

November 15, 2024



Rochelle Cox
Senior Officer of Operations & System Alignment
Fridley Public Schools
6000 W Moore Lake Drive NE
Fridley, MN 55432

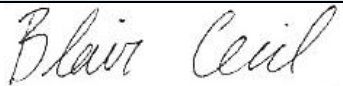
**RE: VISTA Education Center
Short-Term Radon Testing Results
IEA Project #202411064**

Dear Ms. Cox:

The Institute for Environmental Assessment, Inc. (IEA) placed 13 Air Chek Pro Chek short-term radon test kits in 11 locations in VISTA Education Center for the purpose of evaluating radon levels.

The number of kits placed includes those used for quality control purposes. See Appendix A for Quality Control information.

The radon test kits were placed by the following Minnesota Department of Health (MDH) licensed Radon Measurement Professional:

Measurement Professional	License Number	Signature
Blair Cecil	RMEA-00526	

INTRODUCTION

Radon is a colorless, odorless, tasteless, radioactive gas that occurs naturally in soil, rocks, and underground water supplies and in the ambient air. 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. Radon testing in schools is highly recommended by the Minnesota Department of Health (MDH) and EPA.

BROOKLYN PARK
9201 West Broadway, #600
Brooklyn Park, MN 55445
763-315-7900 / FAX 763-315-7920
800-233-9513

MANKATO
610 North Riverfront Drive
Mankato, MN 56001
507-345-8818 / FAX 507-345-5301
800-233-9513

ROCHESTER
210 Woodlake Drive SE
Rochester, MN 55904
507-281-6664 / FAX 507-281-6695
800-233-9513

BRAINERD
601 NW 5th Street, Ste. #4
Brainerd, MN 56401
218-454-0703 / FAX 218-454-0703
800-233-9513

MARSHALL
1420 East College Drive
Marshall, MN 56258
507-476-3599 / FAX 507-537-6985
800-233-9513

VIRGINIA
5525 Emerald Avenue
Mountain Iron, MN 55768
218-410-9521
800-233-9513

METHODOLOGY

IEA placed Air Chek Pro Chek short-term radon test kits in frequently occupied areas in VISTA Education Center at Fridley Public Schools for the purpose of sampling for radon in accordance with the MDH's *Guidance for Radon Testing in Minnesota Schools* (2021) and ANSI/AARST MA-MFLB 'Protocol for Conducting Measurements of Radon and Radon Decay Products in Multifamily, Schools and Commercial and Multi-Use Buildings' (ANSI/AARST MA-MFLB 2023).

A total of 13 radon test kits were placed from November 4, 2024, to November 7, 2024, for a total short-term sampling period of three days; including one test kit (Room 119, Test Kit ID: 11376798) which was found damaged at the time of pick-up. The radon test kits were analyzed by AirChek, Inc., MDH license #RL-00003, located at 1936 Butler Bridge Road, Mills River, NC 28759. The Analysis Methodologies are provided in Appendix A.

Air intakes and ventilation systems were operating in normal condition at the time of placement and retrieval. IEA was informed that the HVAC was on a normal operating schedule during the testing period.

IEA followed ANSI/AARST MA-MFLB 2023 for quality assurance measurements by including duplicate kits, control kits (blanks), and spiked kits.

Client communications and commitments were delivered to the client and are located in Appendix C:

- Client Commitments, Advisories and Authorizations
- Facilitating Staff Commitments

Occupant notices were sent to the client for distribution on October 23, 2024.

EVALUATION CRITERIA

The MDH and the EPA have established a recommended action level in intended to be occupied areas of 4.0 picocuries per liter (pCi/L) for an annual average. Testing was conducted during school days when the building is significantly occupied. The HVAC system was set on a normal occupied operating schedule. Testing was conducted during the heating season when the average outdoor temperature is less than 65°F, as recommended by the MDH, when the ventilation system was operating normally, and windows and doors were closed. Consequently, sampling under these "closed" conditions is when the radon risk is most likely to occur.

MDH recommends follow-up testing for sampling results that are above the action level. Please refer to the following table for MDH guidelines:

RESULTS (pCi/L)	RECOMMENDED ACTION
LESS THAN 4	Re-test after changes to foundation or HVAC and every 5 years
GREATER THAN OR EQUAL TO 4	Conduct CRM short-term testing during winter months
LESS THAN 4 (<u>DURING OCCUPANCY</u>) AFTER CRM TESTING	Repeat CRM testing if not conducted during winter or if conducted during abnormal ventilation. Otherwise consider re-testing after changes to foundation or HVAC and every 5 years
GREATER THAN OR EQUAL TO 4 (<u>DURING OCCUPANCY</u>) AFTER CRM TESTING	Reduce radon in rooms to less than 4 through radon mitigation. Conduct CRM testing to verify radon reduction.

CRM: Continuous Radon Monitor

RESULTS & DISCUSSION

The laboratory report and map of VISTA Education Center are provided in Appendix B. The following includes summary results for VISTA Education Center.

VISTA Education Center

1317 Rice Creek Road NE
Fridley, MN, 55432

A total of 13 test kits were placed in 11 locations at VISTA Education Center. One test kit in Room 119 was damaged when the test kits were collected. The number of missing test kits did not exceed allowance in the ANSI/AARST MA-MFLB 2023 standard.

The results indicated that radon levels for the locations tested in VISTA Education Center were below the action level of 4 pCi/L. See Table 1 below for a summary of the results:

TABLE 1: VISTA EDUCATION CENTER- RANGE OF RESULTS				
	0.0 – 1.9 pCi/L	2.0 – 2.9 pCi/L	3.0 – 3.9 pCi/L	≥ 4 pCi/L
Number of Locations	11	0	0	0

pCi/L: picocuries per liter

CONCLUSIONS AND RECOMMENDATIONS

The radon levels in the sampled locations were below the EPA action level of 4 pCi/L.

The EPA has established recommended guidelines for permissible radon concentrations in schools. The following are general recommendations for frequently occupied areas of schools:

- The building should be retested at least every 5 years and in conjunction with any sale of the building.
- Ground contact rooms that were not tested because they were not occupied, should be tested if they become occupied in the future.

In addition, retesting should be conducted when any of the following circumstances occur:

- A new addition is constructed, or a significant renovation occurs
- Heating or cooling systems are significantly altered, resulting in changes to air pressures or distribution
- Ventilation is significantly altered by extensive weatherization, changes to mechanical systems, or comparable procedures
- Significant openings to soil occur due to:
 - Ground water or slab surface water control systems (e.g., sumps, perimeter drain tile, shower/tub retrofits, etc.)
 - Natural settlement causing major cracks to develop
 - Earthquakes, construction blasting, or formation of sink holes nearby
 - A mitigation system is altered, modified, or repaired
- Rooms should be retested during the winter heating season (i.e., under “closed” conditions) which is typically “worst case” conditions.

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. IEA is able to assist with presenting results to the school board, and the MDH reporting. The MDH 'School Radon Testing Form' is located in Appendix E.

For more information regarding radon, see the EPA's A Citizen's Guide to Radon at <http://www.epa.gov/radon>. MDH can be contacted at health.indoorair@state.mn.us or 651-201-4601.

GENERAL COMMENTS

The analysis and opinions expressed in this report are based upon data obtained from radon sampling district-wide and are representative of the locations and time period sampled. This report does not reflect variations in conditions that may occur across the site, property, or facility. Actual conditions may vary and may not become evident without further assessment.

The report is prepared for the exclusive use of our client for specific application to the project discussed and has been prepared in accordance with generally accepted environmental, health and safety practices. Other than as provided in the preceding sentence and in our Proposal #12425 dated September 16, 2024, regarding radon sampling services at the district locations, including the General Conditions attached thereto, no warranties are extended or made.

Should you require additional radon testing or have any questions regarding radon or any other environmental, health, or safety-related concerns, please do not hesitate to contact our office.

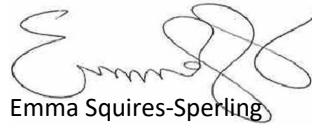
Sincerely,

IEA, Inc.



Aly Rockwell
EHS Account Manager

Reviewed by:



Emma Squires-Sperling
Laboratory Director

ASR/khb 11152024

Enc.

Appendix A

*Analysis Methodology and
Quality Control Measurements*

Analysis Methodology

IEA placed Air Chek, Inc. Pro Chek activated charcoal radon test kits designed specifically for the detection of gamma emissions caused by the decay of Radon-222 and its daughter products. The kit is made of a padded envelope which contains activated charcoal. Upon pick-up, the kit is sealed with vinyl tape after 72 to 96 hours of indoor exposure. Individual kits are uniquely identified with a number and corresponding bar code.

Upon receipt at the analytical laboratory, the kits are logged in using the unique numbers assigned to each kit. The kits are placed on a gamma detector to count the gamma emissions from the decay of radon adsorbed by the charcoal. A calibration factor determined in part by the exposure time and decay time is used to calculate the radon concentration. A correction factor is also applied for weight gain from any moisture absorbed by the charcoal during the sampling period.

Any unusual conditions are noted on the processing form and shown on the exposure report.

MDH and ANSI/AARST MA-MFLB 2023 Quality Control Measurements

IEA followed ANSI/AARST MA-MFLB 2023 and MDH recommendations for quality assurance measurements to ensure the accuracy of test results. Quality assurance measurements include side-by-side test kits (duplicates) and unexposed control test kits (blanks).

Duplicates are pairs of test kits placed 4-8 inches apart for the same test period. Duplicates are stored, placed, retrieved, and shipped to the laboratory for analysis in the same manner as the other test kits so that the laboratory cannot distinguish them. Since duplicates are placed side-by-side, the measured values for radon should be the same. The average of all duplicates' relative percent difference (RPD) should not exceed 25%. If they do, an investigation to identify the cause may be warranted and could include repeating the measurements. Duplicate averages are listed in Table 1 below.

Table 1: Duplicate Device Measurements and Averages			
Location	Test 1 (pCi/L)	Test 2 (pCi/L)	Average (pCi/L)
Room 120	0.8	1.1	0.95
Room 123	0.8	1.3	1.05

Blanks can be used to determine whether the manufacturing, shipping, storage, or processing of the detector has “contaminated” your measurements. Blanks are opened and immediately re-sealed to keep room air from infiltrating the test kit. Blanks are labeled and shipped in the same manner as the exposed test kits so that the laboratory cannot distinguish them. Since blanks are not exposed to radon, their measurement value should be below the lower limit of detection. Field blanks are listed in the laboratory report as FDIRECTOR OFFICE-A, FDIRECTOR OFFICE-B, FDIRECTOR OFFICE-C. Office blanks are listed in the laboratory report as SB, STORAGE ROOM A and OSTOREAGE ROOM A. The lab-transit blank is listed in Table 2 below.

Table 2: Blanks							
Start Date	End Date	Start Time	End Time	Device ID	Type of Blank	Description	Radon Concentration (pCi/L)
11/4/2024	11/7/2024	9:00 AM	8:00 AM	11461983	Field	FDIRECTOR OFFICE-A	<0.3
11/4/2024	11/7/2024	9:00a AM	8:00 AM	11461982	Field	FDIRECTOR OFFICE-B	<0.3
11/4/2024	11/7/2024	9:00 AM	8:00 AM	11460383	Field	FDIRECTOR OFFICE-C	<0.3
11/1/2024	11/4/2024	8:10 AM	8:10 AM	11461568	Lab-Transit	LTB, STORAGE ROOM A	<0.3
11/1/2024	11/4/2024	8:10 AM	8:10 AM	11461569	Storage Blank	SB, STORAGE ROOM A	<0.3
11/4/2024	11/7/2024	7:00 AM	9:00 AM	11462105	Office Blank	OSTORAGE ROOM A	<0.3

Spikes are test kits that have been exposed in a chamber to a known concentration of radon. Using spiked measurements can help evaluate the accuracy of a laboratory analysis and/or how accurately test kits supplied by a laboratory measure radon. Spiked test kits are labeled and shipped in the same manner as the exposed test kits so that the laboratory cannot distinguish them. Spiked results completed for our laboratory are included in the following pages. Spiked test kits are listed in Table 3 below.

Table 3: Spiked Detectors						
Start Date	End Date	Start Time	End Time	Device ID	Measured Value (pCi/L)	Reference Value (pCi/L)
11/1/2024	11/4/2024	8:10:00 AM	8:10:00 AM	11461588	25	24.4
11/1/2024	11/4/2024	8:10:00 AM	8:10:00 AM	11461587	25.5	24.4
11/1/2024	11/4/2024	8:10:00 AM	8:10:00 AM	11461585	25.7	24.4
11/1/2024	11/4/2024	8:10:00 AM	8:10:00 AM	11461584	22.9	24.4
11/1/2024	11/4/2024	8:10:00 AM	8:10:00 AM	11461570	38.6	24.4
11/1/2024	11/4/2024	8:10:00 AM	8:10:00 AM	11461571	24.8	24.4

Appendix B

Laboratory Reports and Maps

November 11, 2024

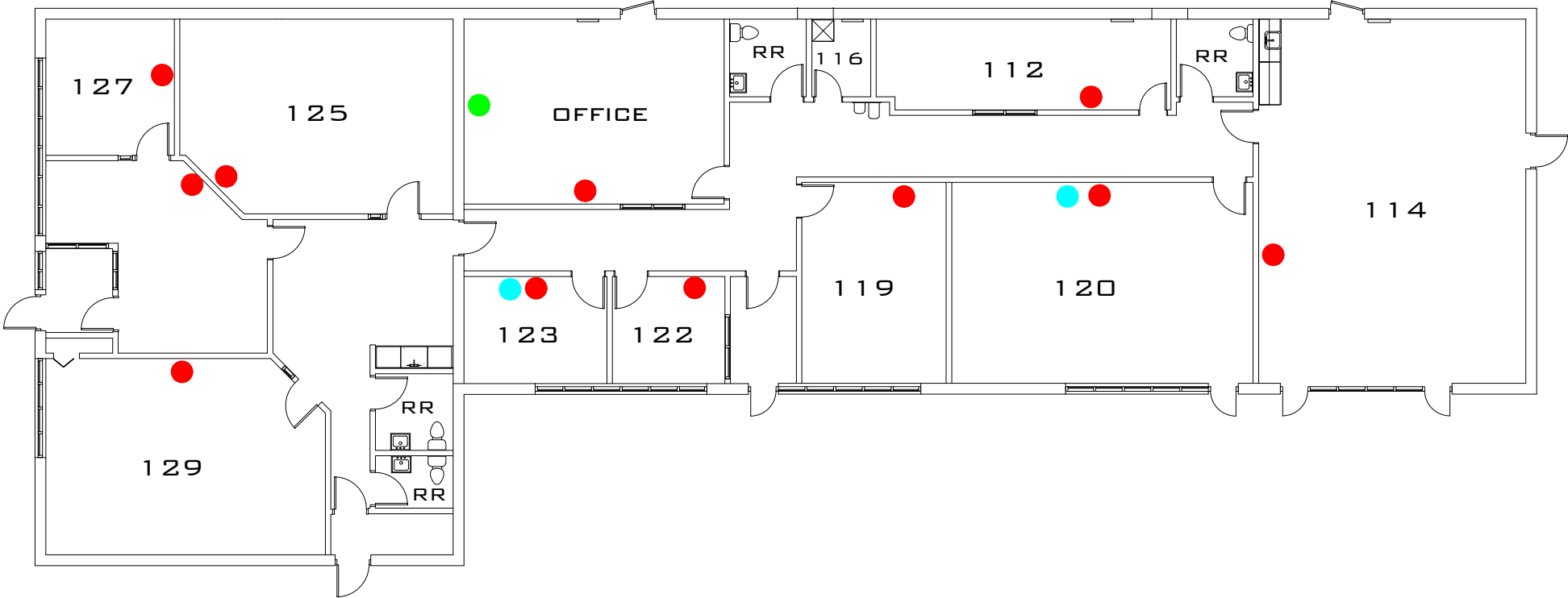
**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

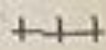
**FRIDLEY PUBLIC SCHOOLS
VISTA EDUCATION CENTER**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11461993	112	2024-11-04 @ 8:00 am	2024-11-07 @ 8:00 am	1.3 ± 0.3	2024-11-11
11460395	114	2024-11-04 @ 8:00 am	2024-11-07 @ 8:00 am	1.5 ± 0.4	2024-11-11
11376798	119	2024-11-04 @ 8:00 am	2024-11-07 @ 8:00 am	1.2 ± 0.3	2024-11-11
11376787	122	2024-11-04 @ 8:00 am	2024-11-07 @ 8:00 am	1.1 ± 0.3	2024-11-11
11376786	125	2024-11-04 @ 8:00 am	2024-11-07 @ 8:00 am	0.9 ± 0.3	2024-11-11
11376781	127	2024-11-04 @ 8:00 am	2024-11-07 @ 8:00 am	1.5 ± 0.3	2024-11-11
11376788	129	2024-11-04 @ 8:00 am	2024-11-07 @ 8:00 am	0.8 ± 0.3	2024-11-11
11376782	DIRECTOR OFFICE	2024-11-04 @ 8:00 am	2024-11-07 @ 8:00 am	0.9 ± 0.3	2024-11-11
11460396	DUP-120-1	2024-11-04 @ 8:00 am	2024-11-07 @ 8:00 am	0.8 ± 0.3	2024-11-11
11460362	DUP-120-2	2024-11-04 @ 8:00 am	2024-11-07 @ 8:00 am	1.1 ± 0.3	2024-11-11
11462108	DUP-123-1	2024-11-04 @ 8:00 am	2024-11-07 @ 8:00 am	0.8 ± 0.3	2024-11-11
11376791	DUP-123-2	2024-11-04 @ 8:00 am	2024-11-07 @ 8:00 am	1.3 ± 0.3	2024-11-11
11461984	EAST LOBBY	2024-11-04 @ 8:00 am	2024-11-07 @ 8:00 am	0.8 ± 0.3	2024-11-11
11461983	FDIRECTOR OFFICE-A	2024-11-04 @ 9:00 am	2024-11-07 @ 8:00 am	< 0.3	2024-11-11
11461982	FDIRECTOR OFFICE-B	2024-11-04 @ 9:00 am	2024-11-07 @ 8:00 am	< 0.3	2024-11-11
11460383	FDIRECTOR OFFICE-C	2024-11-04 @ 9:00 am	2024-11-07 @ 8:00 am	< 0.3	2024-11-11
11462105	OSTORAGE ROOM A	2024-11-04 @ 7:00 am	2024-11-07 @ 9:00 am	< 0.3	2024-11-11

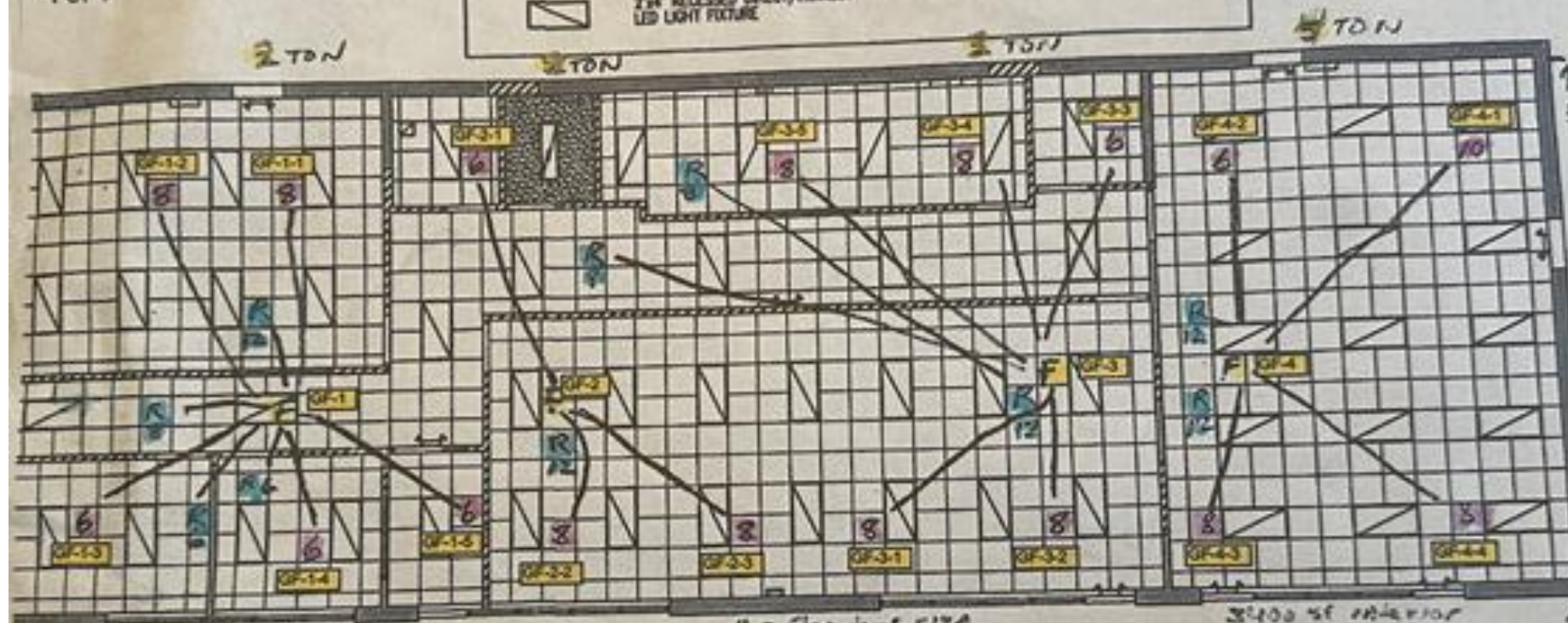
- RADON TEST LOCATION
- DUPLICATE
- FIELD BLANK



1 of 1



2'x4' RECESSED DIRECT/INDIRECT
LED LIGHT FIXTURE



← GF 27 d doors F = SUPPLY R = RETURN # = FLEX DUCT SIZE

GF = FURNACE LOCATION

RICE CREEK RD SIDE
ALL FURNACES 1-3 YRS OLD

Appendix C

Signed Non-Interference Agreement

and

Client Commitments, Advisories, and Authorizations

NOTICE OF INSPECTION FOR ALL FACILITATING STAFF

A radon test is scheduled for:

Building: VISTA Education Center

Test Start Date: 11-04-2024

Test End Date: 11-07-2024

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.

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

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

Short-term test kits. It is important that these devices are fully open and not covered. They will be analyzed by a laboratory.

Continuous radon monitors. These are electronic devices 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

Name:

Danielle Thompson

Signature:



Licensed Measurement Professional:

Blair Cecil RMEA-00526

COMMITMENTS, ADVISORIES, AND AUTHORIZATIONS

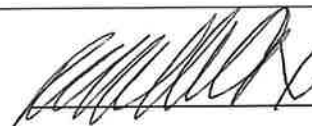
I have been informed of test plan options that comply with ANSI/AARST MA-MFLB 2023.

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, such as for broken windows, where completion is required no later than 12 hours prior to testing. Verification will be provided as signed/initialed below or initialed on a log sheet, to be provided.
3. **PRIOR NOTIFICATIONS:** Notices will be distributed to all tested, non-tested dwellings and posted in publicly accessible areas such as in corridors, elevators and offices in a timely manner, no later than required by local law for gaining access to a dwelling or not later than the day before testing.
4. **ACCESS:** Access will be provided to each location being tested within a building, with intent to access all locations within a building on the same day for both the event of placing test devices, and a second event for retrieving test devices.

A valid measurement at all test locations in each building is required. There is a possibility of delays and additional expense when test locations are not readily accessible or where requirements for *closed-building conditions* are not observed.

Client:

 Fridley Public
Schools

Building:

VISTA Education Center

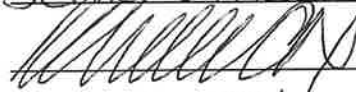
Name:

Rachelle Cox

Title:

Senior Officer of Operations

Signature:



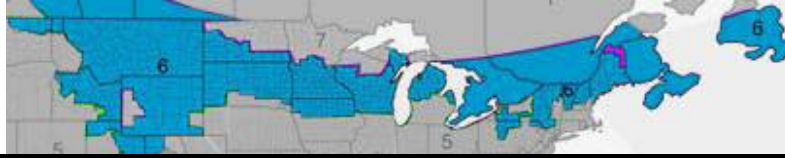
Date:

10-28-24

Appendix D

Average Building Operating Conditions Comparison

Climate Zone 6 (includes Southern MN)



		Annual Averages			During the Test
		24 Hour	Daytime	Daytime 9-Month	Prevailing During the Test
Operating Condition	Outdoor Temperature and Weather Conditions	45 °F	50 °F	N/A	Average: 45 °F Minimum: 33 °F Maximum: 59 °F
	Heating Conditions	75%	66%	88%	100%
	Cooling Conditions	-	16%	11%	0%
	Mixed Conditions	25%	16%	-	0%
Normal Operating Condition		<ul style="list-style-type: none"> • Heating conditions • No variance in outdoor air ventilation 			<ul style="list-style-type: none"> • Heating conditions • No variance in outdoor air ventilation
Condition less likely to inhibit characterization of a radon hazard		<ul style="list-style-type: none"> • Heating and air distribution systems active 			<ul style="list-style-type: none"> • Heating and air distribution systems active

Appendix E

MDH Reporting Form

School Radon Testing Reporting Form

According to Minnesota Statute 123B.571 subd. 3, a school district that has tested its school buildings for the presence of radon shall report the results of its tests to the Department of Health. Please use this form to submit information about the most recent round or cycle of testing conducted for each building.

Instructions

1. Complete one form for each building tested. In this case, a building is defined as an occupied facility with a unique address. This includes administrative buildings.
2. Include this form, raw data (e.g. laboratory report) and a building map.
3. Submit this form when all work is completed for a round of testing. This includes reporting to the school board, and follow-up testing and post-mitigation testing, if applicable.
4. Email information to health.indoorair@state.mn.us.

Contact Information

(Submitting this report)

Name _____

Mailing Address _____

Phone _____ Email _____

Person(s) Deploying or Retrieving Test Devices¹

Name _____ Organization/Company _____

Name _____ Organization/Company _____

Name _____ Organization/Company _____

School Board Reporting

Were all the results reported at a school board meeting?

☐ Yes ☐ No

¹ List all individuals that deployed (placed) or retrieved (picked up) test devices including initial, follow-up, and post-mitigation testing. Additional names can be added to notes at end of this form.

Initial Radon Testing

School Building Name _____

School District & District Number _____

Building Address _____

Test Kit Manufacturer _____ Device name _____

Date of Kit Retrieval (MM/DD/YY) _____ Length of Test (days) _____

How many rooms were tested? _____

Does the test period include weekends? ☐ Yes ☐ NoDoes the test period include school breaks or holidays? ☐ Yes ☐ NoWas HVAC operating under occupied conditions? ☐ Yes ☐ NoWere test devices deployed in all occupied and intended to be occupied rooms in contact with the ground, and, if applicable, 10% of upper floor rooms? ☐ Yes ☐ NoWere valid measurements obtained in all occupied and intended to be occupied rooms in contact with the ground, and, if applicable, 10% of upper floor rooms?² ☐ Yes ☐ NoIf no, were all results obtained under 2.0 pCi/L **and** were there sufficient valid measurements obtained that allowed for no further testing?³ ☐ Yes ☐ NoHow many rooms had results ≥ 4 pCi/L? _____

² This includes rooms, offices, classrooms, and other general use areas. Ground contact means: 1) rooms that have floors or walls in contact with the ground; and 2) rooms that are closest to the ground over untested ground-contact locations, such as a crawl space, utility tunnel, parking garage and other non-habitable space that is in contact with ground. Intended to be occupied rooms are locations where there are plans to occupy rooms even though they are unoccupied at the time of the testing. In addition, if the building has upper floors, at least 10% of these rooms must be tested.

³ Section 6.2 of the ANSI/AARST standard allows for a specific small number of invalid measurements (e.g., test kits missing, damaged, etc) if all the valid test results were under 2.0 pCi/L. Review this section of the standard and evaluate how many rooms needed testing and how many had valid results. If there were too many invalid results, this means additional testing was required in these locations and answer this question as 'no'.

Follow-up Testing, Mitigation, & Post-Mitigation Testing

If one or more rooms tested ≥ 4 pCi/L, please answer the questions below.

How many rooms had follow-up testing? _____

Number of rooms with follow-up results:

≥ 4 pCi/L _____ < 4 pCi/L _____

Of the rooms that had test results ≥ 4 pCi/L, how many rooms were:

mitigated by diluting or pressurizing the soil or indoor air

(not active soil depressurization)? _____

mitigated by installing active soil depressurization system(s)? _____

reduced by adjusting the HVAC system? _____

Individual who installed mitigation

Name _____ Organization/Company _____

What was the cost of the installation and/or HVAC service work, to mitigate radon? _____

What is the known or anticipated annual operating cost of mitigation (estimate)? _____

After radon mitigation, how many rooms were re-tested?⁴ _____

Post-mitigation results (# of rooms):

≥ 4 pCi/L _____ < 4 pCi/L _____

Notes

Minnesota Department of Health | Environmental Health | Indoor Air Unit

health.indoorair@state.mn.us

www.health.state.mn.us

June 2021

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

⁴ The building must be tested, to verify reduction and ensure mitigation has not increased radon in rooms that used to be low.