SHIVEHATTERY
ARCHITECTURE + ENGINEERING

March 23, 2023

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

RE: Clear Creek 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 Clear Creek Elementary School in Oxford, 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 20-23, 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

March 23, 2023
Batch #: 032323-1

Customer:

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

Test Site:

Maury Gallagher
230 W. Wilson Street Bldg.- Clear Creek
Oxford IA 52322

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)
SKE822	SST	136.2 Testing	20-Mar-2023	6:15 AM	23-Mar-2023	6:15 AM	0.5
SKF111	SST	134 Library	20-Mar-2023	6:15 AM	23-Mar-2023	6:15 AM	0.9
SKF116	SST	134.1 Computer	20-Mar-2023	6:15 AM	23-Mar-2023	6:15 AM	0.4
SML385	SST	104	20-Mar-2023	6:15 AM	23-Mar-2023	6:15 AM	1.8
SML512	SST	120	20-Mar-2023	6:15 AM	23-Mar-2023	6:15 AM	1.1
SML530	SST	203	20-Mar-2023	6:15 AM	23-Mar-2023	6:15 AM	0.7
SML532	SST	136 Reception	20-Mar-2023	6:15 AM	23-Mar-2023	6:15 AM	0.5
SML544	SST	145 Gym	20-Mar-2023	6:15 AM	23-Mar-2023	6:15 AM	1.0
SML545	SST	122 Mech/Office	20-Mar-2023	6:15 AM	23-Mar-2023	6:15 AM	0.8
SMV420	SST	134 Library	20-Mar-2023	6:15 AM	23-Mar-2023	6:15 AM	<LLD
SNF023	SST	136.4 Nurse	20-Mar-2023	6:15 AM	23-Mar-2023	6:15 AM	0.5
SNK324	SST	145 Gym	20-Mar-2023	6:15 AM	23-Mar-2023	6:15 AM	1.5
SNK350	SST	128	20-Mar-2023	6:15 AM	23-Mar-2023	6:15 AM	1.0
SNL319	SST	111	20-Mar-2023	6:15 AM	23-Mar-2023	6:15 AM	0.6
SNL322	SST	108	20-Mar-2023	6:15 AM	23-Mar-2023	6:15 AM	0.8
SNL329	SST	109	20-Mar-2023	6:15 AM	23-Mar-2023	6:15 AM	0.7
SNL376	SST	116	20-Mar-2023	6:15 AM	23-Mar-2023	6:15 AM	2.1
SNL379	SST	136 Mail	20-Mar-2023	6:15 AM	23-Mar-2023	6:15 AM	0.7
SNL436	SST	123	20-Mar-2023	6:15 AM	23-Mar-2023	6:15 AM	1.5
SNL447	SST	127	20-Mar-2023	6:15 AM	23-Mar-2023	6:15 AM	<LLD
SNL456	SST	135 Councelor	20-Mar-2023	6:15 AM	23-Mar-2023	6:15 AM	0.6
SNL468	SST	112	20-Mar-2023	6:15 AM	23-Mar-2023	6:15 AM	1.0
SNL471	SST	208	20-Mar-2023	6:15 AM	23-Mar-2023	6:15 AM	0.6
SNL484	SST	118	20-Mar-2023	6:15 AM	23-Mar-2023	6:15 AM	1.1
SNL485	SST	Cafeteria	20-Mar-2023	6:15 AM	23-Mar-2023	6:15 AM	1.3
SNL495	SST	207A	20-Mar-2023	6:15 AM	23-Mar-2023	6:15 AM	1.0
SNL497	SST	131 Art	20-Mar-2023	6:15 AM	23-Mar-2023	6:15 AM	0.8
SNL496	SST	134.2 Conference	20-Mar-2023	6:15 AM	23-Mar-2023	6:15 AM	<LLD
SNL508	SST	105	20-Mar-2023	6:15 AM	23-Mar-2023	6:15 AM	<LLD
SNL509	SST	113	20-Mar-2023	6:15 AM	23-Mar-2023	6:15 AM	1.0
SNL535	SST	124	20-Mar-2023	6:15 AM	23-Mar-2023	6:15 AM	1.0
SNL555	SST	136.1 Principal	20-Mar-2023	6:15 AM	23-Mar-2023	6:15 AM	<LLD
SNL559	SST	115	20-Mar-2023	6:15 AM	23-Mar-2023	6:15 AM	1.5
SNL574	SST	114	20-Mar-2023	6:15 AM	23-Mar-2023	6:15 AM	<LLD
SNL575	SST	117	20-Mar-2023	6:15 AM	23-Mar-2023	6:15 AM	1.6
SNL601	SST	126	20-Mar-2023	6:15 AM	23-Mar-2023	6:15 AM	1.0
SNL688	SST	134.3 Workroom	20-Mar-2023	6:15 AM	23-Mar-2023	6:15 AM	1.0
SNL708	SST	Cafeteria	20-Mar-2023	6:15 AM	23-Mar-2023	6:15 AM	1.1

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Test Site:

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Serial No.	Type	Location	Test Start Date		Test End Date		Results (pCi/L)
SNL424	SST	145.2 Gym Office	20-Mar-2023	6:15 AM	23-Mar-2023	6:15 AM	1.0
SNL510	SST	145.2 Gym Office	20-Mar-2023	6:15 AM	23-Mar-2023	6:15 AM	1.3
Average Radon Concentration in: 145.2 Gym Office							**1.1 pCi/L**
SNL439	SST	119	20-Mar-2023	6:15 AM	23-Mar-2023	6:15 AM	1.5
SNL563	SST	119	20-Mar-2023	6:15 AM	23-Mar-2023	6:15 AM	1.1
Average Radon Concentration in: 119							**1.3 pCi/L**
SML465	SST	133 Music	20-Mar-2023	6:15 AM	23-Mar-2023	6:15 AM	0.8
SNL334	SST	133 Music	20-Mar-2023	6:15 AM	23-Mar-2023	6:15 AM	1.0
Average Radon Concentration in: 133 Music							**0.9 pCi/L**
SML562	SST	125	20-Mar-2023	6:15 AM	23-Mar-2023	6:15 AM	1.0
SNM860	SST	125	20-Mar-2023	6:15 AM	23-Mar-2023	6:15 AM	1.0
Average Radon Concentration in: 125							**1.0 pCi/L**
SNL331	SST	110	20-Mar-2023	6:15 AM	23-Mar-2023	6:15 AM	<LLD
SNL551	SST	110	20-Mar-2023	6:15 AM	23-Mar-2023	6:15 AM	0.5
Average Radon Concentration in: 110							**<LLD pCi/L**
SNL513	SST	101	20-Mar-2023	6:15 AM	23-Mar-2023	6:15 AM	1.1
SNL568	SST	101	20-Mar-2023	6:15 AM	23-Mar-2023	6:15 AM	1.5
Average Radon Concentration in: 101							**1.3 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: No System Installed

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

Radon Health Risk Information

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:** _____