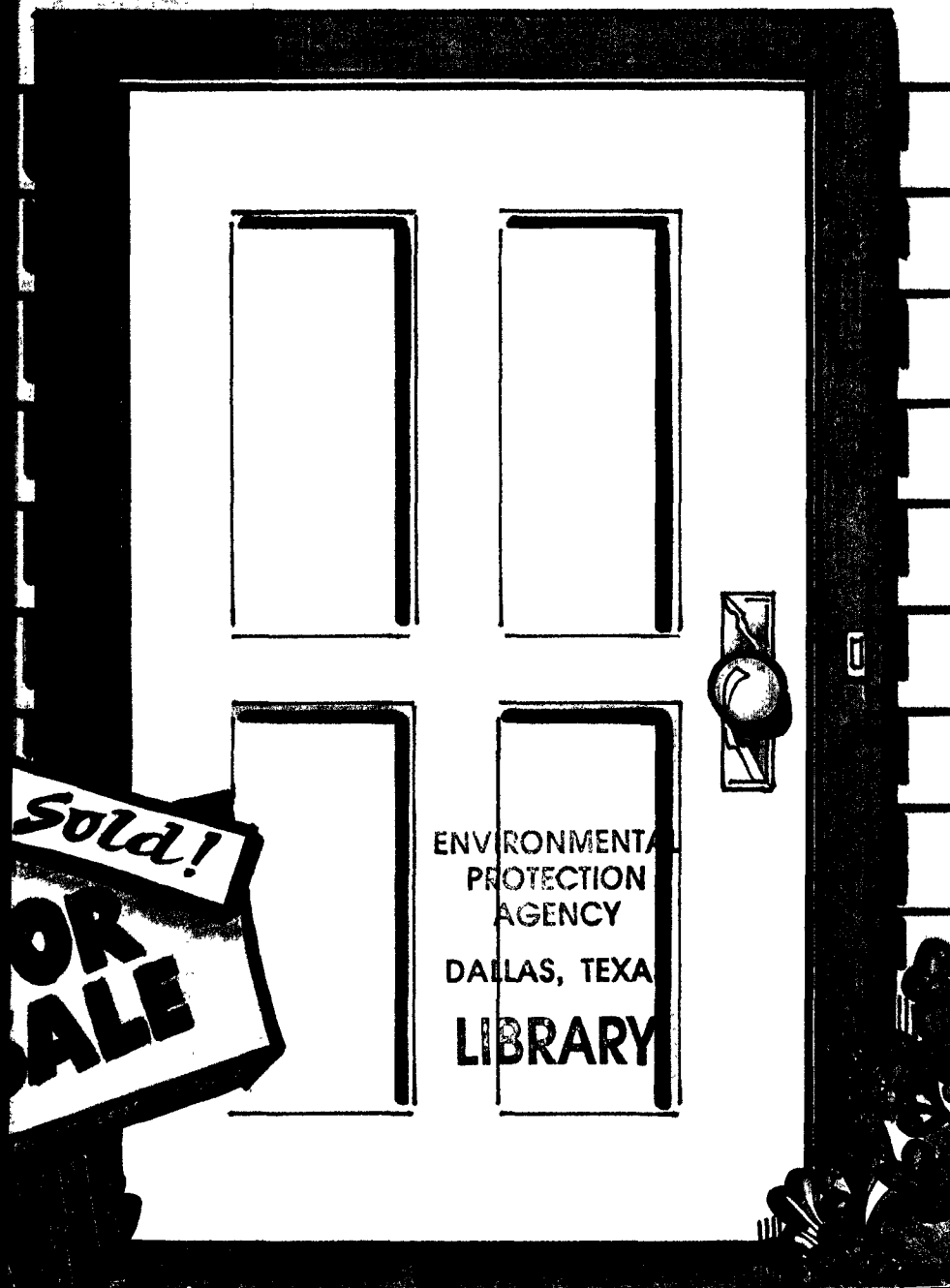
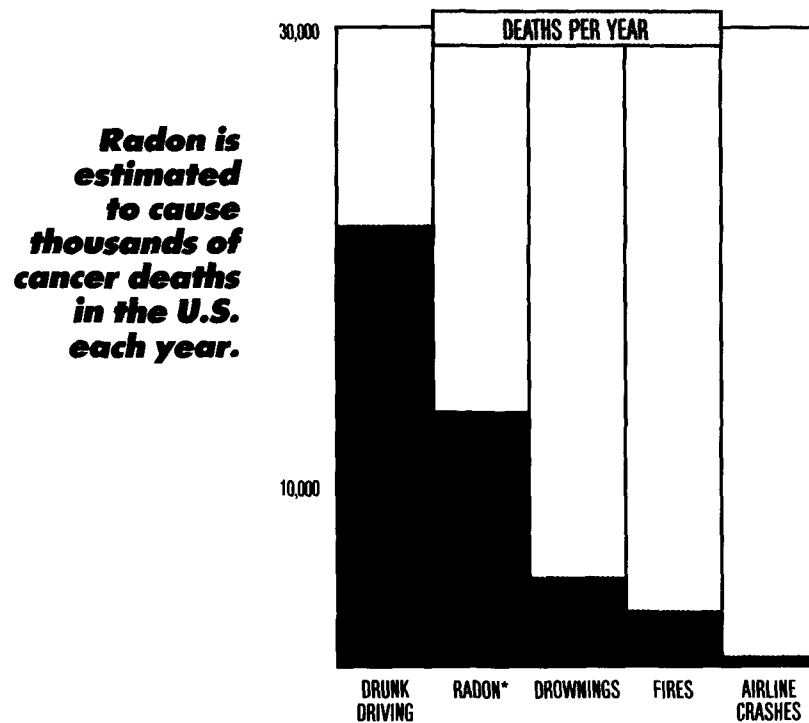


Home Buyer's and Seller's Guide to Radon



EPA Recommends:

- If you are planning on buying a home or selling your home, have it tested for radon.
- For new homes, ask if radon resistant construction features have been used.
- Fix the home if the radon level is 4 picocuries per liter (pCi/L) or higher.
- Radon levels less than 4 pCi/L still pose a risk, and in many cases may be reduced.
- Take steps to prevent device interference when conducting a radon test.



* Radon is estimated to cause about 14,000 deaths per year; however, this number could range from 7,000 to 30,000 deaths per year. The numbers of deaths from other causes are taken from 1990 National Safety Council reports.

TABLE OF CONTENTS

OVERVIEW	p. 1
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EPA has developed this guide to help home buyers and sellers address 8 key questions about radon:

1. Why Do You Need to Test for Radon?	p. 3
2. If You Are Selling a Home, What Should You Do?	p. 5
3. If You Are Buying a Home, What Should You Do?	p. 7
4. If You Are Buying a Newly-Built Home, What Should You Do?	p. 9
5. How Can You Get Reliable Radon Test Results?	p. 10
a. Types of Radon Devices	p. 10
b. Length of Time to Test	p. 13
c. If You Conduct A Short-Term Test	p. 14
d. Using Testing Devices Properly (If You Do The Test Yourself)	p. 15
e. EPA's Testing Checklist	p. 16
f. Getting Reliable Test Results (If You Hire a Professional Radon Tester)	p. 18
g. Interpreting Radon Test Results	p. 18
6. What Should You Do If You Find a High Radon Level?	p. 21
7. Radon Myths/Facts	p. 25
8. Where Can You Get More Information about Radon?	p.32

OVERVIEW

This guide is for anyone buying or selling a home who wants to learn about radon.

Radon is a cancer-causing, radioactive gas

You cannot see radon. And you cannot smell it or taste it. But it may be a problem in your home. That is because when you breathe air containing radon, you increase your risk of getting lung cancer. In fact, the Surgeon General has warned that radon is the second leading cause of lung cancer in the United States today. **If you smoke and your home has high radon levels, your risk of lung cancer is especially high.**

You should test for radon

Testing is the only way to find out your home's radon levels. EPA and the Surgeon General recommend testing all homes below the third floor for radon.

You can fix a radon problem

If you find that you have high radon levels, there are ways to fix a radon problem. Even very high levels can be reduced to acceptable levels.

If you are selling a home . . .

EPA recommends that you test your home before putting it on the market and, if necessary, lower your radon levels. Save the test results and all information you have about steps that were taken to fix any problems. This could be a positive selling point.

Pages 6 and 13-14 of this Guide make recommendations about how to test.

f you are buying a home . . .

EPA recommends that you obtain the indoor radon level in a home you are considering buying. Ask the seller for radon test results. If the home has a radon reduction system, ask the seller for information about the system.

If the home has not yet been tested, pages 8 and 14 of this Guide make recommendations about how to test now.

If you are buying a newly-constructed home, please refer to page 9.

The radon testing guidelines in the "Home Buyer's and Seller's Guide to Radon" have been developed specifically to deal with the time sensitive nature of home purchases and sales and the potential for radon device interference.

The guidelines in the "Home Buyer's Guide" are somewhat different from the guidelines in other EPA publications which provide radon testing and reduction information for non-real estate situations. The "Home Buyer's Guide" recommends three short-term testing options when long-term testing is not possible. The "Home Buyer's Guide" also recommends testing a home in the lowest level of the home which is currently suitable for occupancy. This is because a buyer may choose to live in a lower area of the home than that used by the seller. ■

1. **Why Do You Need To Test For Radon?**

Radon Has Been Found In Homes All Over the U.S.

Radon is a radioactive gas that has been found in homes all over the U.S. It comes from the natural breakdown of uranium in soil, rock and water and gets into the air you breathe. Radon typically moves up through the ground to the air above and into your home through cracks and other holes in the foundation. Your home can trap radon inside. Sometimes radon enters the home through well water (see page 24 for more information about radon in water).

Any home can have a radon problem. This means new and old homes, well-sealed and drafty homes, and homes with or without basements. In fact, you and your family are



most likely to get your greatest radiation exposure at home. That is where you spend most of your time.

Nearly 1 out of every 15 homes in the U.S. is estimated to have elevated radon levels. Elevated levels of radon gas have been found in homes in your state. Contact your state radon office (see pages 29-31) for information about radon in your area.

EPA And The Surgeon General Recommend That You Test Your Home

Testing is the only way to know if you and your family are at risk from radon. EPA and the Surgeon General recommend testing all homes below the third floor for radon.

WHY YOU CANNOT ESTIMATE RADON LEVELS BASED ON STATE, LOCAL AND NEIGHBORHOOD RADON MEASUREMENTS

Do not rely on radon test results taken in other homes in the neighborhood to estimate the radon level in your home. Homes which are next to each other can have different indoor radon levels. While radon problems may be more common in some areas in the local community or state, any home may have a problem. Testing your home is the only way to find out what your radon levels are.



2. **If You Are Selling A Home, What Should You Do?**



a.

If your home has already been tested for radon . . .

If you are thinking of **selling your home** and you have already tested your home for radon, provide your test results to the buyer. Review the testing Checklist on page 16 to make sure that the test was done correctly.

No matter what kind of test you took, a potential buyer may ask for a new test especially if:

- you took a test and the Checklist items were not met;
- you have renovated or altered your home since you tested;
- the buyer plans to live in a lower level of the house than you do, such as a basement which is suitable for occupancy but is not currently lived in; or
- your state requires disclosure of radon information to buyers.

b.

**f the home has not yet
been tested for radon . . .**

Have a test taken as soon as possible. If you can, test your home before putting it on the market because this may save time during real estate transactions. You should test in the lowest level of the home which is suitable for occupancy and finished. This means testing in the lowest level that you currently live in or a lower level not currently used, but which a buyer could use for living space without renovations. The result of the radon test is important information about your home's radon level that potential buyers may want to know.

You can test your own home or hire an EPA listed or state certified radon tester. Call your state radon office (see pages 29-31) for a list of these professional radon testers. If you test your own home, carefully follow the Checklist on page 16.



3. **If You Are Buying A Home, What Should You Do?**



a.

If the home has already been tested for radon . . .

If you are thinking of buying a home, you may either decide to accept the test results from the seller, ask the seller to do another test, or you may ask for a new test to be conducted by an EPA listed or state certified radon tester.

If you decide to accept the seller's test, make sure that the seller (or whoever took the test) followed the testing Checklist on page 16 and that he or she can confirm that all the items were followed. If you plan to use the seller's test, find out as soon as possible from the seller:

- the results of the previous test; and
- who conducted the previous test: the homeowner, a radon professional, or some other person; and
- where in the home the previous test was taken, especially if you may plan to live in a lower level of the home. For example, the test may have been taken on the first floor; however, you may want to live in a basement which is not currently lived in, but which is suitable for occupancy without renovation.

-
- what, if any, structural changes or alterations have been made to the house since the test was done. Such changes might affect radon levels.

If you decide that a new test is needed, you should discuss it with the seller as soon as possible. If you decide to use an EPA qualified or state certified radon tester, contact your state radon office (see pages 29-31) for a list of radon testing companies.

b.

If the home has not yet been tested for radon . . .

Make sure that a radon test is done as soon as possible. You should consider including provisions in the contract specifying who should conduct the test, what type of test to do, when to do the test, and how the seller and the buyer will share the test results, test costs and, if necessary, when radon reduction measures should be taken and who should pay for them.

Make sure that the test is done in the lowest level of the home suitable for occupancy. This means the lowest level that you are going to use as living space which is finished or does not require renovations prior to use. A state or local radon official or an EPA listed or state certified radon tester can help you make some of these decisions.

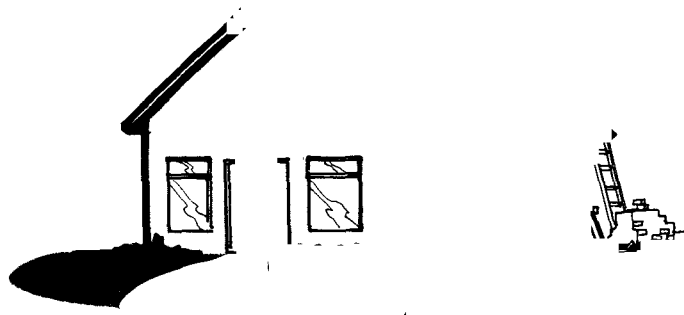
If you decide to finish or renovate an unfinished area of the home in the future, radon tests should be taken before and after the area is finished. Radon reduction costs could be incurred if high levels are found in that area. Generally, it is less expensive to install a radon reduction system before or during renovations rather than afterwards.

4. If You Are Buying A Newly-Built Home, What Should You Do?

New homes can be built with radon resistant features that minimize radon entry and allow easier fixing of radon problems that could occur later. These features cost less if installed during construction than if added to an existing home. In most new homes, use of radon resistant features will keep radon levels to below 2 pCi/L.

Builders can incorporate radon resistant features into the homes they build. Some states, counties and local jurisdictions may adopt radon resistant construction features in their building codes, which builders must then follow. Radon resistant construction standards can be applied depending on the radon potential in a particular area. Many builders already use radon resistant building features.

New home buyers should ask if radon



resistant construction techniques have been built into the new home they are considering for purchase. Buyers should also ask whether information about radon is available. For custom-built homes, the buyer should discuss radon resistant features with the builder, including the cost.

Occupants of newly constructed homes should have their homes tested for radon. A long-term test will provide a reading that is more representative of the home's year-round average radon level. However, short-term tests (as described on page 13) may be used to determine if elevated radon levels exist.

a.

Types of Radon Devices

Since you cannot see or smell radon, special equipment is needed to detect it. You can buy radon devices in retail stores when you want to test your own home, send away for radon devices from laboratories that offer mail order services, or you can hire an EPA listed or state certified radon tester who will test using radon devices that are appropriate for the situation.

Preventing or Detecting Test Interference

There is a potential for test interference in real estate transactions. There are a number of ways to prevent or detect test interference such as:

- Print-out report which frequently records radon or decay product levels to detect unusual swings;
- Motion detectors to determine whether the test device has been moved or testing conditions have changed;
- Proximity detectors to reveal the presence of people in the room which may correlate to possible changes in radon levels during the test;
- Record of barometric pressure to identify weather conditions which may have affected the test;
- Temperature record to help assess whether doors and windows have been opened; and
- Taping windows shut to ensure closed house conditions (see page 16).

Home buyers and sellers should evaluate these and other features when selecting a radon

5.

How Can You Get Reliable Radon Test Results?

Even though you cannot see or smell radon, it is not hard to find out if you have a radon problem in your home.

test alternative. Refer to the "Protocols for Radon and Radon Decay Measurements in Homes" for information about radon testing devices and associated device interference features.

Some of the most common radon testing devices are listed below. Because new testing devices may be listed by EPA or your state, you may want to check with your state radon office before you test to get the most up-to-date information.

Passive Devices

Passive radon testing devices do not need power to function. They include radon detectors such as **charcoal canisters, alpha-track detectors, and charcoal liquid scintillation devices** that are available in hardware stores, drug stores, other stores, and by mail, and **electret ion chamber detectors** generally only available through laboratories. They are exposed to the air in the home for a specified period of time and then sent to a laboratory for analysis. Both short-term and long-term passive devices are generally inexpensive. Some of these devices may have features that offer more resistance to test interference or disturbance than other passive devices. Professional radon testers may use any of these devices to measure the home's radon level.

Active Devices

Active radon testing devices require power to function. Active radon detectors such as **continuous radon monitors and continuous working level monitors** require operation by trained testers. They work by continuously measuring and recording the amount of radon or its decay products in the air of the home. Many of these devices provide a report of this information which can reveal any unusual or abnormal swings in the radon level during the test period. A professional tester can explain

this report to you. In addition, some of these devices are specifically designed to deter and detect test interference. Currently, some of the technically advanced active devices offer the most extensive device interference features. Although these tests may cost more, they may ensure a more reliable result.

General Information for All Devices:

A state or local radon official can explain the differences between devices and recommend the ones which are most appropriate for your needs and expected testing conditions. In addition, EPA's Radon Measurement Protocols include technical information about the differences between devices.

Make sure the radon device is listed by EPA's testing program or is state-certified. The device may display the phrase "Meets EPA Requirements" or "EPA listed." Your state radon office or a radon tester can tell you more about radon testing devices.

Certain precautions should be followed to avoid interference during the test period. Refer to the Checklist on page 16 for more information about how to get a reliable test.

In some areas, companies may offer different types of radon service agreements. Some agreements let you pay a one-time fee that covers both testing, and if needed, radon reduction. Contact your state radon office to find out if these are available in your state.

Radon Test Device Placement

The testing device(s) should be placed in the lowest level of the home **suitable for occupancy**. This means testing in the lowest level currently lived in or a lower level not currently used, such as a basement, which a buyer could use for living space without renovations. The test should be in a room to be used regularly (like a living room, playroom, den or bedroom) but **not** a kitchen, bathroom or laundry room.

WHETHER YOU TEST FOR RADON YOURSELF OR HIRE AN EPA LISTED OR STATE CERTIFIED TESTER, ALL RADON TESTS SHOULD BE TAKEN FOR A MINIMUM OF 48 HOURS. A LONGER PERIOD OF TESTING TIME IS REQUIRED FOR SOME DEVICES.

b.

Length of Time to Test

There Are Two General Ways To Test Your Home for Radon:

LONG-TERM TESTING:

Long-term tests remain in your home for more than 90 days. **Alpha track**, and **electret ion chamber detectors** are commonly used for this type of testing. A long-term test will give you a reading that is more likely to tell you your home's year-round average radon level than a short-term test. If time permits (more than 90 days) long-term tests can be used to confirm initial short-term results between 4 pCi/L and 10 pCi/L. When long-term test results are 4 pCi/L or higher, EPA recommends fixing the home.

SHORT-TERM TESTING:

The quickest way to test is with short-term tests. Short-term tests remain in your home from two days to 90 days, depending on the device. There are two groups of devices which are more commonly used for short-term testing. The passive device group includes **alpha track detectors**, **charcoal canisters**, **charcoal liquid scintillation detectors**, and **electret ion chambers**. The active device group consists of different types of **continuous monitors**. (see pages 11-12 for more information.) Because radon levels tend to vary from day to day and season to season, a short-term test is less likely than a long-term test to tell you your year-round average radon level. However, if you need results quickly, short-term testing may be used to decide whether to fix the home.

C.**If You Conduct a
Short-Term Test . . .**

If you are testing in a real estate transaction and you need results quickly, any of the following three ways to conduct Short-Term Tests are acceptable for determining whether the home should be fixed. Any real estate test for radon should include steps to prevent or detect device interference (see pages 10-12).

SHORT-TERM TESTING OPTIONS	WHAT TO DO NEXT
<i>Passive:</i> Take an initial short-term test for at least 48 hours. After the first test has been completed, take a follow-up short-term test for at least 48 hours. <i>or</i> Take two short-term tests at the same time in the same location for at least 48 hours.	Fix the home if the average of two tests is 4 pCi/L or more.
<i>Active:</i> Test the home with a continuous monitor for at least 48 hours.	Fix the home if the average radon level is 4 pCi/L or more.

WHEN CHOOSING A SHORT-TERM TESTING OPTION . . .

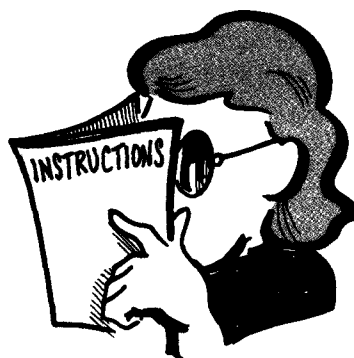
There are trade-offs among the short-term test options. One test followed by another test (sequential) would most likely give a better representation of the seasonal average. Two tests taken at the same time (simultaneous) would improve the precision of the radon test. Both active and passive devices may have features which help to prevent test interference. Your state radon office can help you decide which option is the best for you.

d.

Using Testing Devices Properly (If You Do the Test Yourself)

When you are taking a short-term test, close your windows and outside doors and keep them closed as much as possible during the test, except for normal entry and exit. If you are taking a short-term test lasting less than 4 days, be sure to close your windows and outside doors at least 12 hours **before** beginning the test, too. You should not conduct short-term tests lasting less than 4 days during severe storms or periods of high winds.

Place the test device at least 20 inches above the floor in a location where it will not be disturbed and where it will be away from drafts, high heat, high humidity, and exterior walls. Leave the test kit in place for as long as the test instructions say. Once you have finished the test, reseal the package and send it immediately to the lab specified on the package for analysis. You should receive your test results within a few weeks. If you need results quickly, you should find out how long results will take and, if necessary, request expedited service.



Follow this Checklist carefully so that you get the most accurate radon test results.

Radon testing is not a complicated process, but must be done properly. Otherwise, the test results may not be accurate and more testing may have to be done. Disturbing or interfering with the test device or closed-house conditions will invalidate the test results.

The seller, or an EPA listed or state certified tester, should be able to confirm that all the items in this Checklist have been followed. If the tester cannot confirm this, another test should be taken.

Before the radon testing:

- ☐ Notify occupants of the importance of proper testing conditions. Give occupants written instructions or this document and explain the directions carefully.
- ☐ If you conduct the test yourself, use a radon measurement device listed by EPA's Radon Measurement Proficiency (RMP) Program or certified by your state and follow the manufacturer's instructions that come with the device.
- ☐ If you use a testing professional, only hire an EPA listed or state certified individual and ask to see his or her photo identification. The contractor's identification number should be clearly visible on the test report.
- ☐ The test should include method(s) to prevent or detect interference with testing conditions or with the testing device itself.
- ☐ Conduct the radon test for a minimum of 48 hours. Certain devices must be exposed for more than the 48 hour minimum.
- ☐ Check to see if an active radon reduction system is in the house. Before taking a short-term test lasting less than 4 days, make sure the fan, if any, is operating at least 24 hours before the beginning of the test.
- ☐ EPA recommends that short-term radon testing which lasts for no more than a week in length, be done under closed-house conditions. Closed-house conditions means keeping all windows closed, keeping doors closed except for normal entry and exit, and not operating fans or other machines which bring in air from outside. Note that fans that are part of a radon reduction system or small exhaust fans operating for only short periods of time may run during the test.

-
- ☐ When doing short-term testing lasting less than 4 days, it is important to maintain closed-house conditions for at least 12 hours before the beginning of the test and for the entire test period. Do not operate fans or other machines which bring in air from the outside.

During the radon test:

- ☐ Maintain closed-house conditions during the entire time of a short-term test, especially for tests shorter than one week in length.
- ☐ Operate the home's heating and cooling systems normally during the test. For tests lasting less than one week, only operate air conditioning units which recirculate interior air.
- ☐ Do not disturb the test device at any time during the test.
- ☐ If a radon reduction system is in place, make sure the system is working properly and will be in operation during the entire radon test.

After a radon test:

- ☐ If a high radon level is found, fix the home. Pages 21 to 23 of this guide recommend the next steps you should take, such as contacting a qualified radon reduction contractor to lower the home's radon level.
- ☐ Be sure that you or the professional radon tester can demonstrate or provide information to ensure that the testing conditions were not violated during the testing period.



f.

Getting Reliable Results (If You Hire A Professional Radon Tester)

In many cases, home buyers and sellers may decide to have the radon test done by a professional radon tester. Make sure that the company you hire is listed in EPA's Radon Measurement Proficiency (RMP) Program or your state's certification program, if it has one.

EPA's Radon Measurement Proficiency (RMP) program is designed to help you get reliable radon tests. RMP program participants are required to show their ability to make accurate tests and follow quality assurance and EPA test guidelines. EPA issues RMP reports for your state. These reports list testing companies and individuals in your area qualified to follow EPA's residential radon testing requirements. Make sure you ask to see the professional radon tester's photo I.D. card.

g.

Interpreting Radon Test Results

The average indoor radon level is estimated to be about 1.3 pCi/L, and about 0.4 pCi/L of radon is normally found in the outside air. The U. S. Congress has set a long-term goal that indoor radon levels be no more than outdoor levels. While this goal is not yet technologically achievable for all homes, the radon levels in some homes today *can* be reduced to 2 pCi/L or below.

WHAT WILL A PROFESSIONAL RADON TESTER DO?

An EPA listed or state certified radon tester knows the proper conditions, test devices, and guidelines to get a reliable radon test. A professional radon tester can also:

- Evaluate the home and recommend a testing approach designed to make sure you get reliable results;
- Explain how proper conditions can be maintained during the radon test;
- Emphasize to occupants of a home that a reliable test result depends on their *cooperation* because any interference or disturbance with the test or the closed-house conditions, especially, during short-term testing, will invalidate the test result;
- Analyze and report measurement results to you; and
- Provide an independent test result by someone who is not involved in the home sale.

Your state radon office may also have information about certification requirements for professional radon testers. Contact your State radon office for information about RMP and state certified contractors. (See pages 29-31 of this guide.)

**RADON TEST RESULTS
MEASURED IN TWO
DIFFERENT UNITS**

Your radon test results may be reported in either picocuries per Liter of Air (pCi/L) or Working Levels (WL).

If your test result is in pCi/L, EPA recommends you fix the home if your radon level is 4 pCi/L or higher. If the test result is in WL, EPA recommends you fix the home if the working level is 0.02 WL or higher.

Sometimes short-term tests are less definitive about whether the home is at or above 4 pCi/L. This can happen when your results are close to 4 pCi/L. For example, if the average of the two short-term tests is 4.1 pCi/L, there is about a 50% chance that the year-round average is somewhat below 4 pCi/L. However, EPA believes that any radon exposure carries some risk; no level of radon is safe. Even radon levels below 4 pCi/L pose some risk, and you can reduce your risk of lung cancer by lowering your radon level.

Like other environmental pollutants, there is some uncertainty about the magnitude of radon health risks. However, we know more about radon risks than risks from most other cancer-causing substances. This is because estimates of radon risks are based on studies in humans (underground miners). Additional studies on more typical populations are under way.

Your radon measurement will give you an idea of your risk of getting lung cancer from radon. Your chances of getting lung cancer from radon depend mostly on:

- The home's radon level; and
- The amount of time you spend in your home; and
- Whether you are a smoker or have ever smoked.

Smoking combined with radon is an especially serious health risk. If you smoke or are a former smoker, the presence of radon greatly increases your risk of lung cancer. If you stop smoking now and lower the radon level in your house, you will reduce your lung cancer risk.

RADON RISK IF YOU SMOKE

Radon Level	If 1,000 people who smoked were exposed to this level over a lifetime . . .	The risk of cancer from radon exposure compares to . . .	WHAT TO DO: Stop Smoking and . . .
20 pCi/L	About 135 people could get lung cancer	← 100 times the risk of drowning	Fix your home
10 pCi/L	About 71 people could get lung cancer	← 100 times the risk of dying in a home fire	Fix your home
8 pCi/L	About 57 people could get lung cancer		Fix your home
4 pCi/L	About 29 people could get lung cancer	← 100 times the risk of dying in an airplane crash	Fix your home
2 pCi/L	About 15 people could get lung cancer	← 2 times the risk of dying in a car crash	Consider fixing between 2 and 4 pCi/L
1.3 pCi/L	About 9 people could get lung cancer	(Average indoor radon level)	(Reducing radon levels below 2 pCi/L is difficult)
0.4 pCi/L	About 3 people could get lung cancer	(Average outdoor radon level)	

Note: If you are a former smoker, your risk may be lower.

RADON RISK IF YOU HAVE NEVER SMOKED

Radon Level	If 1,000 people who never smoked were exposed to this level over a lifetime . . .	The risk of cancer from radon exposure compares to . . .	WHAT TO DO:
20 pCi/L	About 8 people could get lung cancer	← The risk of being killed in a violent crime	Fix your home
10 pCi/L	About 4 people could get lung cancer		Fix your home
8 pCi/L	About 3 people could get lung cancer	← 10 times the risk of dying in an airplane crash	Fix your home
4 pCi/L	About 2 people could get lung cancer	← The risk of drowning	Fix your home
2 pCi/L	About 1 person could get lung cancer	← The risk of dying in a home fire	Consider fixing between 2 and 4 pCi/L
1.3 pCi/L	Less than 1 person could get lung cancer	(Average indoor radon level)	(Reducing radon levels below 2 pCi/L is difficult)
0.4 pCi/L	Less than 1 person could get lung cancer	(Average outdoor radon level)	

Note: If you are a former smoker, your risk may be higher.

It's never too late to reduce your risk of lung cancer. Don't wait to test and fix a radon problem. If you are a smoker, stop smoking.

6. What Should You Do If You Find A High Radon Level?

High Radon Levels Can Be Reduced

EPA recommends that you take action to reduce your home's indoor radon levels if your radon test result is 4 pCi/L or higher.

It is preferable to correct a radon problem before placing your home on the market because then you have more time to address a radon problem. If elevated levels are found during the real estate transaction, the buyer and seller should discuss the timing and costs of the radon reduction, as with any other aspect of the home purchase and sale.

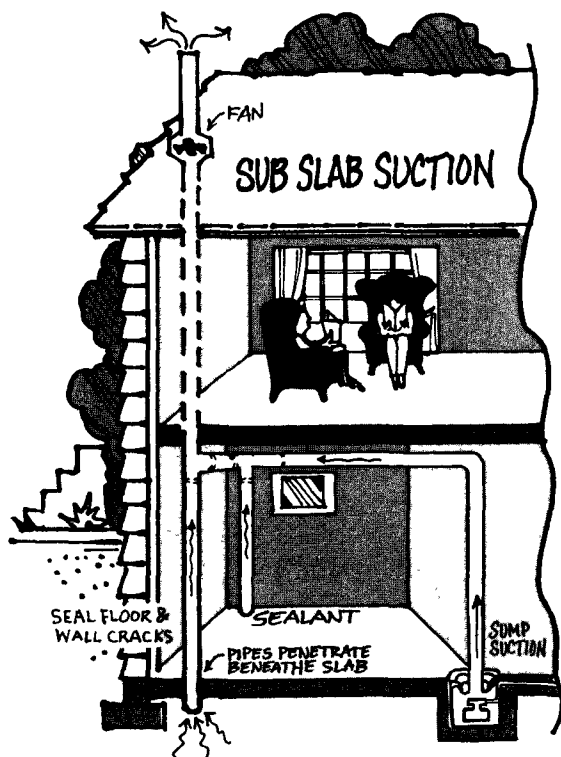
The cost of making repairs to reduce radon depends on how your home was built and other factors. Most homes can be fixed for about the same cost as other common home repairs, like painting or having a new hot water heater installed. The average cost for a contractor to lower radon levels in a home is about \$1,200, although this can range from \$500 to about \$2,500.

How To Lower The Radon Level In Your Home

A variety of methods can be used to reduce radon in homes. Sealing cracks and other openings in the foundation is a basic part of most approaches to radon reduction. EPA does not recommend the use of sealing alone to reduce radon because, by itself, sealing has not been shown to lower radon levels significantly or consistently. In most cases, systems with pipes and fans are used to reduce radon. Such systems are called "sub-slab depressurization," and do not require major changes to your home. These systems prevent radon gas from entering the home from below the concrete floor and the foundation. Similar systems can also be installed in homes with crawl spaces. Radon

reduction contractors may use other methods that may also work in your home. The right system depends on the design of your home and other factors. As with any other household appliance, there would be costs associated with the operation of the radon reduction system.

Ways to reduce radon are discussed in EPA's "Consumer's Guide to Radon Reduction." Call your state radon office (see pages 29-31) to get a copy.



RADON AND HOME RENOVATIONS

If you are planning any major renovations, such as converting an unfinished basement area into living space, it is especially important to test the area for radon before you begin the renovation. If your test results indicate a radon problem, radon resistant techniques can be inexpensively included as part of the renovation. Because major renovations can change the level of radon in any home, always test again after work is completed.

You should also test your home again after it is fixed to be sure that radon levels have been reduced. If your living patterns change and you begin occupying a lower level of your home (such as a basement) you should retest your home on that level. In addition, it is a good idea to retest your home sometime in the future to be sure radon levels remain low.

WHAT SERVICES DO RADON REDUCTION CONTRACTORS PROVIDE?

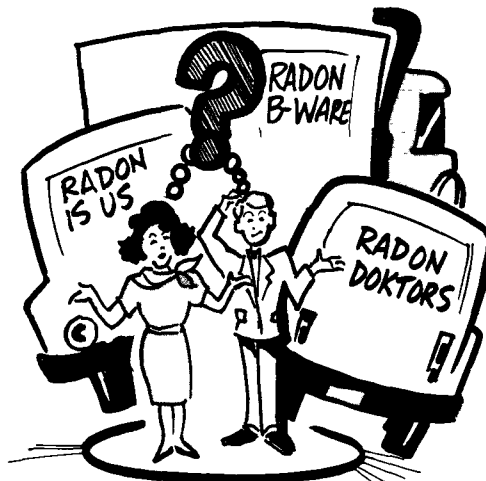
Contractors who participate in EPA's RCP program are qualified to:

- Review testing guidelines and measurement results and determine if additional measurements are needed;
- Evaluate the radon problem and provide you with a detailed, written proposal on how radon levels will be lowered;
- Design a radon reduction system;
- Install the system according to EPA Standards and State or local codes; and
- Make sure the finished system effectively reduces radon levels to acceptable levels.

Picking someone to fix your radon problem is much like choosing a contractor for other home repairs; you may want to get references and more than one estimate. Call your state radon office for a list of the names of EPA listed or state certified radon contractors in your area (see pages 29-31 of this guide). Your state radon office may also have information about certification requirements for these contractors.

Selecting A Radon Reduction Contractor

You should use a radon reduction contractor who is listed by EPA's Radon Contractor Proficiency (RCP) Program. This Program tests the technical knowledge of contractors



to ensure that they can correct radon problems. RCP contractors must follow specific guidelines which make certain that their work meets minimum quality standards. RCP contractors carry photo I.D. cards and are listed in RCP Program reports.

Radon reduction contractors are required to take the RCP exam and then follow the RCP Mitigation Standards. These standards are available from your state radon office (see pages 29-31). The RCP radon reduction contractor is also required to review radon measurement results before beginning radon reduction work.

In addition, the RCP contractor must recommend that the home be tested again by an independent EPA listed or state certified radon tester after completing radon reduction work to confirm that elevated levels have been reduced.

RADON IN WATER

Compared to radon entering the home through soil, radon entering the home through water in most cases will be a small source of risk. Radon gas can enter the home through well water. It can be released into the air you breathe when water is used for showering and other household uses. Research suggests that swallowing water with high radon levels may pose risks, too, although risks from swallowing water containing radon are believed to be much lower than those from breathing air containing radon.

While radon in water is not a problem in homes served by most public water supplies, radon has been found in well water. If you have tested the air in your home and found a radon problem, and your water comes from a well, have the water tested. If you are on a public water supply and are concerned that radon may be entering your home through the water, call your public water supplier. The testing device and procedures used to find out the radon levels of your home's water supply are different from the device and procedures used to test your home's indoor air levels for radon.

Radon problems in water can be readily fixed. The most effective treatment is to remove radon from the water before it enters the home. This is called point-of-entry treatment. Treatment at your water tap is called point-of-use treatment. Point-of-use devices usually only treat a small portion of your water and are not effective in reducing radon risk in water.

Call your State radon office for a copy of the "Consumer's Guide to Radon Reduction" (see pages 29-31) or call EPA's Drinking Water Hotline (1 800 426-4791) for more information on radon in water.

SHOULD YOUR RADON TESTER ALSO BE YOUR RADON REDUCTION CONTRACTOR?

Be aware that there is a potential conflict of interest if you use the same company to conduct both the test and the radon reduction of the home. If the same radon testing professional also offers to do radon reduction of the home, make sure that the testing is done according to the Testing Checklist (see page 16).

EPA's Radon Proficiency Programs (RMP and RCP) work together to protect home buyers and sellers. Make sure you only hire professional testers and radon reduction contractors who are EPA qualified or state certified. Always ask to see the contractor's I.D. card.

You should also consider getting more than one cost estimate and asking for references from radon testing and radon reduction companies in your area.

Some states have additional certification requirements, and may require the homeowner to sign a waiver if one firm conducts both testing and radon reduction. Contact your state radon office (see pages 29-31) for more information.

7.

RADON MYTHS

MYTH: Scientists are not sure that radon really is a problem.

FACT: Although some scientists dispute the precise number of deaths due to radon, all the major health organizations (like the Centers for Disease Control, the American Lung Association and the American Medical Association) agree with estimates that radon causes thousands of preventable lung cancer deaths every year. This is especially true among smokers, since the risk to smokers is much greater than to non-smokers.

MYTH: Radon testing devices are not reliable and are difficult to find.

FACT: Radon testing can be conducted by a professionally trained RMP listed or state certified radon tester.

Active radon devices can continuously gather and periodically record radon levels to reveal any unusual swings in the radon level during the test.

Reliable testing devices are also available through the mail, in hardware stores and other retail outlets. Call your state radon office (see pages 29-31) for a list of radon device companies that have met EPA requirements for reliability or are state certified.

MYTH: Radon testing is difficult and time-consuming.

FACT: Radon testing is easy. You can test your own home or you can hire an EPA listed or state certified radon tester. Either approach takes only a small amount of the homeowner's time or effort.

MYTH: Homes with radon problems cannot be fixed.

FACT: There are solutions to radon problems in homes. Thousands of home owners have already lowered elevated radon levels in their homes. Radon levels can be readily lowered for \$500 to \$2,500. Call your state radon office (see pages 29-31) for a list of contractors that have met EPA requirements or are state certified.

MYTH: Radon only affects certain types of homes.

FACT: Radon can be a problem in all types of homes such as old homes, new homes, drafty homes, insulated homes, homes with basements and homes without basements. Construction materials and the way the home has been built may also affect radon levels.

MYTH: Radon is only a problem in certain parts of the country.

FACT: High radon levels have been found in every state. Radon problems do vary from area to area, but the only way to know the home's radon level is to test.

MYTH: A neighbor's test result is a good indication of whether your home has a radon problem.

FACT: It is not. Radon levels vary from home to home. The only way to know if your home has a radon problem is to test it.

MYTH: Everyone should test his or her water for radon.

FACT: While radon gets into some homes through the water, it is important to first test the air in the home for radon. If high radon levels are found and the home has a well, call the Safe Drinking Water Hotline at 1 800-426-4791, or your state radon office (see pages 29-31) for more information.

MYTH: It is difficult to sell a home where radon problems have been discovered.

FACT: Where radon problems have been fixed, home sales have not been blocked. The added protection could be a good selling point.

MYTH: I have lived in my home for so long, it does not make sense to take action now.

FACT: You will reduce your risk of lung cancer when you reduce radon levels, even if you have lived with a radon problem for a long time.

MYTH: Short-term tests cannot be used for making a decision about whether to reduce the home's high radon levels.

FACT: Short-term tests may be used to decide whether to reduce the home's high radon levels. However, the closer the short-term testing result is to 4 pCi/L, the less certainty there is about whether the home's year-round average is above or below that level. Keep in mind that radon levels below 4 pCi/L still pose some risk and that radon levels can be reduced in some homes to 2 pCi/L or below.

STATE RADON CONTACTS

Alabama	800/582-1866
Alaska	800/478-8324
Arizona	602/255-4845
Arkansas	501/661-2301
California	800/745-7236
Colorado	800/846-3986
Connecticut	203/566-3122
Delaware	800/554-4636
District of Columbia	202/727-5728
Florida	800/543-8279
Georgia	800/745-0037
Hawaii	808/586-4700
Idaho	800/445-8647
Illinois.....	800/325-1245
Indiana	800/272-9723
Iowa	800/383-5992
Kansas	913/296-6183
Kentucky	502/564-3700
Louisiana	800/256-2494
Maine	800/232-0842
Maryland	800/872-3666
Massachusetts	413/586-7525
Michigan	800/723-6642
Minnesota	800/798-9050
Mississippi	800/626-7739
Missouri.....	800/669-7236

Montana	406/444-3671
Nebraska	800/334-9491
Nevada	702/687-5394
New Hampshire	800/852-3345x4674
New Jersey	800/648-0394
New Mexico	505/827-4300
New York	800/458-1158
North Carolina	919/571-4141
North Dakota	701/221-5188
Ohio	800/523-4439
Oklahoma	405/271-1902
Oregon	503/731-4014
Pennsylvania	800/237-2366
Puerto Rico	809/767-3563
Rhode Island	401/277-2438
South Carolina	800/768-0362
South Dakota	800/438-3367
Tennessee	800/232-1139
Texas	512/834-6688
Utah	800/536-4250
Vermont	800/640-0601
Virginia	800/468-0138
West Virginia	800/922-1255
Wisconsin	608/267-4795
Wyoming	800/458-5847

STATE RADON CONTACTS

STATE RADON CONTACTS

INDIAN NATIONS

All Indian Pueblo Council	505-881-2254
Cherokee Nation	918-458-5496
Chickasaw Nation	405-436-2603
Hopi Tribe	602-734-2441
Inner Tribal Council	602-248-0071
Jicarilla Apache Tribe	505-759-3242
Navajo Nation	602-871-7754
Oneida Indian Nation	315-361-6300
Seneca Nation	716-532-0024
St. Regis Mohawk Tribe	518-358-3141

For Indian Nations in the States of

MN, WI, MI, IL, IN, and OH, Call 312-886-6063