Radon

The National Hispanic In door Air Quality Helpline 1-800-SALUD-12 (1-800-725-8312)

What is radon?

Radon is a colorless, odorless, and tasteless radioactive gas formed by the natural decay of uranium—an element that is found in nearly all soils, rock, and water in the United States. Once formed, radon gas travels up through the ground and can pollute the air you breathe in your home or building. The Surgeon General has warned that radon in indoor air is the second leading cause of lung cancer in the United States. Only smoking causes more lung cancer cases than radon in any given year. Radon causes between 15,000 and 22,000 lung cancer deaths each year and 12% of all cancer deaths are linked to radon.1

How does radon cause lung cancer?

Radon gas gives off radioactive particles that get trapped in your lungs when inhaled. As these particles spread in your lungs, they release energy that causes lung tissue damage that can lead to lung cancer. Not everyone exposed to radon will develop lung cancer. Lung cancer may occur after 5-25 years of exposure and depends on the level of pollution. Higher levels of radon and extended exposure lead to greater occurrence of lung cancer. There are no immediate symptoms to breathing radon-polluted air. Nor does breathing this air cause any short-term health effects such as shortness of breath, coughing, headaches or fever. Smokers are at higher risk of developing radon-induced cancer. Lung cancer is the only known risk associated with the inhalation of radon.

How does radon enter a home or building?

Radon from rock and soil under homes or buildings is the biggest source of pollution of indoor air. Radon gas rises through soil and enters a home or building through cracks and other openings. Once inside, the radon can become trapped and concentrated. Radon is most concentrated in the lowest level of a home or building because of the proximity to the ground. Openings that allow easy flow of radon into your home or building include:

- Cracks in floors and walls.
- Gaps in suspended floors.
- Openings around sump pumps and drains.
- Crawl spaces that open directly into a building.
- Joints in construction materials.
- Cavities in walls.
- Gaps around utility penetrations (pipes and wires).

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Radon can also enter your home or building through the water supply, particularly if the water source is a well. Water functions as a conduit. Radon in water is released into the air in your home when used for household purposes such as washing dishes or showering. The risk of radon entering homes or other buildings through water is small when compared to radon entering through the soil. According to the Environmental Health Center, on average, radon in water contributes 5% of the total indoor air concentration in homes served by wells.

How likely is it that radon can affect the air in your home or building?

On average, 1 of every 15 homes can have a radon problem. Homes that are new or old, well-sealed or drafty, or with or without basements can have a problem. Homes next to one another can measure different radon levels. Homes in high potential radon areas have been found to have low levels of radon. Homes in low potential radon areas have been found to have high levels of radon. The only way to know if your home has an elevated radon level is to test for it. The Environmental Protection Agency (EPA) recommends testing all residences, including apartments, below the third floor.

How can a home or building be tested for radon?

There are two ways to test for radon in your home or building. "Do it yourself" test kits are available at hardware stores, supermarkets, and other retail outlets for prices ranging from $10 to $45. Test kits include devices that are typically exposed to the area in question for a specified time and then sent to a laboratory for analysis. Test kits certified by your state radon program are recommended. You can also hire a qualified/state certified professional to test your home. Every EPA state office maintains a listing of certified companies or programs that you can consult. You can obtain a free radon test by contacting 1-800-725-8312 (1-800-SALUD-12).

What is an "elevated" level of radon in indoor air?

When measuring for radon, the EPA uses a unit called picocuries. According to the EPA, any home that measures 4 picocuries or higher per liter of air (pCi/L) needs to have the problem fixed. There are simple ways to fix a radon problem. Some of these include sealing floors and wall cracks or installing pipes or fans that ventilate concentrated levels of radon out of an area. You can also hire a qualified/state certified professional. The U.S. Department of Housing and Urban Development also funds some federal or state programs that assist limited income families with home improvement. If you are a tenant, your building owner may or may not be aware of any radon problems. Tenants can seek legal help when renovations are contested by contacting a local or state legal office.

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Additional resources

The National Alliance for Hispanic Health
Aire Limpio para su Familia Helpline (Bilingual Service Spanish / English)
1-800-SALUD-12 or (800) 725-8312.
http://www.hispanichealth.org/

U. S. Environmental Protection Agency (EPA)
http://www.epa.gov/iaq/radon

Environmental Protection Agency / Real Estate Specialist
www.epa.gov/iaq/radon/realestate.html

EPA Office of Drinking Water
http://www.epa.gov/safewater/radon.html

National Safety Council
http://www.nsc.org/ehc/radon.htm

American Lung Association
http://www.lungusa.org/air/envradon.html

National Environmental Health Association
http://www.radongas.org/

[1] National Academy of Sciences, Biological Effects of Ionizing Radiation (BEIR VI) Report, "The Health Effects of Exposure to Indoor Radon" (1998).