SHIVEHATTERY
ARCHITECTURE + ENGINEERING

March 10, 2023

Clear Creek Amana Community School District
ATTN: Mr. Maury Gallagher
1486 Hwy 6 NW, P.O. Box 487
Oxford, IA 52322

RE: North Bend Elementary School – Radon Testing

Dear Mr. Gallagher:

Per your request and authorization, Shive-Hattery, Inc. assembled a short-term radon testing plan and completed the testing for North Bend Elementary School in North Liberty, Iowa. The intent of the testing was to determine the level of radon within all ground contact, occupied areas of the building.

Methods and Procedures

The testing procedure for this project was performed by personnel trained and certified under the National Radon Proficiency Program (NRPP) and State of Iowa Department of Public Health. On May 24, 2022, House File 2412 was signed into law in the State of Iowa. This legislation calls for:

- Establish a radon testing plan.
- Preform short-term testing of all attendance centers by July 1, 2027.
- All buildings will have to be retested once every five years following.
- Radon plans and test results will need to be published to the district website.
- All new school construction must incorporate radon-resistant construction techniques.

The American Association of Radon Scientists and Technologists (AARST) Consortium on National Radon Standards (ANSI/AARST MALB 2014) “Protocol for Conducting Measurements of Radon and Radon Decay Products in Schools and Large Buildings” is the reference standard for this project, which is the recommended protocol in the State of Iowa for schools.

Available drawings were utilized to determine a testing strategy. Samples were collected from each defined testing area, including but not limited to classrooms, offices, gyms, libraries, cafeterias, and other areas of normal occupancy. Pertinent information such as location, date, time, thermostat settings, active mitigation systems, tamper controls, and weather conditions were recorded for each sample. The tests were started after a minimum of 12 hours of closed building conditions.

It is recommended that the testing period represent normal conditions when the building is significantly occupied during the active heating season. The operating condition for this building represents active heating with outdoor temperatures less than or equal to 35°F. Clear characterization of a radon hazard is most likely to be observed under this normal operating condition. Therefore, the test should reasonably characterize radon hazards.

There will be some uncertainty with any measurement result due to statistical variations and other factors such as daily and seasonal variations in radon concentrations. Variations may be due to changes in weather, operation of the building, or possible interference with the necessary test conditions.

Rad Elec E-PERM short-term measurement chambers and electrets were utilized in all tests. The electrets were analyzed for radon using an electron voltage reader (Serial #: E0747) by:

Analyst: Sam Becker
License: RNTST10096
Address: Shive-Hattery
2839 Northgate Drive
Iowa City, Iowa 52245
Phone: (319) 354-3040

Summary of Findings

Short-term testing was completed on March 1-4, 2023, in all ground contact, occupied areas of the building. Blank and duplicate samples were used as a means of quality control. All quality control devices were in normal ranges. Results from the initial testing show that no locations were found to be above 4.0 pCi/L. All results are located at the end of this report.

Recommendations

It is recommended that this building be retested in 5 years according to CCACSD's radon testing program. Retesting is also recommended after a new addition or significant renovation occurs, additional ground floor rooms not previously tested are occupied, heating or cooling systems are significantly altered, natural disasters, or the installation of ground water control or radon mitigation systems.

Radon was found in most rooms tested to some degree. It is important to understand that no level of radon is safe and can cause lung cancer with long exposure. Radon is the second leading cause of lung cancer.

Please call our office if you should have any questions or comments.

Sincerely,

SHIVE-HATTERY, INC.



Samuel S. Becker
Residential Measurement Provider
IA License Number: RNTST10096
NRPP License Number: 108001 RT
Expiration Date: April 30, 2023

SSB/mas

Enc.

Shive-Hattery
2839 Northgate Drive
Iowa City IA 52445
319-354-3040 / 319-248-3405 / 319-530-2456 (cell)
http://www.shive-hattery.com/ / sbecker@shive-hattery.com

Radon Test Report

Batch #: 030423-2

Customer:
Clear Creek Amana Community School District
1486 Hwy 6 NW
Oxford IA 52322

Test Site:
Maury Gallagher
2230 St. Andrews Drive Bldg.- North Bend
North Liberty IA 52317

E-PERM® Electret Ion Chambers were used for short-term radon screening measurements that were conducted at the above referenced test site by: Shive-Hattery

The Results are as follows:

Serial No.	Type	Location	Test Start Date		Test End Date		Results (pCi/L)
SKE983	SST	C2	01-Mar-2023	5:00 PM	04-Mar-2023	10:00 AM	0.8
SKF088	SST	B2	01-Mar-2023	5:00 PM	04-Mar-2023	10:00 AM	0.6
SKF109	SST	B4	01-Mar-2023	5:00 PM	04-Mar-2023	10:00 AM	1.0
SML521	SST	C3	01-Mar-2023	5:00 PM	04-Mar-2023	10:00 AM	<LLD
SNL299	SST	D2	01-Mar-2023	5:00 PM	04-Mar-2023	10:00 AM	1.3
SNL310	SST	MR. TRAVIS	01-Mar-2023	5:00 PM	04-Mar-2023	10:00 AM	1.9
SNL318	SST	B10	01-Mar-2023	5:00 PM	04-Mar-2023	10:00 AM	0.6
SNL322	SST	A3.1	01-Mar-2023	5:00 PM	04-Mar-2023	10:00 AM	1.1
SNL326	SST	E3	01-Mar-2023	5:00 PM	04-Mar-2023	10:00 AM	1.1
SNL341	SST	A1	01-Mar-2023	5:00 PM	04-Mar-2023	10:00 AM	1.0
SNL360	SST	B1	01-Mar-2023	5:00 PM	04-Mar-2023	10:00 AM	1.0
SNL364	SST	D3	01-Mar-2023	5:00 PM	04-Mar-2023	10:00 AM	1.5
SNL399	SST	C7	01-Mar-2023	5:00 PM	04-Mar-2023	10:00 AM	1.0
SNL405	SST	F1	01-Mar-2023	5:00 PM	04-Mar-2023	10:00 AM	0.6
SNL412	SST	A1.1	01-Mar-2023	5:00 PM	04-Mar-2023	10:00 AM	1.1
SNL437	SST	B9	01-Mar-2023	5:00 PM	04-Mar-2023	10:00 AM	0.8
SNL441	SST	A3	01-Mar-2023	5:00 PM	04-Mar-2023	10:00 AM	0.4
SNL459	SST	PE OFFICE	01-Mar-2023	5:00 PM	04-Mar-2023	10:00 AM	1.5
SNL460	SST	D6	01-Mar-2023	5:00 PM	04-Mar-2023	10:00 AM	1.3
SNL475	SST	A1.2	01-Mar-2023	5:00 PM	04-Mar-2023	10:00 AM	1.7
SNL486	SST	A1.5	01-Mar-2023	5:00 PM	04-Mar-2023	10:00 AM	1.1
SNL487	SST	B1 OFFICE	01-Mar-2023	5:00 PM	04-Mar-2023	10:00 AM	0.8
SNL488	SST	C5	01-Mar-2023	5:00 PM	04-Mar-2023	10:00 AM	0.6
SNL493	SST	E1	01-Mar-2023	5:00 PM	04-Mar-2023	10:00 AM	1.0
SNL479	SST	E5	01-Mar-2023	5:00 PM	04-Mar-2023	10:00 AM	0.8
SNL504	SST	E4	01-Mar-2023	5:00 PM	04-Mar-2023	10:00 AM	1.1
SNL506	SST	F2	01-Mar-2023	5:00 PM	04-Mar-2023	10:00 AM	0.6
SNL508	SST	A3	01-Mar-2023	5:00 PM	04-Mar-2023	10:00 AM	0.4
SNL514	SST	E7	01-Mar-2023	5:00 PM	04-Mar-2023	10:00 AM	1.1
SNL518	SST	F4	01-Mar-2023	5:00 PM	04-Mar-2023	10:00 AM	0.4
SNL525	SST	B2.1	01-Mar-2023	5:00 PM	04-Mar-2023	10:00 AM	0.9
SNL536	SST	B13	01-Mar-2023	5:00 PM	04-Mar-2023	10:00 AM	0.8
SNL546	SST	B6	01-Mar-2023	5:00 PM	04-Mar-2023	10:00 AM	1.0
SNL548	SST	D4.4	01-Mar-2023	5:00 PM	04-Mar-2023	10:00 AM	1.5
SNL555	SST	A4	01-Mar-2023	5:00 PM	04-Mar-2023	10:00 AM	1.1
SNL557	SST	E6	01-Mar-2023	5:00 PM	04-Mar-2023	10:00 AM	1.3
SNL559	SST	D6	01-Mar-2023	5:00 PM	04-Mar-2023	10:00 AM	1.7
SNL574	SST	A4	01-Mar-2023	5:00 PM	04-Mar-2023	10:00 AM	0.4
SNL576	SST	B11	01-Mar-2023	5:00 PM	04-Mar-2023	10:00 AM	0.8
SNL577	SST	F3	01-Mar-2023	5:00 PM	04-Mar-2023	10:00 AM	0.6

Shive-Hattery
2839 Northgate Drive
Iowa City IA 52445
319-354-3040 / 319-248-3405 / 319-530-2456 (cell)
http://www.shive-hattery.com/ / sbecker@shive-hattery.com

Radon Test Report

Batch #: 030423-2

Customer:
Clear Creek Amana Community School District
1486 Hwy 6 NW
Oxford IA 52322

Test Site:
Maury Gallagher
2230 St. Andrews Drive Bldg.- North Bend
North Liberty IA 52317

Serial No.	Type	Location	Test Start Date		Test End Date		Results (pCi/L)
SNL601	SST	C1	01-Mar-2023	5:00 PM	04-Mar-2023	10:00 AM	1.3
SNL606	SST	F6	01-Mar-2023	5:00 PM	04-Mar-2023	10:00 AM	0.4
SNL708	SST	C6	01-Mar-2023	5:00 PM	04-Mar-2023	10:00 AM	1.0
SNL879	SST	B8	01-Mar-2023	5:00 PM	04-Mar-2023	10:00 AM	1.3
SML413	SST	A2	01-Mar-2023	5:00 PM	04-Mar-2023	10:00 AM	1.0
SNL731	SST	A2	01-Mar-2023	5:00 PM	04-Mar-2023	10:00 AM	0.8
Average Radon Concentration in: A2							**0.9 pCi/L**
SNL352	SST	E2	01-Mar-2023	5:00 PM	04-Mar-2023	10:00 AM	0.6
SNL588	SST	E2	01-Mar-2023	5:00 PM	04-Mar-2023	10:00 AM	2.8
Average Radon Concentration in: E2							**1.7 pCi/L**
SNL458	SST	F7	01-Mar-2023	5:00 PM	04-Mar-2023	10:00 AM	1.1
SNL469	SST	F7	01-Mar-2023	5:00 PM	04-Mar-2023	10:00 AM	0.6
Average Radon Concentration in: F7							**0.9 pCi/L**
SNL368	SST	F5	01-Mar-2023	5:00 PM	04-Mar-2023	10:00 AM	0.9
SNL424	SST	F5	01-Mar-2023	5:00 PM	04-Mar-2023	10:00 AM	0.8
Average Radon Concentration in: F5							**0.9 pCi/L**
SNL353	SST	C4	01-Mar-2023	5:00 PM	04-Mar-2023	10:00 AM	1.0
SNL694	SST	C4	01-Mar-2023	5:00 PM	04-Mar-2023	10:00 AM	0.8
Average Radon Concentration in: C4							**0.9 pCi/L**
SKE965	SST	B3	01-Mar-2023	5:00 PM	04-Mar-2023	10:00 AM	<LLD
SML457	SST	B3	01-Mar-2023	5:00 PM	04-Mar-2023	10:00 AM	0.7
Average Radon Concentration in: B3							**0.5 pCi/L**
SKE970	SST	B5	01-Mar-2023	5:00 PM	04-Mar-2023	10:00 AM	1.0
SNE904	SST	B5	01-Mar-2023	5:00 PM	04-Mar-2023	10:00 AM	1.2
Average Radon Concentration in: B5							**1.1 pCi/L**

Deployed By: Sam Becker 108001 RT
Retrieved By: Sam Becker 108001 RT
Analyzed By: Sam Becker 108001 RT **Reader S/N:** E0747 **Reader Calibration Due:** 01-Nov-2023

Conditions: Requirements for Closed-Building Met
Weather: No Abnormal Weather Conditions
Vents: Open / Fan Auto
Mitigation: Unknown

Note: <LLD = Less than the Lower Limit of Detection (LLD) of the Radon Detector.

Radon Health Risk Information

Shive-Hattery
2839 Northgate Drive
Iowa City IA 52445
319-354-3040 / 319-248-3405 / 319-530-2456 (cell)
http://www.shive-hattery.com/ / sbecker@shive-hattery.com

Radon Test Report

Batch #: 030423-2

Customer:

Clear Creek Amana Community School District
1486 Hwy 6 NW
Oxford IA 52322

Test Site:

Maury Gallagher
2230 St. Andrews Drive Bldg.- North Bend
North Liberty IA 52317

Radon is the second leading cause of lung cancer after smoking. The U.S. Environmental Protection Agency (EPA) and the Surgeon General strongly recommend that further action be taken when a home's radon test results are 4.0 pCi/L or greater. The national average indoor radon level is about 1.3 pCi/L. The higher the home's radon level, the greater the health risk to you and your family. Reducing your radon levels can be done easily, effectively and fairly inexpensively. Even homes with very high radon levels can be reduced below 4.0 pCi/L. Please refer to the EPA website at www.epa.gov/radon for further information to assist you in evaluating your test results or deciding if further action is needed.

Signature: _____ **Date:** _____