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# Management Plan for Radon



Fairmont Area Schools  
**Management Plan for Radon**

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## 1.0 Introduction

Radon is a colorless, odorless, radioactive gas that occurs naturally in soil, rocks, underground water supplies, and in the ambient air. Many schools and commercial buildings are constructed on concrete slabs that permit radon gas to enter through cracks and expansion joints between the slab and the ground soil. According to the U.S. Environmental Protection Agency (EPA) and other scientific organizations, naturally-occurring radon gas has been associated with an increased risk of developing lung cancer. The chances of developing lung cancer from radon exposure are dependent on several factors, including individual susceptibility and, perhaps more importantly, the dose and duration of exposure. The U.S. Environmental Protection Agency (EPA) and other major national and international scientific organizations have concluded that radon is a human carcinogen and a serious environmental health problem. Radon gas typically moves up through the ground into the air in buildings through sub-surface wall and/or floor cracks, floor drains, and construction joints and pipes. The water supply may also be a source of radon exposure.

The EPA and the Minnesota Department of Health (MDH) advise schools to test for radon after any renovation to the building or HVAC system, or every five years with the goal of reducing levels to below 4 picoCuries per Liter (pCi/L). MDH recommends following guidelines in ANSI AARST MALB 2014 *Protocol for Conducting Measurements of Radon and Radon Decay Products in Schools and Large Buildings*.

## 2.0 Guidelines

While radon testing is not required in Minnesota (MN) schools, school districts using long-term facilities maintenance revenue to conduct radon testing must conduct the testing according to the following per MN Statute 123B.571:

- If short term testing is chosen, conduct testing on school days only (not holidays, vacations or weekends), between November 1 and March 31. If long term testing is chosen, conduct testing in a manner where at least half the test duration includes days between November 1 and March 31.
- Use certified radon testing devices, as listed by either the National Radon Proficiency Program (NRPP) or National Radon Safety Board (NRSB).
- Test all frequently-occupied rooms, including rooms with ground contact and rooms immediately above unoccupied spaces that are in contact with the ground, such as crawl spaces and tunnels.
- Conduct follow-up testing in all frequently-occupied rooms that have radon  $\geq 4$  pCi/L.
- Mitigate or take corrective measures in frequently-occupied rooms that have radon  $\geq 4$  pCi/L following ANSI/AARST 'Radon Mitigation Standards for Schools and Large Buildings' (ANSI/AARST RMS-LB).
- Re-test after corrective measures to show radon reduction.
- Report all radon test results to MDH on the 'School Radon Testing Form' at the conclusion of the testing project (after all follow-up testing and any corrective measures have been shown to reduce radon levels).
- Report radon test results at a school board meeting.

## 3.0 Radon Detection Procedures

Initial measurements should be collected under the following conditions:

- under closed conditions (closed windows/doors except for normal exit/entry)
- with HVAC systems operating in a manner typical for normal occupancy
- NOT during structural changes to a building and/or the renovation or replacement of the HVAC system
- NOT during unusually severe storms or periods of unusually high winds.

MDH recommends all initial radon measurements conducted in schools be made with a short-term radon measurement device. Fairmont Area Schools conducts air sampling for the presence of radon using short term (<90 days) radon open face charcoal canisters on school days only (not holidays, vacations or

weekends), between November 1 and March 31 on a five-year cycle. Any areas with elevated radon results shall be mitigated (see specific radon testing reports for more information).

Certified radon testing devices are used as listed by either The National Radon Proficiency Program (NRPP) or National Radon Safety Board (NRSB).

Sampling for the presence of radon is conducted in accordance with the MDH's *Guidance for Radon Testing in Minnesota Schools* (September 2018). Beginning January 1, 2019, radon measurement professionals will be required to be licensed through the MDH and will be required to follow ANSI/AARST MALB 2014. Should school staff be used to complete the testing, measurement licenses are recommended, but not required. It is recommended that school districts follow ANSI/AARST MALB 2014. Fairmont Area Schools will follow the MDH recommendations to follow ANSI/AARST MALB 2014 for quality assurance measurements by including duplicate detectors and control detectors (blanks). The sampling and analysis methodologies are provided within the reports located in Appendix A.

#### **4.0 Mitigation**

A single test result should not be the basis for determining if action needs to be taken to reduce radon levels. If the initial testing results indicate the radon level in a room is 4 picocuries per liter (pCi/L) or greater, follow-up testing should be completed within one month of initial testing, in the same location and under conditions similar to the initial measurements. A continuous radon monitor (CRM) is recommended because it can determine if elevated levels are present during occupied times. Radon levels can fluctuate with the operation of ventilation.

Rooms with elevated radon during occupied times must be mitigated following ANSI/AARST MALB 2014. Radon can usually be reduced by adjusting the existing HVAC system., including increasing fresh air or balancing air flow to rooms, or by installing an active soil depressurization system.

Testing after mitigation is done to verify that radon levels have been reduced.

#### **5.0 Program Communication**

Per ANSI/AARST MALB 2014, placement of radon measurement devices should be communicated to building occupants, including staff. Radon documentation may be reviewed during normal business hours at the Buildings and Grounds office located at the Transportation Building. Fairmont Area Schools will consider other means of communication enhancement (such as posting results on our web page or school newsletter). Communication procedures will be approved by the superintendent.

Per Minnesota Statutes, Section 123B.571, school districts are required to report radon test results at a school board meeting and report results to the MDH. Fairmont Area Schools will present results to the school board and will submit the necessary MDH reporting. The MDH reporting form is provided in Appendix B.

# **Appendix A**

## *Radon Testing Results and Locations*

# **Appendix B**

*MDH Reporting Form*