



MCPS RADON TESTING – EXECUTIVE SUMMARY

Site Name	Smith, Lathrope E. Environmental Education Center
Date of Test Report	01/20/2022
Round of Testing	Initial Follow-up Post Remediation <u>2 Year Testing</u> 5 Year Testing HVAC Upgrade Window Replacement New Addition New Facility
# Rooms Tested	27
# Rooms \geq 4.0 pCi/L	0
Lowest Value	<0.3 pCi/L
Highest Value	2.8 pCi/L

Project Status

Current Project Status at this time: Testing Complete; no further action.



January 20, 2022

Mr. Richard Cox
Indoor Air Quality Team Leader
Montgomery County Public Schools
Gaithersburg, MD 20879

Re: **Radon Testing Services**
KCI Job # 122108316

Location: Smith, Lathrope E. Environmental Education Center
5110 Meadowside Lane
Rockville, MD 20855

Dear Mr. Cox:

KCI Technologies, Inc. (KCI) is pleased to submit the following report to Montgomery County Public Schools (MCPS) pursuant to completing a “short-term” 3 day radon test for Smith, Lathrope E. Environmental Education Center located at 5110 Meadowside Lane Rockville, MD 20855 (subject site).

Scope of Services:

KCI conducted radon testing at the subject site to evaluate indoor radon levels relative to the USEPA's recommended action level of 4.0 picocuries per Liter (pCi/L) - the level at which EPA recommends that schools take action to reduce the level. KCI conducted the radon testing in accordance with American Association of Radon Scientists and Technologists (AARST) *Protocol for Conducting Measurements of Radon and Radon Decay Products in Schools and Large Buildings*. A National Radon Proficiency Program (NRPP) Radon Measurement Specialist (certification #111004 RT) supervised the testing. Additional information on radon management and the health effects of radon exposure is available from <https://www.montgomeryschoolsmd.org> or www.epa.gov/radon.

KCI visited the site on December 13, 2021 and deployed thirty-one (31) activated charcoal (AC) radon test kits. KCI deployed radon test kits in all frequently-occupied ground contact rooms, and other areas, (if applicable) in accordance with AARST guidance.

A floor plan map of the building with the test locations is included as Attachment A of this report.

As a quality control measure, KCI also included duplicate samples, field blanks, lab transit blanks, and office blanks in accordance with AARST recommendations. In addition, KCI submitted test kits to Bowser-Morner, Inc. as spike samples. The spiked tests were exposed to a known radon concentration by Bowser-Morner prior to being returned to the laboratory for analysis.

KCI returned to the site on December 16, 2021 to retrieve the radon sampling test kits. KCI shipped all radon tests via overnight delivery to Airchek, Inc. for analysis by gamma-ray spectroscopy. Airchek, Inc. is a NRSB certified analytical laboratory for radon analysis (certification # ARL1402) located at 1936 Butler Bridge Road, Mills River, North Carolina.

Evaluation of Testing Conditions:

These tests represent:

- Follow-up to post-mitigation biennial testing.

These tests were conducted to:

- Confirm the success of the mitigation system(s).

According to AARST, *Protocol for Conducting Measurements of Radon and Radon Decay Products in Schools and Large Buildings*, ideal testing conditions would be when the building is fully occupied and the heating system is active. For this test, the facility's HVAC system was operating in heating mode; therefore, KCI concludes that this test was conducted during ideal testing conditions.

KCI recorded observations of the following conditions in each room during the time of deployment and collection of the radon test kits:

- Indoor temperature,
- HVAC Operation,
- Dehumidifier operation,
- Humidifier operation,
- Ceiling fan operation, and
- Open windows or doors.

KCI also compiled weather data for the testing period and conducted observations of relevant field conditions. During the test period, weather records indicate low temperatures were in the low 30°Fs and high temperatures ranged from the mid 50°Fs to the high 60°Fs. Maximum sustained winds ranged from 3-12 miles per hour. Average humidity was around 50% with 0.0 inches of precipitation (rain) was recorded during testing period.

Results:

The sampling locations and analytical results are listed on Table 1 (Attachment B). The quality control sample locations and analytical results are listed on Table 2 (Attachment B). Sampling locations and associated test kit identification numbers and relevant field observations are listed on Table 3 (Attachment B). The laboratory analytical results are included in Attachment C. Laboratory results and exposure data for the spike samples are also included in Attachment C.

The results of the radon test analysis indicated the following:

Radon Concentration	Room	Result
≥4.0 pCi/L	NA	NA
<4.0 pCi/L	See Attachment B	

Quality Control Samples	
Results of Blank Canisters:	The office blanks, and lab transit blanks had test results of less than the laboratory detection limit of 0.3 pCi/L.
Adequate Laboratory Precision?	Review of the duplicate sample analysis indicates that adequate laboratory measurement precision was achieved.
Spike Sample Analysis:	The Spike Sample analysis results indicate the laboratory is operating within statistical control limits.

Our professional services have been performed in accordance with customary principles and practices in the field of industrial hygiene and engineering. If you have any questions or comments regarding this report, please feel free to contact me at (410) 891-1769.

Sincerely,



Tyler P. McCleaf
Radon Measurement Provider
#111004 RT
KCI Technologies, Inc.

Attachments: A- Floor Plan with Test Locations
 B- Table 1-3, Radon Test Summary Spreadsheets
 C- Laboratory Analytical Results

ATTACHMENT A

Floor Plan With Test Locations

ATTACHMENT B

Radon Test Summary Spreadsheets

Table Notes:

AC- Activated Charcoal

ACI- Air Check, Inc.

D- Duplicate

FB- Field Blank

KCI- KCI Technologies, Inc.

OB- Office Blank

PM- Project Manager

OC- Quality Control

Table 1- Radon Testing Results		
Smith, Lathrop E. Environmental Education Center		
Test Period: 12/13/2021-12/16/2021		
Kit Number	Room / Area	Result
9339710	SOLAR SCHOOLHOUSE	< 0.3
9339902	STRIPED BASS NW	2.1
9339914	BES GENDER NEUTRAL ROOM	1.5
9339916	STRIPED BASS SE	2.6
9339917	SUPERVISOR	0.7
9339921	BES NW	1.3
9339926	OFFICE	1
9339927	PLANETARIUM	2.8
9341768	STRIPED BASS FRONT ROOM	2.2
9341774	NURSE OFFICE	0.7
9341775	SHOP	1
9341795	BALTIMORE CHECKERSPOT LEFT SIDE ROO	< 0.3
9346983	BACK OFFICE	0.9
9346988	CAFETERIA	0.8
9346989	SHOP	0.9
9346990	LIBRARY	0.8
9346991	BALTIMORE CHECKERSPOT LEFT SIDE ROO	1.5
9348329	STRIPED BASS GENDER NEUTRAL	2.2
9348335	BALTIMORE CHECKERSPOT RIGHT ROOM	1.5
9348336	BALTIMORE ORIOLE	2.3
9348347	BALTIMORE CHECKERSPOT BACK ROOM	1.7
9348355	CAFETERIA	1.2
9348361	BOYS	2.5
9348366	BALTIMORE CHECKERSPOT FRONT ROOM	1.7
9348369	PUP ROOM	1.7
9348377	BREAKROOM	0.8
9348388	BALTIMORE CHECKERSPOT LEFT SIDE ROO	1.7
9348390	GENDER NEUTRAL	1.8
9348391	BES SE	1.4
9348393	SOLAR SCHOOLHOUSE	0.6
9348394	GIRLS	2.2

Table 2- Radon Testing Results			
Smith, Lathrop E. Environmental Education Center			
Test Period: 12/13/2021-12/16/2021			
Kit Number	QC Type	Room / Area	Result
9346989	D	Shop	0.9
9348388	D	Baltimore checkerspot left side room	1.7
9341795	FB	Baltimore checkerspot left side room	< 0.3
9348393	D	Solar Schoolhouse	0.6
9347000	OB	OFFICE BLANK	< 0.3
9347992	TB	TRAVEL BLANK	< 0.3

Summary of Missed Locations		
Smith Environmental Education Center		
Test Period: 12/13/2021 - 12/16/2021		
Kit Number	Room/Area	Result
	NA	

Summary of Missing, Compromised and ≥ 4 piC/L Tests		
Smith Environmental Education Center		
Test Period: 12/13/2021 - 12/16/2021		
Kit Number	Room/Area	Result
	NA	

Table Note:
 * Missing or Compromised Sample

ATTACHMENT C

Laboratory Analytical Results

Radon test result report for:**SMITH EEC
MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9346983	BACK OFFICE	2021-12-13 @ 7:00 am	2021-12-16 @ 7:00 am	0.9 ± 0.3	2021-12-17
9348347	BALTIMORE CHECKERSPOT BACK ROOM	2021-12-13 @ 9:00 am	2021-12-16 @ 8:00 am	1.7 ± 0.3	2021-12-17
9348366	BALTIMORE CHECKERSPOT FRONT ROOM	2021-12-13 @ 8:00 am	2021-12-16 @ 8:00 am	1.7 ± 0.3	2021-12-17
9346991	BALTIMORE CHECKERSPOT LEFT SIDE ROO	2021-12-13 @ 9:00 am	2021-12-16 @ 8:00 am	1.5 ± 0.3	2021-12-17
9348388	BALTIMORE CHECKERSPOT LEFT SIDE ROO	2021-12-13 @ 9:00 am	2021-12-16 @ 8:00 am	1.7 ± 0.3	2021-12-17
9341795	BALTIMORE CHECKERSPOT LEFT SIDE ROO	2021-12-13 @ 9:00 am	2021-12-16 @ 8:00 am	< 0.3	2021-12-17
9348335	BALTIMORE CHECKERSPOT RIGHT ROOM	2021-12-13 @ 8:00 am	2021-12-16 @ 8:00 am	1.5 ± 0.3	2021-12-17
9348336	BALTIMORE ORIOLE	2021-12-13 @ 8:00 am	2021-12-16 @ 8:00 am	2.3 ± 0.3	2021-12-17
9339914	BES GENDER NEUTRAL ROOM	2021-12-13 @ 9:00 am	2021-12-16 @ 8:00 am	1.5 ± 0.3	2021-12-17
9339921	BES NW	2021-12-13 @ 9:00 am	2021-12-16 @ 8:00 am	1.3 ± 0.3	2021-12-17
9348391	BES SE	2021-12-13 @ 9:00 am	2021-12-16 @ 8:00 am	1.4 ± 0.3	2021-12-17
9348361	BOYS	2021-12-13 @ 8:00 am	2021-12-16 @ 8:00 am	2.5 ± 0.3	2021-12-17
9348377	BREAKROOM	2021-12-13 @ 8:00 am	2021-12-16 @ 7:00 am	0.8 ± 0.3	2021-12-17
9348355	CAFETERIA	2021-12-13 @ 8:00 am	2021-12-16 @ 7:00 am	1.2 ± 0.3	2021-12-17
9346988	CAFETERIA	2021-12-13 @ 8:00 am	2021-12-16 @ 7:00 am	0.8 ± 0.3	2021-12-17
9348390	GENDER NEUTRAL	2021-12-13 @ 8:00 am	2021-12-16 @ 8:00 am	1.8 ± 0.3	2021-12-17
9348394	GIRLS	2021-12-13 @ 8:00 am	2021-12-16 @ 8:00 am	2.2 ± 0.3	2021-12-17
9346990	LIBRARY	2021-12-13 @ 8:00 am	2021-12-16 @ 7:00 am	0.8 ± 0.3	2021-12-17
9341774	NURSE OFFICE	2021-12-13 @ 7:00 am	2021-12-16 @ 7:00 am	0.7 ± 0.3	2021-12-17
9339926	OFFICE	2021-12-13 @ 8:00 am	2021-12-16 @ 7:00 am	1.0 ± 0.3	2021-12-17
9339927	PLANETARIUM	2021-12-13 @ 8:00 am	2021-12-16 @ 7:00 am	2.8 ± 0.3	2021-12-17
9348369	PUP ROOM	2021-12-13 @ 8:00 am	2021-12-16 @ 7:00 am	1.7 ± 0.3	2021-12-17
9346989	SHOP	2021-12-13 @ 8:00 am	2021-12-16 @ 7:00 am	0.9 ± 0.3	2021-12-17
9341775	SHOP	2021-12-13 @ 8:00 am	2021-12-16 @ 7:00 am	1.0 ± 0.3	2021-12-17
9339710	SOLAR SCHOOLHOUSE	2021-12-13 @ 9:00 am	2021-12-16 @ 8:00 am	< 0.3	2021-12-17
9348393	SOLAR SCHOOLHOUSE	2021-12-13 @ 9:00 am	2021-12-16 @ 8:00 am	0.6 ± 0.3	2021-12-17
9341768	STRIPED BASS FRONT ROOM	2021-12-13 @ 9:00 am	2021-12-16 @ 8:00 am	2.2 ± 0.3	2021-12-17
9348329	STRIPED BASS GENDER NEUTRAL	2021-12-13 @ 9:00 am	2021-12-16 @ 8:00 am	2.2 ± 0.3	2021-12-17
9339902	STRIPED BASS NW	2021-12-13 @ 9:00 am	2021-12-16 @ 8:00 am	2.1 ± 0.3	2021-12-17
9339916	STRIPED BASS SE	2021-12-13 @ 9:00 am	2021-12-16 @ 8:00 am	2.6 ± 0.3	2021-12-17
9339917	SUPERVISOR	2021-12-13 @ 7:00 am	2021-12-16 @ 7:00 am	0.7 ± 0.3	2021-12-17

EXPOSURE IN BOWSER-MORNER RADON CHAMBER

CLIENT KCI Technologies, Inc. Job Number 203404

NOMINAL Conditions: Radon Conc 16.2 pCi/L Rel. Hum 28.8 % Temp. 59.9 F

Date Start: 12/24/21 Date Stop: 12/27/21 Date Start: _____ Date Stop: _____

Time Start: 0809 Time Stop: 0809 Time Start: _____ Time Stop: _____

Device No.'s: (2) Char Bags - Device No.'s: _____

9341721, 9341722

64 left

Date Start: _____ Date Stop: _____ Date Start: _____ Date Stop: _____

Time Start: _____ Time Stop: _____ Time Start: _____ Time Stop: _____

Device No.'s: _____ Device No.'s: _____

Date Start: _____ Date Stop: _____ Date Start: _____ Date Stop: _____

Time Start: _____ Time Stop: _____ Time Start: _____ Time Stop: _____

Device No.'s: _____ Device No.'s: _____

**Note: All times are in 24-hour (military) notation, Eastern Standard Time (EST)
Background = 7 µR/h Elevation = 820 ft**

December 31, 2021

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

SK
MA MCPS - Spike Sample Lab Results. Measured values are satisfactory, i.e., within $\pm 25\%$ of the chamber's reference value (16.2 pCi/L).

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9341721	1	2021-12-24 @ 8:00 am	2021-12-27 @ 8:00 am	11.6 \pm 0.9	2021-12-31
9341722	1	2021-12-24 @ 8:00 am	2021-12-27 @ 8:00 am	15.4 \pm 1.2	2021-12-31

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



Radon Test Kit Chain of Custody

Project Name: MCPS Radon - December 2021 Schools

Name of Schools:

1. 45 Gude
2. Concord Center
3. English Manor
4. Smith Education Center
5. Randolph Main. & Tran.
6. Rollingwood Center
7. Ewing at Plum Orchard

	Date	Initials
Radon Test Kits Deployed	12/13/2021	JM
Radon Test Kits Collected	12/16/2021	JM
Radon Test Kits Shipped to Lab*	12/16/2021	JM
Radon Test Kits Received by Lab*	12/17/2021	JM

*All samples sent to Air Check, Inc., 1936 Butler Bridge Rd, Mills River, NC 28759