PHI Professional Home Inspection Co.
www.phiinspect.com

Our Mission Statement:
To Help People Make Informed Real Estate Decisions

A Medical - Scientific Perspective of Radon Gas

The Numbers:

- Substances considered health risks by the EPA (Environmental Protection Agency) are typically rated at 1 out of 100,000 people or sometimes 1 out of 1,000,000. According to the EPA, if a person is exposed to a radon level at or above 4.0pCi/L for a lifetime their chances of developing radon induced lung cancer is believed to be 7 out of 1,000 for nonsmokers, and 6 out of 100 for smokers.
- The Iowa Residential Radon study concluded that there is a 50% increase in lung cancer risk when exposed to radon levels of 4.0pCi/L or more for 15 years.
- The latency period (present but still hidden/not detected) from extended radon exposure to the onset of lung cancer is approximately 5 years.
- Each year in Minnesota, more people are diagnosed with lung cancer than breast, colon and prostate cancer combined.
- The Alabama Radon Program revealed that 41% of the summertime radon tests that tested below 4.0 pCi/L were above 4.0 pCi/L when retested in the winter. Half of this 41% (20%) tested greater than 8.0 pCi/L, another 10% of that 41% were 20 pCi/L or higher. EPA's Citizen's Guide to Radon (1992) makes a statement: "seasonal variability is greater in areas with long heating seasons".

The Science:

- Radon gas is a chemically inert gas able to leave the soil freely. Radon Decay Products (RDP's) adhere to lung tissues.
- These RDP's have electrostatic charges with high linear energy releasing Alpha, Beta and Gamma radiation when the decay products break down. The Alpha particles are the most destructive.
- The high radiation energy release destroys cells often causing double strand breaks in DNA and also creates "Reactive Oxygen Species" (ROS) that can damage DNA.
- Individuals having a deficient GSTM1 gene (around 50% of the population) are more susceptible to the negative effects of radon gas because they do not have the ability to produce an enzyme that can "quench" the Reactive Oxygen Species (ROS).
- The Alpha particle damage can be seen with as little as a 100X (power) microscope.
- Soil deposits of Uranium 238 are typically associated with elevated radon levels.
- Alpha radiation from Polonium 214 & 218 (part of the decay process) does significant lung cell damage.
- In cigarette smoke, polonium (part of the radon decay chain) attaches to the tobacco plant. When someone smokes, he is inhaling concentrated polonium.
- Discriminating the cause of lung cancer (smoking or radon gas) is not clinically possible. There are no precursors or clinical indicators that would predict effects from exposure to radon prior to the onset of the lung cancer.

Need More Information?

Please visit www.phiinspect.com click our "Post Inspection Support" page and request additional documents.

What The New Faces of Lung Cancer are Doing 9/14/07 (WCCO)
Radon Reporter Fall 2007 (AARST) (Seasonal Variations Found to be Significant in Alabama Study)
NRPP 60 – Radon from a Physicians Perspective – audio class 4 continuing education credit hours