



March 6, 2025

Leo Rodriguez
Risk Management
Portland Public Schools

Via email: lrodriguez@pps.net

Regarding: Electronic Radon Monitor Results
Buckman Elementary School
320 SE 16th Street
Portland, Oregon
PBS Project 24012957

Mr. Rodriguez:

In January 2025, PBS performed short-term radon monitoring at Buckman Elementary at the request of Portland Public Schools. Results of short-term testing identified elevated radon in the Basement Custodial Office. In response, PBS performed follow-up testing with electronic Continuous Radon Monitors (CRMs) in February 2025 to determine hour-by-hour radon concentrations and provide additional information on mitigation strategies.

METHODOLOGY

The Environmental Protection Agency (EPA) recommends, and the Oregon Health Authority (OHA) requires, that school buildings be tested for radon, and that any radon concentrations be maintained below 4.0 picocuries per liter (pCi/L) of air. PBS used Sun Nuclear 1028 CRMs to monitor in select areas and identify the dynamics of radon concentration over time.

Testing was conducted during the winter heating season and during the school week. School closures occurred on Thursday and Friday during the testing period, but at other times operations were normal. Occupied hours were considered to be 6:00 AM to 6:00 PM and unoccupied hours were 6:00 PM to 6:00 AM.

RESULTS

The following table lists the results of radon concentrations at all tested locations.

Table 1: CRM Data Summary

Location	Test Dates	Overall Average Radon Level*	Average Radon Level During Occupied Hours*	Average Radon Level During Unoccupied Hours*
Basement Custodial Office	2/11-2/18	5.5	5.6	5.2

* - units are pCi/L

Overall, the concentration of radon was above the regulatory limit of 4.0 pCi/L, similar to the finding observed during initial short-term testing in January 2025. Concentrations were found to be similar during occupied and unoccupied hours. School closures occurred during part of the testing period due to snow, but an examination of the radon concentrations and dynamics during normally operating days and closure days, there does not seem to be a relationship to radon concentrations. Radon is likely to be present in the area throughout the heating season based on these results.

PBS recommends the District either perform a long-term test covering the entire school year in this area, or move forward with conducting remediation.

See the attached CRM printout for additional information on each location.

LIMITATIONS OF SCOPE

This study was limited to the tests and locations as previously indicated. The site as a whole may have other environmental concerns that will not be characterized by this study. PBS is not able to represent conditions on the site or adjoining sites beyond those detected or observed by PBS.

Please feel free to contact me at 503.515.7489 or james.mastanduno@pbsusa.com with any questions or comments.

Sincerely



James Mastanduno
Project Manager

Attachment: CRM Summary Report

Radon Test Report

Test Location:

Buckman elementary

Test Performed By:

James Mastanduno
YOUR ADDRESS1, YOUR ADDRESS2
YOUR CITY, YOUR STATE YOUR ZIP
123-456-7890



Radon
Test.
Report.
Prevent.

Test Result: Fail

Overall Average:

5.5 pCi/l

EPA Average:

5.5 pCi/l

Test Device Details:

SunRADON CRM:	1028XP
Serial Number:	238738020
Last Calibration:	11/06/2024
Next Calibration:	11/06/2025
Cal-Factors:	2.20
Motion Error:	Yes

Test Summary:

CRM Location:	<u>Start:</u>	<u>Stop:</u>	<u>Interval:</u>	<u>Duration:</u>
Basement Custodial	02/11/2025 03:44 PM	02/18/2025 07:44 AM	1 hr	160 hr

Test Details:

*First 4 hrs of data excluded	Min	Max	Average	Units
Radon Concentration	0.0	17.3	5.5	pCi/l

Comments:**Inspector Signature**

Test Location:

Inspection Report Date:

03/05/2025



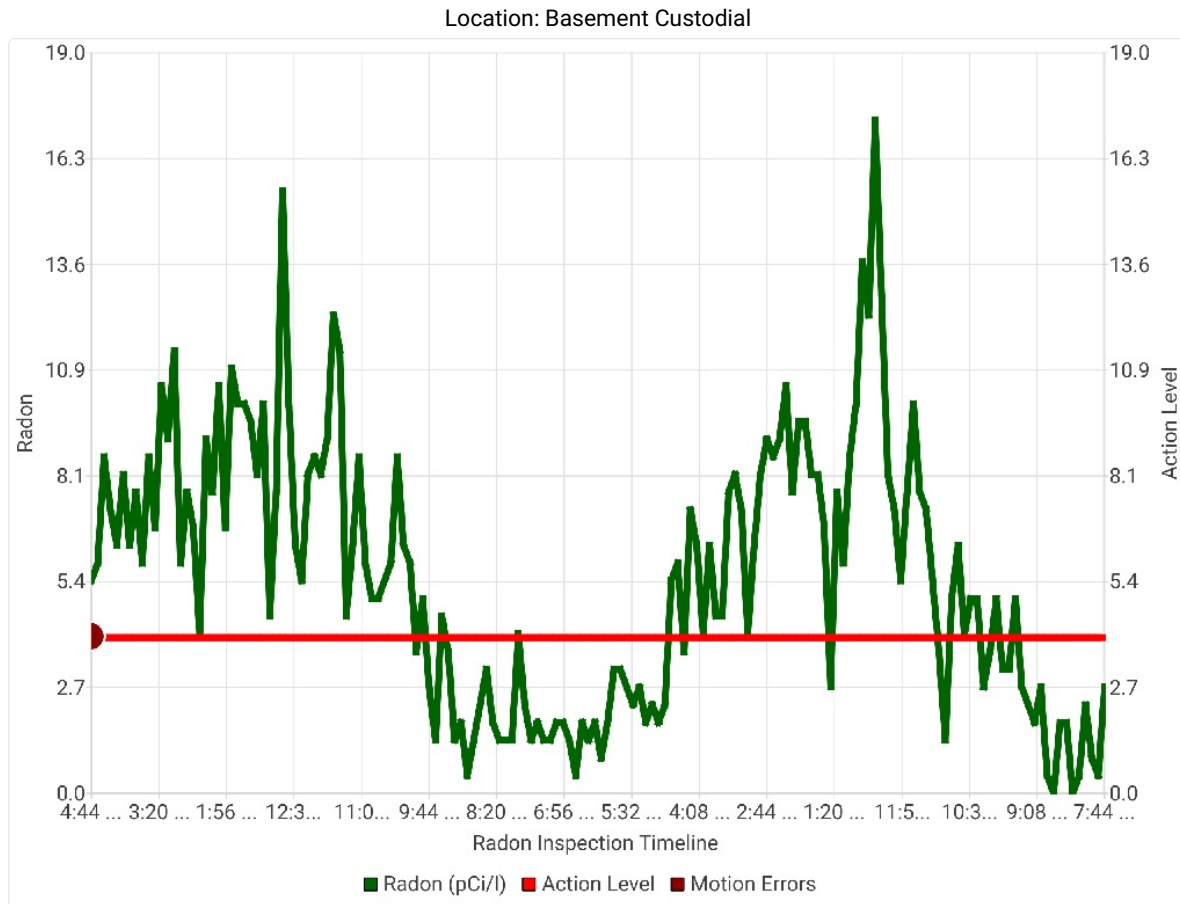
Monitor your Air, Protect your Health with luft®
Scan QR-code or visit luftair.com to learn more!



Test device manufactured by SunRADON, LLC

OneRADON™ Version 2.4.53

Radon Inspection Chart



Test Result: Fail

Test Location:

Inspection Report Date:
03/05/2025

Test device manufactured by SunRADON, LLC

Test Table

Location: Basement Custodial (*Data from first 4 hours excluded from EPA calculations)

The test data was taken from a testing device approved by the National Radon Proficiency Program. The test was performed in accordance with the current ANSI/AARST standards and guidelines accepted for radon testing.

Date/Time	Radon(pCi/l)	Flags
02/11/25 04:44 PM	5.5	M
02/11/25 05:44 PM	5.9	-
02/11/25 06:44 PM	8.6	-
02/11/25 07:44 PM	7.3	-
02/11/25 08:44 PM	6.4	-
02/11/25 09:44 PM	8.2	-
02/11/25 10:44 PM	6.4	-
02/11/25 11:44 PM	7.7	-
02/12/25 12:44 AM	5.9	-
02/12/25 01:44 AM	8.6	-
02/12/25 02:44 AM	6.8	-
02/12/25 03:44 AM	10.5	-
02/12/25 04:44 AM	9.1	-
02/12/25 05:44 AM	11.4	-
02/12/25 06:44 AM	5.9	-
02/12/25 07:44 AM	7.7	-
02/12/25 08:44 AM	6.8	-
02/12/25 09:44 AM	4.1	-
02/12/25 10:44 AM	9.1	-
02/12/25 11:44 AM	7.7	-
02/12/25 12:44 PM	10.5	-
02/12/25 01:44 PM	6.8	-
02/12/25 02:44 PM	10.9	-
02/12/25 03:44 PM	10.0	-
02/12/25 04:44 PM	10.0	-
02/12/25 05:44 PM	9.5	-
02/12/25 06:44 PM	8.2	-
02/12/25 07:44 PM	10.0	-
02/12/25 08:44 PM	4.5	-
02/12/25 09:44 PM	7.7	-
02/12/25 10:44 PM	15.5	-
02/12/25 11:44 PM	10.0	-
02/13/25 12:44 AM	6.4	-
02/13/25 01:44 AM	5.5	-
02/13/25 02:44 AM	8.2	-
02/13/25 03:44 AM	8.6	-
02/13/25 04:44 AM	8.2	-
02/13/25 05:44 AM	9.1	-
02/13/25 06:44 AM	12.3	-
02/13/25 07:44 AM	11.4	-
02/13/25 08:44 AM	4.5	-
02/13/25 09:44 AM	6.4	-
02/13/25 10:44 AM	8.6	-
02/13/25 11:44 AM	5.9	-
02/13/25 12:44 PM	5.0	-
02/13/25 01:44 PM	5.0	-
02/13/25 02:44 PM	5.5	-
02/13/25 03:44 PM	5.9	-
02/13/25 04:44 PM	8.6	-
02/13/25 05:44 PM	6.4	-

Test Result: Fail

Test Location:

Inspection Report Date:
 03/05/2025

Test device manufactured by SunRADON, LLC

Test Table

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Date/Time	Radon(pCi/l)	Flags
02/13/25 06:44 PM	5.9	-
02/13/25 07:44 PM	3.6	-
02/13/25 08:44 PM	5.0	-
02/13/25 09:44 PM	2.7	-
02/13/25 10:44 PM	1.4	-
02/13/25 11:44 PM	4.5	-
02/14/25 12:44 AM	3.6	-
02/14/25 01:44 AM	1.4	-
02/14/25 02:44 AM	1.8	-
02/14/25 03:44 AM	0.5	-
02/14/25 04:44 AM	1.4	-
02/14/25 05:44 AM	2.3	-
02/14/25 06:44 AM	3.2	-
02/14/25 07:44 AM	1.8	-
02/14/25 08:44 AM	1.4	-
02/14/25 09:44 AM	1.4	-
02/14/25 10:44 AM	1.4	-
02/14/25 11:44 AM	4.1	-
02/14/25 12:44 PM	2.3	-
02/14/25 01:44 PM	1.4	-
02/14/25 02:44 PM	1.8	-
02/14/25 03:44 PM	1.4	-
02/14/25 04:44 PM	1.4	-
02/14/25 05:44 PM	1.8	-
02/14/25 06:44 PM	1.8	-
02/14/25 07:44 PM	1.4	-
02/14/25 08:44 PM	0.5	-
02/14/25 09:44 PM	1.8	-
02/14/25 10:44 PM	1.4	-
02/14/25 11:44 PM	1.8	-
02/15/25 12:44 AM	0.9	-
02/15/25 01:44 AM	1.8	-
02/15/25 02:44 AM	3.2	-
02/15/25 03:44 AM	3.2	-
02/15/25 04:44 AM	2.7	-
02/15/25 05:44 AM	2.3	-
02/15/25 06:44 AM	2.7	-
02/15/25 07:44 AM	1.8	-
02/15/25 08:44 AM	2.3	-
02/15/25 09:44 AM	1.8	-
02/15/25 10:44 AM	2.3	-
02/15/25 11:44 AM	5.5	-
02/15/25 12:44 PM	5.9	-
02/15/25 01:44 PM	3.6	-
02/15/25 02:44 PM	7.3	-
02/15/25 03:44 PM	6.4	-
02/15/25 04:44 PM	4.1	-
02/15/25 05:44 PM	6.4	-
02/15/25 06:44 PM	4.5	-
02/15/25 07:44 PM	4.5	-

Test Result: Fail

Test Location:

Inspection Report Date:
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Test Table

Location: Basement Custodial (*Data from first 4 hours excluded from EPA calculations)

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Date/Time	Radon(pCi/l)	Flags
02/15/25 08:44 PM	7.7	-
02/15/25 09:44 PM	8.2	-
02/15/25 10:44 PM	7.3	-
02/15/25 11:44 PM	4.1	-
02/16/25 12:44 AM	6.4	-
02/16/25 01:44 AM	8.2	-
02/16/25 02:44 AM	9.1	-
02/16/25 03:44 AM	8.6	-
02/16/25 04:44 AM	9.1	-
02/16/25 05:44 AM	10.5	-
02/16/25 06:44 AM	7.7	-
02/16/25 07:44 AM	9.5	-
02/16/25 08:44 AM	9.5	-
02/16/25 09:44 AM	8.2	-
02/16/25 10:44 AM	8.2	-
02/16/25 11:44 AM	6.8	-
02/16/25 12:44 PM	2.7	-
02/16/25 01:44 PM	7.7	-
02/16/25 02:44 PM	5.9	-
02/16/25 03:44 PM	8.6	-
02/16/25 04:44 PM	10.0	-
02/16/25 05:44 PM	13.6	-
02/16/25 06:44 PM	12.3	-
02/16/25 07:44 PM	17.3	-
02/16/25 08:44 PM	12.7	-
02/16/25 09:44 PM	8.2	-
02/16/25 10:44 PM	7.3	-
02/16/25 11:44 PM	5.5	-
02/17/25 12:44 AM	7.7	-
02/17/25 01:44 AM	10.0	-
02/17/25 02:44 AM	7.7	-
02/17/25 03:44 AM	7.3	-
02/17/25 04:44 AM	5.5	-
02/17/25 05:44 AM	3.6	-
02/17/25 06:44 AM	1.4	-
02/17/25 07:44 AM	5.0	-
02/17/25 08:44 AM	6.4	-
02/17/25 09:44 AM	4.1	-
02/17/25 10:44 AM	5.0	-
02/17/25 11:44 AM	5.0	-
02/17/25 12:44 PM	2.7	-
02/17/25 01:44 PM	3.6	-
02/17/25 02:44 PM	5.0	-
02/17/25 03:44 PM	3.2	-
02/17/25 04:44 PM	3.2	-
02/17/25 05:44 PM	5.0	-
02/17/25 06:44 PM	2.7	-
02/17/25 07:44 PM	2.3	-
02/17/25 08:44 PM	1.8	-
02/17/25 09:44 PM	2.7	-

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Date/Time	Radon(pCi/l)	Flags
02/17/25 10:44 PM	0.5	-
02/17/25 11:44 PM	0.0	-
02/18/25 12:44 AM	1.8	-
02/18/25 01:44 AM	1.8	-
02/18/25 02:44 AM	0.0	-
02/18/25 03:44 AM	0.5	-
02/18/25 04:44 AM	2.3	-
02/18/25 05:44 AM	0.9	-
02/18/25 06:44 AM	0.5	-
02/18/25 07:44 AM	2.7	-

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Radon Test Information

Radon Risk Information

Radon causes lung cancer by means of the decay of its daughter products after breathing in air contaminated with higher levels of Radon. The World Health Organization (WHO) estimates that 15% of lung cancers worldwide are caused by exposure to elevated indoor levels of Radon. Overall, radon is the second leading cause of lung cancer responsible for about 21,000 lung cancer deaths every year in the US alone. Radon gas is the number one cause of lung cancer among non-smokers. The U.S. Environmental Protection Agency (EPA), the U.S. Surgeon General, and the Center for Disease Control and Prevention (CDC) strongly recommend that ALL homebuyers have an indoor radon test performed prior to purchase or taking occupancy and recommend having the radon levels professionally mitigated if elevated radon concentrations are found.

Understanding Radon Test Results

Recommended Action Levels vary by country and typically range from 3 pCi/l (100 Bq/m³) to 8 pCi/l (300 Bq/m³). Recommendations below are based on test results by a Continuous Radon Monitor (CRM) Test of at least 48h duration and are based on recommendations by the EPA.

Measured Average Radon Level:

- At or above 4.0 pCi/l (148 Bq/m³): Corrective measures to reduce exposure to radon gas is strongly recommended (ANSI MAH2014)
- Between 2-4 pCi/l (74-148 Bq/m³): Consider mitigation or periodic retest as indoor Radon levels vary by season and weather conditions
- Below 2 pCi/l (74 Bq/m³): Consider bi-annual retest or whenever significant changes to the home structure or mechanical systems occurred

Test Result: Fail

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