

Radon, the Silent Killer!
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While Realtors uniformly recommend that prospective home purchasers obtain a radon test, few fully understand what radon is and its serious implications. We are well aware that smoking is the leading cause of lung cancer. Few however, are aware that radon is the second leading cause of lung cancer and is ranked highest from “natural causes”.

What is Radon?

Radon is a tasteless, odorless and invisible gas which gives off radiation produced by the decay of naturally occurring Uranium and Thorium. Radon is everywhere in our environment. It is a proven carcinogen. Lung cancer has been traced to radon in more than 21,000 deaths per annum in the United States. While being exposed to radon for a smoker is extremely dangerous, several thousand lung cancer deaths occur annually in individuals who have been exposed to high levels of radon and who have never smoked. A 2010 survey by the National Cancer Institute indicated that radon related lung cancer is a much more serious cause of death in the United States annually than liver cancer, esophageal cancer, ovarian cancer, melanoma, bone cancer, etc.

Radon and Lung Cancer in Our Region

The States of New York, New Jersey and Pennsylvania are known to have high levels of radon. In particular, our four counties of Orange, Rockland, Putnam and Westchester are included in the “Reading Prong” which produces some of the highest radon levels in the Country. Dutchess County is also touched by the Reading Prong.

The Department of Health of the State of New York has measured basement level radon readings by town as of October, 2011. Westchester County had average basement level readings that were lower than the other three counties in our Association. High average readings were found in the Town of Cortlandt (5.15 pCi/L) followed by Mamaroneck at 4.0 pCi/L and Somers at 3.89 pCi/L. Rockland had relatively low levels although the Town of Stony Point had an average reading of 5.32 pCi/L. Putnam had only two of its six towns below a 4.0 reading with the Town of Philipstown averaging 7.28 pCi/L, Kent at 5.61 pCi/L and Putnam Valley at 5.54 pCi/L. Orange County reflected the highest levels in the four county region with only three of twenty-two towns reflecting an average below 4.0 pCi/L, with high averages in the Towns of Minisink, Warwick and Hamptonburgh.

The lead story in the Putnam County Courier dated March 14, 2013 was entitled “Radon Plagues Putnam County”. Dr. Allen Beals, Putnam County’s Commissioner of Health, reported that while Putnam is one of the State’s healthiest counties, its rate of lung cancer is the highest in the entire Hudson River Valley. He reported that this circumstance was directly related to the emission of radioactive radon. Dr. Beals noted that Putnam was recently identified as a “high radon risk area”.

Is Anyone Safe?

While there are areas of the United States that are considered to be at greater risk, radon is everywhere in our atmosphere. Even if a person lives in Southern Westchester which is considered to be an area of lower radon risk, that doesn't mean that there will not be elevated levels of radon in a particular dwelling. The reason for this is that Uranium in the earth breaks down and forms a gas. This radioactive gas moves upward through the rocks and soil. It enters a home through a sump pump opening, a crack in the foundation or utility openings. With our well-built and tightly insulated homes, radon gas can be trapped inside the structure where it can build up. Radon does not announce that it is entering your home. Nor can your senses identify it in anyway. You cannot see it, you cannot smell it and you cannot taste it. While there is no short term exposure risk, decades long exposure does cause a significant risk of lung cancer even in persons who have never smoked. For smokers, the combination of cigarette smoke and radioactive radon gas trapped in a home, can be particularly lethal. The radon gas, one of the heaviest gasses known, can latch onto particles of dust or to smoke being inhaled and then lodge in the lungs. It is estimated that five percent of the homes in the United States have radon levels that are unsafe.

How Come We Didn't Know of These Dangers?

Until recently, radon has not been taken very seriously. It is useful to understand how over time it has been lost from the awareness of many consumers, homeowners and Realtors.

Prior to 1984, scientists were aware of radon but the general public was not. An interesting circumstance in Pennsylvania brought radon into the spotlight. Stanley Watras was an engineer working at the Limerick Nuclear Power Plant in Boyertown, Pennsylvania. In December 1984, Watras walked through the radon detection device at the power plant as he did every morning. On a particular morning he set off alarms indicating that he had been exposed to large amounts of radiation. An extensive investigation occurred in which it was determined that the radiation exposure had not occurred at the power plant. Watras suggested that his home be investigated and it was found to have radon levels over a thousand times greater than the 4.0 pCi/L (the EPA recommended maximum guideline for radon). Until that moment, radon had been associated with lung cancer among Uranium miners.

The case of Mr. Watras gained national attention and since that time, Realtors have uniformly recommended to purchasers of residential properties, that they obtain a radon test and insist upon remediation by a seller with a home reflecting 4 or more picoCuries per liter ("4 pCi/L"). By 1986, the New York Times was reporting about radon and about the "Reading Prong". While homes in the area of the Reading Prong, which stretches across parts of Pennsylvania, New Jersey and New York, may have a tendency toward high radon levels, homes that are outside of the Reading Prong can often have even higher radon levels. Since 1986, the EPA has offered its "suggested standard" of what constitutes a safe indoor radon level (i.e., 4 pCi/L). Recent studies however, indicate that prolonged exposure even at the 4.0 pCi/L level significantly

increases the risk of lung cancer and for a smoker, can heighten danger significantly. A New York Times article published on March 29, 2012 indicates that since the late 1980's, "a half million Americans have died from radon-induced lung cancer..."

For several years after the Watras incident, the focus on radon lessened. Realtors arranged for radon tests in the ordinary course without realizing how dangerous radon actually was. Scientifically rigorous studies were performed in North America and in Europe over the past two decades that have clearly established the link between radon exposure in the home and lung cancer. The 2012 New York Times article noted that "it is the leading environmental cause of cancer mortality in the United States and is expected to be the seventh leading cause of cancer overall this year."

Radon is Also in Water

Radon levels in water were discovered in the Reading Prong and throughout other areas of the United States. Rock formations such as exist in the Hudson Valley and in the Appalachians are rich in Uranium and Radium. As a result of this granitic rock, radon is commonly found in groundwater and is in the water supply along the East Coast, in Florida, in California, in certain mid-western States and in the Northwest. Homes with individual wells have the highest potential for radon. The overall public health risk from radon in the water supply is considered to be small. However, homes with wells that have high radon content may indicate a significant health risk. Just as in the distribution of radon in the air, there may be significant variations in well contamination even in adjoining properties. It depends upon the layers of rock as well as the differences in radon concentrations.

Testing and Remediation

Every residential property owner and every purchaser of a residence should be conscious of the level of radon present in the home. Radon test kits are readily available. There are different opinions however, about how such tests are to be conducted. Typically, a test kit is placed at the lowest livable floor of the residence. The canister is left for two to seven days and the area is usually left with windows and doors closed. Radon however, travels easily and can be trapped virtually anywhere in a house. A more appropriate level of testing would include placing the radon canisters at every level of the house.

Radon levels can fluctuate materially because of open windows, weather conditions and outside temperatures. They are usually at the highest levels at the coldest part of the day.

Mitigation can be performed in several different ways. The one most Realtors are familiar with is "sub-slab depressurization". This method involves drilling a hole through the concrete basement floor into the soil below and having a vent with a constant fan system blow the radon out into the air above the residence. A second method of remediation is improving the ventilation of the residence and insuring that the air in the basement does not travel into other living areas. A third method is the

installation of a sump pump system specifically designed for radon remediation. The last methodology is a “positive pressurization” or positive supply ventilation system.

When radon first became an issue, it was thought that sealing a basement to prevent radon gasses from flowing up through the concrete would be a good measure. EPA studies indicate however, that sealing alone does not lower radon levels significantly or consistently. According to EPA studies, the soil suction method is considered to be the most effective. This involves drilling a hole through a sub-membrane and drawing the radon from under the membrane through a vent, discharging the radon gasses into the atmosphere.

What is a Realtor to Do?

All of the foregoing information indicates clearly that the one thing that a Realtor cannot do is treat the issue of radon lightly. It is never appropriate to suggest to a prospective purchaser that radon is a problem in Minnesota or South Dakota (where it actually is a significant factor). Our area has significant radon risk factors as well and consumers should be encouraged to know as much about radon as possible and to address it in a manner that life style decisions and awareness reduce exposure to radon risks.

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