

INDUSTRIAL HYGIENE REPORT

Hoover Elementary School

Report to: Vonnie Good,

by: Kathy Ellis Senior Industrial Hygiene Consultant and
DeEtta Burrows, MSPH, CIH Wise Steps, Inc.

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 or above 4.0 pCi/L, EPA recommends that schools take action to reduce the level. These actions include:

Step 1. If the 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

No test locations were above the EPA's action level of 4.0 picoCuries per liter (pCi/l).

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 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:
HOOVER
MAIN

Kit #	Room Id	Started	Ended	pCiL	Analyzed
4588284	10	2012-11-13 @ 1:00 pm	2012-11-16 @ 2:00 pm	0.8	2012-11-20
4588286	11	2012-11-13 @ 1:00 pm	2012-11-16 @ 2:00 pm	1.4	2012-11-20
4588288	12	2012-11-13 @ 1:00 pm	2012-11-16 @ 2:00 pm	1.2	2012-11-20
4588290	13	2012-11-13 @ 1:00 pm	2012-11-16 @ 2:00 pm	0.9	2012-11-20
4588292	14	2012-11-13 @ 1:00 pm	2012-11-16 @ 2:00 pm	0.7	2012-11-20
4588293	15	2012-11-13 @ 1:00 pm	2012-11-16 @ 2:00 pm	1.5	2012-11-20
4588294	16	2012-11-13 @ 1:00 pm	2012-11-16 @ 2:00 pm	0.7	2012-11-20
4588291	3	2012-11-13 @ 1:00 pm	2012-11-16 @ 2:00 pm	1.1	2012-11-20
4588289	4	2012-11-13 @ 1:00 pm	2012-11-16 @ 2:00 pm	0.6	2012-11-20
4588287	5	2012-11-13 @ 1:00 pm	2012-11-16 @ 2:00 pm	1.5	2012-11-20
4588285	6	2012-11-13 @ 1:00 pm	2012-11-16 @ 2:00 pm	0.9	2012-11-20
4588283	7	2012-11-13 @ 1:00 pm	2012-11-16 @ 2:00 pm	1.1	2012-11-20
4588282	8	2012-11-13 @ 1:00 pm	2012-11-16 @ 2:00 pm	1.4	2012-11-20
4588281	9	2012-11-13 @ 1:00 pm	2012-11-16 @ 2:00 pm	1.3	2012-11-20
4588299	BEHAV SPE	2012-11-13 @ 1:00 pm	2012-11-16 @ 2:00 pm	0.9	2012-11-20
4588298	CHILD DEV	2012-11-13 @ 1:00 pm	2012-11-16 @ 2:00 pm	1.1	2012-11-20
4588296	COMP LAB	2012-11-13 @ 1:00 pm	2012-11-16 @ 2:00 pm	1.1	2012-11-20
4588308	CUSTODIAN	2012-11-13 @ 1:00 pm	2012-11-16 @ 2:00 pm	0.9	2012-11-20
4588309	KITCHEN	2012-11-13 @ 1:00 pm	2012-11-16 @ 2:00 pm	0.9	2012-11-20
4588295	MEDIA	2012-11-13 @ 1:00 pm	2012-11-16 @ 2:00 pm	1.1	2012-11-20
4588302	OFFICE MAN	2012-11-13 @ 1:00 pm	2012-11-16 @ 2:00 pm	1.0	2012-11-20
4588300	PRINCIPAL	2012-11-13 @ 1:00 pm	2012-11-16 @ 2:00 pm	0.9	2012-11-20
4588303	RESOURCE S	2012-11-13 @ 1:00 pm	2012-11-16 @ 2:00 pm	1.2	2012-11-20
4588310	RM 1	2012-11-13 @ 1:00 pm	2012-11-16 @ 2:00 pm	0.9	2012-11-20
4588301	RM 17	2012-11-13 @ 1:00 pm	2012-11-16 @ 2:00 pm	1.9	2012-11-20
4588305	RM 18	2012-11-13 @ 1:00 pm	2012-11-16 @ 2:00 pm	< 0.3	2012-11-20
4588307	RM 19	2012-11-13 @ 1:00 pm	2012-11-16 @ 2:00 pm	0.8	2012-11-20
4588306	RM 2	2012-11-13 @ 1:00 pm	2012-11-16 @ 2:00 pm	1.1	2012-11-20
4588304	SCH OFFICE	2012-11-13 @ 1:00 pm	2012-11-16 @ 2:00 pm	1.0	2012-11-20
4588297	STAFF RM	2012-11-13 @ 1:00 pm	2012-11-16 @ 2:00 pm	0.9	2012-11-20

November 20, 2012

**** LABORATORY ANALYSIS REPORT ****

Radon test result report for:
HOOVER
GYM

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
4588275	MUSIC	2012-11-13 @ 1:00 pm	2012-11-16 @ 2:00 pm	1.7	2012-11-20
4588276	PE OFFICE	2012-11-13 @ 1:00 pm	2012-11-16 @ 2:00 pm	1.4	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

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Radon test result report for:
HOOVER
PORTABLE

Kit #	Room Id	Started	Ended	pCi/L	Analyzed
4588277	P20	2012-11-13 @ 1:00 pm	2012-11-16 @ 2:00 pm	< 0.3	2012-11-20
4588278	P21	2012-11-13 @ 1:00 pm	2012-11-16 @ 2:00 pm	< 0.3	2012-11-20
4588280	P22	2012-11-13 @ 1:00 pm	2012-11-16 @ 2:00 pm	< 0.3	2012-11-20
4588279	P23	2012-11-13 @ 1:00 pm	2012-11-16 @ 2:00 pm	< 0.3	2012-11-20

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