

May 1, 2025

Comprehensive Radon Survey Report – Schools/Commercial Properties

Mari-Linn
541 5th St
Lyons, OREGON 97358

Environmental Works is a licensed, bonded, and insured general contractor (CCB# 185781; WA# ENVIRWN906CS) and is certified by NEHA-NRPP (National Environmental Health Association- National Radon Proficiency Program #112037 RT) as a radon measurement and mitigation contractor. The following scope of work is to conduct a survey to determine the post-construction radon levels in the above referenced property and offer additional mitigation technique(s), if needed, to achieve radon levels below the EPA (Environmental Protection Agency) recommended Action Level of 4.0 pCi/L or WHO (World Health Organization) recommended Action Level of 2.7 pCi/L. This survey does not address radon levels generated from out-gassing from well water or building materials.

Test Methods:

1. All radon testing methods presented in this agreement are based upon and in compliance with the American Association of Radon Scientists and Technologists, Protocol for Conducting Measurements of Radon and Radon Decay Products in Multifamily, School, Commercial and Mixed-Use Buildings (**ANSI/AARST MA-MFLB-2023**).
2. All testing and mitigation protocols are performed under the supervision of a Radon Professional that is certified by the American Association of Radon Scientists and Technologists (AARST) National Environmental Health Association and National Radon Proficiency Program (NRPP), License **NEHA-NRPP # 112037 RT**.
3. Analysis assumes the client/residents were provided with an **Attention Notice** prior to conducting the radon survey. This notice described the “**Closed Building Conditions**” required prior to and for the duration of the radon survey. Environmental Works posted notices at the time of test drop-offs, which were left in place or with residents for the duration of testing.
4. Radon test kits were deployed by **Nathan Strassmaier & Will Hotchkiss** on **4/11/2025** and retrieved on **4/13/2025**, for approximately **48 hours** of continuous radon measurement.
5. 1 Short-Term activated charcoal kits were deployed in each selected room, totaling **16 total test kits** deployed in **16 total test locations**.
6. **2 Field Blank, 2 Office Blank, & 2 Lab Blank** were deployed to detect batch contamination.
7. **1 Spike** was conducted to test for laboratory analysis accuracy.
8. **1 Continuous Radon Monitors (CRM)** were deployed to track hourly variations of radon gas.

Comprehensive Radon Survey Report – Schools/Commercial Properties

Mari-Linn
541 5th St
Lyons, OREGON 97358

9. Charcoal test kits were provided and analyzed by AirChek Inc. RSSI Lab (NEHA Lab ID: 101138 AL)
10. Charcoal test kits were sent to the AirChek lab via UPS Next or Second Day Air service.
11. Statement of Test Limitations: There is 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 the weather, operation of the dwelling, or possible interference with the necessary test conditions.

Table 1: Extended Testing Protocol Radon Test Results (Full Analysis)

Device Serial #	Test Location	Floor	Radon (pCi/L)
11967271	SUPPLY ROOM	1	1.7
11967261	MAKERSPACE MOBIL	1	0.3
11967276	CAFETERIA	1	0.9
11967266	1	1	1.7
11967268	2	1	1.3
11967267	3	1	1.6
11967269	4	1	1.7
11967270	5	1	1.1
11967272	6	1	1.4
11967273	7	1	1.2
11967274	8	1	1.1
11967275	9	1	1.5
11967277	10	1	1.3
11967278	11	1	1.3
11967263	14	1	0.3
11967262	15	1	0.3
CRM		1	1.9

Table 2: QA / QC Blanks

Device Serial #	Room or Unit	Floor Level	Radon (pCi/L)
11967257	LB	1	0.3
11967258	LB	1	0.3
11967259	OB	1	0.3



Comprehensive Radon Survey Report – Schools/Commercial Properties

Mari-Linn

541 5th St

Lyons, OREGON 97358

11967260	OB	1	0.3
11967264	FB	1	0.3
11967265	FB	1	0.3

*Blanks should not test higher than the laboratories Lower Limit of Detection (LLD), typically < 0.3 pCi/L

Table 3: QA / QC Spikes: Bowser Morner Radon Lab

Device Serial #	Test Type (AC, AT, CRM)	Measured Value (pCi/L)	Chamber Value (pCi/L)	RPE
11967287	AC	29.8	25.9	15.1%

*RPE should not exceed 30% as the upper limit



Figure 1A: Radon Inspection Report – CRM Parameters (Test Location – Mari-Linn – Office)

Test Checklist

- ☒ The location of the detector was selected so the detector was not to be disturbed during testing.
- ☒ The monitor was not placed in an area of high humidity such as: Kitchen, laundry room, cellar, spa room, garage, crawl space or sump area.
- ☒ The detector was not located near drafts caused by HVAC vents, windows and doors.
- ☒ Whole house fans were turned off during the testing.
- ☒ The detector was not placed near areas of excessive heat, such as a fireplace or in direct sunlight.
- ☒ Portable window fans were removed or sealed in place prior to testing.
- ☒ The detector was placed within the breathing zone of at least 20 inches to 6 feet above the floor and at least 1 foot below the ceiling if suspended.
- ☒ Window air conditioners were operable in recirculation mode only.
- ☒ The detector was not placed within 1 foot of outside walls of the home or within 3 feet of any windows or doors to the exterior of the home.
- ☒ Ceiling fans, portable dehumidifiers, portable humidifiers, portable air filters, and all window air conditioners are not operated within 20 feet of the detector.



Figure 2A: Radon Inspection Report – CRM Data (Test Location – Mari-Linn – Office)

Radon Inspection Report				
Test Location:		Test For:		Inspected By:
Mari-Linn 541 5th st Lyons, OREGON 97358		Mari-Linn 541 5th st Lyons, OREGON 97358		22820 NE Sandy Blvd Fairview, OR 97024 503-719-6715
Bldg. Type: Educational		Type: Pre-Mitigation		

Test Result: Pass	
<u>Overall Average:</u>	<u>EPA Average:</u>
1.9 pCi/l	2.0 pCi/l

Test Device Details:		Test Site Condition:		
Serial Number:	83591008			
Model Number:	1028			
Last Calibration:	04/08/2024			
Next Calibration:	04/08/2025			
Cal-Factors:	2.35			
Motion Error:	No			

Test Summary:				
<u>CRM Location:</u>	<u>Start:</u>	<u>Stop:</u>	<u>Interval:</u>	<u>Duration:</u>
Teacher Lounge	04/11/2025 09:16 AM	04/13/2025 08:16 AM	1 hr	47 hr
*First 4 hrs of data excluded				
	<u>Min:</u>	<u>Max:</u>	<u>Average:</u>	<u>Measurement Units:</u>
Radon Concentration:	0.0	6.0	2.0	pCi/l



Figure 3A: Radon Inspection Report – CRM Chart (Test Location – Mari-Linn – Office)

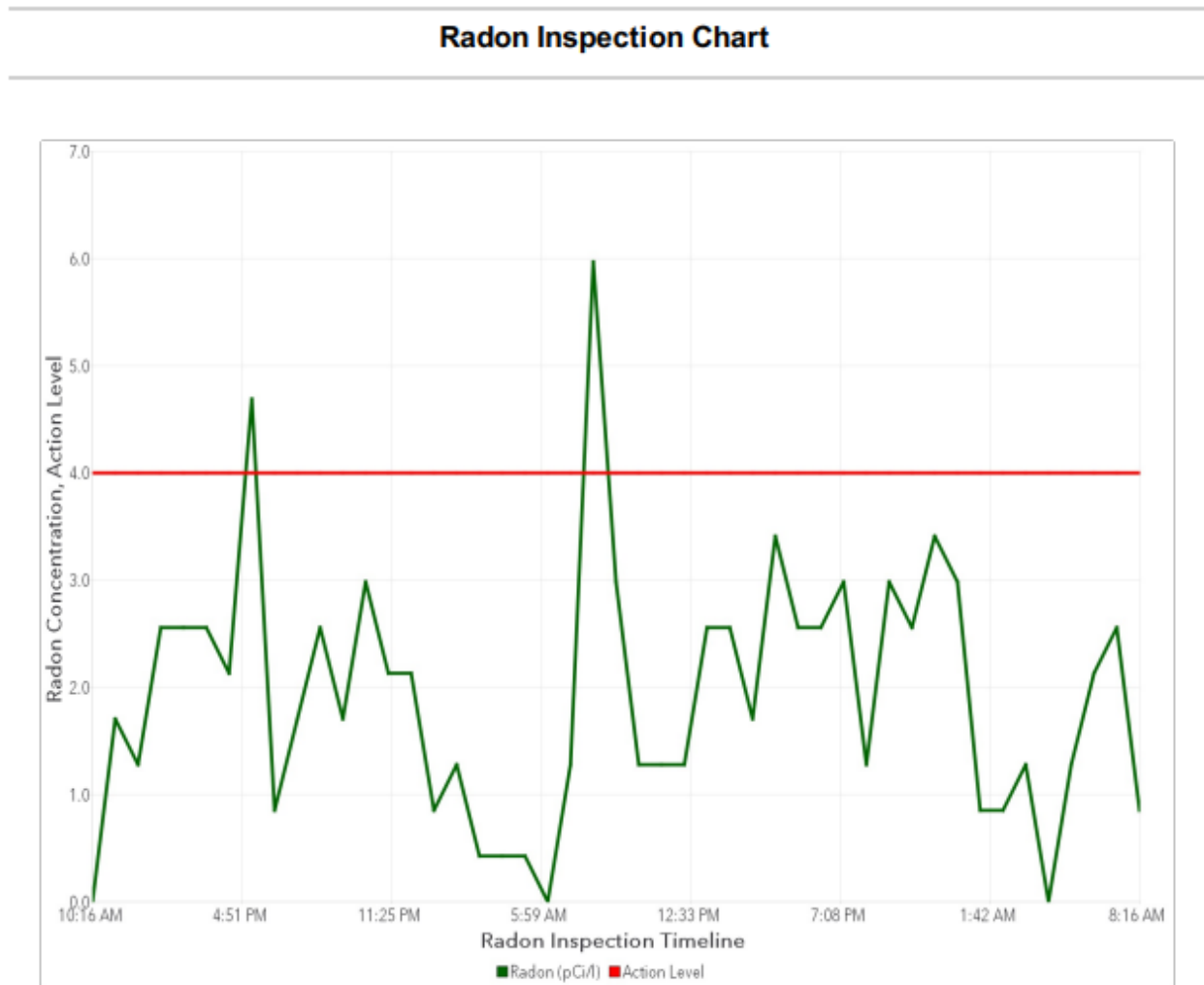


Figure 1A: Radon Inspection Report – CRM Data (Test Location – Mari-Linn – Office)

Test Table					
* Data from first 4 hours excluded from EPA calculations					
<u>Date/Time</u>	<u>Radon(pCi/l)</u>	<u>Flags</u>	<u>Date/Time</u>	<u>Radon(pCi/l)</u>	<u>Flags</u>
04/11/25 10:16 AM	0.0	-	04/13/25 06:16 AM	2.1	-
04/11/25 11:16 AM	1.7	-	04/13/25 07:16 AM	2.6	-
04/11/25 12:16 PM	1.3	-	04/13/25 08:16 AM	0.9	-
04/11/25 01:16 PM	2.6	-			
04/11/25 02:16 PM	2.6	-			
04/11/25 03:16 PM	2.6	-			
04/11/25 04:16 PM	2.1	-			
04/11/25 05:16 PM	4.7	-			
04/11/25 06:16 PM	0.9	-			
04/11/25 07:16 PM	1.7	-			
04/11/25 08:16 PM	2.6	-			
04/11/25 09:16 PM	1.7	-			
04/11/25 10:16 PM	3.0	-			
04/11/25 11:16 PM	2.1	-			
04/12/25 12:16 AM	2.1	-			
04/12/25 01:16 AM	0.9	-			
04/12/25 02:16 AM	1.3	-			
04/12/25 03:16 AM	0.4	-			
04/12/25 04:16 AM	0.4	-			
04/12/25 05:16 AM	0.4	-			
04/12/25 06:16 AM	0.0	-			
04/12/25 07:16 AM	1.3	-			
04/12/25 08:16 AM	6.0	-			
04/12/25 09:16 AM	3.0	-			
04/12/25 10:16 AM	1.3	-			
04/12/25 11:16 AM	1.3	-			
04/12/25 12:16 PM	1.3	-			
04/12/25 01:16 PM	2.6	-			
04/12/25 02:16 PM	2.6	-			
04/12/25 03:16 PM	1.7	-			
04/12/25 04:16 PM	3.4	-			
04/12/25 05:16 PM	2.6	-			
04/12/25 06:16 PM	2.6	-			
04/12/25 07:16 PM	3.0	-			
04/12/25 08:16 PM	1.3	-			
04/12/25 09:16 PM	3.0	-			
04/12/25 10:16 PM	2.6	-			
04/12/25 11:16 PM	3.4	-			
04/13/25 12:16 AM	3.0	-			
04/13/25 01:16 AM	0.9	-			
04/13/25 02:16 AM	0.9	-			
04/13/25 03:16 AM	1.3	-			
04/13/25 04:16 AM	0.0	-			
04/13/25 05:16 AM	1.3	-			



Comprehensive Radon Survey Report – Schools/Commercial Properties

Mari-Linn

541 5th St

Lyons, OREGON 97358

Radon Survey Report Summary:

1. Quality control measures indicate no error in laboratory analysis or batch contamination.
2. “Closed House Conditions” were sufficiently adhered to during the test based on observations during test drop-off and retrieval.
3. **MITIGATION NOT RECOMMENDED:** Mitigation is not recommended at this time based on the test results not exceeding the WHO recommended radon threshold of 2.7 pCi/L.
4. **RETESTING:** Retesting is recommended by the EPA every two years or following any major structural or mechanical changes.

