

Cornerstone Home Inspections
Michael Dominianni
62 Mountain Avenue
Warren, NJ 07059

Original Report: 1/22/2019

Radon Test Results/Information:

Location Name: Johnson

Test Location: 123 Main St. Mainstreet, NJ

County: Morris

Municipality: Mainstreet Boro

The purpose of this test was: Real Estate Screening

Test #	Test Date, Time	Test Device	Location	Laboratory*	Avg. Radon Concentration
1107352-607643	01/16/2019, 12:00 - 01/21/2019, 10:00	Charcoal Canister	Basement	RAdata, Inc. 14006	0.6 pCi/L

* Certified Radon Laboratory used to analyze the test device.

Test Placed/Picked Up By: Licensed measurement technician; NJ DEP License # MET11115/MET13073

The results of this measurement provide an idea of the average concentration in the area of the structure tested during this testing period. The actual risk depends upon the amount of time you are exposed to this concentration. The US EPA has identified 4.0 pCi/L as failing their action guidelines. Radon has been identified as the second leading cause of lung cancer. US EPA recommends that mitigation be considered at that level or higher. They have identified the national indoor average as 1.3 pCi/L but suggest that there is no safe level for radon and that homes with radon levels above 2.0 pCi/L be considered for mitigation as well. When untreated levels of radon are below 4.0 pCi/L the US EPA recommends at a minimum you should retest every 5 years or following any construction or changes to the home. If mitigation is installed to reduce radon levels the US EPA recommends the system be evaluated and radon retested at a minimum of every 2 years.

New Jersey clients, please see the attached guidance document, entitled "Radon Testing and Mitigation: The Basics", for further guidance. If you would like additional information on radon, we recommend that you contact the New Jersey State Department of Environmental Protection at their toll-free hotline, 1-800-648-0394.

Important Notice:

"This notice is provided to you by an organization or individual certified by the New Jersey Department of Environmental Protection to perform radon and/or radon progeny measurements. N.J.S.A. 26:2D-73 requires that no certified person disclose to any individual, except the Department of Environmental Protection or (on request, to) the Department of Health, the address or owner of a nonpublic building that the person has tested or treated for the presence of radon gas and 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 which has been tested for radon gas and/or radon progeny, the seller shall provide the buyer, at the time the contract of sale is entered into, with a copy of the results of that test and evidence of any subsequent mitigation or treatment, and any prospective buyer who contracts for testing shall have the right to receive the results of that testing. Any questions, comments, or complaints regarding the persons performing these measurements, or related mitigation, or safeguarding services should be directed to the New Jersey Department of Environmental Protection. Attention: Radon Section, Bureau of Environmental Radiation (1-800-648-0394)."

As PER N.J.S.A. 26:D-73, we are required as a licensed radon measurement business to supply a copy of written test results to both the client who hires us, as well as the individual who owns the property tested. Therefore, please be advised that a copy of these test results will automatically be sent to the owner of the tested residence.

[The testing and analytical methods for the above radon concentration(s) were performed in accordance with established United States Environmental Protection Agency (USEPA) protocols for measurement methodology. RAdata, Inc., makes no recommendations, representations, or warranties other than as specifically set forth in this report and shall not be liable for any action or consequences of any action taken in connection with or in reliance on this report. We are not responsible for any financial or health consequences or subsequent action or inaction by the client or its representatives.]



Isabella Cocuzza, NJ Licensed Measurement Specialist #MES13529

NJ DEP License #MEB90001

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RADON TESTING AND MITIGATION: THE BASICS

WHAT IS RADON AND 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.

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 AND 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 at www.njradon.org or call the Radon Section at **(800)648-0394**.

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). 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 DEP 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% 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 Section 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.

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 placed 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 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 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
(EPA's Assessment of Risks from Radon in Homes (PDF), EPA 402-R-03-003)**

Radon Level ^a	Lifetime Risk of Lung Cancer Death (per person) from Radon Exposure in Homes ^b		
	Never Smoked	Current Smokers ^c	General Population
20	36 out of 1,000	26 out of 100	11 out of 100
10	18 out of 1,000	15 out of 100	56 out of 1,000
8	15 out of 1,000	12 out of 100	45 out of 1,000
4	73 out of 10,000	62 out of 1,000	23 out of 1,000
2	37 out of 10,000	32 out of 1,000	12 out of 1,000
1.25	23 out of 10,000	20 out of 1,000	73 out of 10,000
0.4	73 out of 100,000	64 out of 10,000	23 out of 10,000

- a - Assumes constant lifetime exposure in homes at these levels.
- b - Estimates are subject to uncertainties as discussed in Chapter VIII of the risk assessment.
- c - Note: BEIR VI did not specify excess relative risks for current smokers.

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 \$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 Section 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 Section to arrange for a free inspection and test of the system.

QUESTIONS?

Contact the DEP Radon Section if you have any questions. If you would like a list of certified radon measurement or mitigation businesses, or if you have a complaint about a radon business call:
(800)648-0394 / (609) 984-5425 - www.njradon.org



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