

COOK COUNTY DEPARTMENT OF ENVIRONMENTAL CONTROL

MAYBROOK CIVIC CENTER
1500 MAYBROOK DRIVE
MAYWOOD, ILLINOIS 60153

PHONE (708) 865-6165

FAX: (708) 865-6361

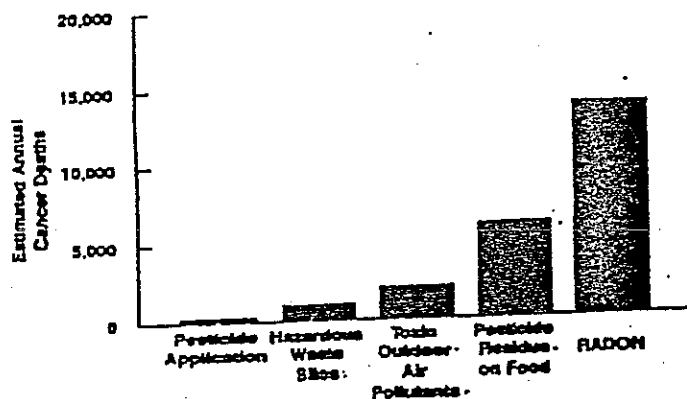
JOHN H. STROGER, JR. PRESIDENT
BOARD OF COUNTY COMMISSIONERS

CHARLES F. LAGGES
DIRECTOR

RADON FACTS

Radon is a radioactive by-product of uranium. When radon is inhaled it damages lung tissue. This increases the risk of developing lung cancer. Prolonged exposure to elevated levels of radon gas is the 2nd leading cause of lung cancer in the U.S. and is attributed to causing approximately 14,000 deaths a year. It poses no other health risk except promoting lung cancer. (Some authorities have reason to believe that the presence of radon in water may contribute to the development of internal organ cancer.)

Environmental Risk Comparisons



Source: EPA "Unfinished Business" Report

Radon is one of the nation's most serious environmental health threats. As such, it is unique; being odorless, tasteless and invisible. Radon exists naturally in most soils. However, levels of radon vary greatly between areas and even within neighborhoods. *The ONLY way to determine if a radon problem exists is by testing.*

Radon's concentration is measured in *picocuries per liter of air (pCi/l)*. The U.S. Environmental Protection Agency has established an action level of 4 pCi/l, but prolonged exposure to even minimal levels of radiation may present a health hazard. The average outdoor radon level is about 0.4 pCi/l. The national average for indoor radon levels is 1.3 pCi/l. Some homes have been found to have measured radon levels as high as 3,500 pCi/l. *Definite action should be taken to reduce radon in any homes with annualized levels above 4 pCi/l.*

(over)

COOK COUNTY DEPARTMENT OF ENVIRONMENTAL CONTROL
MAYBROOK CIVIC CENTER
1500 MAYBROOK DRIVE
MAYWOOD, ILLINOIS 60153

PHONE (708) 865-6165

FAX: (708) 865-6361

OHN H. STROGER, JR. PRESIDENT
 BOARD OF COUNTY COMMISSIONERS

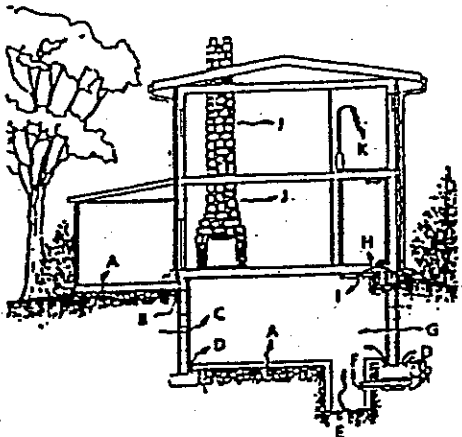
CHARLES F. LAGGES
 DIRECTOR

TESTING for RADON

Exposure to elevated levels of radon gas is one of the most serious environmental health threats facing the nation today. It is the 2nd leading cause of lung cancer and is estimated by the US Environmental Protection Agency to cause approximately 14,000 deaths a year. Radon is a naturally occurring radioactive gas that is found in most soils. It is odorless, tasteless, and invisible. The only way a radon problem can be detected is by testing.

The U.S. Environmental Protection Agency (EPA) has established a 4 picocurie per liter of air (pCi/l) "action level." (A picocurie is a measure of radioactivity.) At this level, the EPA estimates 1 of 15 homes are affected. There is the predicted potential for average, indoor radon levels above 4 pCi/l in almost 1,000 counties, with about 63,000,000 people at some degree of risk. The national average level for indoor radon is about 1.3 pCi/l, but some homes have been found to have measured levels as high as 3,500 pCi/l.

Major Radon Entry Routes



- A Cracks in concrete slabs
- B Spaces behind brick veneer walls that rest on uncajoed hollow-block foundation
- C Pores and cracks in concrete blocks
- D Floor-wall joints
- E Exposed soil, as in a sump
- F Weeping (drain) tile, if drained to open sump
- G Mortar joints
- H Loose fitting pipe penetrations
- I Open toes of block walls
- J Building materials such as some rocks
- K Water (from some wells)

The main entry routes for radon to enter a home are through cracks, spaces, or any openings which allow outside air to penetrate indoors. Radon can also enter the home through drinking water from ground sources and occasionally in the building's construction material. Again, the **ONLY** way to detect radon is by testing. Home test kits are available at low cost (usually less than \$15.00 including postage and analysis) and the results are readily obtainable. (over)

COOK COUNTY DEPARTMENT OF ENVIRONMENTAL CONTROL

MAYBROOK CIVIC CENTER

1500 MAYBROOK DRIVE

MAYWOOD, ILLINOIS 60153

PHONE (708) 865-6165

FAX: (708) 865-6361

JOHN H. STROGER, JR. PRESIDENT
BOARD OF COUNTY COMMISSIONERS

CHARLES F. LAGGES
DIRECTOR

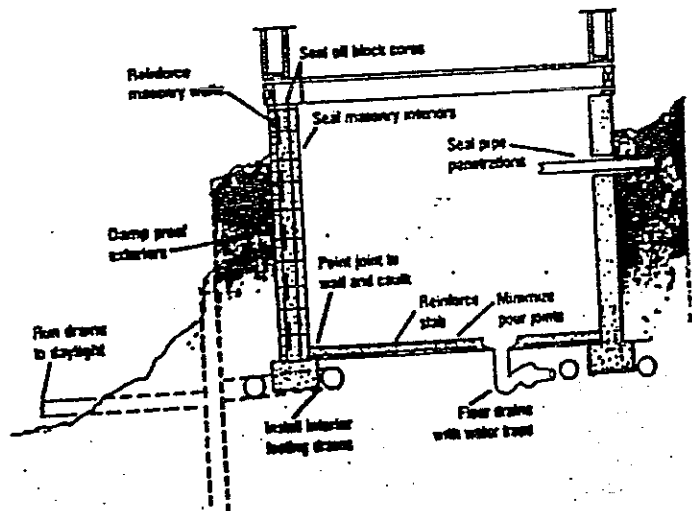
Radon Mitigation

Radon is one of the most serious environmental health threats affecting the nation today. It is the 2nd leading cause of lung cancer. Prolonged exposure to radon contributes to approximately 14,000 deaths a year. According to the U.S. EPA, elevated levels of radon (above 4 pCi/l) exist in all states. A high potential radon potential is found in nearly 1,000 counties and 1 of 15 homes is estimated to have an elevated level.

Radon is naturally radioactive, as well as being colorless, odorless, and tasteless. *The only way a radon problem can be detected is by testing.* Due to varying construction techniques and soil contents, each home or building is affected differently, even neighboring ones.

Radon gains entrance through cracks, spaces, and openings in a building's construction. High levels of radon are often caused by exhaust fans, fire places, furnaces, and clothes dryers which cause depressurization of the house. Radon can also enter the home with drinking water from ground sources and in the building materials used for construction. (Though both of these methods contribute only a small part to the total indoor radon concentration.)

(over)



COOK COUNTY DEPARTMENT OF ENVIRONMENTAL CONTROL

MAYBROOK CIVIC CENTER

1500 MAYBROOK DRIVE

MAYWOOD, ILLINOIS 60153

PHONE (708) 865-6165

FAX: (708) 865-6361

JOHN H. STROGER, JR. PRESIDENT
BOARD OF COUNTY COMMISSIONERS

CHARLES F. LAGGE
DIRECTOR

RADON INFORMATION

Radon gas is the nation's second leading cause of lung cancer.

EPA and the U.S. Surgeon General recommend testing all homes below the 3rd floor for radon.

Radon is estimated to cause about 14,000 deaths a year - however this number could range from 7,000 to 30,000 deaths per year.

Nearly 1 out of 15 homes in the U.S. is estimated to have elevated radon levels - 4 picouries per liter of air (pCi/l) or more.

EPA recommends the following testing steps:

Step One: Take a short-term test (2 to 90 days in duration). If your result is 4 pCi/l or higher, take a follow-up test (Step 2) to be sure.

Step Two: Follow up with either a long-term test (90 days to 1 year in duration) or a second short-term test. For a better understanding of your year-round radon level, take a long-term test. If you need results quickly, take a second short-term test.

The higher your initial short-term test results, the more certain you can be that you should take a short-term rather a long-term follow-up test. If your first short-term test result is several times the 4 pCi/l action level you should take a second short-term test immediately..

Step Three: If you followed up with a long-term test:
fix your home if your long-term test result is 4 pCi/l or more.

If you followed up with a 2nd short-term test:
the higher your short term-results, the more certain you can be that you should fix your home. Consider fixing your home if the average of your first and second test is 4 pCi/l or higher.

Test kits should be placed in the lowest lived-in level of the home. It should be put in a room that is used regularly but not the kitchen or bathroom.

Even radon levels below 4 pCi/l pose some risk, and you can reduce your risk of lung cancer by lowering your radon level. Most homes can be reduced to 2 pCi/l or below.

If you smoke and your home has high radon levels, your risk of lung cancer is especially high.

The average home costs about \$1,200 for a contractor to fix, although this can range from \$500 to \$2,500. You should use a contractor who is certified by the EPA's Radon Contractor Proficiency (RCP) Program. Such a contractor will carry a special RCP identification card.

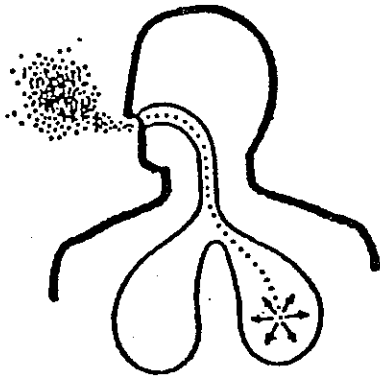
RADON FACTS

WHAT IS RADON?

Radon is naturally occurring radioactive gas that is colorless, odorless, and tasteless. Radon gas is one part of a natural radioactive process, known as "decay", where larger, more complex elements such as uranium and radium break down into smaller elements and energetic particles. When the radon gas itself decays, new decay products (known as radon "daughters") are created. Radon gas itself is relatively harmless until it decays into radon daughters, which, in turn, will decay rapidly and release energetic particles. If testing reveals radon in your home, you will find the hazardous radon daughters in relative amounts.

HOW DOES RADON CAUSE CANCER?

The radon daughters can readily attach themselves to dust particles floating in the air and may be inhaled deep into your lungs. As these radon daughters decay inside your body, they release damaging particles into nearby cell tissue. Typically, statistics show a 10 to 20 year incubation period before a cancer fully develops. Some damage may be found in three to five years, but, generally speaking, by the time you discover the damage, it's too late.



Scientists at the Centers for Disease Control in Atlanta now estimate that indoor radon is the number one cause of lung cancer in non-smokers, and, (after cigarette smoking) the number two cause of lung cancer in the United States. Scientists estimate that up to 30,000 Americans die every year as a result of radon exposure. Radon is considered to be one of the most hazardous forms of indoor air pollution.

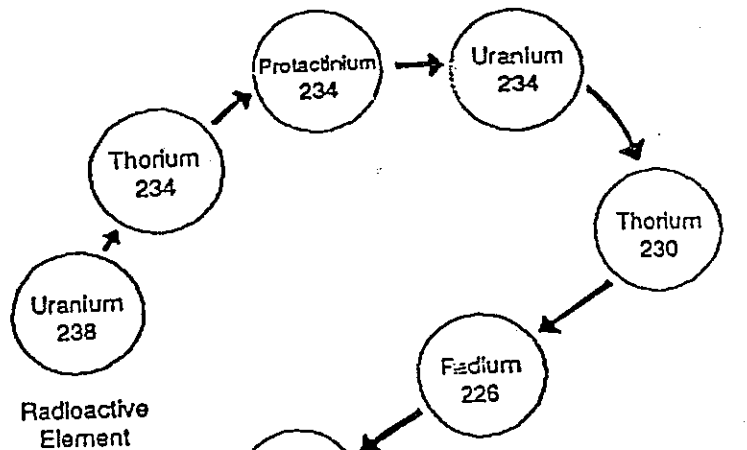
WHERE DOES RADON COME FROM?

Radon comes primarily from the soil under a building. Radon can be found almost anywhere, because radium, the "parent" of radon is found naturally in most soil. Average concentrations of radium are usually low, and the radon gas will often migrate harmlessly into the atmosphere through underground water and the soil. However, if a building is erected over a source of radon gas, the radon can be trapped inside and build to hazardous levels. The highest concentrations of radon are typically found in the lowest levels or basements of buildings, with the radon migrating to other parts of the structure.

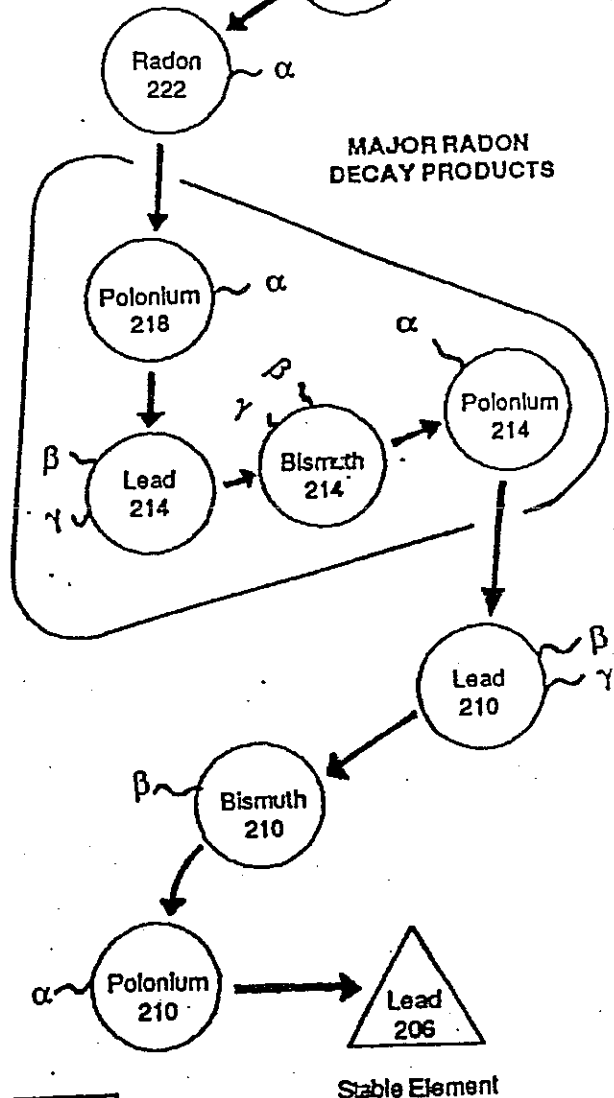
THE URANIUM DECAY PROCESS

Pictured to the right is the process in which radioactive Uranium 238 decays until it becomes Radium 226, and eventually, a stable element, Lead 206. As the elements decay, they often give off alpha, beta, and gamma particles. The locations of these releases are indicated on the decay scheme pictured here. The major radon decay products are Polonium 218, Lead 214, Bismuth 214, and Polonium 214. These are also identified on the decay scheme. It is these elements that are commonly referred to as "Radon Daughters", or "Radon Progeny".

URANIUM DECAY SCHEME



MAJOR RADON DECAY PRODUCTS



α = alpha
 β = beta
 γ = gamma

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 Consider fixing between 2 and 4 pCi/L
2 pCi/L	About 15 people could get lung cancer	2 times the risk of dying in a car crash	Fix your home
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.

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.

RADON RISK IF YOU'VE 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 3 people could get lung cancer	The risk of dying 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	Consider fixing between 2 and 4 pCi/L
2 pCi/L	About 1 person could get lung cancer	The risk of dying in a home fire	(Reducing radon levels below 2 pCi/L is difficult)
1.3 pCi/L	Less than 1 person could get lung cancer	(Average indoor radon level)	
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.

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 your radon level is to test.

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

FACT: It's 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 their water for radon.

FACT: While radon gets into some homes through the water, you should first test the air in your home for radon. If you find high levels and your water comes from a well, contact a lab certified to measure radiation in water to have your water tested.

MYTH: It's difficult to sell homes where radon problems have been discovered.

FACT: Where radon problems have been fixed, home sales have not been blocked or frustrated. The added protection is some times a good selling point.

MYTH: I've lived in my home for so long, it doesn't make sense to take action now.

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

MYTH: Short-term tests can't be used for making a decision about whether to fix your home.

FACT: A short-term test followed by a second short-term test may be used to decide whether to fix your home. However, the closer the average of your two short-term tests is to 4 pCi/L, the less certain you can be about whether your year-round average is above or below that level. Keep in mind that radon levels below 4 pCi/L still pose some risk. Radon levels can be reduced in most homes to 2 pCi/L or below.

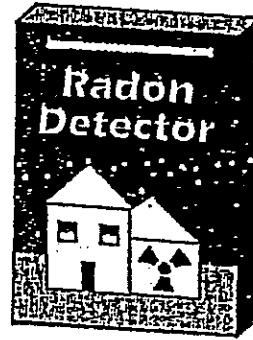
Radon Detection Kit - Only \$7

Testing for Radon is simple. Now you can get a radon test kit for only \$7 from the National Safety Council.

This Radon detector is short-term test whose manufacturer has met EPA's requirements under the Radon Measurement Proficiency Program.

Just follow the directions on the package and return the entire kit to the manufacturer for analysis. You'll get the results along with information about corrective measures you can take to lower your Radon level, if needed.

Remember that Radon is the second leading cause of lung cancer in the United States. Testing for Radon is extremely important for your family's health and well being. For your National Safety Council Radon Detection Kit, simply fill out the information on the back of this coupon, and mail it along with your check or money order for \$7 per kit today. Hurry, this offer is available for a limited time only.



U.S. NATIONAL SAFETY COUNCIL
of
ENVIRONMENTAL CONTROL
708-865-6165

**Send For Your
Radon Detection Kit Today!**



**YES! I want to test my home for the presence of Radon.
Please rush me my National Safety Council Radon Detection Kit.**

Name

Number of kits

Address

City

State

Zip

Mail this coupon and your check or money order for \$7 per kit to:
National Safety Council Radon Test Kit Offer, P.O. Box 33435, Washington, D.C. 20033-0435.

NSC243