



Testing, Mitigation, System Design
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Radon Survey Analysis
Job# 19-C119R

for

Central Point School District
Hanby Middle School
c/o Dale Giovannetti

property located at

806 6th Ave

Gold Hill, OR 97525

January 24, 2020



STATE OF OREGON
CERTIFIED
EMERGING SMALL BUSINESS

ESB#10782

Introduction

The following report documents a study of radon levels for the property located at 806 6th Ave Gold Hill OR 97525. The goal of this study is to determine indoor radon levels for all areas in contact with the ground. Testing was performed per Oregon Health Authority School Testing Protocols.

Analysis assumes that the buildings tested were maintained under “closed-building” conditions (windows closed and exterior doors shut immediately after entering and exiting), as well as normal indoor temperatures, for the duration of the testing period. The H-VAC system for each building was set to normal occupied settings for the entirety of the testing period.

Conclusions and Recommendations

Test was a “Short-Term” test, with minimum duration of 60 hours. See the chart below of areas in buildings that were tested, and the corresponding levels found. All current test results are provided in Table 1. Maps of the test levels are provided in Appendix A. Note that all thirty-eight (38) locations but one (1) tested had results below the USEPA Action Level of 4.0 pCi/L.

It is recommended that a certified radon mitigation company be contacted to evaluate the areas which are elevated to determine appropriate mitigation action to bring them below the USEPA Action Level.

This report represents the average radon concentration for the period that testing was and at the specific location(s) within the building. The concentration of radon gas in indoor air can vary widely; it fluctuates daily, seasonally, and with weather conditions. Indoor radon levels may be affected by barometric pressure, strong winds, rain-soaked ground, snow cover, heating and A/C systems, building construction, open windows, and the like. For further confirmation of average, long-term radon levels, it is suggested that long-term, Alpha-Track type radon testing be performed.

NOTE: It is recommended that any building indicating low radon values be retested at least every 5 years. In areas where mitigation has been performed, it is recommended to test using long-term testing at least every 2 years.

Radon Level Measurements

The building tested was assumed occupied during testing. The measurement technique used (45) AirChek activated charcoal kits.

Test Start Date: 12/18/2019

Test End Date: 12/21/2019

Measurements of radon levels were made in the following areas:

Table 1: Results

Room	Floor	Kit ID #	Test Start Time	Test End Time	Result (pCi/L)
Band office 2	1	9336102	10:30 AM	09:17 AM	0.8
Kitchen office	1	9336103	10:23 AM	09:14 AM	0.8
Band office 1	1	9336104	10:29 AM	09:17 AM	0.8

Room	Floor	Kit ID #	Test Start Time	Test End Time	Result (pCi/L)
Band room	1	9336109	10:33 AM	09:15 AM	1.0
Cafeteria	1	9336110	10:25 AM	09:13 AM	0.9
N15	1	9336114	10:18 AM	09:19 AM	2.0
N14	1	9336116	10:20 AM	09:18 AM	0.6
P14	1	Duplicate Avg*	10:05 AM	09:24 AM	0.3
P13	1	9336119	10:04 AM	09:23 AM	0.5
P11	1	9336120	10:08 AM	09:25 AM	0.3
N13	1	9336121	10:12 AM	09:22 AM	1.0
N11	1	Duplicate Avg*	10:15 AM	09:21 AM	1.0
N12	1	9336123	10:11 AM	09:22 AM	0.7
West gym	1	9336125	09:51 AM	09:09 AM	1.0
P22	1	9336126	10:02 AM	09:27 AM	0.3
P12	1	9336127	10:08 AM	09:25 AM	0.3
Boys locker room	1	9336128	09:52 AM	09:11 AM	2.4
P21	1	9336129	10:01 AM	09:27 AM	0.6
P21 office	1	9336130	09:58 AM	09:28 AM	0.3
P21 office 2	1	9336131	09:59 AM	09:28 AM	0.3
P21 office 3	1	9336132	10:00 AM	09:27 AM	0.3
Kitchen	1	9336133	10:24 AM	09:13 AM	0.7
Science tech	1	9336142	09:34 AM	09:03 AM	2.6
Wood shop 2	1	9336144	09:39 AM	09:06 AM	4.8
Pe office	1	9336145	09:44 AM	09:08 AM	2.3
Girls locker room	1	9336146	09:46 AM	09:10 AM	1.1
North gym	1	9336147	09:49 AM	09:09 AM	1.8
Ne gym	1	9336148	09:50 AM	09:07 AM	1.6
Computer room	1	Duplicate Avg*	09:20 AM	08:58 AM	0.6
Office 2	1	9336151	09:26 AM	09:00 AM	0.9
Exam room	1	9336152	09:27 AM	09:00 AM	1.1
Nurse room	1	9336153	09:28 AM	09:01 AM	1.1
Food room	1	9336154	09:32 AM	09:02 AM	2.6

Room	Floor	Kit ID #	Test Start Time	Test End Time	Result (pCi/L)
Boiler room	1	9336155	09:16 AM	08:56 AM	1.0
Art room	1	9336156	09:18 AM	08:57 AM	0.3
Laclinica lobby	1	9336157	09:23 AM	08:59 AM	1.2
Office 1	1	9336159	09:25 AM	09:00 AM	1.1
Wood shop one	1	Duplicate Avg*	09:37 AM	09:05 AM	3.7

Duplicate measurements were conducted as a means to assess the precision of the test measurements. The criteria of acceptance is that the average relative percent difference (ARPD) of the results of the two measurement results for results whose averages are greater than 4.0pCi/L, should be within 25%. The results of the collated duplicates are provided in Table 2. The applicable ARPD for this survey was not applicable and is thus in compliance.

*Table 2: *Duplicate Table*

Room	Kit ID#	Test Start Time	Test End Time	Result (pCi/L)	Average (pCi/L)	Avg > 3.9 pCi/L?	RPD %
Computer Room	9336149	09:20 AM	08:58 AM	0.8	0.6	No	N/A
	9336150	09:20 AM	08:58 AM	0.3			
Wood Shop one	9336160	09:37 AM	09:05 AM	3.6	3.7	No	N/A
	9336143	09:37 AM	09:05 AM	3.7			
P14	9336117	10:05 AM	09:24 AM	0.3	0.3	No	N/A
	9336118	10:06 AM	09:24 AM	0.3			
N11	9336122	10:15 AM	09:21 AM	1.0	1.0	No	N/A
	9336124	10:15 AM	09:21 AM	1.0			
Average RPD for Duplicate Averages more than 3.9 pCi/L:							No
In Compliance:							Yes

As a means to determine any biases in the results, detectors were deployed but not opened. At the time of test retrieval of the regular test, the devices were removed from their packaging and sent to the laboratory for blind analysis. The results of these unexposed devices are shown in Table 3. As can be seen, the laboratory reported these at the lower level of detection, indicating that no biases were introduced in handling and shipping of the devices.

Table 3: Blanks

Room	Blank #	Kit ID #	Result (pCi/L)	In Compliance?
Science Tech	1	9336141	0.3	Yes
N15	2	9336115	0.3	Yes

A device was also selected from the lot of detectors that were utilized for exposure to a known radon environment at a spiking chamber (Bowser-Morner, NEHANRPP ID# 101 TC). After exposure, the device was submitted as a blind measurement to the laboratory. A comparison of the reported reading from the lab and the known concentration in the chamber is as follows:

Chamber concentration to which device was exposed:	25.5 pCi/L
Concentration reported by lab:	25.1
Relative percent difference (RPD):	1.6

The RPD between the reported and spiking concentration is well within normal limits.

Key:

pCi/L: Picocuries per liter – units of radon concentration.

Average (Avg): Cumulative average of the entire period since the test started.

Please contact me if you have any questions.

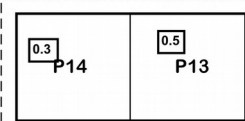
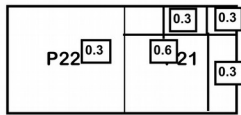
Thank you,

Rachell Meyers
NRPP 110320 RT

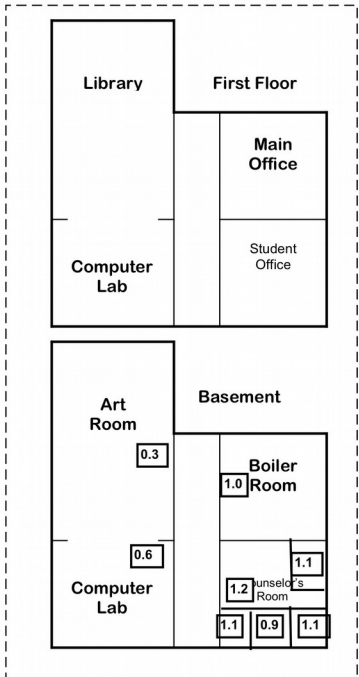
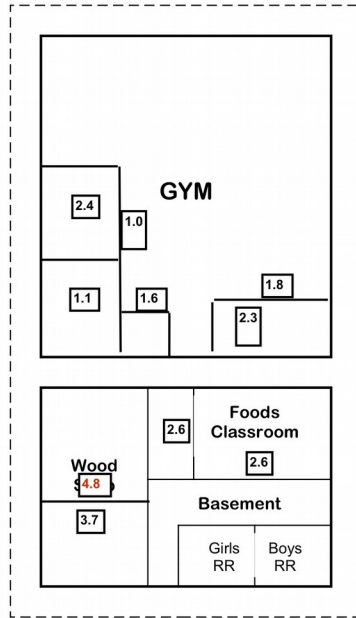
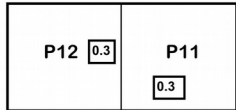
Appendix A: Test Results Map



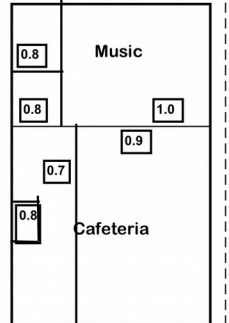
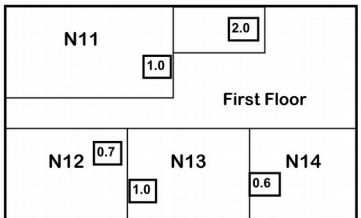
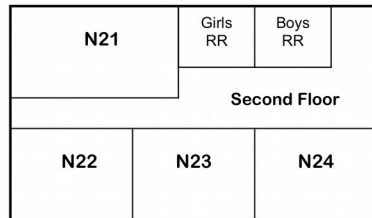
Hanby Middle School



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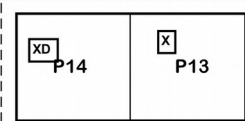
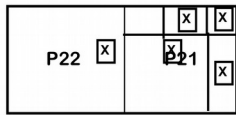
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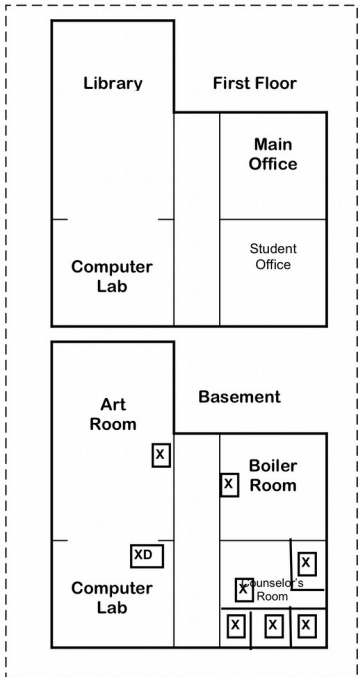
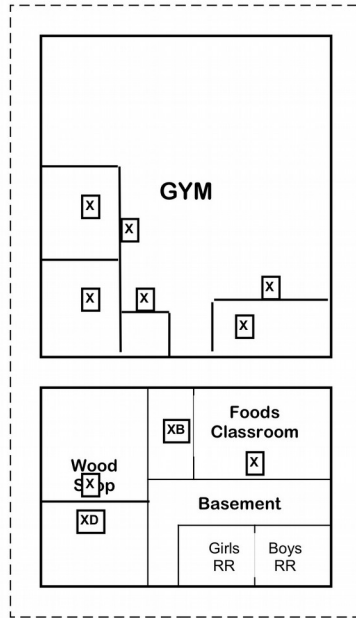
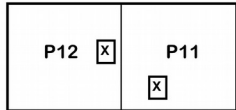
Appendix B: Test Placement Map



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