RADON

Radon (Rn) is a naturally occurring and commonly found gaseous radioactive element. It is created by the decay of radium, which is one of the elements produced as uranium turns into lead. This is an extremely toxic, colorless gas that can be condensed to a transparent liquid and to an opaque, glowing solid. It is commonly used in cancer treatment, as a tracer in leak detection and in radiography. The gas itself has a very short half-life, and as it decays it produces heavy metals, most notably polonium. As polonium decays, it produces the alpha radiation that can damage lung tissue.

Radon is a concern in the home because the air pressure inside the home is usually lower than the pressure in the soil around the foundation. This causes the house to act as a vacuum, drawing radon gas through foundation cracks and other openings into the air that you breathe. As you breathe in radon, you also inhale the associated harmful decay products. The gas is exhaled, but the heavy metals stay in the lungs. Although it is not the gas itself that does the damage, we test for radon because it is far easier to detect than polonium and its presence can be used as an indicator of associated decay products. Radon may also be present in well water and can be released into the air in the home when water is used for showering and other household uses.

Radon decay products are widely believed to be the second leading cause of lung cancer. Although some scientists dispute the precise number of deaths due to these products, major health organizations (like the Center for Disease Control and Prevention, the American Lung Association and the American Medical Association) agree with estimates that radon decay causes thousands of preventable lung cancer deaths every year. This is especially true among smokers, to whom the risk is considerably greater than to non-smokers. The EPA and the Surgeon General recommend testing for radon in all homes.

While radon problems may be more common in some areas because of the local geology, any home can have an elevated radon level. New homes, old homes, well-sealed and drafty homes, and homes with or without basements can have a problem. The average radon level in a Colorado home is above the 4.0 pCi/L (picoCuries per Liter of air) level at which the EPA recommends mitigation. Radon levels can vary widely, even in houses that are right next to each other. The only way to know if your home has a radon problem is to test it.

There are solutions to radon problems in homes. The foundation design (e.g. basement, slab-on-grade or crawlspace) usually determines what techniques are used for radon reduction. Some houses have more than one foundation design feature. For example, in Colorado, it is common to have a basement or crawlspace under one section of the house and slab-on-grade construction under the rest. In this situation, a combination of techniques would be employed to reduce radon levels. Even extremely high levels of radon can be mitigated.

Reducing radon levels in your home will reduce your risk of lung cancer, even if you have lived with an elevated radon level for a long time. Radon problems vary from area to area, and the only way to know a home's radon level is to test. For further information, I suggest that you visit the websites listed below.

www.radongas.org
www.radon.org