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: Middle 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 the Middle School in Tiffin, 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 4-8, 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 #: 030923-1

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

Test Site:
Maury Gallagher
311 W Marengo Road Bldg.- Middle School
Tiffin IA 52340

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)
SIE461	SST	452	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	0.9
SKE940	SST	466	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	1.5
SKE965	SST	425	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	1.2
SKF030	SST	460	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	1.0
SKF097	SST	220	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	0.6
SKF111	SST	448	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	0.9
SKF138	SST	400	04-Mar-2023	2:45 PM	10-Mar-2023	9:40 AM	1.3
SKF189	SST	410	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	0.9
SML439	SST	340	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	0.6
SML513	SST	320	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	1.0
SML518	SST	310	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	<LLD
SML530	SST	475	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	0.9
SML532	SST	406	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	1.0
SML533	SST	330	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	<LLD
SML562	SST	416	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	1.5
SML578	SST	345	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	<LLD
SML581	SST	448	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	1.2
SML589	SST	315	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	0.6
SMV392	SST	325	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	0.6
SMV420	SST	Kitchen Office	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	1.3
SNE858	SST	349	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	0.5
SNE904	SST	445	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	1.1
SNF009	SST	360	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	1.9
SNK328	SST	116	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	0.8
SNK350	SST	354	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	<LLD
SNK390	SST	430	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	1.1
SNK492	SST	7	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	1.1
SNK572	SST	135	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	1.7
SNK609	SST	14b	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	0.6
SNL299	SST	105/100	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	0.8
SNL322	SST	4	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	2.4
SNL352	SST	340 Stage	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	0.4
SNL360	SST	441	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	0.8
SNL368	SST	455	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	0.9
SNL369	SST	125	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	0.6
SNL393	SST	130	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	0.6
SNL404	SST	462	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	1.3
SNL424	SST	465	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	1.3
SNL430	SST	300 Office	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	0.7
SNL441	SST	3	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	1.0
SNL475	SST	110	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	0.7

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Oxford IA 52322

Test Site:
Maury Gallagher
311 W Marengo Road Bldg.- Middle School
Tiffin IA 52340

Serial No.	Type	Location	Test Start Date		Test End Date		Results (pCi/L)
SNL488	SST	415	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	0.7
SNL492	SST	467	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	1.9
SNL496	SST	350	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	0.4
SNL508	SST	150	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	1.8
SNL512	SST	450	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	1.0
SNL523	SST	115	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	1.1
SNL555	SST	14a	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	2.1
SNL559	SST	356	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	2.2
SNL560	SST	145	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	0.4
SNL568	SST	12	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	1.0
SNL570	SST	9	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	1.3
SNL574	SST	2	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	2.1
SNL592	SST	162	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	1.0
SNL601	SST	420	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	0.8
SNL705	SST	480	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	0.9
SNL744	SST	245	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	<LLD
SNM966	SST	140	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	0.7
SNN017	SST	305	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	0.9
SNL313	SST	8	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	1.3
SNL380	SST	8	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	1.4
Average Radon Concentration in: 8							**1.4 pCi/L**
SKF116	SST	440	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	1.2
SNL708	SST	440	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	1.2
Average Radon Concentration in: 440							**1.2 pCi/L**
SKF126	SST	464	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	1.9
SNK402	SST	464	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	1.9
Average Radon Concentration in: 464							**1.9 pCi/L**
SNL334	SST	15	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	0.7
SNL472	SST	15	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	0.7
Average Radon Concentration in: 15							**0.7 pCi/L**
SML605	SST	120	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	0.7
SNL607	SST	120	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	<LLD
Average Radon Concentration in: 120							**<LLD pCi/L**
SNE751	SST	300	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	1.1
SNE903	SST	300	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	0.8
Average Radon Concentration in: 300							**1.0 pCi/L**

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Serial No.	Type	Location	Test Start Date		Test End Date		Results (pCi/L)
SML509	SST	335	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	1.1
SNE769	SST	335	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	0.9
Average Radon Concentration in: 335							**1.0 pCi/L**
SNE905	SST	350	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	<LLD
SNL688	SST	350	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	0.4
Average Radon Concentration in: 350							**<LLD pCi/L**
SML544	SST	15	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	0.6
SNL401	SST	15	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	<LLD
Average Radon Concentration in: 15							**0.4 pCi/L**
SNK456	SST	405	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	0.8
SNL383	SST	405	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	<LLD
Average Radon Concentration in: 405							**0.4 pCi/L**
SKE970	SST	470	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	1.1
SNL556	SST	470	04-Mar-2023	2:45 PM	08-Mar-2023	2:45 PM	1.4
Average Radon Concentration in: 470							**1.2 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:** _____