



**MCPS RADON TESTING – EXECUTIVE SUMMARY**

Site Name	English Manor
Date of Test Report	01/20/2022
Round of Testing	Initial Follow-up Post Remediation <b>2 Year Testing</b> 5 Year Testing HVAC Upgrade Window Replacement New Addition New Facility
# Rooms Tested	36
# Rooms $\geq$ 4.0 pCi/L	0
Lowest Value	<0.3 pCi/L
Highest Value	1.7 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: English Manor  
4511 Bestor Dr.  
Rockville, MD 20853

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 English Manor, located at 4511 Bestor Dr. Rockville, MD 20853 (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](http://www.epa.gov/radon).

KCI visited the site on December 13, 2021 and deployed forty-two (42) 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:

<b>Radon Concentration</b>	<b>Room</b>	<b>Result</b>
≥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		
English Manor		
Test Period: 12/13/2021-12/16/2021		
Kit Number	Room / Area	Result
9339913	122	0.9
9339920	101 COORDINATOR	< 0.3
9341738	121C	0.8
9341741	121D	0.6
9341750	122	0.7
9341752	108 THERAPY	< 0.3
9341755	121	0.6
9341756	121A	< 0.3
9341757	121G	< 0.3
9341759	110	< 0.3
9341764	100 MAIN OFFICE	< 0.3
9341765	102	< 0.3
9341766	111	< 0.3
9341771	104	< 0.3
9341772	107	< 0.3
9341773	122	1.3
9341778	110	< 0.3
9341792	146A	1
9341796	103	< 0.3
9346903	121E	0.5
9346995	146	0.8
9346996	128	< 0.3
9346999	120	0.9
9347901	127	< 0.3
9347902	129	< 0.3
9347903	130	< 0.3
9347904	131	< 0.3
9347905	143 LUNCH	1.1
9347906	136	< 0.3
9347907	144 ALL PURPOSE	< 0.3
9347908	145	1.6
9347909	143A	1.7
9347910	143A	1.2
9347911	144 ALL PURPOSE	< 0.3
9347912	146B	1
9347913	200	< 0.3
9347914	215J CONFERENCE	< 0.3
9347915	213D	0.5
9347916	213D	< 0.3
9347917	213D	0.6
9348334	106	< 0.3
9348358	105	< 0.3



Table 2- Radon Testing Results			
English Manor			
Test Period: 12/13/2021-12/16/2021			
Kit Number	QC Type	Room / Area	Result
9341759	D	110	< 0.3
9341773	D	122	1.3
9341750	FB	122	0.7
9347910	D	143A	1.2
9347916	D	213D	< 0.3
9347917	FB	213D	0.6
9347000	OB	OFFICE BLANK	< 0.3
9347992	TB	TRAVEL BLANK	< 0.3



# ATTACHMENT C

## Laboratory Analytical Results

Radon test result report for:  
**ENGLISH MANOR**  
**MAIN**

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
9341764	100 MAIN OFFICE	2021-12-13 @ 8:00 am	2021-12-15 @ 8:00 am	< 0.3	2021-12-17
9339920	101 COORDINATOR	2021-12-13 @ 8:00 am	2021-12-15 @ 8:00 am	< 0.3	2021-12-17
9341765	102	2021-12-13 @ 8:00 am	2021-12-15 @ 8:00 am	< 0.3	2021-12-17
9341796	103	2021-12-13 @ 8:00 am	2021-12-15 @ 8:00 am	< 0.3	2021-12-17
9341771	104	2021-12-13 @ 8:00 am	2021-12-15 @ 8:00 am	< 0.3	2021-12-17
9348358	105	2021-12-13 @ 8:00 am	2021-12-15 @ 8:00 am	< 0.3	2021-12-17
9348334	106	2021-12-13 @ 8:00 am	2021-12-15 @ 8:00 am	< 0.3	2021-12-17
9341772	107	2021-12-13 @ 8:00 am	2021-12-15 @ 8:00 am	< 0.3	2021-12-17
9341752	108 THERAPY	2021-12-13 @ 8:00 am	2021-12-15 @ 8:00 am	< 0.3	2021-12-17
9341759	110	2021-12-13 @ 8:00 am	2021-12-15 @ 8:00 am	< 0.3	2021-12-17
9341778	110	2021-12-13 @ 8:00 am	2021-12-15 @ 8:00 am	< 0.3	2021-12-17
9341766	111	2021-12-13 @ 8:00 am	2021-12-15 @ 8:00 am	< 0.3	2021-12-17
9346999	120	2021-12-13 @ 8:00 am	2021-12-15 @ 8:00 am	0.9 ± 0.3	2021-12-17
9341755	121	2021-12-13 @ 8:00 am	2021-12-15 @ 8:00 am	0.6 ± 0.3	2021-12-17
9341756	121A	2021-12-13 @ 8:00 am	2021-12-15 @ 8:00 am	< 0.3	2021-12-17
9341738	121C	2021-12-13 @ 8:00 am	2021-12-15 @ 8:00 am	0.8 ± 0.3	2021-12-17
9341741	121D	2021-12-13 @ 8:00 am	2021-12-15 @ 8:00 am	0.6 ± 0.3	2021-12-17
9346903	121E	2021-12-13 @ 8:00 am	2021-12-15 @ 8:00 am	0.5 ± 0.3	2021-12-17
9341757	121G	2021-12-13 @ 8:00 am	2021-12-15 @ 8:00 am	< 0.3	2021-12-17
9339913	122	2021-12-13 @ 8:00 am	2021-12-15 @ 8:00 am	0.9 ± 0.3	2021-12-17
9341750	122	2021-12-13 @ 8:00 am	2021-12-15 @ 8:00 am	0.7 ± 0.3	2021-12-17
9341773	122	2021-12-13 @ 8:00 am	2021-12-15 @ 8:00 am	1.3 ± 0.3	2021-12-17
9347901	127	2021-12-13 @ 9:00 am	2021-12-15 @ 9:00 am	< 0.3	2021-12-17
9346996	128	2021-12-13 @ 9:00 am	2021-12-15 @ 9:00 am	< 0.3	2021-12-17
9347902	129	2021-12-13 @ 9:00 am	2021-12-15 @ 9:00 am	< 0.3	2021-12-17
9347903	130	2021-12-13 @ 9:00 am	2021-12-15 @ 9:00 am	< 0.3	2021-12-17
9347904	131	2021-12-13 @ 9:00 am	2021-12-15 @ 9:00 am	< 0.3	2021-12-17
9347906	136	2021-12-13 @ 9:00 am	2021-12-15 @ 9:00 am	< 0.3	2021-12-17
9347905	143 LUNCH	2021-12-13 @ 9:00 am	2021-12-15 @ 9:00 am	1.1 ± 0.3	2021-12-17
9347910	143A	2021-12-13 @ 9:00 am	2021-12-15 @ 9:00 am	1.2 ± 0.3	2021-12-17
9347909	143A	2021-12-13 @ 9:00 am	2021-12-15 @ 9:00 am	1.7 ± 0.3	2021-12-17
9347911	144 ALL PURPOSE	2021-12-13 @ 9:00 am	2021-12-15 @ 9:00 am	< 0.3	2021-12-17
9347907	144 ALL PURPOSE	2021-12-13 @ 9:00 am	2021-12-15 @ 9:00 am	< 0.3	2021-12-17
9347908	145	2021-12-13 @ 9:00 am	2021-12-15 @ 9:00 am	1.6 ± 0.3	2021-12-17
9346995	146	2021-12-13 @ 9:00 am	2021-12-15 @ 9:00 am	0.8 ± 0.3	2021-12-17
9341792	146A	2021-12-13 @ 9:00 am	2021-12-15 @ 9:00 am	1.0 ± 0.3	2021-12-17
9347912	146B	2021-12-13 @ 9:00 am	2021-12-15 @ 9:00 am	1.0 ± 0.3	2021-12-17

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December 18, 2021

**\*\* LABORATORY ANALYSIS REPORT \*\***

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Radon test result report for:  
**ENGLISH MANOR**  
**MAIN**

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<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
9347913	200	2021-12-13 @ 9:00 am	2021-12-15 @ 9:00 am	< 0.3	2021-12-17
9347915	213D	2021-12-13 @ 9:00 am	2021-12-15 @ 9:00 am	0.5 ± 0.3	2021-12-17
9347916	213D	2021-12-13 @ 9:00 am	2021-12-15 @ 9:00 am	< 0.3	2021-12-17
9347917	213D	2021-12-13 @ 9:00 am	2021-12-15 @ 9:00 am	0.6 ± 0.3	2021-12-17
9347914	215J CONFERENCE	2021-12-13 @ 9:00 am	2021-12-15 @ 9:00 am	< 0.3	2021-12-17

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

**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

G4 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  $\mu$ R/h Elevation = 820 ft**

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December 31, 2021

**\*\* LABORATORY ANALYSIS REPORT \*\***

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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).

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<b>Kit #</b>	<b>Room Id</b>	<b>Started</b>	<b>Ended</b>	<b>pCi/L</b>	<b>Analyzed</b>
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

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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

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	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