



ENVIRONMENTAL EDUCATION SERIES

TIMELY INFORMATION

Agriculture & Natural Resources

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RADON AWARENESS

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Are you living with a silent killer in your home? A survey conducted by the United States Environmental Protection Agency (EPA), in cooperation with the Alabama Department of Public Health, Division of Radiation Control (ADPA), has shown that Radon gas has been detected in over 60% of the homes tested in Alabama at a level that is considered by EPA to have significant health risks.

What Is Radon?

Radon is a radioactive gas which occurs in nature. You cannot see it, smell it, or taste it. Radon comes from the natural breakdown (radioactive decay) of uranium. Radon can be found in high concentrations in soils and rocks containing uranium, granite, shale, phosphate, and pitchblende. In outdoor air, Radon is diluted to such low concentrations that it is usually nothing to worry about. However, once inside an enclosed space (such as your home) Radon can accumulate. Indoor levels depend both on a building's construction and the concentration of Radon in the underlying soil. Mr. McNees of the ADPH pointed out that there is a correlation between house construction and Radon accumulation: the most prevalent being homes with basements, slab on grade next, and crawl space homes being the least prevalent. Mr. McNees further pointed out that homes built on the side of hills and with boulder outcropping in the yard most often showed higher Radon level accumulation in those homes and that homes with add-on parking pads can prevent Radon from venting to the atmosphere thus diverting gas into the home. Mr. McNees also pointed out that Radon often comes through the basement slab crack at the inside of the block wall, thereby accumulating in the house.

Health Risk

The only known health effect associated with exposure to elevated levels of Radon is an increased risk of developing lung cancer. Not everyone exposed to elevated levels of Radon will develop lung cancer, and the time between exposure and the onset of the disease may be many years. Your risk of developing lung

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cancer from exposure to Radon depends upon the concentration of Radon and the length of time of exposure. Exposure to a slightly elevated Radon level for a long time may present a greater risk of developing lung cancer than exposure to a significantly elevated level for a short time. In general, your risk increases as the level of Radon and the length of exposure increases.

Radon Prevalence in Alabama

The EPA survey conducted in Alabama, Madison, Jefferson, and Shelby counties showed that 25% of the homes tested indicated detectable levels of Radon in excess of the level considered minimal risk by the EPA. The Alabama Department of Public Health, Division of Radiation Control, has targeted Northwest, North Central and East Central Alabama as the area to increase the awareness of Radon potential exposure and associated health risks.

Radon Detection

The only way to know for sure if your home has Radon gas or not and the concentration level is to test for it. There are two tests currently available for the homeowner. The short-term test, i.e. 3 to 7 days, involves a charcoal canister placed at the lowest level of your home, out of drafty areas. The second test is called an Alpha Track Detector with a minimum test period of 2 to 4 weeks and up to one year. These test devices can be purchased locally at hardware or general merchandise retail stores in your area. The approximate cost for the device is \$10 to \$25 for the charcoal canister and \$20 to \$50 for the Alpha Track Detector which includes instructions and laboratory analysis for level detected for each device. Since Radon accumulation varies by season and day vs. night, the long term test should be more accurate at determining actual Radon level in your home, however the short term test is useful to determine whether a long term test is necessary.

Radon Reduction

If the Radon level detected in your home is above the level considered to be minimal risk by the EPA, there are ways to correct the problem. The two most common Radon reduction strategies are:

1. Prevent Radon entry by sealing cracks, sump pump openings, and other areas where Radon can get in.
2. Ventilate the soil surrounding your home so that Radon is drawn away before it can enter your home.

You can find more information on how to reduce Radon levels in your home in EPA's booklet, "Radon Reduction Methods: A Homeowners Guide," which is also available from the ADPH. The

telephone number is (800) 582-1866. A Radon risk evaluation chart is shown to help you evaluate the level found in your home. Information is based on lifetime exposure to various Radon levels compared with other risks.

RADON RISK EVALUATION CHART		
Annual Radon level	If a community of 100 people were exposed to this level:	This risk of dying from lung cancer compares to:
100 pCi/l	About 35 people in the community may die from Radon.	Having 2000 chest x-rays each year
40 pCi/l	About 17 people in the community may die from Radon.	Smoking 2 packs of cigarettes each day
20 pCi/l	About 9 people in the community may die from Radon.	Smoking 1 pack of cigarettes each day
10- pCi/l	About 5 people in the community may die from Radon.	Having 500 chest x-rays each year
4- pCi/LI	About 2 people in the community may die from Radon.	Smoking half a pack of cigarettes each day
2 pCi/l	About 1 people in the community may die from Radon.	Having 100 chest x-rays each year
Levels as high as 3500 pCi/l have been found in some homes. The average Radon level outdoors is around 2 pCi/l or less.		
The risks shown in this chart are for the general population, including men and women of all ages as well as smokers and non-smokers. Children may be at higher risk.		

Legal Responsibility

In addition to health risks involved in Radon exposure are legal implications such that a home tested for Radon must be reported to a prospective buyer. The most practical solution to this requirement is to fix or contract to have your Radon problem fixed after detection if the level is 4.0 picocuries per liter or more. After all, no one wants to purchase someone else's problem, especially since a serious health threat could be involved. Informed home buyers may require such a test as a condition of purchase, especially in high Radon prevalence areas. Lending institutions may require testing of new homes on new mortgages. The EPA has reported that most homes with Radon levels considered to be a health risk can be fixed for between \$200 and \$1,500. Take action now!

Radon Awareness Week

A week in October has been proclaimed as Radon Action Week. A major emphasis is on Radon education from the ADPH. The Southern Regional Radon Training Center housed in the Engineering Outreach and Continuing Education office at Auburn University provides

training and examinations throughout the Southeast. The SRRTC conducts the Radon measurement and mitigation training along with the certification exams to qualify for certification as a Radon mitigator or measurement specialist. The SRRTC also provides training and Radon awareness in other areas, such as realtor, Radon and Radon-resistant new construction techniques and large buildings and schools trainings.

* This educational document was prepared by the Alabama cooperative Extension System from information provided by The United States Environmental Protection Agency; U.S. Department of Health and Human Services; Center for Disease Control; and the Alabama Department of Public Health, Division of Radiation Control.