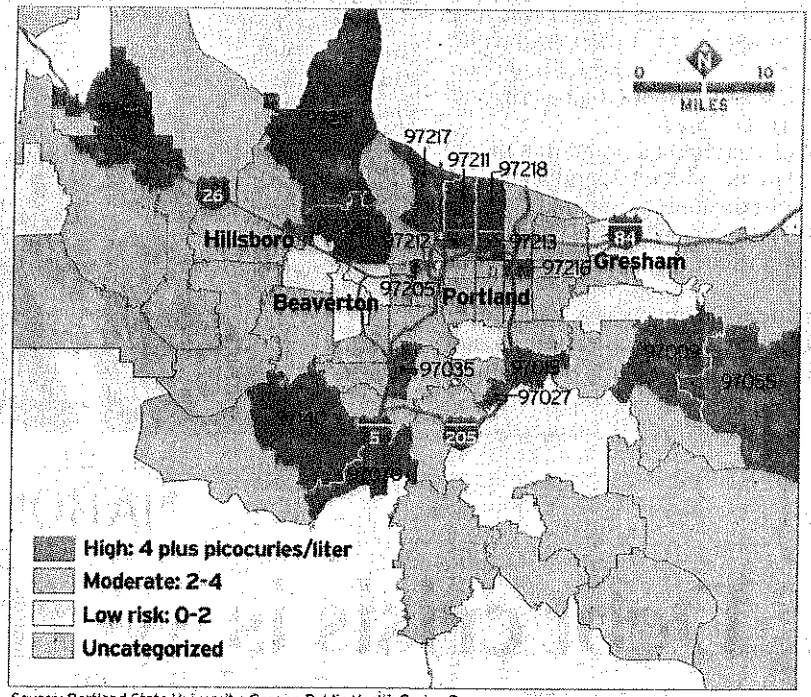
Radon risks high in Portland

Radon levels in the metro area

Map shows average radon levels by ZIP code, gathered from test data submitted to the state. Public health officials recommend that all homeowners test for radon, because exposure can vary greatly from house to house. The Environmental Protection Agency recommends fixing homes to reduce radon exposure if levels are 4 picocuries per liter or higher.



Source: Portland State University; Oregon Public Health Radon Program. DAN AGUAYO/THE OREGONIAN

The rate of Metro homes with elevated levels of the cancer-causing gas is double the national average, new estimates say

By SCOTT LEARN
THE OREGONIAN

New estimates of radon risks across Oregon underscore the need for homeowners to test for the presence of the odorless, invisible radioactive gas, researchers say.

The update, released this week, suggests that one in every four houses in the Portland area accumulates radon above the level the U.S. Environmental Protection Agency says should prompt fixes to keep the gas outdoors.

That's double the national average, said Scott Burns, a Portland State University geology professor who worked with five students to compile radon tests from homes and businesses statewide.

Radon is the second-leading cause of lung cancer in the United States after smoking, the EPA estimates, and the leading cause among nonsmokers.

It seeps from the ground through construction joints and cracks and gaps in foundations, accumulating in

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buildings. Risk in the Portland area is higher because granite-infused sediment, relatively high in uranium, washed into the region from the torrential Missoula Floods during the last ice age. Radon is a byproduct of uranium's breakdown.

Widely available short-term measurement devices cost roughly $35 with lab fees, and contractors say fixes generally range from $1,000 to $2,100.

"It's a geological hazard that can be dealt with cheaply," Burns said. "We need to reduce the amount of radiation in our lives, and this is one way of doing that."

Results and risks

The new results, the first update since 2003, drew on testing in 33,000 homes in the Portland area — 10 times more than the last round. The data cover more ZIP codes and indicate higher risks.

Long-term tests show ZIP codes with high or moderate average levels of radon at 79 percent, up from 65 percent at last count.

Results confirm high levels in areas of Portland already known to be at most risk, including Alameda Ridge in Northeast Portland.

The expanded data also showed high levels in areas previously unreported, including sections of Banks, Boring, Clackamas, Gladstone, Lake Oswego, Newberg, Sandy, Sauvie Island, Sherwood and Wilsonville.

Statewide, high values include areas of West Salem, Astoria, Milton Freewater and Myrtle Creek.

Radon is responsible for about 21,000 lung cancer deaths every year, the EPA estimates, roughly 18,000 of them smokers whose risks are amplified by radon exposure. About 3,000 people who never smoked die annually from radon exposure.

The EPA estimates 62 smokers out of 1,000 could get lung cancer from radon if exposed over a lifetime to 4 picocuries per liter of radon, the EPA's recommended "action level."

Most would not die from radon exposure if they hadn't smoked, the agency says, and quitting smoking is by far the best way to reduce lung cancer risk.

Seven of a thousand non-smokers could get lung cancer at the same exposure level, the agency says, about the lifetime risk of dying in a car crash.

Mike Brennan, a radiation health physicist with the Washington Department of Health, said national and international health groups agree that radon is a legitimate health risk.

"We don't want people to panic, but we want them to be informed," he said. "It's a health risk that is easy to reduce, by testing and mitigating if necessary."

Radon levels tend to be highest in winter, the best time for testing. Exposure is typically greatest in basements and other rooms below grade.

But two houses right next to each other can have sharply different results, Brennan said, even in "low risk" ZIP codes. That's why health officials recommend radon tests for all homes.

"The tests are not difficult," Brennan said, "and if you find out you don't have a problem, you've bought some very reasonably priced peace of mind."

If there is a problem?

"My father had lung cancer," Brennan said. "Let me assure you that whatever you have to do to your house that decreases that chance is cheap."

"Really, really scary"

Kate Mytron decided to test for radon after her house-hunting friends reported seeing radon venting pipes outside many of the homes they were exploring.

Mytron, who lives in a 100-year-old house in Southeast Portland's Lents neighborhood, mailed in a short-term testing device. The results showed radon levels of 88 picocuries per liter in her basement, 22 times the EPA's action level.

"I just looked at it and thought, 'I must be reading it wrong,' " said Mytron, an executive assistant at Freightliner. "It was really, really scary."

Mytron's basement has a finished slab and an unfinished crawl space. EcoTech, her contractor, sealed the floor of the crawl space with a membrane and punched a small hole in the basement floor.

Then workers ran plastic pipe from the hole and another sealed suction point beneath the crawl space to an inline exhaust fan mounted outside the house. From the fan, the pipe continues through the roof, where radon can dissipate into the air.

The venting system is designed to capture radon before it gets into the house. After Mytron's $1,500 of work, her radon reading dropped to 1 picocurie per liter.

The EPA recommends doing a second short-term test if readings are 8 picocuries are higher. For readings below 8 picocuries, it recommends following up with a long-term test of 3 months or more.

If the tests average 4 pic curies or higher, you shoul fix your home, the EPA say Between 2 and 4 picocurie you should consider repairs

Don Francis, EcoTech's ge eral manager, said his fir completes about 300 radc fixes a year, competing wi nine other certified radon mi igation contractors serving t Portland area.

More homebuyers are co ducting tests as part of hom inspections, Francis said, t largest source of the wor Sealing gaps helps some, b sealing plus venting is the su est fix.

Francis warned that Oreg doesn't regulate installation radon vents. Most cities ar counties require a mechan cal permit, but some contra tors skip it. Fans should b mounted outdoors, not i doors, he said.

The fan's suction will al draw heat from the home the contractor doesn't seal t ground in the crawl space holes in the basement flo Francis said, lowering the i stallation bid but boostin utility bills.

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Radon forum

Radon and health experts will discuss radon, its health risks and what you can do about it at a free forum from 5:30 to 7:30 tonight at the Portland Water Bureau's Water House, 1616 N.E. 140th Ave. (just north of Halsey Street).
Details: **cascaderadon.com**

Radon information

- List of results by ZIP code for the Portland area: **tinyurl.com/pdxradon**
- Oregon Public Health Radon Program: 971-673-0440; **healthoregon.org/radon**
- Environmental Protection Agency: **epa.gov/radon**

Is your home safe from radon?

Levels run higher in winter, making now a good time to test for the carcinogen

By SCOTT LEARN
THE OREGONIAN

When news of elevated indoor-radon risk in the Portland area broke last month, I figured saying home test kits were "widely available" and briefly describing the typical fix would do the trick.

Wrong. The questions from readers, co-workers and neighbors keep coming in.

The risk is real — radon is the second-leading cause of lung cancer in the United States, after smoking — though not astronomical. The Environmental Protection Agency figures 21,000 people a year, 18,000 smokers and 3,000 nonsmokers, die of lung cancer from exposure to radon, a radioactive gas drawn from soil into homes.

Health officials say everyone should test homes and fix the problem if levels are too high. Overall, one in four houses in the Portland area, well above the national average, accumulates radon above the EPA's action level of 4 picocuries per liter of air.

So here's a belated primer. Thanks to Scott Burns of Portland State University, Steve Tucker of Cascade Radon and Don Francis of EcoTech for their help.

Live Chat

Still have questions? Join reporter Scott Learn for a live chat at 1 p.m. today on what you need to know about radon risks, tests and fixes at **oregonlive.com/environment**

Testing

When: Now is a great time because radon levels tend to be higher in winter.

Start with short-term testing, usually three to seven days; try to avoid particularly stormy, windy days, which can affect results. If results are below 4 picocuries per liter, you're OK for now, though a more accurate long-term test later adds peace of mind.

Between 4 and 8 picocuries, the EPA recommends a long-term test, from 90 days to a year. At more than 8

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How radon enters your home

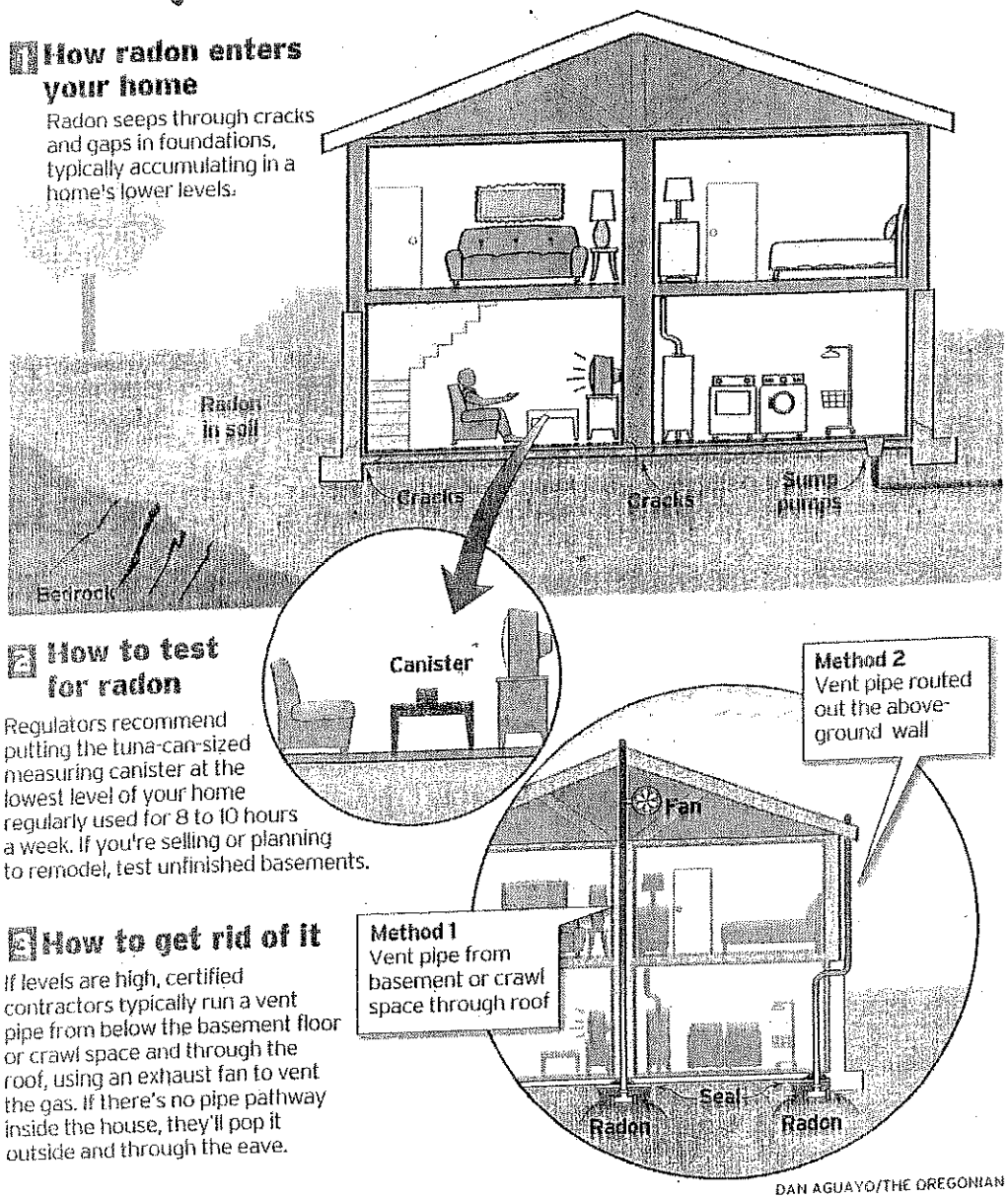
Radon seeps through cracks and gaps in foundations, typically accumulating in a home's lower levels.

How to test for radon

Regulators recommend putting the tuna-can-sized measuring canister at the lowest level of your home regularly used for 8 to 10 hours a week. If you're selling or planning to remodel, test unfinished basements.

How to get rid of it

If levels are high, certified contractors typically run a vent pipe from below the basement floor or crawl space and through the roof, using an exhaust fan to vent the gas. If there's no pipe pathway inside the house, they'll pop it outside and through the eave.



DAN AGUAYO/THE OREGONIAN

Sources: EPA, Kansas State

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picocuries, do a second short-term test. If the average of the two tests is 4 picocuries or more, the EPA recommends fixing the problem.

If you're about to sell your home, it's ever more likely buyers will want to know radon levels, so having a certified professional test is best for credibility's sake. That runs as much as $200. Oregon and national groups keep lists of testing pros.

If you aren't about to sell, do-it-yourself tests are really easy, I promise.

What to buy: A lot of local stores — grocery, hardware and big-box retailers such as Home Depot and Lowe's — carry short-term tests. They're usually in the plumbing section or displayed with smoke alarms.

The most common store brand is Pro-Lab, $10-$14. Pro-Lab charges an additional $30 lab fee, though, bringing the total cost up to seemingly more expensive brands that don't charge a separate fee. Stores usually don't carry long-term tests.

Online, you've got more choices, and most sites let you call in orders if you're not an Internet commerce fan.

How-to: Tests come with detailed instructions, but the gist is simple: You set the canister on a table or box a couple of feet off the floor, wait the prescribed time, then mail it to a lab in the envelope provided.

Test the lowest level of the house you spend at least eight to 10 hours a week in.

If you're about to sell or remodel, test the lowest level that could be occupied, an unfinished basement, for example. Don't stick the test in a bathroom, furnace room, laundry room or closet. Keep it away from drafts, exterior walls and high heat or humidity.

For short-term tests, keep windows closed 12 hours before you start the test and during, and shut off whole-house fans (another reason winter is good). For long-term tests, ventilate normally.

Fixing

Unless you're an expert do-it-yourselfer, hire a certified professional; again, Oregon and national groups have lists.

The contractor should diagnose where the radon is coming from. Sealing cracks and gaps in foundations can help, but that won't be enough in the long run as the house shifts and new gaps emerge.

Better ventilation for crawl spaces and plugging up single sources of radon may be the solution. Sealing crawl spaces with a vapor barrier of thick plastic can help, too.

But the main fix, especially for retrofits in older homes, is a system of plastic pipes and a vent fan, typically placed in the attic or outside the house. The fan pulls radon from under the slab or crawl space and out through the roof, either inside through the attic or outside and through the eave.

The idea is to capture the gas before it enters your house.

Fixes cost $800 to $2,500, Consumer Reports says, and contractors say $1,600 is average for high-quality work in the Portland area.

If you're selling, many buyers are going to want results below 4 picocuries. (Most homes can be brought to 2 picocuries or less, Oregon health officials say.) Outside air contains 0.4 picocuries on average.

To avoid sellers picking a cheap, low-quality bid, buyers should closely track the seller's work or ask for a price concession and order the work themselves after they move in.

Contractors should guarantee a reduction below 4 picocuries, show you their certification, provide references, install warning devices that signal if a fan isn't working and do a post-fix radon test to confirm levels have dropped. The EPA suggests also doing your own test afterward to avoid contractor conflicts of interest.

Most local governments require a permit — check that, and make sure your contractor gets one if required.

For new homes, Oregon's Legislature passed a bill in 2010 requiring radon-resistant construction in new public and commercial buildings. Ditto for new single- and multifamily homes in seven Oregon counties, including Clackamas, Multnomah and Washington.

But contractors aren't required to test new buildings, so test before or after you buy to make sure radon levels are low.

More about radon

General information

- EPA: epa.gov/radon
- Oregon: healthoregon.org/radon; 971-673-0440
- Kansas State University national radon program: sosradon.org; 800-767-7236

Buying tests

- American Lung Association, short-term ($14) and long-term ($34.50): Click link at Oregon website above.
- Kansas State, short-term ($15), long-term ($25): See Web address above.

Top-rated by Consumer Reports

- RTCA charcoal canister, short-term ($22.50): rtca.com; 800-457-2366
- Accustar Alpha Track, long-term ($28): accustarlabs.com; 888-480-8812

Certified contractors

- In Oregon: healthoregon.org/radon
- National Radon Proficiency Program: nrpp.info
- National Radon Safety Board: nrsb.org