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: Tiffin 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 Tiffin Elementary 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 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 #: 030423-1

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

Test Site:
104 N. Park Road Bldg.- Tiffin Elementary
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	D102	01-Mar-2023	2:30 PM	04-Mar-2023	8:00 AM	1.5
SKE940	SST	D105	01-Mar-2023	2:30 PM	04-Mar-2023	8:00 AM	1.8
SKF030	SST	A104	01-Mar-2023	2:30 PM	04-Mar-2023	8:00 AM	1.8
SKF053	SST	107	01-Mar-2023	2:30 PM	04-Mar-2023	8:00 AM	2.5
SKF097	SST	B105	01-Mar-2023	2:30 PM	04-Mar-2023	8:00 AM	2.5
SKF116	SST	D101	01-Mar-2023	2:30 PM	04-Mar-2023	8:00 AM	0.9
SKF126	SST	A107	01-Mar-2023	2:30 PM	04-Mar-2023	8:00 AM	2.0
SKF189	SST	D100	01-Mar-2023	2:30 PM	04-Mar-2023	8:00 AM	1.2
SML439	SST	B102	01-Mar-2023	2:30 PM	04-Mar-2023	8:00 AM	1.6
SML466	SST	113	01-Mar-2023	2:30 PM	04-Mar-2023	8:00 AM	2.2
SML491	SST	101	01-Mar-2023	2:30 PM	04-Mar-2023	8:00 AM	1.6
SML509	SST	D107	01-Mar-2023	2:30 PM	04-Mar-2023	8:00 AM	1.5
SML513	SST	B106	01-Mar-2023	2:30 PM	04-Mar-2023	8:00 AM	1.4
SML518	SST	B104	01-Mar-2023	2:30 PM	04-Mar-2023	8:00 AM	3.9
SML530	SST	A103	01-Mar-2023	2:30 PM	04-Mar-2023	8:00 AM	1.8
SML532	SST	125	01-Mar-2023	2:30 PM	04-Mar-2023	8:00 AM	1.2
SML533	SST	C105	01-Mar-2023	2:30 PM	04-Mar-2023	8:00 AM	2.5
SML544	SST	C101	01-Mar-2023	2:30 PM	04-Mar-2023	8:00 AM	1.9
SML562	SST	131	01-Mar-2023	2:30 PM	04-Mar-2023	8:00 AM	1.5
SML578	SST	C106	01-Mar-2023	2:30 PM	04-Mar-2023	8:00 AM	2.0
SML581	SST	A102	01-Mar-2023	2:30 PM	04-Mar-2023	8:00 AM	1.7
SML589	SST	A100	01-Mar-2023	2:30 PM	04-Mar-2023	8:00 AM	2.7
SML605	SST	121	01-Mar-2023	2:30 PM	04-Mar-2023	8:00 AM	1.7
SNE751	SST	B103	01-Mar-2023	2:30 PM	04-Mar-2023	8:00 AM	1.4
SNE769	SST	D104	01-Mar-2023	2:30 PM	04-Mar-2023	8:00 AM	1.3
SNE858	SST	D103	01-Mar-2023	2:30 PM	04-Mar-2023	8:00 AM	1.9
SNE890	SST	B101	01-Mar-2023	2:30 PM	04-Mar-2023	8:00 AM	2.7
SNE905	SST	C100	01-Mar-2023	2:30 PM	04-Mar-2023	8:00 AM	1.6
SNK328	SST	120	01-Mar-2023	2:30 PM	04-Mar-2023	8:00 AM	1.7
SNK350	SST	C107	01-Mar-2023	2:30 PM	04-Mar-2023	8:00 AM	1.5
SNK402	SST	106	01-Mar-2023	2:30 PM	04-Mar-2023	8:00 AM	1.7
SNK456	SST	128	01-Mar-2023	2:30 PM	04-Mar-2023	8:00 AM	2.4
SNK572	SST	119	01-Mar-2023	2:30 PM	04-Mar-2023	8:00 AM	1.5
SNK609	SST	112	01-Mar-2023	2:30 PM	04-Mar-2023	8:00 AM	1.7
SNL313	SST	131	01-Mar-2023	2:30 PM	04-Mar-2023	8:00 AM	1.9
SNL334	SST	108	01-Mar-2023	2:30 PM	04-Mar-2023	8:00 AM	2.8
SNL379	SST	B100	01-Mar-2023	2:30 PM	04-Mar-2023	8:00 AM	1.9
SNL380	SST	115	01-Mar-2023	2:30 PM	04-Mar-2023	8:00 AM	2.0
SNL383	SST	127	01-Mar-2023	2:30 PM	04-Mar-2023	8:00 AM	3.7
SNL393	SST	111	01-Mar-2023	2:30 PM	04-Mar-2023	8:00 AM	1.5
SNL401	SST	C103	01-Mar-2023	2:30 PM	04-Mar-2023	8:00 AM	1.7

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Oxford IA 52322

Test Site:
104 N. Park Road Bldg.- Tiffin Elementary
Tiffin IA 52340

Serial No.	Type	Location	Test Start Date		Test End Date		Results (pCi/L)
SNL404	SST	103	01-Mar-2023	2:30 PM	04-Mar-2023	8:00 AM	2.2
SNL416	SST	A105	01-Mar-2023	2:30 PM	04-Mar-2023	8:00 AM	1.8
SNL430	SST	120.2	01-Mar-2023	2:30 PM	04-Mar-2023	8:00 AM	1.7
SNL472	SST	108.1	01-Mar-2023	2:30 PM	04-Mar-2023	8:00 AM	1.8
SNL491	SST	122	01-Mar-2023	2:30 PM	04-Mar-2023	8:00 AM	1.3
SNL492	SST	126.2	01-Mar-2023	2:30 PM	04-Mar-2023	8:00 AM	2.2
SNL556	SST	122	01-Mar-2023	2:30 PM	04-Mar-2023	8:00 AM	1.5
SNL568	SST	C104	01-Mar-2023	2:30 PM	04-Mar-2023	8:00 AM	1.7
SNL607	SST	112.1	01-Mar-2023	2:30 PM	04-Mar-2023	8:00 AM	2.6
SNL705	SST	A101	01-Mar-2023	2:30 PM	04-Mar-2023	8:00 AM	1.7
SNM966	SST	121.1	01-Mar-2023	2:30 PM	04-Mar-2023	8:00 AM	2.4
SNN017	SST	121.2	01-Mar-2023	2:30 PM	04-Mar-2023	8:00 AM	1.5
SNK492	SST	120	01-Mar-2023	2:30 PM	04-Mar-2023	8:00 AM	1.9
SNL523	SST	120	01-Mar-2023	2:30 PM	04-Mar-2023	8:00 AM	1.7
Average Radon Concentration in: 120							**1.8 pCi/L**
SNE903	SST	B107	01-Mar-2023	2:30 PM	04-Mar-2023	8:00 AM	2.1
SNL744	SST	B107	01-Mar-2023	2:30 PM	04-Mar-2023	8:00 AM	2.4
Average Radon Concentration in: B107							**2.2 pCi/L**
SNK390	SST	A106	01-Mar-2023	2:30 PM	04-Mar-2023	8:00 AM	2.1
SNL462	SST	A106	01-Mar-2023	2:30 PM	04-Mar-2023	8:00 AM	2.0
Average Radon Concentration in: A106							**2.1 pCi/L**
SMV392	SST	131.2	01-Mar-2023	2:30 PM	04-Mar-2023	8:00 AM	1.4
SNL320	SST	131.2	01-Mar-2023	2:30 PM	04-Mar-2023	8:00 AM	1.5
Average Radon Concentration in: 131.2							**1.4 pCi/L**
SMV420	SST	C102	01-Mar-2023	2:30 PM	04-Mar-2023	8:00 AM	2.0
SNF009	SST	C102	01-Mar-2023	2:30 PM	04-Mar-2023	8:00 AM	1.5
Average Radon Concentration in: C102							**1.8 pCi/L**
SNL369	SST	D106	01-Mar-2023	2:30 PM	04-Mar-2023	8:00 AM	2.2
SNL496	SST	D106	01-Mar-2023	2:30 PM	04-Mar-2023	8:00 AM	1.7
Average Radon Concentration in: D106							**2.0 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

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Mitigation: Unknown

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:** _____