

INDUSTRIAL HYGIENE REPORT

Englewood Elementary School

Report to: Vonnie Good, Risk Management

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On-site: November 13 – 16, 2012

Report: December 1, 2012

PURPOSE

Radon monitoring was done to measure the background levels in all classrooms, offices and staff work rooms that are in contact with the ground or below ground level.

TEST METHOD

Radon Air-Chek short-term test devices were used in each location by placing the device 5-6 feet above the floor, where it is not in direct contact with airflow from the ventilation system, windows or exterior doors. Staff were requested to keep windows closed during the testing.

These short-term devices work by trapping room air inside the grains of charcoal with the devices, meaning that live radon gas is being captured. The analysis is performed by measuring the radiation emitted from the charcoal, which is proportional to the amount of radon that was present in the room air.

The testing occurred from Tuesday November 13 to Friday November 16 during normal and routine operation of the school.

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 4.0 pCi/L or above, 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:

RESULTS and RECOMMENDATION

No test locations were above the EPA's action level of 4.0 picoCuries per liter (pCi/l). Two test locations were slightly below the action level, Classroom 2 @ 3.9 pCi/L and the music room in the gym @3.7 pCi/L.

It is recommended that the operation of the ventilation systems for these two rooms be checked to make sure that the amount of outdoor air supplied has not been shut off. If possible increase the amount of outdoor air to these two rooms, then retest the rooms for radon levels.

BACKGROUND ON RADON

Radon is a gas that occurs in nature, seeping up from the earth. It is odorless, colorless and tasteless. Radon comes from the natural breakdown, or radioactive decay, from uranium 238, and produces radon. The half-life of an individual element is relatively short. Within two weeks, about 90% of a given amount of radon gas will be gone. However, the actual health concern is for the radon decay products, called radon progeny, which carry a small static charge that allows their attachment to water vapor, dust and smoke particles in the air.

The Radon progeny can become lodged in the lung tissue when they are inhaled, and it is these particles' further radiation decay that is associated with potential lung cancer effects.

Radon can seep into buildings or schools through cracks in slab floors or porous cinderblock. It can enter around loose-fitting drainage pipes or through sump pumps. Pressure differentials between the building and the soil surrounding the foundation can draw soil gases into the building.

The US EPA has set an action level of 4.0 pCi/L. At or above this level of radon, the EPA recommends that corrective measures should be taken to reduce the exposure to radon gas.

CONTROL OF RADON LEVELS IN SCHOOLS

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

Sample Data Attached

Radon test result report for:
ENGLEWOOD
MAIN

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
4588274	CAFETERIA	2012-11-13 @ 11:00 am	2012-11-16 @ 2:00 pm	< 0.3	2012-11-20
4588273	CUSTODIAN	2012-11-13 @ 11:00 am	2012-11-16 @ 2:00 pm	0.6	2012-11-20
4588270	READING	2012-11-13 @ 11:00 am	2012-11-16 @ 2:00 pm	0.9	2012-11-20
4588266	RM 1	2012-11-13 @ 11:00 am	2012-11-16 @ 2:00 pm	1.5	2012-11-20
4588267	RM 2	2012-11-13 @ 11:00 am	2012-11-16 @ 2:00 pm	3.9	2012-11-20
4588268	RM 3	2012-11-13 @ 11:00 am	2012-11-16 @ 2:00 pm	0.6	2012-11-20
4588269	RM 4	2012-11-13 @ 11:00 am	2012-11-16 @ 2:00 pm	< 0.3	2012-11-20
4588271	RM 5	2012-11-13 @ 11:00 am	2012-11-16 @ 2:00 pm	1.7	2012-11-20
4588272	RM 6	2012-11-13 @ 11:00 am	2012-11-16 @ 2:00 pm	0.7	2012-11-20

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

November 20, 2012

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
ENGLEWOOD
GYM

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
4588265	MUSIC	2012-11-13 @ 11:00 am	2012-11-16 @ 2:00 pm	3.7	2012-11-20
4588264	PE OFFICE	2012-11-13 @ 11:00 am	2012-11-16 @ 2:00 pm	2.7	2012-11-20

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