Medford SCHOOL DISTRICT

Facilities Office
900 Kenyon Street, Medford OR 97501
(541) 842-3646

Radon Health and Safety Plan

What is it and why is it dangerous? Radon comes from natural deposits of uranium in the soil. It is colorless, odorless, and tasteless. The uranium decays into radium that further breaks down into radon gas. The gas moves up through the soil, allowing it to enter buildings in contact with the ground through cracks and openings in the foundations and under structure. The gas becomes dangerous once it is dispersed into the air and begins the radioactive decay process. The decay process leads to the release of energy particles that can strike and damage lung tissue when inhaled. Radon is the number one cause of lung cancer among non-smokers. Although no amount of radon is safe, steps can be taken to reduce its potential for harm. School buildings are the second leading source of radon exposure for students and school employees beyond individual homes.

What is the risk in Southern Oregon? – There are several variables that contribute to indoor radon levels. Weather, season, geology, type of construction and heating, ventilation and air conditioning systems can all be contributing factors. The Southern Oregon area is rated **low** in terms of radon gas risk; however, the rating is no substitute for testing. **The only way to know if a building has radon is to test.** Oregon Public Health Division recommends that ALL residences be tested for radon regardless of the risk levels assigned to the geographic locations.

What are the current requirements? House Bill (HB) 2931 lead to ORS 332.166-167 which directed the Oregon Health Authority (OHA) to provide guidance on radon testing in schools. School districts must submit a plan to the Oregon Health Authority by Sept. 1, 2016. Testing of schools must be complete no later than Jan. 1, 2021. At a minimum, testing should occur every 10 years. Testing must occur in all frequently occupied rooms in contact with the soil or located above a crawl space or a basement.

The E.P.A.'s recommended action level is 4.0 pCI/L. This is not a health based number. Outdoor radon levels across the country average .4 pCI/L. It is not possible to reduce the risk to zero. This is a recommended action level to help reduce radon levels proactively.

* pCI/L = pico curies per liter of air. A "pico Curie" is one-trillionths of a Curie. A Curie is equivalent to 37 Billion radioactive disintegrations per second. Therefore, one pico-Curie works out to 2.2 radioactive disintegrations per minute (dpm) in a liter of air

Testing – Research has shown that results can vary greatly from room to room. Spot testing is not effective or recommended. A minimum of one detector for every 2,000 square feet of open floor space is required.

What should be tested? Ground floor and/or basement level offices, classrooms, conference rooms, gyms, auditoriums, cafeterias and break rooms. All rooms should be tested simultaneously.

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What should not be tested initially? Restrooms, hallways, stairwells, elevator shafts, utility closets and kitchens storage closets.

How do we test? For initial measurements, we will utilize a passive device (no power required) with a measurement period of 2-7 days (short term testing). When complete, these devices will be sent to the lab within two days, preferably overnight.

Quality Assurance Steps We Will Implement:

Duplicates – Placed in the same location to determine variances. Duplicates should be in **10%** of the rooms and a minimum of one per building.

Blanks – Placed alongside opened detectors but immediately sealed up. They are designed to detect manufacturing, storage, and/or shipping issues that may have influenced accuracy. They should come back at/close to 0.0 pCi/L. Blanks should be in **5%** of the rooms and a minimum of one per building.

Spikes – Evaluate accuracy of detectors supplied and the lab. A spike is a kit sent to another lab that exposes kits to known levels of radon. They are then sent back to the school and included (unmarked) in the samples sent to the testing lab. Spikes should be **3%** of the rooms tested at a site.

How Do We "Fix" It? Solutions depend on the specific situation; however, adjusting HVAC systems, soil depressurization, building pressurization, sealing entry routes, zone specific ventilation or a combination of the above may been utilized as possible courses of actions to remedy an area with elevated levels.

If a result comes back greater than 4.0 pCI/L, then the E.P.A. recommends follow up testing before any mitigation decisions are made. The average between the initial and the follow up test will be utilized.

Cost - The test kits can currently be purchased for ~$11 per kit. We have ~ 1,355 rooms that need to be tested. Including blanks, duplicates, and spikes, we would need ~ 1,681 kits.
Total cost not including labor or mitigation would be ~$25,000-$30,000.

What does testing in Medford School District look like? Planning and preparation will be critical to a successful test cycle. In terms of testing considerations, we will do the testing under "closed building conditions" (windows and doors closed) with HVAC systems on. We need to consider the likelihood of disruption. With the test kits being placed lower toward the floors this will leave them vulnerable when kids are present. We will need to coordinate with a lab and consider their availability to send us the spike kits back toward the end of our test cycle so that they can be included in the samples submitted. Weather will be considered. High humidity and drops in barometric pressure can skew test results

We will use a test kit placement log and school floor plans to annotate all test kit locations by serial number. Test kits will meet the current requirements of the National Radon Proficiency

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Program (NRPP) www.nrpp.info and/or the National Radon Safety Board (NSRB) www.nsrb.org.

Test kits will be placed:

a. Where they are least likely to be disturbed.
b. At least three feet from doors, outside windows, and ventilation ducts.
c. At least one foot from exterior walls.
d. Between 20 inches and six feet from the floor.
e. Every 2,000 square feet for large spaces.

*Kits can be placed on teacher's desks or a bookshelf to prevent tampering. They can also be suspended from a wall or ceiling as long as they meet the above requirements.

Test kits will not be placed:

a. Near drafts resulting from heating, ventilating vents, air conditioning vents, fans, doors or windows.
b. In direct sunlight.
c. In areas of high humidity such as bathrooms, kitchens, laundry rooms, etc.
d. In locations where they have a high likelihood of being disturbed.

We will conduct testing throughout the school year and ensure "closed building conditions" which are required at all times in accordance with our energy conservation policy.

a. Colder months: Because testing under closed conditions is important to obtain meaningful results from short-term tests, the District will schedule testing during the colder months of the year. During these months, windows and exterior doors are more likely to be closed. In addition, the heating system is more likely to be operating. This usually results in the reduced intake of outside air. Moreover, studies of seasonal variations of radon measurements in schools found that short-term measurements may more likely reflect the average radon level in a room for the school year when taken during the winter heating season.

Results - We will maintain transparency throughout the testing process, and we will post the test results on the school district website.

References - We will continue to utilize guidance published in Testing for Elevated Radon in Oregon Schools (2016) by the Oregon Health Authority for testing procedures and protocols.