving Multifamily Projects.
- Radon testing is not required for any buildings (new, substantial rehab, or moderate rehab) with underground garage designed and vented to meet applicable Minnesota codes and regulations. Underground garages vented as such do not require any other source of Radon control.

Exterior Radon Mitigation Systems Regardless of construction type (New, Substantial Rehab, or Moderate Rehab); exterior Radon Mitigation Systems are not allowed.

Resources

Radon in Minnesota Homes

AARST-ANSI Radon Measurement and Mitigation Protocols

For "Protocol for Conducting Radon and Radon Decay Product Measurements in Multifamily Buildings" (ANSI/AARST MAMF 2012) document purchase.

Minnesota Department of Health Radon Mitigation Contractors

Radon Technical Assistance:

Minnesota Department of Health
Indoor Environments & Radiation Section
Phone: 651.201.4601 or 800.798.9050
TTY: 651.201.5797
Email: health.indoorair@state.mn.us