

Assessing **RADON CONCERNS** in Residential Properties

by David J. Benson and Ginevera K. Moore

Consumer awareness of the potential health effects caused by long-term exposure to radon, a naturally-occurring radioactive gas, has steadily increased since the surgeon general warned that radon is the second leading cause of lung cancer in the United States. However, property owners can follow some simple and inexpensive steps to assess whether radon is a legitimate environmental concern in a residential property and thereby avoid having this issue arise as a significant impediment to residential property transactions.

WHAT IS RADON?

Radon is a naturally-occurring gas and therefore cannot be avoided. It occurs as a result of the radioactive decay of uranium in rocks and soil. Obviously, higher concentrations of radon are associated with geographic areas with high concentrations of uranium in rocks and soil. The movement of radon through rocks and soils is controlled by physical factors such as moisture content and the rate at which gases can pass through them. Radon concentrates below building foundations and within basements due to differences in air pressure between the soil and the complex, openings in the building's foundation and the presence of highly permeable fill or disturbed soils surrounding foundations.

RADON REGULATIONS

Regulation of radon in residential properties exists mainly at the state and local level. The United States Envi-

ronmental Protection Agency (EPA) has published guidance documents and model testing and mitigation standards. However, radon in residential properties is currently not regulated by the federal government. In contrast, approximately 18 states require disclosure of known radon hazards to

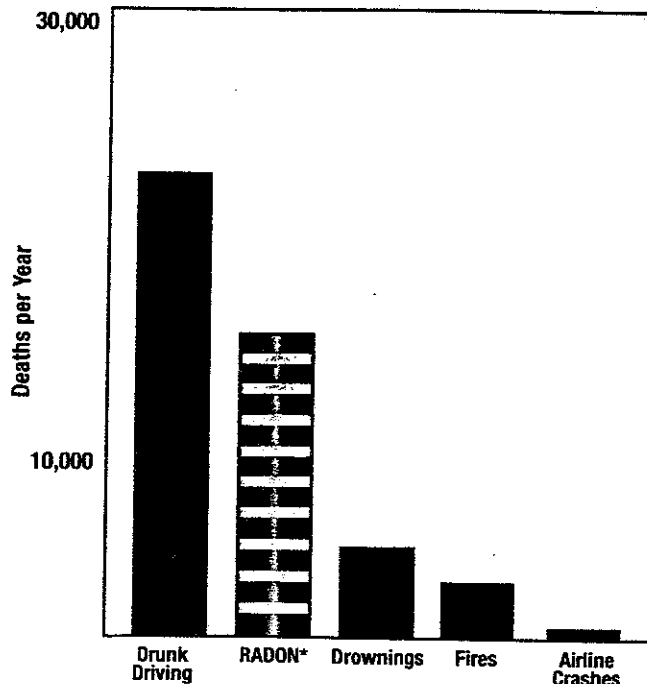
HEALTH RISKS

The true magnitude of the health risks associated with radon and the appropriate steps to be taken in response to test results is controversial. Long-term exposure to elevated levels of radon has been shown to cause lung cancer, especially in smokers. Radon generally does not cause serious health effects without long-term exposure. The EPA recommends that confirmed radon levels of four picocuries per liter (pCi/L) of air or higher be reduced, to decrease the risk of developing lung cancer.

TESTING

In general, in residential properties testing should be conducted in the lowest level of the residence used or suitable for occupancy. Radon testing should not be conducted in a kitchen, bathroom or laundry room where high humidity or ventilation by an exhaust fan could influence the test result. "Short-term" radon measuring devices should be used for initial testing. A typical short-term measurement device contains small quantities of activated charcoal that absorb radon and its decay products over a period of two to seven days. Upon completion of the test period, the device is typically mailed to a laboratory for analysis, with results available in a few weeks, with the testing protocol should follow state or local requirements, if any, or EPA-recommended testing protocols and should be conducted by an EPA-listed or state-certified radon tester. Most environmental consulting firms that perform property assessments should have an EPA-listed or state-certified

Radon is estimated to cause thousands of cancer deaths in the U.S. each year.



*Radon is estimated to cause about 14,000 deaths per year — however, this number could range from 7,000 to 30,000 deaths per year. The numbers of deaths from other causes is taken from 1990 National Safety Council reports.

prospective buyers. Seventeen states require that testing and mitigation contractors be properly certified. Four states currently require consideration of radon in the construction design of residential properties and two states and one municipality have established, or are in the process of establishing, acceptable levels of radon in residential properties.

radon tester on staff.

If the result of a short-term test is at or above 4.0 pCi/L, the EPA recommends conducting a second "confirmation" test in the same area of the residence. If the average of the first and second test result is below 4.0 pCi/L, the residence should be considered acceptable for radon. The 4.0 pCi/L "action level" is based on the performance results of current mitigation technology. If the average is significantly above 4.0 pCi/L (i.e., 8 pCi/L or above), radon mitigation methods should be implemented within three years, or sooner if levels are significantly higher than 8 pCi/L. If the average is between 4.0 and 8.0 pCi/L, and time permits, a "long-term" measuring device can be used to determine a more representative concentration. Long-term radon measurements produce results that are closer to the actual annual radon exposure than short-term measurements. Long-term measurements typically require a period of three months to one year. If the long-term measurement result is above 4.0 pCi/L, radon mitigation methods should be implemented within three years.

MITIGATION

The cost of mitigating elevated concentrations of radon is reasonably inexpensive at low radon levels. Generally, mitigation methods utilize natural or forced ventilation to diminish indoor levels of radon gas. Most mitigation methods can reduce radon levels to an average of about 2 pCi/L. The most common mitigation method is subslab depressurization or subslab suction. This method involves inserting a pipe through the foundation and running it to a location above the roof and using a fan to ventilate the foundation. The EPA recommends hiring a qualified contractor to perform radon mitigation.

EFFECTS ON REAL ESTATE TRANSACTIONS

Radon concerns do affect the purchase, sale and financing of multifamily real estate, as well as new construction, especially in states that have enacted statutes and regulations regarding radon. Some lenders currently require evidence that radon levels are at or below 4 pCi/L. Concerned buyers may

require that the purchase of residential real estate be made contingent upon acceptable radon testing and results. Test results which indicate a radon issue may affect the purchase price or require an escrow or mitigation prior to closing a sale.

Radon can be a legitimate environmental concern in residential property transactions. However, testing for radon is relatively simple and inexpensive. Even the costs of mitigation are usually within reason. Therefore, if property owners confront radon issues at the front end of a residential real estate transaction, in most cases concerns about radon will not be significant enough to prevent the pending sale. ■

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