RADON: Sampling Checklist

❒ SCHEDULING:

1. Make sure that the resident will:

- Turn off fans that bring outside air into the home (except attic fans, bathroom fans, and window fans/air conditioners).
- Keep windows closed.
- Keep doors to the outside closed, except for going into and out of the home.

Supplies:

- ❒ Basic Floor Plan
- ❒ Pen
- ❒ Radon gas detector kit
- ❒ Extra copy of instructions for radon gas detector kit
- ❒ Sampling Results Report

❒ FIRST VISIT TO THE HOME:

2. Keep outside air from entering the home.
- Turn off intake fans.
- Close windows.
- Try to keep outside doors closed.

3. Find sampling location:
- Regularly lived-in room that is closest to the ground but is not kitchen, laundry room, bathroom, garage, or crawl space.
- Place in room that is not in moving air, in sunlight, accessible by children or pets or likely to get wet.

4. Set out the radon gas detector kit and record location on **Floor Plan**.

5. Fill-in radon line on **Sampling Results Report**.

6. Talk to resident - give information.

Instructions to Residents:

- Keep windows and doors closed during the test.
- Turn off fans that blow air out.
- Ensure that the detector will not be moved during the test.
- Confirm the time of return visit.

❒ SECOND VISIT TO THE HOME:

7. Talk to the resident:
- If it was very windy out, or kit was moved, throw away the sample and start over.

8. Pick up the kit (sample).

9. Mail the sample to the lab.

❒ FOLLOW-UP

Complete the **Sampling Results Report**, attach lab results and deliver to the resident.

RADON
Sampling Instructions

I. Supplies

The following supplies and equipment are used to sample for radon.

- ❒ Radon gas detector kit - Use a kit listed by the U.S. Environmental Protection Agency
- ❒ Extra copy of the instructions for the radon gas detector kit you will be using
- ❒ Floor Plan
- ❒ Sampling Results Report
- ❒ Pen

II. Avoid Common Mistakes

Spilling the activated carbon. If any of the activated carbon does not make it into the foil bag, throw away the test and start over. This means that you must go through the whole process a second time.

Setting the detector where children can reach it. While the activated carbon in the kit is not dangerous, if the test is moved, it will be less accurate. Consider taping the detector down to prevent it from being moved during the testing period.

Leaving the test out for more than the time allowed. Refer to the instructions to determine how much flexibility you have on time.

III. Scheduling

Sampling for radon requires two visits to the home – one to drop off the radon gas detector and one to pick it up. Generally, these visits will be 48 to 72 hours apart. For more information on scheduling, refer to the **Radon Decision Guide**.

IV. Sampling Instructions

SETTING OUT THE RADON GAS DETECTOR KIT

1. Keep air from outside from entering the home:

❒ Look for fans that bring air into the home (‘intake fans”) and make sure that they are turned off.

❒ Confirm that the resident turned off these intake fans and kept the windows closed for 12 hours before your visit.

❒ Except for going into and out of the home, make sure that the resident has kept outside doors closed for at least 12 hours before your visit.

2. Choose the best sampling location:

❒ Find the room in the house that is:

a. Regularly lived in by the residents (some states such as New Jersey recommend sampling in rooms that can be lived in even if it is not regularly used);
b. Closest to the ground such as a furnished basement; and
c. Not a kitchen, laundry room, bathroom, garage, or crawl space.

❒ Find a place in that room that is not:

a. In constantly moving air (such as ceiling fans);
b. Likely to get damp or wet when the test kit is set out;
c. In direct sunlight or near a heat source; or
d. In reach of children.

3. Set the radon detector test kit and record location on Floor Plan:

❒ Follow instructions that come with detector kit;

❒ Label the detector with home's address, but tell the lab to send the results to you;

❒ Open the detector and place it in the location you selected based on the instructions;

❒ You may want to tape the detector down;

❒ Write the number of the radon detector (i.e., R1, R2, etc.) on the Floor Plan where it was placed.

4. Fill in radon line on Sampling Results Report.

On the Sampling Results Report, check the box that says that the radon hazard will be sampled.

INSTRUCTIONS RESIDENTS WILL NEED

❒ To keep intake fans off until you pick up the radon gas detector kit;

❒ To keep windows closed until you pick up the radon gas detector kit;.

❒ To keep doors to the outside closed until you pick up the radon gas detector kit, except for going into and out of the home;

❒ Not to touch the detector;

❒ To review the copy of the radon gas detector kit instructions. (Be sure to leave a copy of the kit's instructions with the resident.)

RETURN VISIT TO THE HOME

5. Talk to the resident:
Ask the resident if outside weather conditions were calm and normal since the first visit.

❒ If it was very windy, throw the sample away. In this case, the flow of air from the ground into the house was probably not worst-case.

6. Pick up the sample:
Pick up the detector (sample), put it in foil bag that comes with the kit, and seal the bag.

7. Mail sample to lab:
Confirm that the property address, as well as your address is on the detector kit and put the bag in the mail with appropriate postage. Keep a copy of the form for your records.

FOLLOW-UP

When you receive the results from the lab, usually within one week of mailing the kit to the lab, attach the lab results to the Sampling Results Report, which you will deliver to the resident.

RADON
Decision Guide

This guide is for project managers who will decide whether they want to measure radon levels in homes, and, if so, which homes to target. For more information about radon hazards and the measurement of radon, refer to radon detector kit's instructions and other information referenced in this guide. If a home is to be sampled, the **Radon Sampling Instructions** provides the step-by-step instructions the Hazard Investigator needs in order to get the job done properly.

❒ **Why is radon important?** Radon causes lung cancer. The Environmental Protection Agency (EPA) estimates that it is the #1 cause of lung cancer in non-smokers (15,000 to 22,000 radon-related cancer deaths each year). Because radon is invisible, odorless and tasteless, the only way to determine if there is a significant risk is to test a home for radon. Radon is also found in drinking water, but the risk is much lower and is only a significant concern in certain parts of the country.

❒ **Which homes should be checked?** EPA and the Surgeon General recommend that the all residences below the third floor of a building be tested for radon. In apartment buildings, it is most important to test homes on the basement level where radon from the ground is likely to be highest. EPA publishes maps of the country and each state, assigning each county to one of three zones based on the expected average radon level in a typical home. That map is available at http://www.epa.gov/iaq/radon/zonemap.html. While it is designed to guide building construction standards, it is helpful in understanding the regional differences in radon levels.

❒ **Who can conduct the assessment?** Anyone. Only a little training is required and the directions in most radon test kits are easy to follow.

❒ **How is the assessment done?** The procedure is simple and straightforward. Set out a small canister or packet containing activated carbon in the lowest lived in portion of the home. Two days later, put the container in a foil bag and mail it to the lab. The lab should have the results within one week. (see Sampling Instructions)

❒ **What training is required?** Almost all states recommend that either the homeowner or tenant conduct the test himself or herself or hire a contractor who is certified by the National Environmental Health Association or the National Radon Safety Board. Some states may require the CEHRC Hazard Investigator to be licensed, certified or registered. Others states would not require licensing if the resident sets out and collects the test kit and the CEHRC Hazard Investigator only provides assistance. See http://www.epa.gov/iaq/contacts.html for your state radon office. It is good idea to contact the state radon office since it is likely to be supportive of your efforts. CEHRC is developing a summary of the requirements for each state.

❒ **What training is recommended?** CEHRC Hazard Investigators need training to follow the procedure. Basic training to properly follow this procedure can be completed in about one hour. CEHRC Hazard Investigators might want to – but in only a few states are required to – take a two-day radon measurement proficiency course to measure radon and interpret the results, pass an examination and take annual refresher training. These courses must be approved by one of the two organizations listed in EPA's National Radon Proficiency Program. See www.epa.gov/iaq/radon/proficiency.html.

❒ **How much does it cost?** The cost of supplies is about $15 per housing unit. Many states will provide free or deeply discounted radon tests kits upon request although they may insist on receiving the test results. If licensing is required, the typical two-day training costs about $350 per person with an initial certification fee of $150 per person.

❒ **Any limits on scheduling of visits?** Two visits are required and the visits must be two to three days apart – one to set out the detector and one to pick it up.

Under CEHRC's protocol, only a short-term sample (48 to 72 hours) is being used to check for radon. The assessment must be done when all doors and windows can be kept closed except for normal entry and exit. As a result, you should only sample under worst-case conditions –when there is the least amount of fresh air brought into the home. You will find that it is best to sample for radon when the furnace or air conditioning is running, since the windows will be closed while they are on. If high winds occur during the test period, the test is not valid.

When scheduling the return visit, make sure the resident will be able to do the following at least 12 hours before you set out the radon detector test kit and until you pick the kit up: Turn off fans that bring air into the home (intake fans), and keep the windows closed.

❒ **Any special supplies needed?** Yes. A short-term radon detector test kit approved by EPA is required. Many states will provide free or deeply discounted radon tests kits upon request. See http://www.epa.gov/iaq/contacts.html for your state radon office.

❒ **Are there recognized/established standards?** Yes. EPA has established a recommended action guideline of 4 picocuries per liter (piC/L) of air in residences. EPA recommends that action be taken to reduce radon levels when the guideline is exceeded. No state requires action on a result above this guideline that will bring the radon levels down. The presence of radon over the EPA standard is not a violation of local housing codes in most cities. The long-term goal is to reduce indoor radon levels to outdoor average levels of 0.4 picocuries per liter. Because of technology limits, EPA's short-term goal is to get a home's

radon concentrations below 2 picocuries per liter. To put it in context, OSHA sets a limit of 18 picocuries per liter for worker exposure in uranium mines.

- ❒ **How useful are the results?** The 48- to 72-hour test is only a snapshot of a resident's radon exposure since radon levels can change from day to day. A long-term test (90 days) gives a much better picture of exposure. The higher the radon levels, the greater the risk of getting cancer. However, there is no requirement that the problem be addressed. Many landlords may not take the risk seriously because the risk of lung cancer is too intangible despite the fact that there are simple and cost-effective methods to reduce radon levels.

- ❒ **Are there any safety concerns to Hazard Investigators?** No.