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NJDEP Radon Laboratory License 18017
NJDEP Radon Measurement Business License MEB 90016

Radon Canister Test Result:

Mon Aug 01 15:51:27 EDT 2016

ADDRESS TESTED:

64 LUDLOW AVE
BELLE MEAD/MONTGOMERY, NJ 08502

Test Number: T981310
Exposure Start Time & Date: 07-28-16 17:00
Exposure Stop Time & Date: 07-31-16 15:33

Measurement Time & Date: 8-01-16 10:20

DMR Input: 1
Background Counts: 70.1
Counting Time: 600.0
Gross Counts: 1092.0
Canister Weight: Initial/Final 69.1 / 72.8

Radon Concentration: 1.4 pCi/l (picocuries per liter)

(LAB USE ONLY)

Comments: 0;R;R;CH;B; ← 1st Digit indicates floor level
E;10608/10670;; 0=basement, 1=first floor, etc

MES 10128

J. Keith Baicker

This notice is provided to you by an organization or individual certified by NJDEP to perform radon gas or radon progeny testing measurements. NJSA 26-2D-73 requires that no certified person disclose to anyone except the DEP or the Dept. of Health the address or owners of a nonpublic building that the person has tested or treated for the presence of radon gas or radon progeny, unless the owner of the building waives in writing this right of confidentiality. In the case of a prospective sale of a building that has been tested for radon gas or progeny, the seller shall provide the buyer, at the time the contract of sales is entered into, with a copy of the results of that test and evidence of any subsequent mitigation or treatment. Any prospective buyer who contracts for the testing shall have the right to receive the results of that testing. Any questions, comments or complains regarding the person performing these measurements, or related mitigation, or safeguarding services, should be directed to the NJDEP, Attn: Radon Section, Bureau of Environmental Radiation, at 1-800-648-0394.

LIMITATION OF LIABILITY: While we at Radiation Data, and all of our licensed professional technicians, make every effort to maintain quality control (including duplicate canister tests, blanks, and "spiked" detectors), we make no warranty of any kind, either express or implied, for the consequences of false test results. Before any remediation action is taken, it is important that follow-up tests be conducted in accordance with USEPA protocols and NJDEP regulations. It is well know that radon concentrations fluctuate greatly under changing weather conditions. Furthermore, radon tests cannot be CERTIFIED, since there is no chain of custody of the test kit, and the "closed-house" conditions cannot be monitored continuously.

Kim Guadagno
Lt Governor

Chris Christie
Governor

Bob Martin
Commissioner

RADON TESTING AND MITIGATION: THE BASICS

WHAT IS RADON & WHY IS IT A CONCERN?

Radon is a radioactive gas that comes from the breakdown of naturally occurring uranium in soil and rock. It is invisible, odorless and tasteless, and can only be detected by specialized tests. Radon enters homes through openings that are in contact with the ground, such as cracks in the foundation, small openings around pipes, and sump pits.

Radon, like other radioactive materials, undergoes radioactive decay that forms decay products. Radon and its decay products release radioactive energy that can damage lung tissue in a way that causes the beginning of lung cancer.

The more radon you are exposed to, and the longer the exposure, the greater the risk of eventually developing lung cancer. Radon is the second leading cause of lung cancer in the United States, resulting in 15,000 to 22,000 deaths per year.

Testing your home for radon is easy and homes with high levels of radon can be fixed (mitigated). The New Jersey Department of Environmental Protection (DEP) recommends that all homes be tested for radon.

SELECTING & ARRANGING FOR TESTS

Homeowners can test for radon themselves or hire a New Jersey certified radon measurement company to perform the testing. Some certified radon measurement companies sell test kits, and test kits are often available in hardware stores or from local health departments. A list of certified companies, including companies that can mail you a "do-it-yourself" test, is available through the NJDEP Radon Program's Information Line, (800)648-0394, or web site, www.njradon.org.

If you buy your test from a retail store, make sure that the kit is labeled with the New Jersey certification number of the company that produced the test kit (the number will begin with "MEB9" followed by 4 digits), or you can call the Information Line to confirm that the company is certified. If you hire a contractor to do the test, make sure the technician who places and picks up the test device is certified by the State, by checking their NJDEP certificate or calling the Radon Information Line. It is against the law to do radon testing or mitigation without certification in New Jersey.

Short-Term Tests:

A single short-term test of 2-7 days in length can be used to indicate the radon level in your home. If a single short-term test reveals levels of 4 pCi/L or more, DEP data indicate that subsequent testing would confirm that levels in the home are 4 pCi/L or more in 80 percent of cases. If a second short-term test is conducted in the same location (either simultaneously or at different points in time), and the results of the tests are averaged, the average will provide a slightly more accurate estimate of radon levels.

A variety of short-term test devices are available, including charcoal canisters, electrets, and continuous radon monitors. The DEP Radon Program considers all short-term test devices used by certified companies to be equally reliable.

Long-Term Tests:

A long-term test of 3-12 months will provide your best estimate of average exposure over time, since radon levels fluctuate daily and by season. Because gases are drawn to areas of lower pressure, radon gas will enter the home at a rate that depends on the air pressure inside the home, which is affected by temperature, wind conditions, exhaust systems in the home, etc. Long-term testing should include the winter months, when radon concentrations are often higher than at other times.

Long-term test devices are usually either alpha track detectors or electrets; both tests are considered equally reliable and accurate.

Real Estate Transactions:

A single short-term radon test may be used for real estate transactions. An escrow account, with funds set aside by the seller, can be arranged for the buyer who prefers to test after closing. The funds can then be used to mitigate the home if testing reveals concentrations of 4 pCi/L or more.

If you are a potential homebuyer and are concerned about the possibility of test tampering, discuss anti-tampering methods with the radon measurement contractors you are considering hiring. Also, be sure to check that the contractor will close and pick up the test, as required by regulation. Neither the buyer, the homeowner nor the real estate agent can perform any part of the test, including: closing the test, picking it up, or sending it to a laboratory. If a homeowner is testing their home for themselves, they may do all or part of the test.

CONDUCTING THE TEST

If you do the test yourself, the process is very simple. You need only follow the testing instructions and complete the form that accompanies the test device. The device should then be mailed without delay to a laboratory using a pre-addressed envelope enclosed with the kit.

The following guidelines should be used by both homeowners and measurement companies.

For both long-term and short-term tests, the testing device must be placed:

- in the lowest *livable* level of the home -- that is, the lowest level of the home that is used, or could be used, as a living space. This would include, for example, a first floor without a basement, and a finished or unfinished basement, but not a crawl space.
- in a location where it will not be disturbed.
- at least 20 inches from the floor, at least 4 inches away from other objects and at least 36 inches away from doors, windows or other openings to the outside. The tests only need to be placed one foot away from exterior walls that have no openings. If suspended from the ceiling, it should be in the general breathing zone.

Test kits should not be placed:

- in areas exposed to direct sunlight, drafts, high heat, or high humidity; or
- in kitchens, bathrooms, laundry rooms or closets.

In addition, attic and window fans, fireplaces and wood stoves (unless they are the primary heat source) should not be used for the duration of the test. They will affect air pressure in the house which will in turn affect radon concentrations. Air conditioning can be used if it circulates inside air rather than bringing in air from the outside.

For short-term tests, it is very important to maintain "closed house conditions," since ventilation can increase or decrease radon levels in unpredictable ways. This means all windows and doors that let in outside air, on all floors, must be kept closed except for normal entrances and exits. You need to maintain closed house conditions until the short-term test is finished. For tests that last less than four days, closed house conditions must be started at least 12 hours before you begin the test.

INTERPRETING YOUR TEST RESULTS

The test report will usually give your radon reading in picoCuries per liter (pCi/L). PicoCuries per liter is a measure of how much radiation is in a liter of air, which is about the size of a quart. Sometimes results will be given in Working Levels (WL). You can calculate the pCi/L level by multiplying the WL reading by 200.

The DEP and the Environmental Protection Agency (EPA) both recommend that you take action to mitigate your home if your test results indicate radon levels of 4.0 pCi/L of radon or more. If you used two or more short-term tests at the same location, the results should be averaged.

There is no truly "safe" level of radon since lung cancer can result from very low exposures to radon – however, the risk decreases as the radon concentration decreases. If your test result is less than 4.0 pCi/L, you may want to discuss with mitigation companies whether the radon level can be brought down still further. In about half of the

homes that have been mitigated in New Jersey, radon levels have been brought to less than 1 pCi/L.

Radon Risk for Smokers and Nonsmokers

(Source: National Academy of Sciences, *Biological Effects of Ionizing Radiation, Sixth Report, 1998*)

Radon Level (in pCi/L)	Odds for <u>non-smokers</u> * of developing lung cancer due to radon if exposed to this level over a lifetime	Odds for <u>smokers</u> * of developing lung cancer due to radon if exposed to this level over a lifetime**
20	1 in 27	1 in 5
8	1 in 68	1 in 13
4	1 in 135	1 in 26
2	1 in 270	1 in 52
0.4***	1 in 1,350	1 in 260

*Smokers are defined as individuals who have smoked at least 100 cigarettes in a lifetime; non-smokers have never smoked or smoked less than 100 cigarettes in a lifetime.

**This is in addition to the risk of lung cancer from smoking itself.

***Average outdoor radon concentration.

MITIGATING YOUR HOME

The most common type of radon mitigation system is the sub-slab depressurization system. This system uses venting and sealing to lower radon levels in the home. A pipe is installed that runs from below the basement flooring to above the roofline, with a fan at the top that draws radon out from under the slab. Cracks and openings in the foundation are sealed. The radon is vented through the pipe to the outside, where it is quickly diluted.

The average price of such a system is around \$1,300, although prices can range from \$500 to \$2,500, depending on characteristics of the home and the underlying soil. You can install the system yourself, if you are highly experienced in making home repairs, or you can hire a New Jersey certified radon mitigation company to do the work for you. New Jersey certified radon mitigation professionals meet specified education and experience standards and must take continuing education classes each year to maintain their certification. It is against the law for uncertified contractors to do mitigation work in New Jersey.

After your home has been mitigated, make sure the mitigator does a post-mitigation test to prove the system is working properly. In addition, you can contact the Radon Program to obtain a free post-mitigation test (you will have to provide a copy of your mitigation contract). Retesting your home every two years will tell you whether or not your system is still working effectively in reducing the radon level to below 4 pCi/L. If you believe that your system was not installed correctly, you can contact the Radon Program to arrange for a free inspection and test of the system.

QUESTIONS?

Feel free to contact the DEP Radon Program if you have any questions, if you'd like a copy of the certified radon businesses lists, or if you have complaints about services provided by radon companies, through the Information Line at (800)648-0394 (within New Jersey) or (609)984-5425 (outside New Jersey) -- or you can visit the Radon Program web site at www.njradon.org.