



# **WORKING TOGETHER** to **PREVENT LUNG CANCER**

A Guide to help you with testing your Child Care Centre for Radon



## GENERAL INFORMATION

The purpose of this document is to provide certified radon professionals and Child Care Centre staff with assistance in testing their child care centre for radon.

## WHAT IS RADON?

Radon is an odourless, tasteless, colourless, naturally occurring, radon gas. It comes from the ground and enters buildings through openings where the building contacts the ground.

## WHY SHOULD WE TEST OUR CHILD CARE CENTRE?

When people are exposed to radon, there is a chance that they may develop lung cancer. Elevated levels can be found in all types of buildings all over Canada. Radon is the leading cause of lung cancer for non-smokers.

The only way to know if a building has an elevated level of radon is to test. So, by testing the child care centre, you are taking steps to prevent lung cancer in children and staff.

Since its long term exposure to elevated radon levels that poses the health risk and since levels can change daily, the best way to test for radon is by using a long term test of 91 days or more.

# TESTING THE CENTRE

Health Canada has developed guidelines on how and where to place tests, and what tests to use. This booklet will help you walk through the process of testing your child care centre properly and how to communicate with parents/families, your board of directors and staff. It will also help you understand what to do if levels are high and when you may need to re-test the building.

Since Child Care Centres can be located in commercial buildings, schools or homes there are different methods to follow.

## TESTING PLACEMENT IS BASED ON BUILDING TYPE:

1) Single family homes and duplexes or apartments

2) All other buildings

For each of these type of buildings, you can hire a professional who is certified with the Canadian National Radon Proficiency Program (C-NRPP) to conduct the testing for you. A professional will ensure that your tests are placed properly, they will provide you with the information in a way that is easy to understand. A certified professional may even be able to come in and speak at your meetings with families or staff to help with answering questions.

Find a certified professional at [www.c-nrpp.ca](http://www.c-nrpp.ca).

# WHAT TESTS SHOULD I USE?

## INFORMATION ON TEST DEVICES

There are three different types of test devices that may be used for testing Child Care Centres. The devices may be Alpha Track devices, E-Perm Devices or Continuous Radon Monitors. These devices each measure the activity of radon in the air to provide a measurement of radon in the area.

The tests do not have any chemicals or materials inside which would be harmful to children if knocked over or touched.

The devices should not be moved or shaken, and so pick a suitable location that will be out of children's reach and will be able to stay in place for the duration of the test (91 days or longer).





**ALPHA TRACK DETECTORS:** these detectors use a small piece of special plastic enclosed in a container. The detector is exposed to the air for a specified time. When the radon in the air enters the chamber, the alpha particles released by the decay of the radon leave marks on the plastic. When the detector is returned to the lab, the average radon concentration is calculated.

**ELECTRET ION CHAMBERS:** these detectors use a disk which has an electrostatic charge. When the detector is exposed to the air for a specified time, radon enters the chamber, the decay of the radon releases ions which reduce the electrostatic charge on the disk. When the detector is returned to the lab, the average radon concentration is calculated.

**CONTINUOUS RADON MONITOR:** this device is an electronic device that measures radon and provides a report of hourly radon levels.

## HOW MANY TESTS DO I NEED?

The number of tests used will depend on the structure of the building

**Single Family Home, Duplex or Apartment** - if your child care centre is one of these buildings, you only need to test in one room in the lowest occupied space.

You may want to use 2 tests for better accuracy.

When a professional conducts testing, they follow proper Quality Assurance protocols with duplicate tests to verify precision of tests. If you hire a professional, they will make sure that this is included in their Quality Assurance protocols. If you do it yourself, you may want to use two tests started and sent for analysis at the same time.

**All Other Buildings** – if your child care centre is not a single family home, duplex or apartment you will need to test every room on the first floor of the building where children or staff spend 4 hours a day or more. Eg. Staff room, sleeping/nap room, play room etc.

More specific details on how to determine the number of tests needed are on page 6 and in Health Canada's *Guide for Radon Measurements in Public Buildings (Schools, Hospitals, Care Facilities, Detention Centres)*

**1 PICK A ROOM!**

**2 PICK A SPOT!**

**3 RECORD THE INFORMATION!**

*Then return the test at the end of 91 days.*

## **SINGLE FAMILY HOME, DUPLEX OR APARTMENT**

**1 PICK A ROOM:** Should you put the test in the basement or first floor?

Tests should be placed in a room on the lowest level of the building where children/staff spend 4 hours a day or more. If you have a playroom in a basement where children or staff spend at least 4 hours, then place it in a room in a basement. If the lowest level is the first floor, then choose a room on the first floor.

If you are in an apartment, just pick a room where you spend 4 hours or more.

**DON'T** place the test in a kitchen, bathroom, utility room, or closet.

**2 PICK A SPOT:** Once you pick the room, you need to pick the location in the room:

Testing should follow the protocols of Health Canada's: Radon Measurements in Residential Dwellings (Homes).

- All the details on height, space from objects, wall, window etc. are included in Appendix 2
- Read Appendix 2 carefully and then pick a place and open the package and place the test.

**3 RECORD THE INFORMATION:**

- Recording information is important to make sure you know when to return the test to the lab and to make sure the lab knows how to calculate the results.
- When you open the package and start the test(s), write down the time and date.
- Record on your calendar when to send it back, it should be 91 days later (or more).

**RETURN THE TEST:** at the end of the 91 days (**DON'T DELAY** - it needs to get to the lab right away)

- Make sure you keep the return packaging, it may come with a bag to seal the detector in and a return package to mail it back, or contact a professional to pick up the test.



## ALL OTHER BUILDINGS

Choose the rooms, choose a spot, record the information!

Then **RETURN** the test at the end of **91 DAYS**.

**1 CHOOSE THE ROOMS:** Should you put the test in the basement or first floor?

Tests should be placed in rooms on the lowest level of the building where children/staff spend 4 hours a day or more. Walk through this level of the building and decide which rooms and how many rooms are used 4 hours a day or more.

*(It may be helpful to draw a sketch for yourself and review with staff)*

Also, choose at least one room to place two tests. This is part of the quality control measures for using radon test devices. These tests would be opened and closed at the same time and placed 10 cm (about the width of your hand) apart from each other, kind of like twin tests.

Discuss this with the company you purchase your tests from and they will explain how many twin tests(duplicates) you need to place and also make sure the other Quality Assurance measures are being followed.

**DON'T** place the test in a kitchen, bathroom, utility room, or closet.

**CHOOSE A SPOT:** Once you choose the rooms, you need to pick the location in the room to place the test.

- All the details on height, space from an object, wall, window etc. are included in Appendix 2
- Read Appendix 2 and then pick a place and open the package and place the test

**2 RECORD THE INFORMATION:**

- It is important to make sure you know when to return the test to the lab; provide correct information to the lab, so it knows how to calculate the results; and to record serial numbers as you place the tests, so you know which test is for which room.
- Write down the name of the room and the serial number of the test device and then when you open the package, write down the time and date. *(A sample chart is included in Appendix 3)*
- Record on your calendar when to send it in, it should be 91 days later.

**3 RETURN THE TEST:** at the end of the 91 days (**DON'T DELAY** - it needs to get to the lab right away)

- Make sure you keep the return packaging, the tests may come with a bag to seal the detector in and a return package to mail it back, or contact a professional to pick up the test.

# WHAT TO DO IF LEVELS ARE ELEVATED?

Health Canada recommends that radon levels in buildings be below 200 Bq/m<sup>3</sup>. Radon can be reduced. Mitigating a building is an important step of the process to reduce radon.

## **MITIGATING A SINGLE FAMILY HOME, DUPLEX OR APARTMENT:**

A C-NRPP certified mitigation professional is trained to mitigate (fix) buildings and identify the best method to reduce radon levels in a building.

The most efficient method is a Radon Mitigation System. This method involves installing a pipe through the foundation slab of the building, attaching it to a fan and extending the pipe outside of the building. More information on this can be found in the booklet, *Radon Reduction Guide for Canadians*, published by Health Canada.

## **MITIGATING OTHER BUILDINGS:**

If the child care centre is located in a school or commercial building, then look for a C-NRPP Certified Mitigation Professional who has taken training in Large Building Mitigation.

A C-NRPP Certified Mitigation Professional will conduct additional testing before a system is installed.

This includes:

- Continuous Radon Monitor Test
- Survey of the Building and System Design

**Continuous Radon Monitor Test** – this will help in determining how levels change throughout the day; this will help a certified professional determine if mitigation is required and what type of system will be needed.

**Survey of the Building and System Design** – this is an important step to provide an accurate quote in installing the full mitigation system. The cost of mitigation can vary depending on the building types.

Contact a certified professional in your area.

Find a list of professionals at [www.c-nrpp.ca](http://www.c-nrpp.ca).

# COMMUNICATING THE INFORMATION:

Communicating the process of testing is an important part of the process. It's helpful for families and staff to know about the process and it provides them an opportunity to ask questions.

Help staff understand that you are doing this for their benefit. When drafting letters to parents/guardians include:

- Basics on radon, how you are testing, and dates of the testing process
- An estimate time of report or test results
- Process on how you will communicate with them in the future about the test results and follow up actions.
- A sample letter can be found in Appendix 1.



It may also be beneficial to include an information session for parents so they have the opportunity to have a question and answer session as well, a C-NRPP certified professional can be contacted to help with this.

## **ADDITIONAL RESOURCES**

### **HEALTH CANADA PUBLICATIONS:**

**Radon Measurements in Residential Dwellings (Homes),**

[http://www.hc-sc.gc.ca/ewh-semt/pubs/radiation/radon\\_homes-maisons/index-eng.php](http://www.hc-sc.gc.ca/ewh-semt/pubs/radiation/radon_homes-maisons/index-eng.php)

**Radon Measurements in Public Buildings**

(Workplaces, Schools, Day Cares, Hospitals, Care Facilities, Correctional Centres),

[http://www.hc-sc.gc.ca/ewh-semt/pubs/radiation/radon\\_building-edifices/index-eng.php](http://www.hc-sc.gc.ca/ewh-semt/pubs/radiation/radon_building-edifices/index-eng.php)

**Radon - What you need to know,**

<http://www.hc-sc.gc.ca/ewh-semt/pubs/contaminants/radon/index-eng.php>

**Radon Reduction Guide for Canadians,**

[http://www.hc-sc.gc.ca/ewh-semt/pubs/radiation/radon\\_canadians-canadiens/index-eng.php](http://www.hc-sc.gc.ca/ewh-semt/pubs/radiation/radon_canadians-canadiens/index-eng.php)

**Canadian Environmental Law Association (CELA) Publication:**

**Radon in Indoor Air: A Review of Policy and Law in Canada,**

[http://www.cela.ca/sites/cela.ca/files/Radon-Report-with-Appendices\\_0.pdf](http://www.cela.ca/sites/cela.ca/files/Radon-Report-with-Appendices_0.pdf)

**Canadian Protection of Children's Health and Environment (CPCHE) and Canadian Child Care Federation (CCCCF) Publication:**

**CPCHE CCCF Radon Vanguard Final Report,**

<http://www.healthyenvironmentforkids.ca/resources/cpchecccf-vanguard-initiative-promote-radon-awareness-among-child-careearly-childhood-prof>

### **VIDEO RESOURCES:**

**Mike Holmes' on Radon**

<https://www.youtube.com/watch?v=UnqIPtZt3Go>

**David Suzuki Foundation, Queen of Green on Radon**

<https://www.youtube.com/watch?v=eXcwJBrsXqo>



Date

Radon gas is a colourless, odourless, tasteless gas that enters buildings through cracks in foundations and other entry points. Being exposed to radon, increases a person's chance of developing lung cancer. In order to make the health of our children and staff a priority we have decided to test our child care for radon to reduce radon exposure and take steps to prevent lung cancer.

Since radon is not detectable by human senses, the only way to know the radon level is to conduct a test. Radon exposure is only a health risk through exposure over a duration of time and radon levels inside a building can change day to day and season by season. The best way to determine radon levels in a building is by testing areas of the building that are used for 4 hours a day or more. The tests will have to be placed and left for 91 days when they will be sent to a lab to be analyzed. Health Canada has developed protocols for testing and we are following their protocols for testing our child care and the Canadian National Radon Proficiency Program (C-NRPP) has devices that are approved and we are using a device that is listed by C-NRPP.

The testing will begin during the month of \_\_\_\_\_. We will be having a professional from \_\_\_\_\_ come in and place the tests. (or) We will be having our staff place the tests. The testing will be completed by \_\_\_\_\_ and the tests will be analyzed and the child care centre will receive a report on the radon levels and recommended actions.

We will be having a question and answer session which all parents are invited to on \_\_\_\_\_. At that time we will provide you with information on radon and you can ask our certified professional questions about the process. You can also find the attached list of Additional Resources.

Health Canada has information on testing and fixing buildings with high levels of radon and they have set an action guideline for radon of 200 Bq/m<sup>3</sup>. The following chart provides information on radon levels and recommended length of time to mitigate.

<b>Radon Levels</b>	<b>Recommended length to mitigate</b>
0-200 Bq/m <sup>3</sup>	No action required
200 – 600 Bq/m <sup>3</sup>	Mitigate building within two years
Above 600 Bq/m <sup>3</sup>	Mitigate the building within one year

Once the test results are received they will be provided to our board of directors and will be available to parents, if requested. If our levels are above 200 Bq/m<sup>3</sup>, we will be having a certified professional provide us follow-up actions to determine how best to fix our building.

Since children and staff only spend a portion of their day at the child care, we also suggest that you consider testing your home for radon.

Sincerely,

Child Care Executive Director



## ANNEX

# FROM HEALTH CANADA'S GUIDE FOR RADON MEASUREMENTS IN RESIDENTIAL DWELLINGS (HOMES)

### WHERE TO TEST

Place the radon detector in the normal occupancy area of the lowest lived-in level of the home.

**IF** the basement has finished rooms such as bedroom, playrooms, family room,  
**THEN** place the device in the area occupied for more than 4 hours each day.

**IF** the basement does not have any areas where people work, play or sleep,  
**THEN** test on the main level.

### WHERE TO LOCATE THE DETECTOR

The preferred device location is by an interior wall at a height of 0.8 m to 2 m (3 to 6.5 feet) from the floor in the typical breathing zone, however, at least 50 cm (20 inches) from the ceiling and 20 centimetres (8 inches) from other objects so as to allow normal airflow around the detector. Detector should be placed approximately 40 cm (16 inches) from an interior wall or approximately 50 cm (20 inches) from an exterior wall.

Do not place the detector in kitchens, laundry rooms, bathrooms, closets, cupboards, sumps, crawl spaces or nooks within the foundation. Do not place detector by heating, ventilating and air conditioning vents, doors, fans, windows, fireplaces, electrically powered equipment, on television sets, stereos or speakers, or in direct sunlight.

### READING THE DETECTOR

After the monitoring period of 3 to 12 months the detector is returned to the supplier for processing and evaluation of radon concentrations.

**IF** the long-term measurement results are less than 200 Bq/m<sup>3</sup>,

**THEN** remedial action to lower radon concentrations in the home is not recommended.

**IF** the long-term measurement results are greater than 200 Bq/m<sup>3</sup>,

**THEN** remedial action to lower radon levels is recommended.

From Health Canada's Guide for Radon Measurements in Residential Dwellings (Homes)

# RADON TEST DEVICE TRACKING SHEET

Room	Description of Location of test	Test Device Serial #	Start Date and Time	Stop Date and Time

Remember to choose one room to place two tests together. Open and close these tests at the same time and place them 10 cm apart. Mark down both serial numbers in the chart below in the same row.



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