



**Date:** 12/20/23

**Performed by:** Andrew Tinklenberg

**Location:** FAIR School – 10 South 10<sup>th</sup> Street, Minneapolis, MN 55403

**RE:** Radon Testing

## INTRODUCTION

From December 11 – 14, 2023, radon testing was performed within FAIR School located at 10 South 10<sup>th</sup> Street in Minneapolis, MN. The testing was performed to ensure that radon gas concentrations within the building are below the established regulatory limits. Testing was conducted under normal occupied building conditions in frequently-occupied ground contact rooms and other areas in accordance with ANSI/AARST Protocol for Conducting Measurements of Radon and Radon Decay Products in Multifamily, School, Commercial and Mixed-Use Buildings (MA-MFLB 2023) and Minnesota Department of Health (MDH) guidelines.

## SUMMARY OF FINDINGS

All of the areas that were tested were found to have radon gas levels below 4.0 picocuries per liter of air (pCi/L), which is the EPA and MDH action level. (Note: Spike sampling is performed in conjunction with this testing, Duplicate (side-by-side) sampling was conducted in select areas at a rate of 10% of areas tested, and Rooms “A” & “B” were the blank samples.)

The radon test kits were submitted to and analyzed by AirChek, Inc., 1936 Butler Bridge Rd, Mills River, NC 28759 (MN License #RL-00003). Please refer to the attached AirChek radon testing report and sample diagrams for further information concerning the radon testing, areas that were tested, and the radon levels that were found to be present. Per MDH requirements, this information will be shared with the local regulatory agency (MDH - [health.indoorair@state.mn.us](mailto:health.indoorair@state.mn.us), Phone # 651-201-4601) and incorporated in an MPS’ board meeting. The information will also be posted on the [EH&S webpage](#) available through the main MPS website and maintained on file by EH&S.

## REMARKS

Every effort was made to maintain closed building conditions and HVAC systems are monitored and controlled remotely by MPS Direct Digital Control (DDC) personnel. Any deviation in building conditions or sampling protocol which could have an impact on the testing and test results is described in the summary above. If any unoccupied areas that were not tested are planned for future occupancy, contact EH&S so that the areas can be tested. Unless specified, all QA/QC measurements were within the required limits. Radon testing is to be performed in MPS District buildings every 5 years or any time major renovation activities take place which have the potential to impact the building’s foundation or HVAC systems. Refer to the attached test condition summary and ANSI/AARST advisories for additional information concerning the radon testing.

If you have any questions regarding this information, please feel free to contact me. Thank you,



Andrew Tinklenberg  
MDH RMEA-00426  
NRPP ID# 111389 RT



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### **Attachments**

Radon Testing Results  
Floor Plans  
Notification & Communication Documents  
Test Condition Summary  
ANSI/AARST Advisory Statements

**I5554 / ANDREW TINKLENBERG / MINNEAPOLIS PUBLIC SCHOOLS**

Kit Number	Start Date	Start Time	End Date	End Time	Temp.	Facility	Building	Room	Project ID	Floor	Result
11388747	2023-12-11	7:00 am	2023-12-14	2:00 pm	70	MPS FAIR	MPS FAIR	CUSTODIAN OFFICE	FAIR	1	< 0.3
11388748	2023-12-11	7:00 am	2023-12-14	2:00 pm	70	MPS FAIR	MPS FAIR	CUSTODIAN OFFICE	FAIR	1	< 0.3
11388749	2023-12-11	8:00 am	2023-12-14	2:00 pm	70	MPS FAIR	MPS FAIR	CLASS B	FAIR	4	< 0.3
11388750	2023-12-11	7:00 am	2023-12-14	2:00 pm	70	MPS FAIR	MPS FAIR	MEDIA CENTER	FAIR	1	< 0.3
11388794	2023-12-11	7:00 am	2023-12-14	2:00 pm	70	MPS FAIR	MPS FAIR	WORK ROOM 132	FAIR	1	< 0.3
11388795	2023-12-11	7:00 am	2023-12-14	2:00 pm	70	MPS FAIR	MPS FAIR	VIDEO 131	FAIR	1	< 0.3
11388796	2023-12-11	7:00 am	2023-12-14	2:00 pm	70	MPS FAIR	MPS FAIR	DATA 128	FAIR	1	< 0.3
11388797	2023-12-11	7:00 am	2023-12-14	2:00 pm	70	MPS FAIR	MPS FAIR	ART 125	FAIR	1	< 0.3
11388798	2023-12-11	8:00 am	2023-12-14	2:00 pm	70	MPS FAIR	MPS FAIR	MUSIC 121	FAIR	1	0.7
11388799	2023-12-11	8:00 am	2023-12-14	2:00 pm	70	MPS FAIR	MPS FAIR	DANCE 118	FAIR	1	0.6
11388800	2023-12-11	8:00 am	2023-12-14	2:00 pm	70	MPS FAIR	MPS FAIR	CAFETERIA 150	FAIR	1	< 0.3
11388801	2023-12-11	8:00 am	2023-12-14	2:00 pm	70	MPS FAIR	MPS FAIR	KITCHEN OFFICE 146	FAIR	1	0.8
11388802	2023-12-11	8:00 am	2023-12-14	2:00 pm	70	MPS FAIR	MPS FAIR	OFFICE 100A	FAIR	1	< 0.3
11388803	2023-12-11	8:00 am	2023-12-14	2:00 pm	70	MPS FAIR	MPS FAIR	OFFICE 100B	FAIR	1	< 0.3
11388804	2023-12-11	8:00 am	2023-12-14	2:00 pm	70	MPS FAIR	MPS FAIR	OFFICE/STOR. 115	FAIR	1	0.6
11388805	2023-12-11	8:00 am	2023-12-14	2:00 pm	70	MPS FAIR	MPS FAIR	HEALTH OFFICE 108	FAIR	1	< 0.3
11388806	2023-12-11	8:00 am	2023-12-14	2:00 pm	70	MPS FAIR	MPS FAIR	MAIN OFFICE 100	FAIR	1	0.7
11388807	2023-12-11	8:00 am	2023-12-14	2:00 pm	70	MPS FAIR	MPS FAIR	STAFF 100D	FAIR	1	< 0.3
11388808	2023-12-11	8:00 am	2023-12-14	2:00 pm	70	MPS FAIR	MPS FAIR	STAFF 100D	FAIR	1	< 0.3
11388809	2023-12-11	8:00 am	2023-12-14	2:00 pm	70	MPS FAIR	MPS FAIR	PRINCIPALS OFFICE 100C	FAIR	1	< 0.3
11388810	2023-12-11	8:00 am	2023-12-14	2:00 pm	70	MPS FAIR	MPS FAIR	OFFICE 100E	FAIR	1	0.5
11388811	2023-12-11	8:00 am	2023-12-14	2:00 pm	70	MPS FAIR	MPS FAIR	ROOM 203	FAIR	2	0.5
11388812	2023-12-11	8:00 am	2023-12-14	2:00 pm	70	MPS FAIR	MPS FAIR	CLASS 314	FAIR	3	0.6
11388813	2023-12-11	8:00 am	2023-12-14	2:00 pm	70	MPS FAIR	MPS FAIR	COMPUTER 400	FAIR	4	< 0.3
11388814	2023-12-11	8:00 am	2023-12-14	2:00 pm	70	MPS FAIR	MPS FAIR	COMPUTER 400	FAIR	4	< 0.3
11388815	2023-12-11	8:00 am	2023-12-14	2:00 pm	70	MPS FAIR	MPS FAIR	CLASS A	FAIR	4	< 0.3



MINNEAPOLIS  
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**Andrew Tinklenberg**

**Safety Specialist**

**Environmental Health & Safety**

**RADON TESTING NOTIFICATION (2023)**

**FAIR School**

The District will be conducting short-term radon testing at FAIR School. Radon is a naturally occurring radioactive gas that is created from the breakdown of Radium that is naturally present in soil. Radon can enter buildings from the soil through gaps, cracks and holes in the foundation. Radon testing is performed periodically and is being performed based on Minnesota Department of Health recommendations and protocols. As per the recommendations, frequently occupied, ground level or ground contact areas will be the focus of the testing. Sampling locations will be selected that provide the best representation of these areas.

If your room is selected for testing, please do your part by ensuring that the devices are not removed or tampered with in any way. The devices are small, rectangular envelopes, approximately 4 by 6 inches and will typically be hung from the ceiling or an interior wall. The short-term radon detectors are planned to be placed and collected December 11 – 14, 2023. When available, sample results will be shared with your principal and placed on the EH&S webpage available through the main MPS website.

An example of the detector is pictured below:



Thank you very much for your cooperation. If you have questions, please contact me at 612-668-0306 or [andrew.tinklenberg@mpls.k12.mn.us](mailto:andrew.tinklenberg@mpls.k12.mn.us)

# Notice of Inspection for Building Occupants

## A radon test is scheduled for:

Building: \_\_\_\_\_

Test Start Date: \_\_\_\_\_ Test End Date: \_\_\_\_\_

An important step is being taken to ensure a safe and healthy building. Testing for radon is recommended for all homes and schools.

Radon is a naturally occurring radioactive gas that can be present in some buildings at concentrations greater than recommended. In the United States, radon exposure is the second leading cause of lung cancer, and it is the leading cause of lung cancer in nonsmokers.

Please help to maintain the required test conditions throughout the building.

1. All windows and exterior doors must be kept closed (aside from momentary entry or exit) for 12 hours before and during the test.
2. Heating and cooling systems must be set to normal occupied operating temperatures.
3. Test devices are not to be disturbed.

The test devices are not dangerous in any way and a sample device is available to view upon request.

More information about radon in Minnesota can be found online at [mn.gov/radon](https://mn.gov/radon).

If you have any questions or concerns, please contact:

## Notice of Inspection for Facilitating Staff

**A radon test is scheduled for:**

Building: \_\_\_\_\_

Test Start Date: \_\_\_\_\_ Test End Date: \_\_\_\_\_

**Please help to maintain the required test conditions throughout the building:**

1. All windows and exterior doors must be kept closed (aside for momentary entry or exit) for 12 hours before and during the test.
2. Heating and cooling systems must be set to normal occupied operating temperatures.
3. Test devices are not to be disturbed.

Further guidance on required building conditions are found on the next page.

Test kits are not dangerous in any way. The type of devices used for this testing may include:

- **Short-term test kits:** It's important these devices are fully open and not covered. They will be analyzed by a laboratory.
- **Continuous radon monitors:** These are electronic monitors that record hourly radon readings.
- **Long-term test kits:** It is important that these devices are not covered. They will be analyzed by a laboratory.

### Declaration of Observed Compliance:

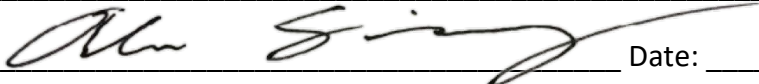
Failure to reasonably maintain test conditions can lead to unnecessary expense, disruptions, and unreliable data. Disturbing test devices can also cause unreliable or invalid test results.

- Please report in a timely manner if required test conditions are not maintained.
- Please sign and return this form once the test is complete.

To the best of my knowledge, the required conditions were maintained during the test.

Yes    No

Name: \_\_\_\_\_

Signature:  \_\_\_\_\_ Date: \_\_\_\_\_

**Required Closed Building Conditions for Radon Testing**

<b>Building Component</b>	<b>Action Required</b>
<b>Windows</b>	Keep Closed, Seal broken windows closed
<b>External doors (except for normal entry or exit)</b>	Keep Closed
<b>Heating &amp; Cooling Systems</b>	Set to normal operating conditions
<b>Bathroom fans</b>	Operate normally
<b>Fireplaces (including gas)</b>	Do not operate
<b>Auxiliary or temporary systems that bring air into the building</b>	Do not operate, unless an integral part of HVAC or supplies make-up air for combustion appliances
<b>Exhaust systems (ex. from shops, laundries, kitchens)</b>	Avoid excessive operation
<b>Interior doors, Stairwells, Fire Doors</b>	Operate Normally
<b>Garage doors</b>	Operate normally
<b>Ceiling Fans, Portable Fans</b>	Do not blow directly on the test device
<b>Window AC Units</b>	Operate in recirculation mode only
<b>Window Fans</b>	Do not operate. Seal shut or remove.
<b>Humidifiers, Dehumidifiers, Portable Air Cleaners</b>	Operate Normally
<b>Central Vacuum Cleaner Systems</b>	Operate Normally
<b>Passive crawl space vents</b>	Operate normally
<b>Crawlspace exhaust systems for humidity control</b>	Operate normally
<b>Passive Vents for Combustion Make-Up Air</b>	Leave Open

## NOTICE OF INSPECTION FOR FACILITATING STAFF

Building Component	Action Required
Combustion Appliance Vents	Operate Normally
Passive Solar Systems	Operate Normally
Attic Vent Fans	Operate Normally
Evaporative Cooling Systems	Do not operate

### Radon Test Device Placement Requirements

Place detectors within the general breathing zone. Locate detectors no less than:

- 3 feet from exterior doors, windows, other openings to outdoors,
- 20 inches above the floor,
- 4 inches from other test devices and objects, and
- 1 foot from ceilings.

Place detectors where they are not easily disturbed.

Place detectors where they are not influenced by other factors:

- Do not place in closets, crawlspaces, cupboards, sumps, or nooks within building foundation,
- Do not place devices in areas with high air movement (ex. mechanical areas, furnace closets),
- Do not place devices in areas with high humidity (ex. kitchens, bathrooms, laundry rooms),
- Do not place devices near drafts from HVAC systems or fans,
- Do not place test devices near heat sources (ex. appliances, radiators, fireplaces, direct sun), and
- Do not place detectors on devices that produce radiation (ex. natural stone counters, pool tables, rock collections)

### For more information regarding on-site activities, contact:

Licensed measurement professional: Andrew Tinklenberg, 612-668-0306

Minnesota Department of Health, Indoor Air Unit, PO Box 64975, St. Paul, MN 55164  
651-201-4601, [health.indoorair@state.mn.us](mailto:health.indoorair@state.mn.us), [mn.gov/radon](http://mn.gov/radon)

8/17/2023, To obtain this information in a different format, call: 651-201-4601.



# Client Authorizations & Communications

## Client and Facilitating Staff Member Contact Information

Client/Authorized Agent \_\_\_\_\_ phone \_\_\_\_\_

Onsite Supervisor \_\_\_\_\_ phone \_\_\_\_\_

Building/Dwelling Access \_\_\_\_\_ phone \_\_\_\_\_

HVAC Operations \_\_\_\_\_ phone \_\_\_\_\_

Other Contact/Title \_\_\_\_\_ phone \_\_\_\_\_

## Radon Testing Professional Contact Information

Scheduling/Logistics \_\_\_\_\_ phone \_\_\_\_\_

Onsite Supervisor \_\_\_\_\_ phone \_\_\_\_\_

Field Technician \_\_\_\_\_ phone \_\_\_\_\_

Field Technician \_\_\_\_\_ phone \_\_\_\_\_

## Staff authorized for responding to occupant and public inquiries:

Name/Title \_\_\_\_\_ phone \_\_\_\_\_

Name/Title \_\_\_\_\_ phone \_\_\_\_\_

## Person(s) authorized to receive report data and incremental reports:

Name/Title \_\_\_\_\_ phone \_\_\_\_\_

Name/Title \_\_\_\_\_ phone \_\_\_\_\_

## Frequency of Reports

prior to testing      after each phase of testing      when testing is complete

Minnesota Department of Health | Indoor Air Unit | PO Box 64975 | St. Paul, MN 55164 | 651-201-4601  
[health.indoorair@state.mn.us](mailto:health.indoorair@state.mn.us) | [www.health.state.mn.us](http://www.health.state.mn.us) | [mngov/radon](http://mngov/radon)

08/17/2023 | To obtain this information in a different format, call: 651-201-4601.

## Client Commitment to Compliance

### Management Commitment:

To the extent reasonably possible, I, on behalf of \_\_\_\_\_, commit to helping ensure that building conditions required to achieve reliable radon tests are met, as portrayed herein.

Client/Authorized Agent: \_\_\_\_\_

Signature:  \_\_\_\_\_ Date: \_\_\_\_\_

### Building On-Site Supervisor Commitment:

To the extent reasonably possible, I commit to helping ensure that building conditions required to achieve reliable radon tests are met, as portrayed herein, by accepting the following responsibilities:

1. **Prior Notifications:** Notices will be distributed to all tested and non-tested dwellings and posted in publicly accessible areas in a timely manner.
2. **Access:** Access will be provided to each location being tested within a building with intent to access all locations on the same day for both the event of placing testing devices and a second event for retrieving test devices.

On-Site Supervisor: \_\_\_\_\_

Signature:  \_\_\_\_\_ Date: \_\_\_\_\_

### Building Operations Staff Commitment:

To the extent reasonably possible, I commit to helping ensure that building conditions required to achieve reliable radon tests are met, as portrayed herein, by accepting the following responsibilities:

1. **Building Preparation:** I accept responsibility that, no later than 12 hours prior to testing, each building scheduled for testing will be reviewed for compliance with closed-building requirements.
2. **Compliance Verification:** I accept responsibility for taking actions that could include adjustments to HVAC units and repairs where completion is required no later than 12 hours prior to testing.

HVAC Operations Supervisor: \_\_\_\_\_

Signature:  \_\_\_\_\_ Date: \_\_\_\_\_



## FAIR Test Condition Summary

December 11-14, 2023 – Minneapolis, MN (Climate Zone 6)

	Annually	During the Test
<b>Outdoor Temperatures</b>	Average = 46° F	Max. = 50° F Min. = 21° F Average = 35° F
<b>Prevailing Operating Condition (Heating/Cooling)</b>	Heating – 50% Cooling – 25% Mixed – 25%	Heating – 100% Cooling – 0% Mixed – 0%
<b>Air Distribution Systems</b>	Intermittent during summer	Active

\* - Note: No rain or snowfall was recorded during the testing period and winds were light to moderate.

### Informative Advisories

1. Fluctuations in radon concentrations are usually caused by either:
  - changes in the strength of indoor air pressures that draw soil gas into a building; or
  - changes in the volume of outside air entering a building.
2. Clear characterization of a radon hazard is more likely to occur when:
  - Outdoor temperatures extend below 65°F (18°C), at least intermittently, which causes natural indoor air pressures that draw radon laden soil gas into a building; and
  - Heating or cooling distribution fans are at least intermittently active during a test.
3. Measurements more likely to reflect an occupant's exposure to radon are measurements conducted under conditions that most closely align to the building operating conditions that prevail during the greatest amount of time each year.

\* - Above advisory information is taken from page 33 of the ANSI/AARST MA-MFLB-2023 Standard, "Protocol for Conducting Measurements of Radon and Radon Decay Products in Multifamily, School, Commercial and Mixed-Use Buildings." Additional advisory notes/information will be added when necessary. Weather information was collected from [timeanddate.com/weather/usa/minneapolis](https://timeanddate.com/weather/usa/minneapolis).

## **ANSI/AARST ADVISORY STATEMENTS**

### **Table 8-A Reporting Low Radon Concentrations**

Consider fixing the building if test results indicate radon concentrations greater than half the action level, (e.g., between 2 and 4 pCi/L). Responsible care requires repeating initial testing procedures for all building(s) at least every 5 years and in conjunction with any sale of a building. Radon testing should also be conducted when any of the following circumstances occur:

- a new addition is constructed or alterations for building reconfiguration or rehabilitation occur;
- a ground contact area not previously tested is occupied, or a building is newly occupied;
- heating or cooling systems are significantly altered, resulting in changes to air pressures or pressure relationships;
- ventilation is significantly altered by extensive weatherization, changes to mechanical systems or comparable procedures;
- significant openings to soil occur due to:
  - groundwater or slab surface water control systems that are altered or added (e.g., sumps, perimeter drain tile, shower/tub retrofits, etc.) or,
  - natural settlement causing major cracks to develop;
- earthquakes or construction blasting, fracking or formation of sink holes nearby; or
- a mitigation system is altered, modified or repaired.

Should testing indicate concentrations that meet or exceed the action level, conduct evaluations, corrections and further testing until radon concentrations have been mitigated to below the action level.

### **Table 8-B Reporting Elevated Radon Concentrations**

Fix the building. Test results indicate occupants may be exposed to radon concentrations that meet or exceed the action level. Efforts to reduce radon concentrations are not complete until retests provide evidence of effectiveness. The initial retest should be conducted within 30 days after mitigation efforts and system installations.

Post-mitigation clearance testing to confirm each building is fixed requires testing all buildings that demonstrated elevated radon concentrations:

- 1) in all ground-contact rooms and dwellings,
- 2) in not less than 10% of non-residential rooms and dwellings on each upper floor.

Should testing indicate concentrations that meet or exceed the action level, conduct evaluations, corrections and further testing until radon concentrations have been mitigated to below the action level.

\* - Above advisory information is taken from pages 29-30 of the ANSI/AARST MA-MFLB-2023 Standard, "Protocol for Conducting Measurements of Radon and Radon Decay Products in Multifamily, School, Commercial and Mixed-Use Buildings." Additional advisory notes/information will be added when necessary.