The Radon Problem

A Solution Is Easier Than You Think

Tammy Kutzmark and Donald Geis

In December 1984, Stanley Watras amazed fellow workers by setting off radiation monitors as he entered the Limerick Nuclear Power Plant in Pennsylvania, where he worked. Somehow, from some strong source, Watras was bringing radiation *into* the plant. The source? Radon—an invisible, radioactive gas found in all parts of the country—that had accumulated in high levels in his home.

Radon can be viewed with a sense of apathy or with an urgent recognition of the need for action. If you consider that radon is the second leading cause of lung cancer in the United States and is found in our homes, schools, and other buildings where we spend much of our lives, then it seems a serious problem indeed. But if you consider that radon can be reduced through easy, affordable methods, then it becomes a serious but *preventable* problem.

Radon is a naturally occurring threat to the health and safety of a community, like earthquakes and floods. That is the bad news. But the good news is that radon is not just another environmental burden, surrounded by complicated mandates and requiring costly solutions. Thanks to advances in the radon industry, homeowners and building operators can easily and affordably test for radon and fix buildings affected by it.

Local governments are the key to spurring this action, through educating their communities about radon, supporting the testing and fixing of homes and other buildings,

and coordinating their efforts with those of such other organizations in their communities as the American Lung Association that are reinforcing the "test and fix" message with their own activities. With minimal effort, local government managers can take simple, sensible, and voluntary steps—can run a public service announcement, test a sampling of homes, or adopt a building code, to name just a few measures—to reduce the radon threat within the built environment and to improve the health and safety of their communities. Put briefly, we seldom have had a solution so simple to a problem so serious.

What Exactly Is Radon?

Radon is a naturally occurring radioactive gas that results from the natural breakdown of uranium in rocks and soil. Some building materials and well water also can contain radon gas, but the most significant source of radon is the ground under a building's foundation. Radon emanates from soil, rock, and water into the air we breathe. Outside, radon dissipates to low concentrations and poses little threat to our health. But within the built environment, radon presents a serious health threat. Such an enclosed space as a home or school acts as a holding tank where radon can accumulate to dangerous levels.

The magnitude of indoor radon buildup depends on the location of the building, the concentration of radon in the underlying soil, and the actual building itself. Factors such as the design, construction, and ventilation of the building affect the pathways and forces that can circulate radon through the indoor atmosphere. Radon can enter a building from the soil through dirt floors, cracks in concrete floors, floor drains, sump pumps, joints, gaps in suspended floors, pores in hollow-block walls, and other openings in a building. Pressure differences between the building and the soil around the foundation can create a vacuum in the home that can draw radon from the soil through these openings and into the building. Compounding this phenomenon is the movement of warm, conditioned air flowing upward and out of the building, which can actually draw radon into the lower levels of the building; this is known as the "stack effect." Radon levels are generally highest in basements and ground-floor rooms in contact with the soil.

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Radon is measured in picocuries per liter of air, or pCi/L. The average level of indoor radon is about 1.3 pCi/L, and the outdoor level is about 0.4 pCi/L. While the U.S. Environmental Protection Agency (EPA) states that no level of radon is harmless to humans, it has set an "action level" of 4.0 pCi/L, based on the ability of available mitigation technology to reduce radon levels in homes below this level.

Radon can affect us in a variety of indoor settings: our homes and apartments, our workplaces, our children's schools and daycare centers, and such public buildings as town halls and libraries. While radon primarily was thought to affect families in homes—generally in the basement or on the first floor—it has been found in other living spaces. Ethel Romm, president of the New England Chapter of the American Association of Radon Scientists and Technologists (AARST), has told the story of finding high radon levels on the 23rd floor of an apartment building, where it had traveled through an elevator shaft.

Radon is, in effect, indoor radiation. The gas decays into radioactive particles, that can become trapped in our lungs when we breathe. These particles discharge energy that damages lung tissue. Exposure to radon over time can result in lung cancer. Radon is the second leading cause of lung cancer in the United States, after smoking. EPA estimates that, on average, radon causes about 14,000 deaths per year, although this number could range from 7,000 to 30,000 deaths per year. This is more than *three times* the number of deaths attributed to fires, another home hazard that has become the focus of concerted community health and safety action. EPA estimates that 1 out of every 15 homes nationwide is at risk of containing dangerously high levels of radon. In some areas, as many as 1 out of every 5 homes may be affected.

Radon was first recognized as a cause of lung cancer in underground miners in the 1930s. In recent years, EPA has been working to refine epidemiological data from studies of radon in homes. The largest residential radon case control study to date,

Case Studies: Montgomery County, Maryland, and Peterborough, New Hampshire

Institutionalization is key to successful, sustainable local radon risk reduction programs. Whether it involves expanding standard local government policies to address radon, or increasing the opportunities for the community to encounter radon information, institutionalization allows local governments to reinforce the importance of radon risk reduction and to maximize their program efforts. The following case studies describe two strategies used by local governments to achieve this goal. They show the importance of the role of localities in giving radon risk reduction a prominent place on the public agenda.

Montgomery County, Maryland (population 780,000), located outside of Washington, D.C., has a high potential for radon risk. The county developed a radon program that institutionalized radon risk reduction by building consensus for and finally adopting radon-resistant building codes.

The county's first step was to establish a radon working group (RWG). This group consisted of representatives from all segments of local government—community and economic development, environmental protection and health, consumer affairs, and staff of the county council. The RWG's missions were to study the radon issue, collect information, report its findings, and recommend to the government what role to play and strategies to use. This group recommended that all buildings be tested, that testing specialists be licensed, and that a building code be formulated to prevent radon gas from entering newly constructed homes.

The county was successful, in large part, because it recognized the need for consensus building. The news media continuously promoted home testing. Elected officials supported the RWG's recommendations and afforded political focus for the programs. Businesses, private and public institutions, community organizations, and concerned citizens provided support and worked with the county on policy recommendations, promotional materials, bulk-buying arrangements for test kits, and low-income subsidized testing. Real estate organizations adopted a policy for dissemination of radon information during real estate transactions. Throughout, county administrators played a leading role in policy development and implementation, maximizing available resources, building momentum, and taking important steps toward institutionalizing radon risk reduction. Contact: John Isham, town administrator, 603/924-3201.

Peterborough, New Hampshire (population 5,200), is located within a Zone 2 county, but was concerned about local hot spots within the community. Its program was initiated with seed money from the ICMA Radon Demonstration Project. Using promotional materials from EPA, the town worked with other organizations, the news media, health officials, and physicians to promote public awareness of the issue. The town then developed a unique strategy for institutionalizing the distribution of test kits. The 200 test kits purchased through the ICMA grant were not given out free of charge but sold at a cost of $5. Thus, the town was able to establish a revolving fund that goes toward the purchase of additional test kits, ensuring that money will always be available for radon activities. The added advantage of charging even a nominal fee for test kits is that citizens often place a higher value on testing if they are charged for kits than if they receive them at no cost.

Peterborough's program has distributed over 150 test kits to residents and has even answered calls from neighboring jurisdictions that heard about the program through the media. John Isham, town manager and program coordinator, involved the local schools in the program by providing radon information materials and by recommending that radon be introduced to the curriculum for environmental science classes. Because the town planned for the long term, Peterborough's radon risk reduction strategy is now part of the daily government agenda. Contact: Eric Mendelsohn, director, Department of Environmental Protection, 310/217-2392.

completed by the Karolinska Institute in Sweden and reported in the New England Journal of Medicine, found a crucial link between residential radon exposure and lung cancer. The study compared 1,360 people who were diagnosed with lung cancer with 2,847 people without cancer. The study found that when people were exposed to 3.8 to 10.8 pCi/L, their lung cancer risk was 30 percent higher than that of people who were not exposed to these levels. Their level of risk was 80 percent higher when average home radon levels exceeded 10.8 pCi/L than that of people whose home exposure averaged below 1.4 pCi/L.

A Serious Health Threat

This health threat should be taken seriously by all individuals and by all communities. Anyone who breathes air containing radon is at risk of developing lung cancer. But some segments of the population are at even greater risk than others. Smokers, for example, are at particularly high risk, perhaps up to 10 times higher than nonsmokers. This is because radon decay products can enter the lungs on tobacco particles that remain in smoke and heighten the process of lung tissue deterioration. Thus, there is a synergistic relationship between radon exposure and smoking.

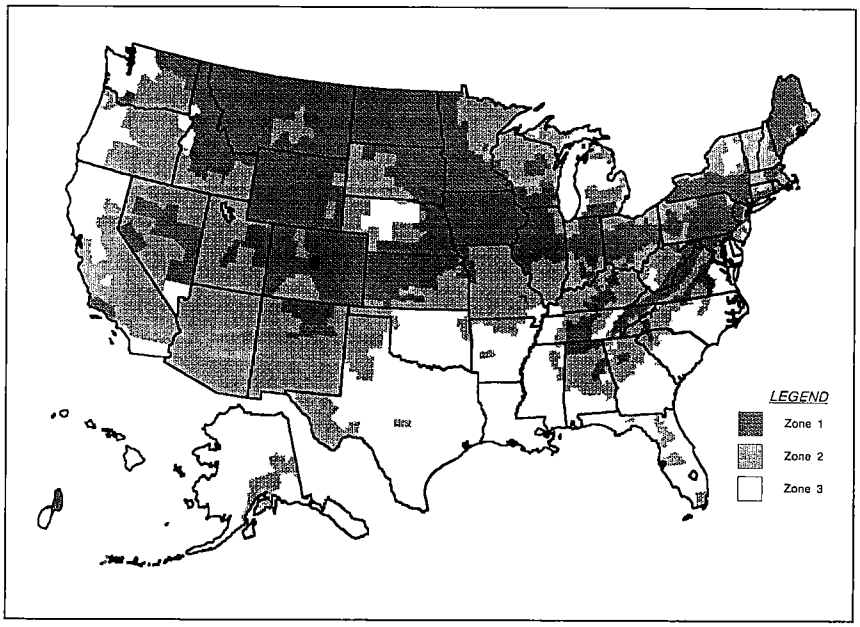
Another segment of the population at risk is children. Children have been reported to have greater risk than adults of certain types of radiation-induced cancer, but there is currently no conclusive data on whether children are at higher risk than adults. EPA's 1993 study of radon in schools found that 70,000 classrooms—located in more than 15,000 public schools across the nation—have radon levels above 4 pCi/L.

Low-income and minority populations also are at high risk. Many are renters in states where existing law and property maintenance practices make few provisions for testing and mitigation of rental property. Often, the cost of mitigation is too high for renters to afford. In addition, a 1993 study by the Conference of Radiation Control Program Directors (CRCPD) showed that many low-income and minority populations have lower levels of radon awareness and are much less likely to have tested their homes for radon than the rest of the population. Many public outreach campaigns fail to communicate radon information effectively to these populations.

As with many health hazards, the risk of developing lung cancer from radon increases as we are exposed to elevated levels over time. This is why local and national radon programs target home and school testing as an integral part of the strategy to reduce radon risk. Some people in our increasingly mobile society dismiss the time-exposure factor, saying that, in this day and age, people do not live in any one place long enough to be exposed to dangerous radon levels. But even if we move frequently, we still are at risk of exposure to a cumulative amount of radon if the homes in which we live over a lifetime have high levels of radon.

Not only are our homes and schools at risk, but also, as we spend more and more time in the workplace, our office buildings are becoming potentially hazardous places. Our solidly constructed, technologically accommodating, and seemingly benign built environment begins to look increasingly threatening.

EPA's Radon Potential Map

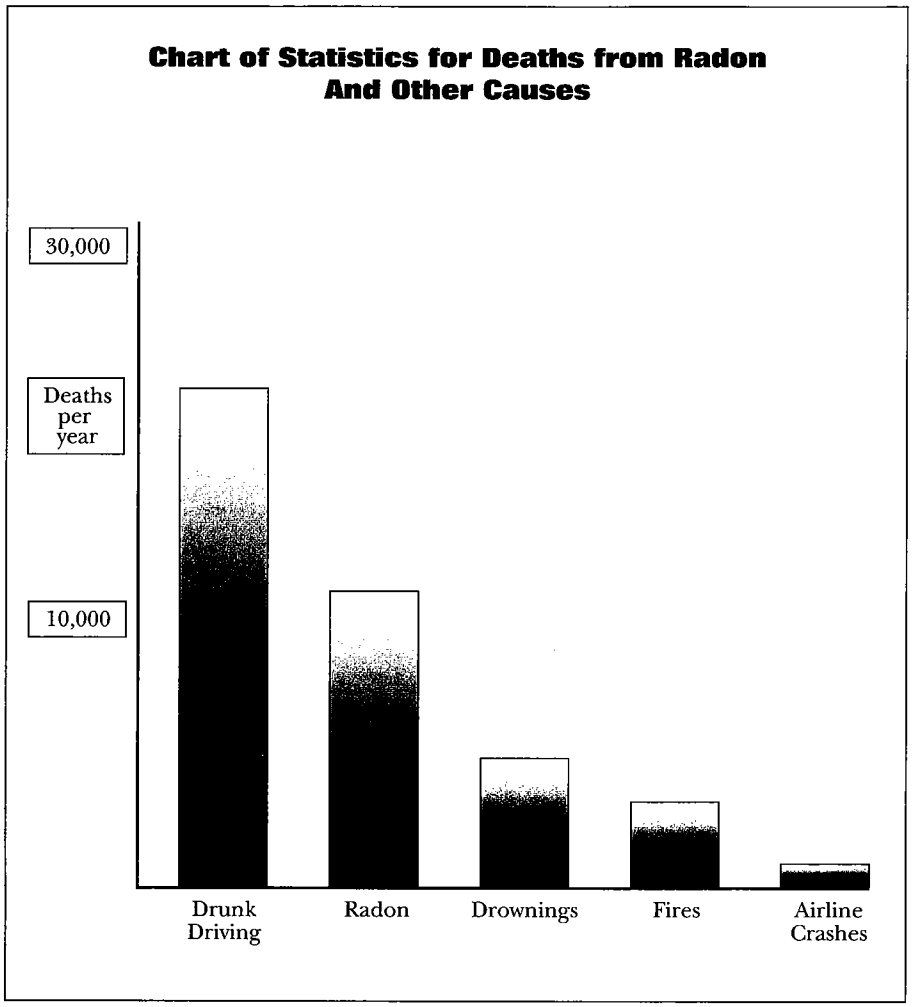


The methodology for developing EPA's Radon Potential Map involved categorization of distinct geologic provinces based on indoor radon measurements, geology, aerial radioactivity, soil parameters, and house foundation types. These geologic provinces were then overlayed onto county maps, and each county was assigned to a zone based on the geologic province that was predominant there. Counties located within a geologic province that had predicted average levels for indoor radon screening greater than 4 pCi/L were assigned to Zone 1. Counties with predicted average screening levels between 2 and 4 pCi/L were assigned to Zone 2, and counties below an average of 2 pCi/L were assigned to Zone 3.

The purpose of this map is to assist national, state, and local organizations in targeting their resources toward developing radon risk reduction policies. The map is not intended to be used to determine if a home in a given zone should be tested for radon.

Public Does Not Recognize Concern

Despite the startling statistics surrounding radon, the seriousness of the health risk is not yet perceived as an immediate concern by the public.



A 1993 study by the Washington-based Center for Resource Economics as reported in the *Wall Street Journal* on May 24, 1993, found that while the actual environmental health risk of radon was quite high, public perception of risk was low, when compared with Superfund sites or inadequate sewage treatment plants, whose actual environmental health risk was relatively low but whose publicly perceived risk was high.

Nor has the public taken necessary action to reduce the risk. According to the CRCPD's 1993 Radon Risk Communication and Results Study, only 9 percent of the homes in the United States have been tested. Moreover, while nearly 1 out of every 15 homes in the United States is estimated to have elevated radon levels, only about one-quarter of the homes tested and found to have radon levels above the 4 pCi/L guideline have been mitigated.

Local governments are taking their time on addressing the radon issue, perhaps due to public apathy. In 1992, ICMA conducted a survey of local government radon risk reduction activities. A total of 2,500 ICMA members were surveyed, with a 10 percent response rate. While 19.7 percent of the respondents were aware of radon and the health risk associated with it, only 20.4 percent of the respondents had tested their own homes; only 10.6 percent had initiated public awareness activities; only 10.2 percent had initiated testing activities; and only 1.6 percent had initiated mitigation activities. The highest percentage of respondents, 45 percent, stated that low public perception of radon as a health hazard prevented or delayed the recognition of radon as a problem in their communities. Given the serious health effects of radon, there is a need for local governments to be in the vanguard of radon risk reduction, to respond to this health risk even before the public demands it, and ultimately to invest in their communities' health and safety.

The Test and Fix Strategy

Fortunately, radon risk reduction is neither an onerous nor an impossible mission. In fact, it is relatively straightforward and affordable. The policy surrounding radon is both voluntary and collaborative. Local government administrators can make a significant investment in the health and safety of their communities with minimal effort and expense.

The primary principle of radon risk reduction is to *test all homes.* It also is recommended that other buildings in the community—schools, apartments, public facilities, and workplaces, for example—be tested. The first step, however, is to encourage homeowners to invest in their own living environments by taking action to test them.

Testing is key because radon is a colorless, odorless, tasteless, and invisible gas, and it is impossible to determine if it is present in a building without a test. A do-it-yourself kit for home radon testing can be purchased in hardware stores and drugstores for between $10 and $20. Local governments can purchase kits in bulk, for distribution to the public, for as little as $5 each, or can provide coupons for discount-priced kits from consumer affairs organizations.

When testing, either a short-term (2 to 90 days) or a long-term (more than 90 days) test can be used. A long-term test will give you a reading

that is more likely to indicate your year-round average radon level than will a short-term test. Only kits marked "Meets EPA Requirements" should be used to test. This specification indicates that the kit has passed EPA's testing program or is state-certified. Test kits should be placed in the lowest lived-in part of the house: the basement, for example, if it is frequently used, or otherwise the first floor. While do-it-yourself test kits are the least expensive way to test, it is possible to hire a trained, EPA-qualified or state-certified radon tester to conduct the test. If a short-term test is taken and the initial test result is 4 pCi/L or higher, a follow-up short-term or long-term test should be taken to be sure. It is recommended that homes and other buildings be fixed if the average of the first and second test is 4 pCi/L or higher

Testing all homes is key because levels of radon can vary from building to building. This is due to several factors, including the location of uranium deposits and the design, construction, and ventilation of the building. One house may be soundly constructed, with few openings through which radon can enter. A house next door, for example, may have a gravel cellar, with multiple opportunities for radon to enter and accumulate. This is why it is vitally important to test all homes. The level in one home cannot accurately predict the level in another.

When Watras's home was tested for radon, it was found to contain the highest residential radon level ever found until that time—2,700 pCi/L. The Watras incident initiated more study about radon. The initial concern was for a uranium-prone geographical region known as the Reading Prong, encompassing eastern Pennsylvania, northeastern New Jersey, and parts of New York State. But by 1986, high radon levels had been detected in every state in the nation.

There are geographic areas of high radon risk potential. The identification of these areas of high radon risk potential was the result of extensive studies conducted by EPA and the United States Geological Survey (USGS). Assessing five factors known to be important indicators of radon potential—indoor radon measurements, geology, aerial radioactivity, soil parameters, and house foundation types—EPA and USGS developed a map of radon zones that identifies, on a county-by-county basis, areas of the United States that have a high potential for elevated levels of indoor radon. Zone 1 counties are areas of highest potential risk (greater than 4 pCi/L); Zone 2 counties are predicted to have average levels between 2 and 4 pCi/L; and Zone 3 counties are predicted to have average levels below 2 pCi/L. EPA estimates that approximately 34 percent of the counties in the United States have a Zone 1 designation and that 28 percent of the population lives in these Zone 1 counties.

Extensive booklets, derived from this map information, are available from state radon program offices. They depict both statewide incidence of radon and radon risk potential in each county and can greatly assist local governments in targeting radon program activities and resources. It should be emphasized, however, that this information is not meant to exclude testing and education efforts in areas that have not been designated as "hot spots." Continued nationwide testing efforts and the increasing availability of local data only reinforce the primary principle: test all homes. Homes with elevated levels have been found in all parts of the country.

Authorities on Radon

Radon is a health risk that should be reduced. Among the national and international health organizations that recognize radon as a cause of lung cancer are:

- National Academy of Sciences
- Centers for Disease Control
- American Lung Association
- American Medical Association
- American Public Health Association
- World Health Organization
- International Atomic Energy Agency.
- International Commission on Radiological Protection
- National Council on Radiation Protection and Measurements
- U.S. Surgeon General

Local Governments Can Test

Local governments can make radon testing a routine part of "doing local government business" by increasing the opportunities for testing. For example, requiring disclosure of radon levels during real estate transactions is an extremely effective measure to promote testing. The 1993 CRCPD study observed that 30 percent of all homes tested were tested during real estate transactions. Such strategies as including coupons for discount-priced, do-it-yourself test kits in utility bills and other local mailings, or offering kits at local health fairs, can, with little effort, reinforce the importance of testing.

When tests reveal high levels of radon in a building, the next step is to reduce radon levels by installing a radon reduction system. These systems can be installed by professional radon mitigators for between $500 and $2,500. The mitigator should be trained and listed by EPA's Radon Contractor Proficiency Program or by a similar state program.

Passive reduction systems include the installation of a pipe that vents radon from the soil under a building, up through the house and the roof, and out into the atmosphere. They also may include sealing potential radon

Local Government Radon Risk Reduction Activities

Mission	Objective	Sample Activities
Awareness	Educate staff, community, and the private sector about radon health risks.	• Write an article for the local paper. • Adopt a radon resolution. • Keep radon information on display in city or county hall.
Testing	Provide low-cost test kits to the public and collect data on radon levels in homes, workplaces, schools, and other buildings.	• Hold a test kit giveaway. • Test the mayor's home. • Ask a community group to sell test kits as part of a public service effort.
Mitigation	Encourage installation of passive mitigation systems in Zone 1 counties to reduce radon levels in existing structures; encourage use of active mitigation systems where necessary.	• Provide information on local mitigators. • Follow up with people who bought test kits to see if their radon level was high; offer advice on mitigation. • Ask a local mitigator to make a public presentation on mitigation systems.
Sustainability	Make radon risk reduction a long-term policy, through building codes, real estate disclosures, and other operating procedures.	• Adopt codes and disclosures. • Test all local government employees' homes and city or county hall. • Include radon information in new resident packets.

entry points in the foundation and adding roughed-in wiring for the future installation of an electric fan, if radon tests indicate that further reduction is necessary. A passive system can be made an *active system* by installing the fan to aid in drawing radon through the pipe and by adding a system failure warning device. Active systems more actively draw radon from the soil into and through the pipe to the outdoors, where it dissipates into the atmosphere.

Additional techniques are meant to be used in combination with passive or active systems to reinforce the barriers to entry. These techniques prevent or reduce the "stack effect," including such methods as providing makeup air for combustion appliances, closing air passages around chimney flues and plumbing chases, and sealing openings around attic access doors.

Local governments can play a significant role in institutionalizing the "test and fix" message. They can support increased testing efforts to identify local high risk potential areas, encourage mitigation in existing buildings with high radon levels, and work to prevent high levels in new buildings by adopting codes that promote radon-resistant building practices. EPA has developed model standards for these codes that recommend the use of passive systems in new construction in areas with the highest radon potential (Zone 1) and the activation of those systems, if necessitated by follow-up testing. Installing passive or active systems during construction is extremely cost-effective, compared with mitigating homes without these features. Homeowners can save hundreds of dollars.

Melvin A. Benarde, author of *Our Precarious Habitat: Fifteen Years Later,* points out that the Reading Prong area, where radon was first discovered, was a region that till then had

been undeveloped countryside and suggests that its rapid development brought to light the problem of radon. Thus, new construction projects in rapidly developing areas can be seen both as potential problem areas for radon risk and as opportunities for preventing that risk before it affects indoor air quality. Moreover, the standards for radon-resistant new construction incorporate standard construction practices, already used by builders, that have positive impacts on buildings far beyond that of reducing radon.

Radon risk reduction systems and radon-resistant building practices are environmentally practical steps that also may reduce other types of indoor air contaminants, contribute to the fire resistance of a building, complement weatherization techniques, and lower heating and cooling costs. And when builders already have used barrier techniques for controlling moisture entry and for energy conservation, use of many radon-resistant techniques will add little to construction costs. Promoting radon-resistant techniques in new construction will reduce the cumulative effects of radon exposure over the years, enabling long-term health benefits to the entire community. From a local government perspective, radon risk reduction policies simply make good business sense; they make a community more livable and marketable to potential new homebuyers and to businesses.

A National Partnership

The Indoor Radon Abatement Act (IRAA) became law in 1985, with the long-term goal of reducing indoor radon levels nationwide to a level equal to that of ambient air outside of buildings. To achieve this goal, EPA's Radon Action Program has implemented a grass-roots communication model of partnerships with other federal agencies, states, local governments, and the nonprofit and private sectors. Radon Partners, organizations working in partnership with EPA, have established channels to communicate information on health and safety to their target audiences. Partners believe that their audiences should know about the dangers of radon and, moreover, can take steps to address the problem. Their networks run the gamut from public health workers and schoolchildren to minority groups and homebuilders.

ICMA's involvement in EPA's Radon Action Program brought a new group of partners to the forefront of radon risk reduction: city and county administrators, who are key figures at the hub of a local government organization and who effectively can initiate and coordinate community-wide radon risk reduction policies. The partnership strategy may be the key to local governments' ability to successfully reduce radon risk. Not only are there benefits to be gained from reducing radon risk, but there also are many resources, available through the Partners, with which to achieve it. Local government administrators can work with the Radon Partners, which have state and local affiliates, or can take their radon awareness activities "on the road" to communities nationwide by conducting regional workshops and information seminars and by building consensus.

Local governments can work with EPA regional offices and state radon program offices. These Partners help

Telephone Numbers for State Radon Program Offices

Alabama	800/582-1866
Alaska	800/505-RADON
Arizona	602/255-4845
Arkansas	800/661-2301
California	800/745-7236
Colorado	800/846-3986
Connecticut	203/566-3122
Delaware	800/544-4636
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	913/296-1560
Kentucky	502/564-3700
Louisiana	800/256-2494
Maine	800/232-0842
Maryland	800/SOS-RADON
Massachusetts	413/586-7525
Michigan	517/335-8190
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	800/852-3345 ext. 4674
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	405/271-8118
Oregon	503/731-4014
Pennsylvania	800/237-2366
Puerto Rico	809/767-3563
Rhode Island	401/277-2438
South Carolina	800/SOS-RADON
South Dakota	605/773-3351
Tennessee	800/232-1139
Texas	512/834-6688
Utah	801/536-4250
Vermont	800/640-0601
Virginia	800/468-0138
Washington	800/323-9727
West Virginia	800/922-1255
Wisconsin	608/267-4795
Wyoming	800/458-5847

channel EPA resources to the local level by providing training, survey data, and various types of direct assistance to local governments. Regional and state offices act as clearinghouses of information about other active Partners and state-listed radon testers and mitigators within their jurisdictions, as well as other valuable information. Local governments can contact the state programs for assistance in developing their own radon program activities. It is possible for the state radon coordinator to make a presentation at a council or public meeting about the importance of radon risk reduction and share existing data about areas with a high potential for elevated radon levels. Local governments are wise to consult with these Partners before organizing a radon program because they often have information about what has proven successful in past efforts within the region. They also can recommend other organizations to work with in developing a program.

Other Partners provide training and information workshops to local governments to give them a basic understanding of radon health risks and risk reduction techniques. These Partners include the National Civic League; the Environmental Law Institute; and the four Regional Radon Training Centers, based in four universities in the northeastern, southern, midwestern, and western regions.

Many of the Partners have developed public information materials that are available for local government activities. The Advertising Council has produced public service announcements for radio, television, and the print media. The National Safety Council has designed strategies, based on consumer marketing research, to reach a variety of audiences from smokers to children. And the National Coalition of Hispanic Health and Human Services Organization and the National Medical Association are particularly concerned with public awareness among Hispanic and African-American communities.

The Critical Local Government Role

ICMA recognizes that its members are in a unique position to promote radon risk reduction. Local government itself is close to the public, who will test and mitigate homes and other structures. City and county administrators are at the hub of local government. Local governments, led by administrators, can effectively raise informed awareness of radon, dissolve radon myths, disseminate accurate information about risk potential, encourage action to "test and fix," and institutionalize radon risk reduction. They can promote the adoption of building codes, radon real estate disclosure policies, and other radon strategies through education and consensus building. They can catalyze and coordinate the efforts of Partners and community groups in developing radon risk reduction policies and activities that

ICMA Radon Program

ICMA received a grant from EPA in October 1992 to promote radon risk reduction at the local level. The mission of the ICMA Radon Program is to help local government administrators define and maximize their unique role in radon risk reduction, which is both to influence effective radon policy and to develop an effective radon response. ICMA's program offers many resources to promote local government radon action.

A demonstration project of pilot local government programs was started in spring 1993 to identify appropriate roles and methods for local governments. These programs are located in:

Westminster, CO	Asbury, IA	Santa Fe County, NM
Wheatridge, CO	Barren River District, KY	State College, PA
Post Falls, ID	New Hope, MN	Coventry, RI
Peoria County, IL	Superior, NE	Pulaski County, VA
Marshalltown, IA	Peterborough, NH	Weston, WS
		Douglas, WY

ICMA's program can support the development of local government radon programs with information and materials—such as the model building code for radon-resistant construction, the radon zone map, radon program guides, and many of the documents mentioned in this article. Through ICMA, local governments can gain access to low-priced bulk-buying arrangements for radon test kits, as well as an EPA-funded national radon clearinghouse of informational videos, public service announcements, posters, and other resources helpful in launching local awareness-building efforts. Most importantly, the program can help local governments to network with other organizations that are regionally or locally active in radon risk reduction. Together, these organizations can share resources and more effectively promote the health and safety of their communities.

For more information about the radon program and how it can help your community, contact Tammy Kutzmark, ICMA Radon Program, 777 North Capitol Street, N.E., Suite 500, Washington, D.C. 20002-4201, 202/962-3593, fax 202/962-3500.

are appropriate to—and invest in—the community. Local government administrators, perhaps more effectively than any other figures within communities, can initiate action to put radon risk reduction on the public agenda.

Because the solutions to the radon problem are voluntary, not mandated, local government administrators can work in a collaborative atmosphere and can set a precedent for coordinated action among the many groups within a community that have an interest in reducing radon risk. A foundation has been developed to support local governments in achieving this goal. This is an unusual opportunity in a time when mandated action in other areas has forced local government responses and offered few resources to support them.

Radon risk reduction offers a model for addressing other indoor air quality issues. From improving the way we design and construct the built environment to improving the partnerships we use to achieve this goal, the steps that are taken to reduce radon risk are applicable to our overall mission of increased indoor air quality. PM

The Radon and Indoor Air Quality Program are part of ICMA's new Local Government Planning Programs. Tammy Kutzmark is assistant project manager and Donald Geis is director. Thomas Tita-Nwa, program intern, also contributed to this article.