Board Meeting Date: 3/3/2025

Title: Radon Testing – 2025

Type: Information

Presenter(s): Mert Woodard - Director, Finance & Operations

Description: Minn. Stat. § 123B.571 requires school districts that have tested for radon at its buildings report the results of its tests to the Minnesota Department of Health (MDH) in the form and manner prescribed by the commissioner of health. School districts that have tested for radon must also report the results of the tests at a school board meeting.

Short Term Radon testing was performed at 59 locations in Concord Elementary School from December 16, 2024 to December 19, 2024. All tested locations at Concord except for one (1) resulted in radon levels below the action level of 4 pCi/L as established by the MDH and Environmental Protection Agency (EPA) and did not require further testing. Continuous Radon Monitoring (CRM) was performed at this one location from January 8, 2025 to January 10, 2025. The results of the CRM testing showed that the average radon level during occupied hours was below the action level at this location. No further testing or mitigation is required.

Radon testing is not required for Minnesota school districts. The District has been committed to testing its buildings every five years as recommended by the MDH.

The radon testing reports are enclosed.

Recommendation: There is no recommended action.

Desired Outcomes from the Board: Affirm receipt of the District's radon testing reports.

Attachments:

1. Short-Term & Continuous Radon Monitoring Results - 2025

January 15, 2025

Providing Trusted
Health and Safety Solutions

Rodney Peterson
Director of Buildings and Grounds
Edina Public Schools
5701 Normandale Road
Edina, MN 55424

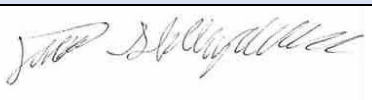
RE: Concord Elementary School
Short-Term Radon Testing Results
IEA Project #202411175

Dear Mr. Peterson:

The Institute for Environmental Assessment, Inc. (IEA) placed 72 Air Chek Pro Chek short-term radon test kits in 59 locations in Concord Elementary School, 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(s):

Measurement Professional	License Number	Signature
Jack Skluzacek	RMEA-00475	
Allison Squires	RMEA-00562	

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.

METHODOLOGY

IEA placed Air Chek Pro Chek short-term radon test kits in frequently occupied areas in Concord Elementary for the purpose of sampling for radon in accordance with the MDH's *Guidance for Radon Testing in Minnesota Schools* (2024) 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 72 radon test kits were placed from December 16, 2024 to December 19, 2024, for a total short-term sampling period of 3 days. 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 December 11, 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 (DURING OCCUPANCY) 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 (DURING OCCUPANCY) 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(s) of each building with sampling locations are provided in Appendix B. The following includes summary results for each building.

Concord Elementary School
5900 Concord Avenue
Edina, MN 55424

A total of 72 test kits were placed in 59 locations at Concord Elementary School. No test kits were missing or damaged when the test kits were collected.

The results indicated that radon levels for the locations tested in Concord Elementary School had 1 test above the action level of 4 pCi/L. See Table 1 below for a summary of the results:

TABLE 1: CONCORD ELEMENTARY SCHOOL - 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	57	0	1	1 [1]

[1] Room 111D was above the action level

pCi/L: picocuries per liter

CONCLUSIONS AND RECOMMENDATIONS

It is recommended by ANSI/AARST MA-MFLB 2023 to consider taking action and address results of radon concentrations greater than half the action level (2-3.9 pCi/L).

The radon levels in one (1) sample location was at or above the EPA action level of 4 pCi/L. The test data is not yet fully adequate to make decisions whether to mitigate. Follow-up testing should be conducted for the result above the action level within 30 days. Guidelines 1-4 should also be considered if test results indicate radon concentrations between 2-4 pCi/L during the first round of testing. If radon levels continue to indicate concentrations between 2-4, guideline 5 should be considered:

1. If the initial test results are greater than or equal to 4 pCi/L, conduct Continuous Radon Monitoring short-term testing during the winter months.
2. If the average radon levels from the CRM are below 4 pCi/L **during occupancy**, then consider re-testing after changes to the building foundation or HVAC system and every 5 years.
3. If the average radon levels from the CRM are at or above 4 pCi/L **during occupancy**, then the building HVAC system settings (e.g., start time, night set-back temperature) should be adjusted to allow for improved airflow (and thereby reduce radon infiltration into the building). Follow-up CRM testing should be conducted to verify radon reduction. The operation of HVAC system should continue under adjusted settings to keep radon levels within an acceptable range. Documentation should be kept with HVAC operation instructions for the head engineer and the Director of Buildings and Grounds to ensure that settings are maintained in the future.
4. If the follow-up average radon levels from the CRM are still at or above 4 pCi/L **during occupancy** (after the HVAC adjustments have been made), then the district should contact a professional radon mitigation contractor for assistance. IEA recommends using a contractor with experience specific to schools.

5. Mitigation is not complete until post mitigation clearance testing provides evidence of the initial status of system effectiveness. Post-mitigation clearance testing should be conducted no sooner than 24 hours after a mitigation system is operational and within 30 days after installation of the systems. The clearance testing must include all ground-contact rooms and not less than 10% of rooms on each upper floor. The test should be repeated as soon as possible, or within one year under conditions that reasonably represent:
   - Average building operating conditions exist that are normally present during the greatest amount of significantly occupied time.
   - Building operating conditions exist that are most likely to characterize a radon hazard.

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. The building should be retested at least every 2 years if a mitigation system is present.
- 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 #12371 dated August 26, 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.

Jack Skluzacek
EHS Account Manager

Reviewed by:

Emma Squires-Sperling
Laboratory Director

JS/khb 01152025

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)
108A	<0.3	0.6	0.45
116	0.8	0.6	0.7
155	0.8	0.6	0.7
165	0.6	0.6	0.6
209	0.5	0.6	0.55
210	1.3	1.1	1.2
SMALL OFFICE NEAR HEALTH OFFICE	<0.3	<0.3	<0.3

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 FB<Room/Location Name>. Office blanks are listed in the laboratory report as OStorage Room A, OStorage Room B, etc. Lab-Transit Blanks are 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)
12/16/2024	12/19/2024	11:00 AM	11:00 AM	11804902	Field	FBMain Office 1	<0.3
12/16/2024	12/19/2024	11:00 AM	11:00 AM	11804981	Field	FBMain Office 2	<0.3
12/16/2024	12/19/2024	11:00 AM	11:00 AM	11804947	Field	FBMain Office 3	<0.3
12/16/2024	12/19/2024	12:00 PM	12:00 PM	11804974	Office	OStorage Room A	<0.3
12/16/2024	12/19/2024	12:00 PM	12:00 PM	11804969	Office	OStorage Room B	<0.3
12/16/2024	12/19/2024	12:00 PM	12:00 PM	11804970	Office	OStorage Room C	<0.3
9/2/2024	9/4/2024	12:41 PM	12:41 PM	11806501	Lab-Transit	LTBP-1	<0.3
9/2/2024	9/4/2024	12:41 PM	12:41 PM	11806502	Lab-Transit	LTBP-2	<0.3
9/2/2024	9/4/2024	12:41 PM	12:41 PM	11806503	Lab-Transit	LTBP-3	<0.3
9/2/2024	9/4/2024	12:41 PM	12:41 PM	11806504	Lab-Transit	LTBP-4	<0.3
9/2/2024	9/4/2024	12:41 PM	12:41 PM	11806505	Lab-Transit	LTBP-5	<0.3
9/2/2024	9/4/2024	12:41 PM	12:41 PM	11806506	Lab-Transit	LTBP-6	<0.3
9/2/2024	9/4/2024	12:41 PM	12:41 PM	11806507	Lab-Transit	LTBP-7	<0.3
9/2/2024	9/4/2024	12:41 PM	12:41 PM	11806508	Lab-Transit	LTBP-8	<0.3
9/2/2024	9/4/2024	12:41 PM	12:41 PM	11806509	Lab-Transit	LTBP-9	<0.3
9/2/2024	9/4/2024	12:41 PM	12:41 PM	11806510	Lab-Transit	LTBP-10	<0.3
9/2/2024	9/4/2024	12:41 PM	12:41 PM	11806511	Lab-Transit	LTBP-11	<0.3
9/2/2024	9/4/2024	12:41 PM	12:41 PM	11806512	Lab-Transit	LTBP-12	<0.3
9/2/2024	9/4/2024	12:41 PM	12:41 PM	11806513	Lab-Transit	LTBP-13	<0.3
9/2/2024	9/4/2024	12:41 PM	12:41 PM	11806514	Lab-Transit	LTBP-14	<0.3
9/2/2024	9/4/2024	12:41 PM	12:41 PM	11806515	Lab-Transit	LTBP-15	<0.3
9/2/2024	9/4/2024	12:41 PM	12:41 PM	11806516	Lab-Transit	LTBP-16	<0.3
9/2/2024	9/4/2024	12:41 PM	12:41 PM	11806517	Lab-Transit	LTBP-17	<0.3
9/2/2024	9/4/2024	12:41 PM	12:41 PM	11806518	Lab-Transit	LTBP-18	<0.3
9/2/2024	9/4/2024	12:41 PM	12:41 PM	11806519	Lab-Transit	LTBP-19	<0.3
9/2/2024	9/4/2024	12:41 PM	12:41 PM	11806520	Lab-Transit	LTBP-20	<0.3
9/2/2024	9/4/2024	12:41 PM	12:41 PM	11806521	Lab-Transit	LTBP-21	<0.3

Table 2: Blanks							
Start Date	**End Date**	**Start Time**	**End Time**	**Device ID**	**Type of Blank**	**Description**	**Radon Concentration (pCi/L)**
9/2/2024	9/4/2024	12:41 PM	12:41 PM	11806522	Lab-Transit	LTBP-22	<0.3
9/2/2024	9/4/2024	12:41 PM	12:41 PM	11806523	Lab-Transit	LTBP-23	<0.3
9/2/2024	9/4/2024	12:41 PM	12:41 PM	11806524	Lab-Transit	LTBP-24	<0.3
9/2/2024	9/4/2024	12:41 PM	12:41 PM	11806525	Lab-Transit	LTBP-25	<0.3
9/2/2024	9/4/2024	12:41 PM	12:41 PM	11806526	Lab-Transit	LTBP-26	<0.3
9/2/2024	9/4/2024	12:41 PM	12:41 PM	11806527	Lab-Transit	LTBP-27	<0.3
9/2/2024	9/4/2024	12:41 PM	12:41 PM	11806528	Lab-Transit	LTBP-28	<0.3
9/2/2024	9/4/2024	12:41 PM	12:41 PM	11806529	Lab-Transit	LTBP-29	<0.3
9/2/2024	9/4/2024	12:41 PM	12:41 PM	11806530	Lab-Transit	LTBP-30	<0.3
9/2/2024	9/4/2024	12:41 PM	12:41 PM	11806531	Lab-Transit	LTBP-31	<0.3
9/2/2024	9/4/2024	12:41 PM	12:41 PM	11806532	Lab-Transit	LTBP-32	<0.3
9/2/2024	9/4/2024	12:41 PM	12:41 PM	11806533	Lab-Transit	LTBP-33	<0.3
9/2/2024	9/4/2024	12:41 PM	12:41 PM	11806534	Lab-Transit	LTBP-34	<0.3
9/2/2024	9/4/2024	12:41 PM	12:41 PM	11806535	Lab-Transit	LTBP-35	<0.3
9/2/2024	9/4/2024	12:41 PM	12:41 PM	11806536	Lab-Transit	LTBP-36	<0.3
9/2/2024	9/4/2024	12:41 PM	12:41 PM	11806537	Lab-Transit	LTBP-37	<0.3
9/2/2024	9/4/2024	12:41 PM	12:41 PM	11806538	Lab-Transit	LTBP-38	<0.3
9/2/2024	9/4/2024	12:41 PM	12:41 PM	11806539	Lab-Transit	LTBP-39	<0.3
9/2/2024	9/4/2024	12:41 PM	12:41 PM	11806540	Lab-Transit	LTBP-40	<0.3
9/2/2024	9/4/2024	12:41 PM	12:41 PM	11806541	Lab-Transit	LTBP-41	<0.3
9/2/2024	9/4/2024	12:41 PM	12:41 PM	11806542	Lab-Transit	LTBP-42	<0.3
9/2/2024	9/4/2024	12:41 PM	12:41 PM	11806543	Lab-Transit	LTBP-43	<0.3
9/2/2024	9/4/2024	12:41 PM	12:41 PM	11806544	Lab-Transit	LTBP-44	<0.3
9/2/2024	9/4/2024	12:41 PM	12:41 PM	11806545	Lab-Transit	LTBP-45	<0.3
9/4/2024	9/6/2024	9:00 am	9:00 am	11801801	Lab-Transit	LTBP-84	<0.3
9/4/2024	9/6/2024	9:00 am	9:00 am	11801802	Lab-Transit	LTBP-64	<0.3
9/4/2024	9/6/2024	9:00 am	9:00 am	11801803	Lab-Transit	LTBP-87	<0.3
9/4/2024	9/6/2024	9:00 am	9:00 am	11801804	Lab-Transit	LTBP-89	<0.3
9/4/2024	9/6/2024	9:00 am	9:00 am	11801805	Lab-Transit	LTBP-67	<0.3
9/4/2024	9/6/2024	9:00 am	9:00 am	11801806	Lab-Transit	LTBP-76	<0.3
9/4/2024	9/6/2024	9:00 am	9:00 am	11801807	Lab-Transit	LTBP-73	<0.3
9/4/2024	9/6/2024	9:00 am	9:00 am	11801808	Lab-Transit	LTBP-88	<0.3
9/4/2024	9/6/2024	9:00 am	9:00 am	11801809	Lab-Transit	LTBP-72	<0.3
9/4/2024	9/6/2024	9:00 am	9:00 am	11801810	Lab-Transit	LTBP-75	<0.3
9/4/2024	9/6/2024	9:00 am	9:00 am	11801811	Lab-Transit	LTBP-82	<0.3
9/4/2024	9/6/2024	9:00 am	9:00 am	11801812	Lab-Transit	LTBP-83	<0.3
9/4/2024	9/6/2024	9:00 am	9:00 am	11801813	Lab-Transit	LTBP-80	<0.3
9/4/2024	9/6/2024	9:00 am	9:00 am	11801814	Lab-Transit	LTBP-78	<0.3
9/4/2024	9/6/2024	9:00 am	9:00 am	11801815	Lab-Transit	LTBP-69	<0.3

Table 2: Blanks							
Start Date	**End Date**	**Start Time**	**End Time**	**Device ID**	**Type of Blank**	**Description**	**Radon Concentration (pCi/L)**
9/4/2024	9/6/2024	9:00 am	9:00 am	11801816	Lab-Transit	LTBP-77	<0.3
9/4/2024	9/6/2024	9:00 am	9:00 am	11801817	Lab-Transit	LTBP-90	<0.3
9/4/2024	9/6/2024	9:00 am	9:00 am	11801818	Lab-Transit	LTBP-86	<0.3
9/4/2024	9/6/2024	9:00 am	9:00 am	11801819	Lab-Transit	LTBP-70	<0.3
9/4/2024	9/6/2024	9:00 am	9:00 am	11801820	Lab-Transit	LTBP-68	<0.3
9/4/2024	9/6/2024	9:00 am	9:00 am	11801821	Lab-Transit	LTBP-47	<0.3
9/4/2024	9/6/2024	9:00 am	9:00 am	11801822	Lab-Transit	LTBP-63	<0.3
9/4/2024	9/6/2024	9:00 am	9:00 am	11801823	Lab-Transit	LTBP-62	<0.3
9/4/2024	9/6/2024	9:00 am	9:00 am	11801824	Lab-Transit	LTBP-58	<0.3
9/4/2024	9/6/2024	9:00 am	9:00 am	11801825	Lab-Transit	LTBP-49	<0.3
9/4/2024	9/6/2024	9:00 am	9:00 am	11801826	Lab-Transit	LTBP-50	<0.3
9/4/2024	9/6/2024	9:00 am	9:00 am	11801827	Lab-Transit	LTBP-79	<0.3
9/4/2024	9/6/2024	9:00 am	9:00 am	11801828	Lab-Transit	LTBP-51	<0.3
9/4/2024	9/6/2024	9:00 am	9:00 am	11801829	Lab-Transit	LTBP-57	<0.3
9/4/2024	9/6/2024	9:00 am	9:00 am	11801830	Lab-Transit	LTBP-56	<0.3
9/4/2024	9/6/2024	9:00 am	9:00 am	11801831	Lab-Transit	LTBP-53	<0.3
9/4/2024	9/6/2024	9:00 am	9:00 am	11801832	Lab-Transit	LTBP-54	<0.3
9/4/2024	9/6/2024	9:00 am	9:00 am	11801833	Lab-Transit	LTBP-81	<0.3
9/4/2024	9/6/2024	9:00 am	9:00 am	11801834	Lab-Transit	LTBP-71	<0.3
9/4/2024	9/6/2024	9:00 am	9:00 am	11801835	Lab-Transit	LTBP-66	<0.3
9/4/2024	9/6/2024	9:00 am	9:00 am	11801836	Lab-Transit	LTBP-85	<0.3
9/4/2024	9/6/2024	9:00 am	9:00 am	11801837	Lab-Transit	LTBP-48	<0.3
9/4/2024	9/6/2024	9:00 am	9:00 am	11801838	Lab-Transit	LTBP-74	<0.3
9/4/2024	9/6/2024	9:00 am	9:00 am	11801839	Lab-Transit	LTBP-59	<0.3
9/4/2024	9/6/2024	9:00 am	9:00 am	11801840	Lab-Transit	LTBP-46	<0.3
9/4/2024	9/6/2024	9:00 am	9:00 am	11801841	Lab-Transit	LTBP-52	<0.3
9/4/2024	9/6/2024	9:00 am	9:00 am	11801842	Lab-Transit	LTBP-61	<0.3
9/4/2024	9/6/2024	9:00 am	9:00 am	11801843	Lab-Transit	LTBP-55	<0.3
9/4/2024	9/6/2024	9:00 am	9:00 am	11801844	Lab-Transit	LTBP-60	<0.3
9/4/2024	9/6/2024	9:00 am	9:00 am	11801845	Lab-Transit	LTBP-65	<0.3
9/20/2024	9/23/2024	7:31:00 AM	7:31:00 AM	11625664	Lab-Transit	LTB, STORAGE ROOM A	<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
11/15/2024	11/18/2024	9:00:00 AM	9:00:00 AM	11461576	Lab-Transit	LTB, STORAGE ROOM A	<0.3
12/6/2024	12/9/2024	8:19:00 AM	8:19:00 AM	11379108	Lab-Transit	LTB, STORAGE 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)
12/6/2024	12/9/2024	8:19:00 AM	8:19:00 AM	11379101	27	26.7
12/6/2024	12/9/2024	8:19:00 AM	8:19:00 AM	11379102	23.8	26.7
12/6/2024	12/9/2024	8:19:00 AM	8:19:00 AM	11379103	26.4	26.7
12/6/2024	12/9/2024	8:19:00 AM	8:19:00 AM	11379104	27.6	26.7
12/6/2024	12/9/2024	8:19:00 AM	8:19:00 AM	11379105	27.5	26.7
12/6/2024	12/9/2024	8:19:00 AM	8:19:00 AM	11379106	27.8	26.7

Appendix B

Laboratory Reports and Maps

December 21, 2024 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

EDINA PUBLIC SCHOOLS
CONCORD ELEMENTARY SCHOOL

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11804956	100	2024-12-16 @ 10:00 am	2024-12-19 @ 10:00 am	0.9 ± 0.3	2024-12-21
11804924	100B	2024-12-16 @ 10:00 am	2024-12-19 @ 10:00 am	0.8 ± 0.3	2024-12-21
11804935	101	2024-12-16 @ 10:00 am	2024-12-19 @ 10:00 am	< 0.3	2024-12-21
11804919	103	2024-12-16 @ 10:00 am	2024-12-19 @ 10:00 am	0.7 ± 0.3	2024-12-21
11804927	103 STUDY ROOM	2024-12-16 @ 10:00 am	2024-12-19 @ 10:00 am	0.5 ± 0.3	2024-12-21
11804928	103B	2024-12-16 @ 10:00 am	2024-12-19 @ 10:00 am	1.1 ± 0.3	2024-12-21
11804920	103C	2024-12-16 @ 10:00 am	2024-12-19 @ 10:00 am	0.9 ± 0.3	2024-12-21
11804912	104	2024-12-16 @ 10:00 am	2024-12-19 @ 10:00 am	< 0.3	2024-12-21
11804911	105	2024-12-16 @ 10:00 am	2024-12-19 @ 10:00 am	< 0.3	2024-12-21
11804906	106	2024-12-16 @ 10:00 am	2024-12-19 @ 10:00 am	< 0.3	2024-12-21
11804957	107	2024-12-16 @ 10:00 am	2024-12-19 @ 10:00 am	< 0.3	2024-12-21
11804943	108	2024-12-16 @ 9:00 am	2024-12-19 @ 11:00 am	0.7 ± 0.3	2024-12-21
11804966	108B	2024-12-16 @ 9:00 am	2024-12-19 @ 11:00 am	< 0.3	2024-12-21
11804958	109	2024-12-16 @ 10:00 am	2024-12-19 @ 10:00 am	0.6 ± 0.3	2024-12-21
11804948	110A	2024-12-16 @ 9:00 am	2024-12-19 @ 11:00 am	0.8 ± 0.3	2024-12-21
11804938	111	2024-12-16 @ 9:00 am	2024-12-19 @ 11:00 am	0.7 ± 0.3	2024-12-21
11804950	111A	2024-12-16 @ 9:00 am	2024-12-19 @ 11:00 am	< 0.3	2024-12-21
11804968	111B	2024-12-16 @ 9:00 am	2024-12-19 @ 11:00 am	0.6 ± 0.3	2024-12-21
11804955	111C	2024-12-16 @ 9:00 am	2024-12-19 @ 11:00 am	< 0.3	2024-12-21
11804937	111D	2024-12-16 @ 9:00 am	2024-12-19 @ 11:00 am	4.4 ± 0.4	2024-12-21
11804949	112	2024-12-16 @ 9:00 am	2024-12-19 @ 11:00 am	3.1 ± 0.3	2024-12-21
11804952	113	2024-12-16 @ 9:00 am	2024-12-19 @ 11:00 am	< 0.3	2024-12-21
11804941	114	2024-12-16 @ 9:00 am	2024-12-19 @ 11:00 am	1.2 ± 0.3	2024-12-21
11804967	115	2024-12-16 @ 9:00 am	2024-12-19 @ 11:00 am	0.8 ± 0.3	2024-12-21
11804960	115 STUDY ROOM	2024-12-16 @ 9:00 am	2024-12-19 @ 11:00 am	1.1 ± 0.3	2024-12-21
11804945	117	2024-12-16 @ 9:00 am	2024-12-19 @ 11:00 am	1.0 ± 0.3	2024-12-21
11804959	118	2024-12-16 @ 9:00 am	2024-12-19 @ 11:00 am	1.3 ± 0.3	2024-12-21
11804915	127	2024-12-16 @ 10:00 am	2024-12-19 @ 10:00 am	1.0 ± 0.3	2024-12-21
11804972	150	2024-12-16 @ 10:00 am	2024-12-19 @ 10:00 am	1.2 ± 0.3	2024-12-21
11804904	160	2024-12-16 @ 10:00 am	2024-12-19 @ 10:00 am	0.5 ± 0.3	2024-12-21
11804914	175	2024-12-16 @ 10:00 am	2024-12-19 @ 10:00 am	1.4 ± 0.3	2024-12-21
11804907	180 EAST	2024-12-16 @ 10:00 am	2024-12-19 @ 10:00 am	1.0 ± 0.3	2024-12-21
11804908	180 WEST	2024-12-16 @ 10:00 am	2024-12-19 @ 10:00 am	1.2 ± 0.3	2024-12-21
11804931	203B	2024-12-16 @ 10:00 am	2024-12-19 @ 11:00 am	< 0.3	2024-12-21
11804933	207	2024-12-16 @ 10:00 am	2024-12-19 @ 10:00 am	0.5 ± 0.3	2024-12-21
11804926	216	2024-12-16 @ 10:00 am	2024-12-19 @ 10:00 am	< 0.3	2024-12-21
11804925	230	2024-12-16 @ 10:00 am	2024-12-19 @ 10:00 am	0.8 ± 0.3	2024-12-21

Air Chek 1936 Butler Bridge Rd, Mills River, NC 28759-3892 Phone: (828) 684-0893 Fax: (828) 684-8498

December 21, 2024 **** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

EDINA PUBLIC SCHOOLS
CONCORD ELEMENTARY SCHOOL

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
11804922	231	2024-12-16 @ 10:00 am	2024-12-19 @ 10:00 am	0.9 ± 0.3	2024-12-21
11804921	232	2024-12-16 @ 11:00 am	2024-12-19 @ 10:00 am	0.8 ± 0.3	2024-12-21
11804954	CAFETERIA EAST	2024-12-16 @ 10:00 am	2024-12-19 @ 10:00 am	0.7 ± 0.3	2024-12-21
11804940	CAFETERIA SOUTHWEST	2024-12-16 @ 10:00 am	2024-12-19 @ 10:00 am	0.7 ± 0.3	2024-12-21
11804910	COPY ROOM NEAR MAIN OFFICE	2024-12-16 @ 11:00 am	2024-12-19 @ 10:00 am	0.7 ± 0.3	2024-12-21
11804942	CUSTODIAL BREAK ROOM	2024-12-16 @ 9:00 am	2024-12-19 @ 11:00 am	1.1 ± 0.3	2024-12-21
11804963	CUSTODIAL OFFICE	2024-12-16 @ 9:00 am	2024-12-19 @ 11:00 am	0.7 ± 0.3	2024-12-21
11804944	DUP-108A-1	2024-12-16 @ 9:00 am	2024-12-19 @ 11:00 am	< 0.3	2024-12-21
11804965	DUP-108A-2	2024-12-16 @ 9:00 am	2024-12-19 @ 11:00 am	0.6 ± 0.3	2024-12-21
11804951	DUP-116-1	2024-12-16 @ 9:00 am	2024-12-19 @ 11:00 am	0.8 ± 0.3	2024-12-21
11804946	DUP-116-2	2024-12-16 @ 9:00 am	2024-12-19 @ 11:00 am	0.6 ± 0.3	2024-12-21
11804903	DUP-155-1	2024-12-16 @ 10:00 am	2024-12-19 @ 10:00 am	0.8 ± 0.3	2024-12-21
11804905	DUP-155-2	2024-12-16 @ 10:00 am	2024-12-19 @ 10:00 am	0.6 ± 0.3	2024-12-21
11804916	DUP-165-1	2024-12-16 @ 10:00 am	2024-12-19 @ 10:00 am	0.6 ± 0.3	2024-12-21
11804923	DUP-165-2	2024-12-16 @ 10:00 am	2024-12-19 @ 10:00 am	0.6 ± 0.3	2024-12-21
11804929	DUP-209-1	2024-12-16 @ 10:00 am	2024-12-19 @ 10:00 am	0.5 ± 0.3	2024-12-21
11804936	DUP-209-2	2024-12-16 @ 10:00 am	2024-12-19 @ 10:00 am	0.6 ± 0.3	2024-12-21
11804930	DUP-210-1	2024-12-16 @ 10:00 am	2024-12-19 @ 10:00 am	1.3 ± 0.3	2024-12-21
11804934	DUP-210-2	2024-12-16 @ 10:00 am	2024-12-19 @ 10:00 am	1.1 ± 0.3	2024-12-21
11804982	DUP-SMALL OFFICE NEAR HEALTH OFFICE	2024-12-16 @ 11:00 am	2024-12-19 @ 10:00 am	< 0.3	2024-12-21
11804973	DUP-SMALL OFFICE NEAR HEALTH OFFICE	2024-12-16 @ 11:00 am	2024-12-19 @ 10:00 am	< 0.3	2024-12-21
11804902	FBMAIN OFFICE 1	2024-12-16 @ 11:00 am	2024-12-19 @ 11:00 am	< 0.3	2024-12-21
11804981	FBMAIN OFFICE 2	2024-12-16 @ 11:00 am	2024-12-19 @ 11:00 am	< 0.3	2024-12-21
11804947	FBMAIN OFFICE 3	2024-12-16 @ 11:00 am	2024-12-19 @ 11:00 am	< 0.3	2024-12-21
11804953	HEALTH OFFICE	2024-12-16 @ 11:00 am	2024-12-19 @ 10:00 am	0.5 ± 0.3	2024-12-21
11804964	KITCHEN	2024-12-16 @ 10:00 am	2024-12-19 @ 10:00 am	0.8 ± 0.3	2024-12-21
11804932	MAIN OFFICE	2024-12-16 @ 10:00 am	2024-12-19 @ 10:00 am	0.9 ± 0.3	2024-12-21
11804939	MAIN OFFICE - SMALL OFFICE SOUTH	2024-12-16 @ 11:00 am	2024-12-19 @ 10:00 am	0.9 ± 0.3	2024-12-21
11804909	MAIN OFFICE - SMALL OFFICE SW	2024-12-16 @ 11:00 am	2024-12-19 @ 11:00 am	0.7 ± 0.3	2024-12-21
11804917	MEDIA CENTER OFFICE	2024-12-16 @ 11:00 am	2024-12-19 @ 10:00 am	0.7 ± 0.3	2024-12-21
11804913	MEDIA CENTER SOUTH	2024-12-16 @ 11:00 am	2024-12-19 @ 10:00 am	0.7 ± 0.3	2024-12-21
11804918	MEDIA CENTER WEST	2024-12-16 @ 11:00 am	2024-12-19 @ 10:00 am	0.7 ± 0.3	2024-12-21
11804974	OSTORAGE ROOM A	2024-12-16 @ 12:00 pm	2024-12-19 @ 12:00 pm	< 0.3	2024-12-21
11804969	OSTORAGE ROOM B	2024-12-16 @ 12:00 pm	2024-12-19 @ 12:00 pm	< 0.3	2024-12-21
11804970	OSTORAGE ROOM C	2024-12-16 @ 12:00 pm	2024-12-19 @ 12:00 pm	< 0.3	2024-12-21

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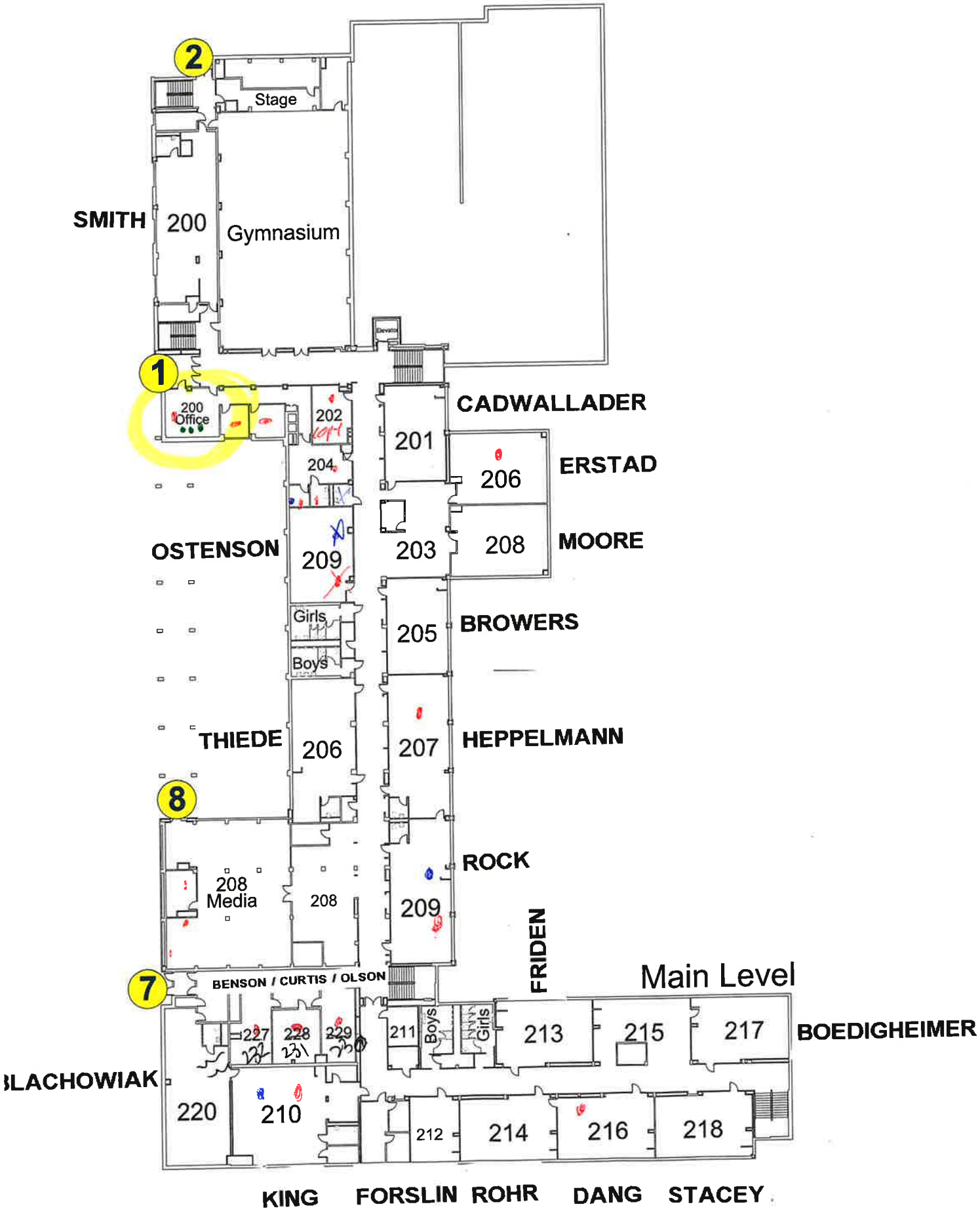


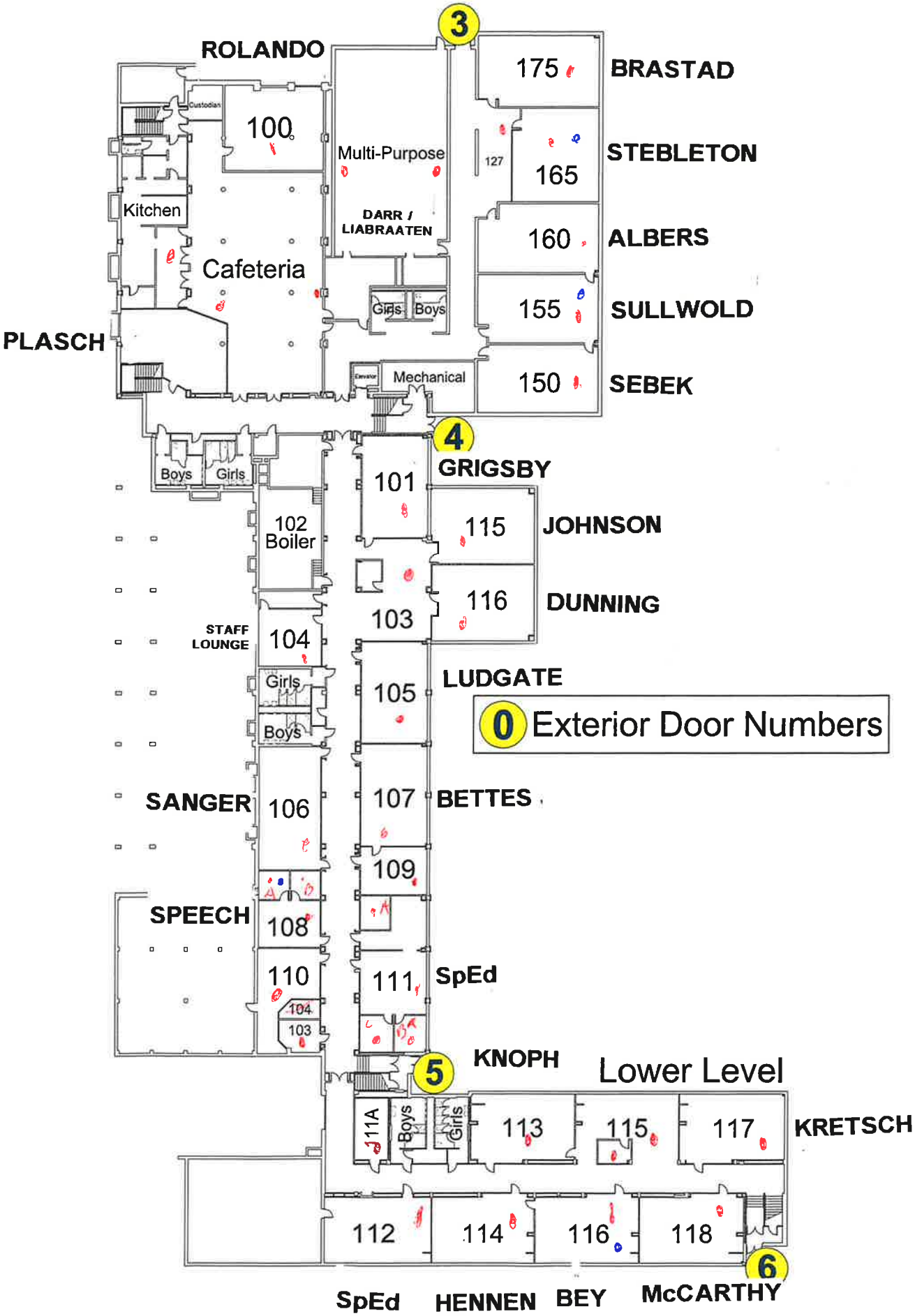
Edina Public Schools
DEFINING EXCELLENCE

Concord Elementary

Exterior Door Numbers

Date
11/20/2016

N



Edina Public Schools
DEFINING EXCELLENCE

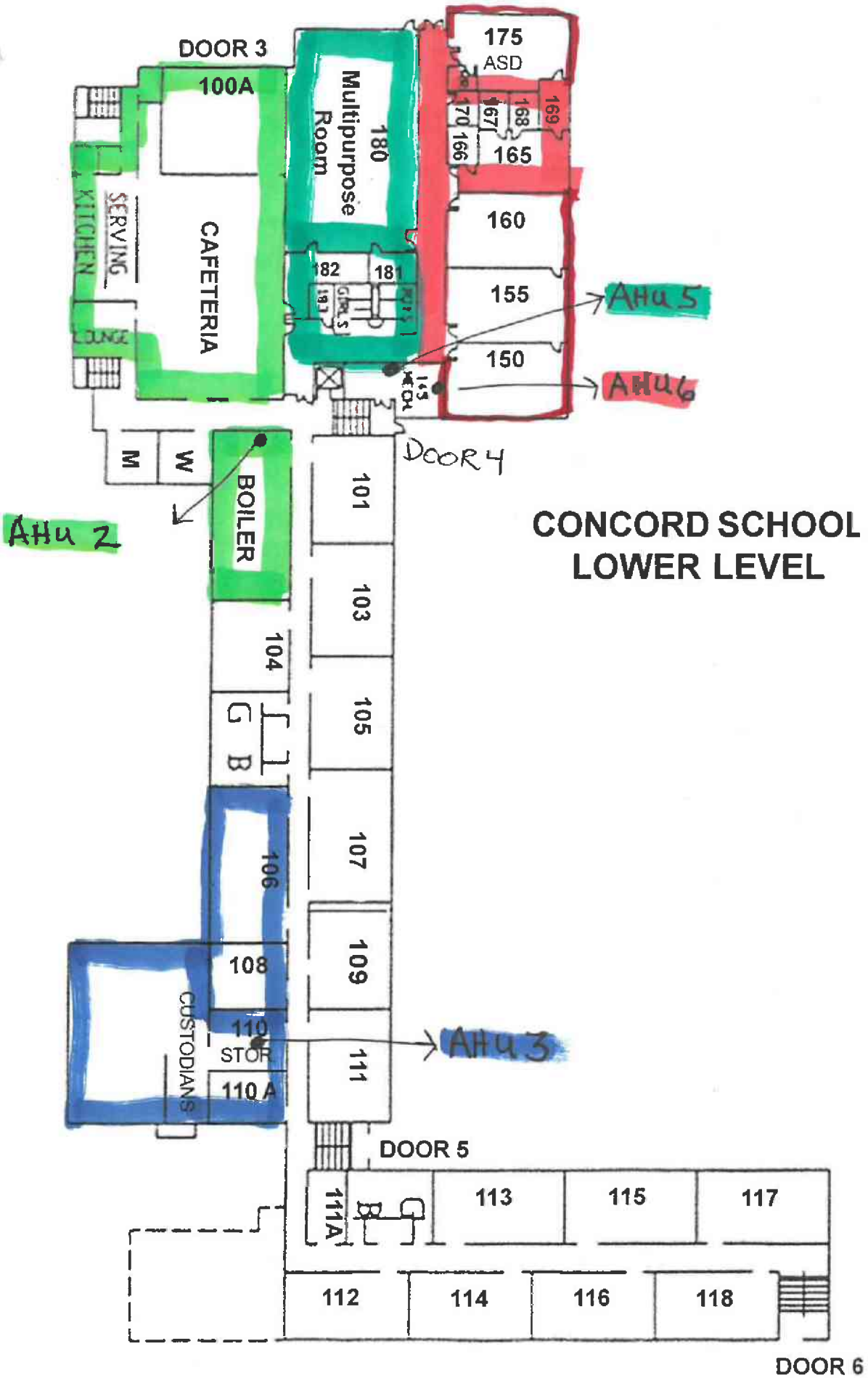
Concord Elementary

Exterior Door Numbers

Date
11/20/2016

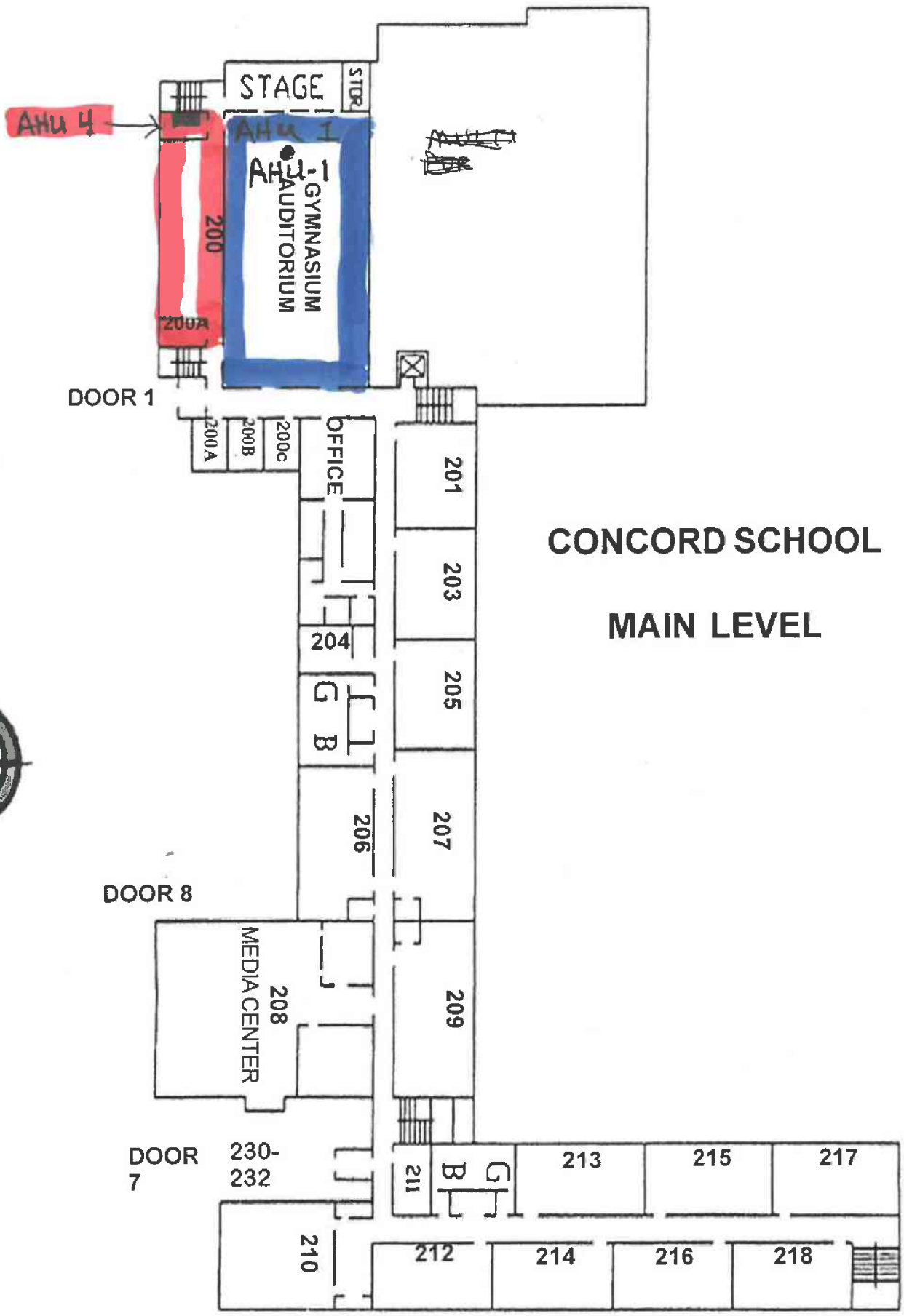
N

AHU's



CONCORD SCHOOL
LOWER LEVEL

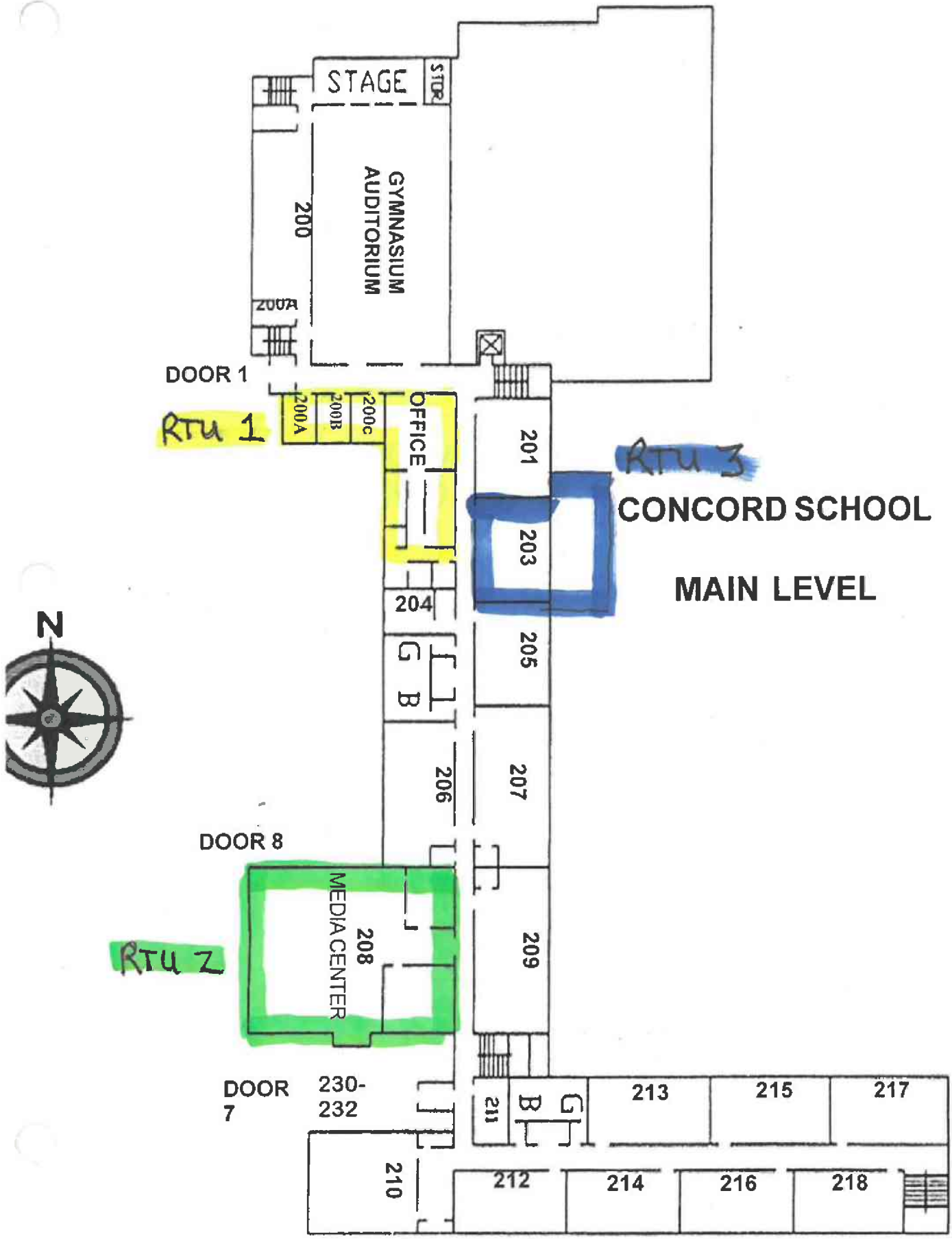
AHU's



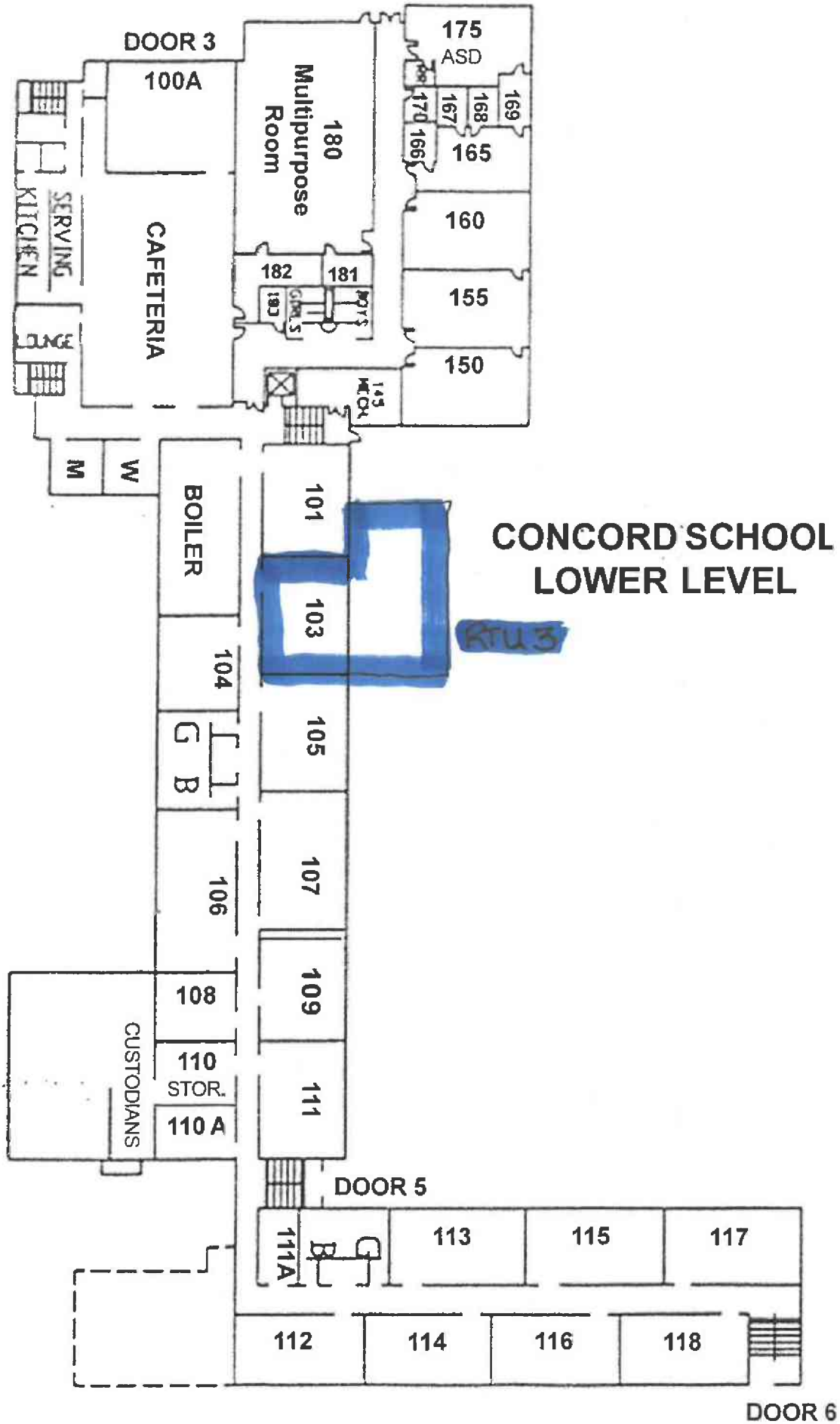
CONCORD SCHOOL

MAIN LEVEL

RTU's


STAGE
STOR
GYMNASIUM AUDITORIUM
200
200A
DOOR 1
RTU 1
200A
200B
200C
OFFICE
201
RTU 3
CONCORD SCHOOL
203
MAIN LEVEL
204
205
G
B
206
207
N
DOOR 8
MEDIA CENTER
208
RTU 2
209
DOOR 7
230-232
211
B
G
213
215
217
210
212
214
216
218

RTU's


DOOR 3
100A
180
Multipurpose Room
175
ASD
170
167
168
169
166
165
160
155
150
182
181
183
GIRLS
BOYS
143
MECH.
KITCHEN
SERVING
CAFETERIA
LOUNGE
M
W
BOILER
101
103
104
105
106
107
108
109
110
STOR.
110 A
111
CUSTODIANS
CONCORD SCHOOL
LOWER LEVEL
RTU 3
DOOR 5
111A
113
115
117
112
114
116
118
DOOR 6

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: Concord Elementary School
Test Start Date: 12-16-2024 Test End Date: 12-19-2024

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: Drew Peery

Signature: 

Licensed Measurement Professional: Jack Skluzacek RMEA-00475

COMMITMENTS, ADVISORIES, AND AUTHORIZATIONS

I have been informed of test plan options that comply with ANSI/AARST MALB 2014 with 1/2021 Revisions.

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: Edina Public Schools

Building: Concord School

Name: Rob Peterson

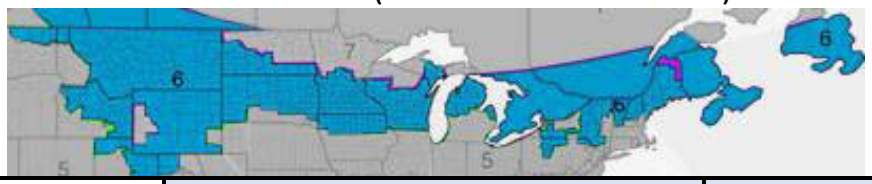
Signature: [signature]

Date: 10/11/24

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: 26 °F Minimum: 19 °F Maximum: 39 °F
	Heating Conditions	75%	66%	88%	100%
	Cooling Conditions	-	16%	11%	0%
	Mixed Conditions	25%	16%	-	0%
Normal Operating Condition		• Heating conditions • No variance in outdoor air ventilation			• Heating conditions • No variance in outdoor air ventilation • Snow or ice present outdoors
Condition less likely to inhibit characterization of a radon hazard		• Heating and air distribution systems active			• 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 Rodney Peterson

Mailing Address 5701 Normandale Road, Edina, MN 55424

Phone _____ Email rodney.peterson@edinaschools.org

Person(s) Deploying or Retrieving Test Devices[1]

Name Jack Skluzacek Organization/Company IEA

Name Allison Squures Organization/Company IEA

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 Concord Elementary School

School District & District Number Edina Public Schools #273

Building Address 5900 Concord Ave, Edina, MN 55424

Test Kit Manufacturer Air Chek Device name Pro Chek

Date of Kit Retrieval (MM/DD/YY) 12/19/24 Length of Test (days) 3

How many rooms were tested? 59

Does the test period include weekends? ☐ Yes ☑ No

Does the test period include school breaks or holidays? ☐ Yes ☑ No

Was HVAC operating under occupied conditions? ☑ Yes ☐ No

Were 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 ☐ No

Were 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 ☐ No

If 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 ☐ No

How many rooms had results ≥ 4 pCi/L? 1

[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? 1 _____

Number of rooms with follow-up results:

≥ 4 pCi/L _____ < 4 pCi/L 1 _____

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

Room had acceptable levels during occupied hours upon retesting.

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.