



Home Tips



• CHRISTIAN BUILDING INSPECTORS, INC., 3697 HABERSHAM LANE, DULUTH, GEORGIA 30096, 770-849-0920 • DECEMBER 2015 •

Q & A

Limitations of Two Day Radon Screenings

By Kurt Salomon



A Moving Target

In most homes, the radon level is a moving target. It varies from hour to hour, from day to day, and from one season to the next. Wind, rain, snow, varying temperatures and barometric pressure can all cause dramatic changes in indoor radon levels.

Sample Size

Back in the day before 1989, the first radon tests for real estate transactions consisted of samples taken during a 24 hour period. Nowadays, we take a 48 hour sample. While this modern standard gives us much more data, it still can only tell us what is happening during those two days. It cannot tell us what radon levels are like for the other 363 days of the year. Even when we follow the EPA protocol in an effort to create worst-case conditions, these samples can provide misleading information.

Year-long tests that use alpha track devices provide an average of radon levels for an entire year, but only that - an average. They don't show the peaks and valleys that can be so important. If you have one foot in ice water and one foot in boiling water, you might feel average. Likewise, a year-long alpha track test might experience wide swings in radon levels, but only show a moderate average. The health risks from radon are associated with a time-based exposure: how long you're

exposed and at what level. The peaks are more important to us than the valleys or the average.

Seasonal Fluctuations

Based on 1,800,000 tests done by a national test organization, AirChek, there is a seasonal variation of radon levels depending on the month the test is done. The seasonal variation is repeatable. This is a table of variation of radon levels.

State	MT	PA	OH	KY	WV	UT
Winter	11.1	9.4	8.0	8.8	7.0	4.7
Summer	3.7	5.5	6.3	5.0	4.6	2.4

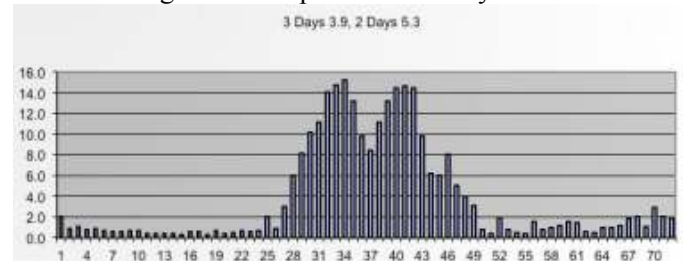
There are several reasons that account for the seasonal variation. One reason is thermal stacking. The stack effect is the movement of air in a building resulting from air buoyancy. The buoyancy result is either a positive or negative. The greater the thermal difference, and the height of the building, the greater the buoyancy and thus the stack effect.

During the heating season, the indoor air rises up through the house and escapes through open windows and ventilation openings. This rising warm air reduces the pressure at the base and cold air causes the radon to get trapped in the house.

A second reason is frost on the ground. Gases travel the path of least resistance, such as a dry basement and dry crawl space. Then the thermal stacking has an effect.

Weather Effect

The following is an example of a third-day test:

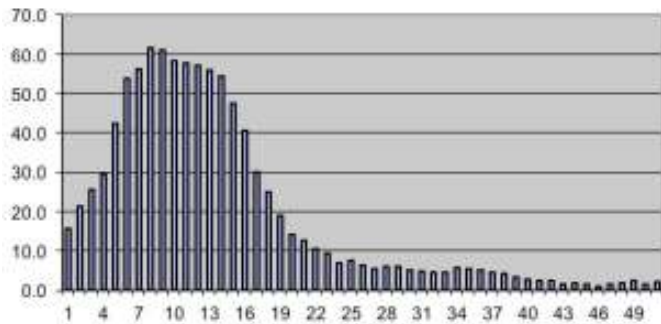


If a radon tester checked a house for radon and found the level at 3.9, according to the EPA there is no problem. However, if the tester tested the same house at 5.3, there is a problem. Does the tester know what he is doing? Are the test results reliable? Was there a storm coming through the tested area? The EPA states the guideline for high winds are at 30 mph over the average wind. How often are winds over 30 mph? Weather can and does affect radon levels.

Abnormal Effect

A most unusual radon test from a home in Saratoga Springs, Utah, produced a graph with a bell-shaped curve. At the height of the curve, radon levels exceeded 60, while at the lower end they were below 2. Even odder, the bell-

shaped curve reappeared during the clearance test, after



the mitigation system was installed. After discounting correlations with the weather and the possibility of tampering, we suspect that the wide swings in radon levels were the result of water movement underground.

Summary

There is a seasonal variation to radon levels. Storms during a radon testing period can also elevate the radon levels. The real estate industry has imposed an unrealistic time frame of two days. The real exposure to radon is how long you are exposed to radon and at what level. At best, a two day test shows the potential for elevated levels of radon. The true test of radon is a year-long period. This is unrealistic in a real estate transaction.

Source: Kurt Saloman

http://issuu.com/ashi932/docs/jan-2014_ashi-reporter_issuu



Long Term Radon Testing Is Now Available

Christian Building Inspectors now offers long term radon testing. A 30 day test is \$675.00. Contact the office at 770-849-0920 for more details.

If you have a question, comment, or home tip, send to us at rod@cbiga.com. We reserve the right to edit published questions for length.

Quote Of The Month

"GOD GRANT YOU THE LIGHT IN CHRISTMAS,
WHICH IS FAITH;
THE WARMTH OF CHRISTMAS,
WHICH IS LOVE;
THE RADIANCE OF CHRISTMAS,
WHICH IS PURITY;
THE RIGHTEOUSNESS OF CHRISTMAS,
WHICH IS JUSTICE;
THE BELIEF IN CHRISTMAS,
WHICH IS TRUTH;
THE ALL OF CHRISTMAS,
WHICH IS CHRIST."
WILDA ENGLISH

A Tip Of The Hat To:

Everyone
Who Referred Us
In 2015

Thank You

