

INDUSTRIAL HYGIENE REPORT

RADON TESTING REPORT

Grant Elementary School

Report to: Vonnie B. Good, EHS Salem-Keizer Public Schools

By: Kathy Ellis, Senior Industrial Hygiene Consultant

Reviewed By: DeEtta Burrows, MSPH, CIH – Wise Steps, Inc.

On-site: November 9 –12, 2021

Report: November 27, 2021

PURPOSE

Radon retesting was done at Grant Elementary School to determine if there have been any changes in the background radon levels in the classrooms, offices and of other rooms that are in contact with the ground. This is a requirement in OAR 332 Healthy and Safe Schools Plan rules. Also, testing in this school in 2019 found levels of radon below the EPA recommended level, however, classrooms 160 and 180 had radon levels above the School District's trigger to retest (2.7 pCi/L).

CONCLUSION AND RECOMMENDATION

All classrooms had low to non-detectable levels of radon, including classrooms 160 and 180.

TESTING

Radon testing was conducted using protocols recommended by the Oregon Health Authority per OAR 332.341-345. Radon Air-Chek short-term test devices were used in the rooms by suspending the device in each room. The testing occurred from November 9-12, 2021 during normal and routine school ventilation system operations. Weather conditions during the weeks prior of testing had been generally wet with cold to moderate temperatures.

This testing was conducted under COVID-19 recommended precautions of having increased outside air supplied to the building.

Quality assurance testing was also conducted by utilizing blank (QCB) test devices, and duplicate samples per the recommendations found in OAR 332.341-345.

EPA RADON GUIDELINES

The EPA has set an Action Level of 4.0 pCi/L (picoCuries per liter) for schools. If classrooms or buildings have radon levels at or above 4.0 pCi/L, EPA recommends that schools take action to reduce the level. These actions include:

Step 1. If your result is 4.0 pCi/L or higher take a follow-up test (Step 2) to be sure.

Step 2. Follow up with either a long-term test or a second short-term test.

The World Health Organization has set their action level at 2.7 pCi/L. Salem-Keizer Public Schools has determined that 2.7 pCi/L is a target level where retesting should be done.

CONTROL OF RADON LEVELS IN SCHOOLS

The major control mechanism for lowering radon levels within school buildings is the use of dilution ventilation. If the amount of outside air delivered into a building increases, the radon levels should decrease.

Sample Data Attached

November 22, 2021

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:

**GRANT
MAIN**

| Kit # | Room Id | Started | Ended | pCi/L | Analyzed |
|---------|----------------|-----------------------|-----------------------|-----------|------------|
| 9601935 | 110 | 2021-11-09 @ 12:00 pm | 2021-11-12 @ 11:00 am | < 0.3 | 2021-11-22 |
| 9601936 | 120 | 2021-11-09 @ 12:00 pm | 2021-11-12 @ 11:00 am | < 0.3 | 2021-11-22 |
| 9601937 | 120 A | 2021-11-09 @ 12:00 pm | 2021-11-12 @ 11:00 am | 1.0 ± 0.9 | 2021-11-22 |
| 9601938 | 140 | 2021-11-09 @ 12:00 pm | 2021-11-12 @ 11:00 am | < 0.3 | 2021-11-22 |
| 9601939 | 160 | 2021-11-09 @ 12:00 pm | 2021-11-12 @ 11:00 am | 1.5 ± 0.9 | 2021-11-22 |
| 9601941 | 180 N | 2021-11-09 @ 12:00 pm | 2021-11-12 @ 11:00 am | 0.8 ± 0.9 | 2021-11-22 |
| 9601940 | 180 S | 2021-11-09 @ 12:00 pm | 2021-11-12 @ 11:00 am | < 0.3 | 2021-11-22 |
| 9601950 | CAFETERIA E | 2021-11-09 @ 12:00 pm | 2021-11-12 @ 11:00 am | < 0.3 | 2021-11-22 |
| 9601951 | CAFETERIA W | 2021-11-09 @ 12:00 pm | 2021-11-12 @ 11:00 am | < 0.3 | 2021-11-22 |
| 9601925 | CONF RM | 2021-11-09 @ 12:00 pm | 2021-11-12 @ 11:00 am | < 0.3 | 2021-11-22 |
| 9601954 | COUNSELOR | 2021-11-09 @ 12:00 pm | 2021-11-12 @ 11:00 am | < 0.3 | 2021-11-22 |
| 9601923 | CSOC | 2021-11-09 @ 12:00 pm | 2021-11-12 @ 11:00 am | < 0.3 | 2021-11-22 |
| 9601931 | GYM E | 2021-11-09 @ 12:00 pm | 2021-11-12 @ 11:00 am | 1.3 ± 1.0 | 2021-11-22 |
| 9601949 | KITCHEN OFFICE | 2021-11-09 @ 12:00 pm | 2021-11-12 @ 11:00 am | < 0.3 | 2021-11-22 |
| 9601957 | LRC | 2021-11-09 @ 12:00 pm | 2021-11-12 @ 11:00 am | < 0.3 | 2021-11-22 |
| 9601958 | LRC OFFICE 1 | 2021-11-09 @ 12:00 pm | 2021-11-12 @ 11:00 am | < 0.3 | 2021-11-22 |
| 9601959 | LRC OFFICE 2 | 2021-11-09 @ 12:00 pm | 2021-11-12 @ 11:00 am | < 0.3 | 2021-11-22 |
| 9601955 | LRC SPEECH | 2021-11-09 @ 12:00 pm | 2021-11-12 @ 11:00 am | < 0.3 | 2021-11-22 |
| 9601956 | LRC TESTING | 2021-11-09 @ 12:00 pm | 2021-11-12 @ 11:00 am | < 0.3 | 2021-11-22 |
| 9601924 | MAIN OFFICE | 2021-11-09 @ 12:00 pm | 2021-11-12 @ 11:00 am | < 0.3 | 2021-11-22 |
| 9601943 | MEDIA E | 2021-11-09 @ 12:00 pm | 2021-11-12 @ 11:00 am | < 0.3 | 2021-11-22 |
| 9601942 | MEDIA W | 2021-11-09 @ 12:00 pm | 2021-11-12 @ 11:00 am | 1.3 ± 0.9 | 2021-11-22 |
| 9601932 | MUSIC | 2021-11-09 @ 12:00 pm | 2021-11-12 @ 11:00 am | < 0.3 | 2021-11-22 |
| 9601930 | PE OFFICE | 2021-11-09 @ 12:00 pm | 2021-11-12 @ 11:00 am | < 0.3 | 2021-11-22 |
| 9601922 | PRINICIPAL | 2021-11-09 @ 12:00 pm | 2021-11-12 @ 11:00 am | < 0.3 | 2021-11-22 |
| 9601964 | QCB 1 | 2021-11-09 @ 12:00 pm | 2021-11-12 @ 11:00 am | < 0.3 | 2021-11-22 |
| 9601965 | QCB 2 | 2021-11-09 @ 12:00 pm | 2021-11-12 @ 11:00 am | < 0.3 | 2021-11-22 |
| 9601953 | READING ROOM | 2021-11-09 @ 12:00 pm | 2021-11-12 @ 11:00 am | 1.2 ± 0.9 | 2021-11-22 |
| 9601946 | RM 1 | 2021-11-09 @ 12:00 pm | 2021-11-12 @ 11:00 am | < 0.3 | 2021-11-22 |
| 9601963 | RM 10 | 2021-11-09 @ 12:00 pm | 2021-11-12 @ 11:00 am | < 0.3 | 2021-11-22 |
| 9601934 | RM 12 | 2021-11-09 @ 12:00 pm | 2021-11-12 @ 11:00 am | < 0.3 | 2021-11-22 |
| 9601945 | RM 2 | 2021-11-09 @ 12:00 pm | 2021-11-12 @ 11:00 am | < 0.3 | 2021-11-22 |
| 9601948 | RM 3 E | 2021-11-09 @ 12:00 pm | 2021-11-12 @ 11:00 am | < 0.3 | 2021-11-22 |
| 9601947 | RM 3 W | 2021-11-09 @ 12:00 pm | 2021-11-12 @ 11:00 am | < 0.3 | 2021-11-22 |
| 9601944 | RM 4 | 2021-11-09 @ 12:00 pm | 2021-11-12 @ 11:00 am | < 0.3 | 2021-11-22 |
| 9601926 | RM 5 | 2021-11-09 @ 12:00 pm | 2021-11-12 @ 11:00 am | 2.1 ± 1.0 | 2021-11-22 |
| 9601960 | RM 6 | 2021-11-09 @ 12:00 pm | 2021-11-12 @ 11:00 am | < 0.3 | 2021-11-22 |

Radon test result report for:

**GRANT
MAIN**

| Kit # | Room Id | Started | Ended | pCi/L | Analyzed |
|--------------|----------------|-----------------------|-----------------------|--------------|-----------------|
| 9601927 | RM 7 | 2021-11-09 @ 12:00 pm | 2021-11-12 @ 11:00 am | < 0.3 | 2021-11-22 |
| 9601962 | RM 8 E | 2021-11-09 @ 12:00 pm | 2021-11-12 @ 11:00 am | < 0.3 | 2021-11-22 |
| 9601961 | RM 8 W | 2021-11-09 @ 12:00 pm | 2021-11-12 @ 11:00 am | < 0.3 | 2021-11-22 |
| 9601928 | RM 9 | 2021-11-09 @ 12:00 pm | 2021-11-12 @ 11:00 am | < 0.3 | 2021-11-22 |
| 9601952 | STAFF RM | 2021-11-09 @ 12:00 pm | 2021-11-12 @ 11:00 am | 1.4 ± 0.9 | 2021-11-22 |

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

Note: QCB1-2 are blank samples and part of the quality control process for radon testing.

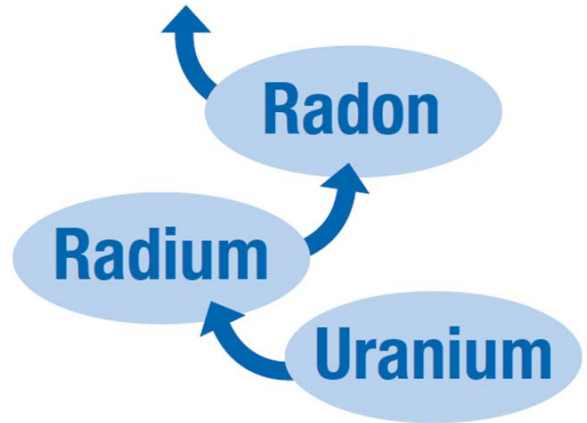
Radon in schools

Fact Sheet on Radon Exposure for Students and Staff



What is radon?

Radon is a radioactive gas you can't see, smell or taste. It is a decay product of uranium and is found all over the world. Uranium and its decay products are naturally found in the soil and rocks beneath buildings. Our school image (right) shows how uranium naturally decays into radium that further breaks down into radon gas. Radon moves up through the soil and enters buildings in contact.



Why is radon a problem in Oregon schools?

Radon is the 2nd leading cause of lung cancer, after smoking. The Environmental Protection Agency (EPA) estimates around 21,000 radon-related lung cancer deaths occur each year. Breathing high levels of radon in combination with smoking is even more dangerous and increases your risk by ten times.

Home is likely the most significant source for breathing radon. According to the EPA, 1 out of 15 homes has high radon levels. School is likely the second largest source of radon exposure for students and staff. The only way to know your radon levels is to test. The EPA recommends that **all** homes and schools be tested for radon.

EPA ACTION LEVEL

4.0 Picocuries / Liter of air

Testing at Home

Radon testing at home can be simple and inexpensive. You can find do-it-yourself test kits at most local hardware stores and online from the [American Lung Association](http://www.AmericanLungAssociation.org). Oregon Health Authority (OHA) Radon Program also offers FREE test kits to those living in areas where little data is available. To find out if you are eligible, contact radon.program@state.or.us.

Testing in Oregon Schools

By law (ORS 332.166-167), all Oregon schools are required to test for radon before January 1, 2021.

School radon testing involves the placement of small testing devices in all frequently occupied rooms on the lowest level of the building. Initial testing is short-term and lasts between 2 and 7 days. Test devices are not dangerous in any way.

Rooms that test at or above 4.0 picocuries per liter of air (pCi/L) (EPA recommended action level) are subject to longer confirmation testing and radon reduction systems.

*Test results for your school can be found at:

For more information about radon, visit www.healthoregon.org/radon.

If you have other questions or concerns about radon testing at your school, contact _____ at _____.

