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Testing for Radon in Child Care Centers DEP Guidance Document



Who must test and why?

All New Jersey licensed child care centers must test for the presence of radon at least once every five years. Within 30 days of the completion of the testing procedures, the results of the test and any measures taken or proposed to mitigate the presence of radon shall be posted in a prominent location in the building which is readily visible to persons having responsibility for any child that attends the child care center. A state law, N.J.S.A. 30:5B-5.2, enacted on March 27, 1997 requires this testing. The New Jersey Department of Children and Families has responsibility for enforcement of this law and can be contacted at (877) 667-9845.

What is radon?

Radon is a naturally occurring radioactive gas that is invisible, odorless, and tasteless, and can only be detected through testing.

Radon seeps from soil into buildings through cracks in the foundation, sump pits, and other openings in contact with the ground. Radon concentration is expressed in picocuries per liter (pCi/L). This is a measure of how much radiation is in a liter of air; a liter is about the size of a quart.

Why is radon dangerous?

Radon is a known human carcinogen. In 2005, the U.S. Surgeon General declared that radon is the second leading cause of lung cancer after cigarette smoking. It is the leading cause of lung cancer for non-smokers, and causes an estimated 20,000 deaths per year in the United States. The risk of developing radon-induced lung cancer increases as your exposure to elevated levels of radon increases. The US Environmental Protection Agency (EPA) and the New Jersey Department of Environmental Protection (DEP) recommend that radon levels of 4.0 pCi/L or higher be reduced.



Who can test?

By law, only the building owner or a New Jersey certified radon measurement business may test for radon. However, if you are not the owner of the building and have obtained written permission from the building owner, you would be considered a “designee” and as a result, would be allowed to place and retrieve the test device. This is often the case when the owner of the building resides in a different state; however, this written permission must be retained on file to avoid any future problems.

To have testing performed by a New Jersey certified business, regardless of whether you own the building, a list of certified radon measurement businesses is available through the DEP Radon Program’s Information Line, (800) 648-0394, or web site at www.njradon.org.

If you are going to perform the testing yourself, you can either purchase a test kit at a home center, or through mail order from one of the New Jersey certified measurement businesses that offer this service. If you purchase a test kit through a home center, make sure 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).

All kits that you would use, no matter where obtained, contain complete instructions for the testing procedure.

When to test?

The purpose of testing is to identify rooms that have elevated radon levels of 4.0 pCi/L or greater. To achieve this, the EPA and DEP recommend that measurements be conducted under closed building conditions. When using a short-term test of 90 days or less, closed conditions shall be maintained to the extent possible. For tests that last less than five days, closed conditions must be maintained for at least 12 hours prior to the start of the test. Under closed conditions, all windows must be closed on all floors and all doors closed, except for normal exit/entry, for the duration of the test. As with all gases, radon concentrations are greatly affected in unpredictable ways by air currents and air pressure differences. As a result, short-term tests must be conducted under closed conditions in order to obtain more representative and reproducible results.

Closed building conditions are not needed for long-term tests, lasting more than 90 days, where normal open conditions can be maintained during the duration of the test.

The recommended timetable to conduct testing is as follows:

- During weekdays when heating, ventilation, and air conditioning (HVAC) systems are operating normally. This approach has the important advantage of measuring radon levels under typical weekday conditions for that child care center and also eliminates the burden of weekend testing and non-routine adjustments to the HVAC systems.



If child care centers must test outside of the prescribed weekdays, such as on weekends or holidays, they are required to document the reasons and maintain this documentation on file. The documentation must include any steps taken to ensure that doors and windows were kept closed except for normal entry and exit, that the HVAC was operating as on weekdays, and that there were no unusual activities occurring in the building that could have affected air currents and air pressure.

- During cold months (October through March), when windows and exterior doors are more likely to be closed and the heating system is more likely to be operating, resulting in the reduced intake of outside air.

If child care centers must test outside of the prescribed cold months, they are required to document the reasons and maintain this documentation on file.

Postpone testing during expected major weather or barometric pressure changes, such as storms or high winds. Studies show that barometric changes affect indoor radon concentrations. Also, postpone testing during structural changes to a building and/or the renovation or replacement of the HVAC system until completion.

How to test?

The EPA document, “Radon Measurement in Schools” (Revised Edition) EPA 402-R92-014, July 1993, including the sheet entitled “Corrections in the Second Printing,” must be followed to test child care centers. This document may be obtained from the EPA Indoor Air Quality Info Line at (800) 438-4318.

There are two general ways to test for radon:

A **short-term test** is the quickest way to test for radon. In this test, the testing device is exposed for a period of 2 to 90 days depending on the type of device used. Short-term devices include charcoal canisters, alpha track detectors, electret-ion chambers, continuous monitors, and charcoal liquid scintillation detectors.

A **long-term test** provides a long-term average radon concentration. In this test, the device is exposed for 3 to 12 months, and it 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 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 house, etc. Long-term testing should include the winter months, when radon concentrations are often higher than at other times. The most common example is the alpha track detector.

Where to test?

A test device should be placed in every frequently occupied room used by the child care center that is in contact with the ground. This means the basement, if present, or the ground floor if the building is a slab on grade or over a crawl space. If the basement or ground floor is not used for



the child care center, test frequently occupied rooms on the lowest floor of the building used for the center. For large rooms or spaces, place a test device every 2,000 square feet. Bathrooms, closets, and kitchen areas should not be tested. Complete instructions are included with every kit that instructs you on where to place the device, how to open and close the device, as well as locations to be avoided during placement. For any questions that may arise that are not addressed in the instructions, you should contact either the business that the devices were purchased from or the DEP Radon Program at (800) 648-0394.

Interpreting the test results:

If all results are less than 4.0 pCi/L, then no further action is recommended. You should retest after five years as required by law.

If one or more rooms have a result of 4.0 pCi/L or greater, the DEP recommends that affected areas be mitigated. It is recommended that mitigators of child care centers also follow the EPA document, “Reducing Radon in Schools: A Team Approach”, EPA 402-R-94-008, April 1994, which can also be obtained from EPA at (800) 438-4318. This document outlines a team approach in which mitigators work with center representatives or consultants familiar with the operation of the child care center.

Who gets the test results?

The results of a radon test will be sent to the building owner or the designee. Requests for historical data can be made to the New Jersey Radon Program. This data is retained for five years and is available to building owners along with proof of ownership or to the third party designee along with the documented consent from the building owner.

Reducing elevated radon concentrations:

Mitigation of elevated radon concentrations must be performed with the approval of the building owner. New Jersey law (N.J.S.A. 26:2D-70 et seq.) requires that mitigation, including both design and installation, be performed by certified radon mitigators or building owners/designees.

It is recommended that you consult with a New Jersey certified radon mitigation business. A list of certified radon mitigation businesses, as well as other useful information, such as Frequently Asked Questions, Interpretation of Results, Parent Notification Letters, and Fact Sheets for Parents and Staff, is available through the DEP Radon Program’s Information Line, (800) 648-0394, or at www.njradon.org.