

More than 50 percent of Western PA homes fail radon test



DAN HOWARD
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Radon is the second leading cause of lung cancer, and you may be exposing yourself, your family and pets to that risk every day of living in your home. If they breathe, and the radon is elevated, they will be exposed to this carcinogen.

According to PA DEP, the Western PA radon failure rate in homes exceeds 50%. As a comparison, the national failure rate is about 15%. The good news is that radon is a cancer risk that can be corrected.

Radon is a naturally occurring radioactive gas created when uranium and radium in the soil and rocks decays. Just as pesticides, chemical

The Marcellus Shale connection to radon gas

Marcellus deposits add to the radon levels in Western PA. The USGA (United States Geological Survey) states that much of the Marcellus shale deposit and the gas and fracking fluids produced contain high amounts of uranium and radium. These elements decay into radon and can add to radon levels inside of homes. Many other factors effect whether an individual home will have high radon, but this geology naturally increases radon.

Fracking drilling fluids and the extraction of gas releases radioactive elements into the environment. A very

Conditions inside a home that can raise the risk of elevated radon:

- Many foundation and floor cracks
- Interior french drains
- Crawlspace
- Tightly built homes
- Dirt floors

additives, carbon monoxide and many other common exposures, low levels of exposure are not a significant risk. The problem is when the level is too high.

The Environmental Protection Agency of the US Government has set a safety action threshold of 4.0 picocuries per liter of air (pCi/l). Remediation is suggested at that level and above.

According to the PA DEP Pennsylvania's Home Buyer's and Seller's Guide to Radon, if your home has a radon level of 4.0(pCi/l), about 62 smokers and 7 non-smokers could get cancer. At a level of 20 pCi/l 250 smokers and 36 non-smokers will get cancer as a result of radon exposure.

real dispute is whether the process of fracking and extraction of gas adds to citizen radiation exposure in practice. Studies are available to both support and to refute that the exposure is a risk to people, but the actual release of these elements is not disputed.

Some studies show that proper disposal of fracking fluids prevents exposure to citizens. Other studies state that because radon has a short half-life and that transmission is inside heavy pipes acting as a shield, there is little risk from exposure due to radioactivity in the drilling and transportation process. There is still great concern that accidents and worker mistakes can cause contamination to either air or

Depending on the level of radon in the home there are several ways to reduce radon levels:

- Sealing the cracks in floors and walls
- Adding exterior air
- Sub slab vent system

water supplies. As in any human endeavor, accidents and mistakes occur.

Sealing floor and foundation cracks reduces the gases coming into the home. Adding exterior air by opening windows or adding fans can dilute the radon, but also makes it difficult to heat and cool a home. Though these techniques can make some improvement in radon levels, most cases require the installation of a radon system to bring levels to a safe level.

An active subslab suction—also called a subslab depressurization system—is the most common and usually the most reliable radon reduction method. A hole is cut through areas of a floor slab and one or more suction pipes are inserted into the crushed rock or soil underneath. If the soil under the floor does not permit good flow of radon into this exhaust system, additional pipes may be needed.

In Pennsylvania, systems must be installed by a licensed professional. The installer must include a visible method for consumers to know if the

system is operating. The installer must also have a test performed showing that the system has reduced the radon to a passing level below 4.0 pCi/l. The PA DEP website has lists to verify the license of both testing and mitigation professionals. As in any profession, there are people who falsely claim to be licensed and checking certifications is a good idea.

Testing for radon before purchasing a home

Many homes are tested during the home purchase process. The home purchase is a deadline and people tend to do things when there is a deadline. It is also an opportunity for buyers to negotiate with sellers to participate in the cost of a remediation system. Conversely, if a buyer waits until they are the seller and the next buyer has the test done, they could be the person paying the cost of radon mitigation. In addition to a perspective buyer paying for the next person to have a system, they will have exposed their family to

lung cancer from radon for the time they lived in the home

Cost of testing is usually about \$150.00. According to the US DEP, the cost to install a radon mitigation system runs \$800 to \$2,400. Costs are usually higher amounts when crawl spaces, dirt floors and multi-levels of basement are involved.

For links including radon publications and listing of certified profession-

als as mentioned above, go to: www.envirospect.info/radon

Dan Howard is the owner of EnviroSpect. For environmental consultation call 724-443-6653. For more information visit their website at www.EnviroSpect.info.

Email questions to: Dan@EnviroSpectofWesternPA.com. Like us on Facebook or connect @DanHoward251.



Common Radon Myths:

Myth: You should not buy a home if it has high radon.
Fact: Almost every home can be remediated to safe levels.

Myth: If my neighbor's home tests safe, my house will be safe too.
Fact: Side by side homes can have very different test results.

Myth: A house on slabconcrete can't have radon.
Fact: The radon can come up through a slab as well as through other construction

Myth: A passive system prevents high radon.
Fact: It can make remediation easier to perform, but is not a guarantee of low levels

Myth: When a house is shut up for over a year, the radon level will get higher.
Fact: Equilibrium is reached at about 12 hours after a home is closed and the level will be the same from that point forward.

Myth: Radon levels will not change.
Fact: Changes such as additions, change in heating systems, installation of interior French drains, new windows, vent systems, etc. can affect radon levels.

Myth: You can depend on a previous test.
Fact: Some test and methods are not reliable. In other instances, test conditions are breached and false passing results are obtained.



Brendan Ryan
President of EnviroCare Valencia, PA

Photos by Steve Dietz