

Helping fight an environmental ill

Companies find, eradicate radon

The TBJ Profile

By Guy Munger

Zygmunt C. Gromadzki would have been a dandy contestant for the old TV show "What's My Line?" How do you quiz someone who detects and erects barriers against a

product that's colorless, tasteless, odorless — and deadly?

The object of Gromadzki's scrutiny is radon, a gas formed through the natural decay of radioactive material.

Radon detection and mitigation has the earmarks of a growth business and could play an increasingly important role in real estate transactions. The Environmental Protection Agency says radon is responsible for somewhere between 7,000 and 30,000 lung cancer deaths each year in the United States. Some governments, including Forsyth County (Winston-Salem), already

require radon tests before property is transferred.

Gromadzki, 44, who got his Ph.D. in theoretical physics from the University of Virginia in 1976, is founder and chief executive officer

of Radon Testing Labs Inc., which also does other kinds of indoor air testing, including for carbon monoxide, formaldehyde, ozone and asbestos. He also is founder and CEO of Triangle Radiological Physics Inc., a medical and health physics consulting firm to cancer centers, hospitals, clinics and doctors' offices.

Both Raleigh-based compa-

nies are privately held and income and earnings figures are not available. But Gromadzki said that since RTL was spun off as a separate company three years ago, it has performed more than 2,100 radon tests and over 60 mitigations to reduce and control radon gas. RTL has branch operations in Greensboro, Winston-Salem and Charlotte.

An office of Triangle Radiological Physics is at Raleigh's Rex Hospital Cancer Center, which has expanded from 60 to 120 beds in the last five years and which is putting in more radiation equipment and preparing to grow again.

Gromadzki also serves as consultant to several doctors' offices and other hospitals in North Carolina, checking X-ray machines to be sure they deliver the right dosage in the right way.

Gromadzki thrives on the activity: "I don't do well with day-to-day operations. Give me a project and let me finish it. Then, when I'm done and all the machines are running, I'm not the guy who's going to stand there squeezing the oil can."

Gromadzki has the manner of a skilled science lecturer with a knack for explaining complicated subjects in an easily understood way. That's fortunate because he spends much of his time educating the public on radon and its dangers.

"Most people don't take it seriously," he said. "It's very difficult to take seriously something that you can't see or feel and that doesn't appear to be having any effect on you."

"We get comments like: 'It's probably like eating red meat or that everything is bad for you.' Well, in a sense, everything is bad for you, but that doesn't mean radon is not a problem."

Radon comes from the decay of uranium 238, and uranium 238 exists everywhere in the world. Some places have a lot more than others, making it feasible to mine. In other cases, it may be just a small deposit that has a little bit of uranium in it.

"Uranium decays into several elements, all of which are metals," Gromadzki said. "Then it finally gets down to radium 226, which again is another metal, an element which is used in treatment of cancer."

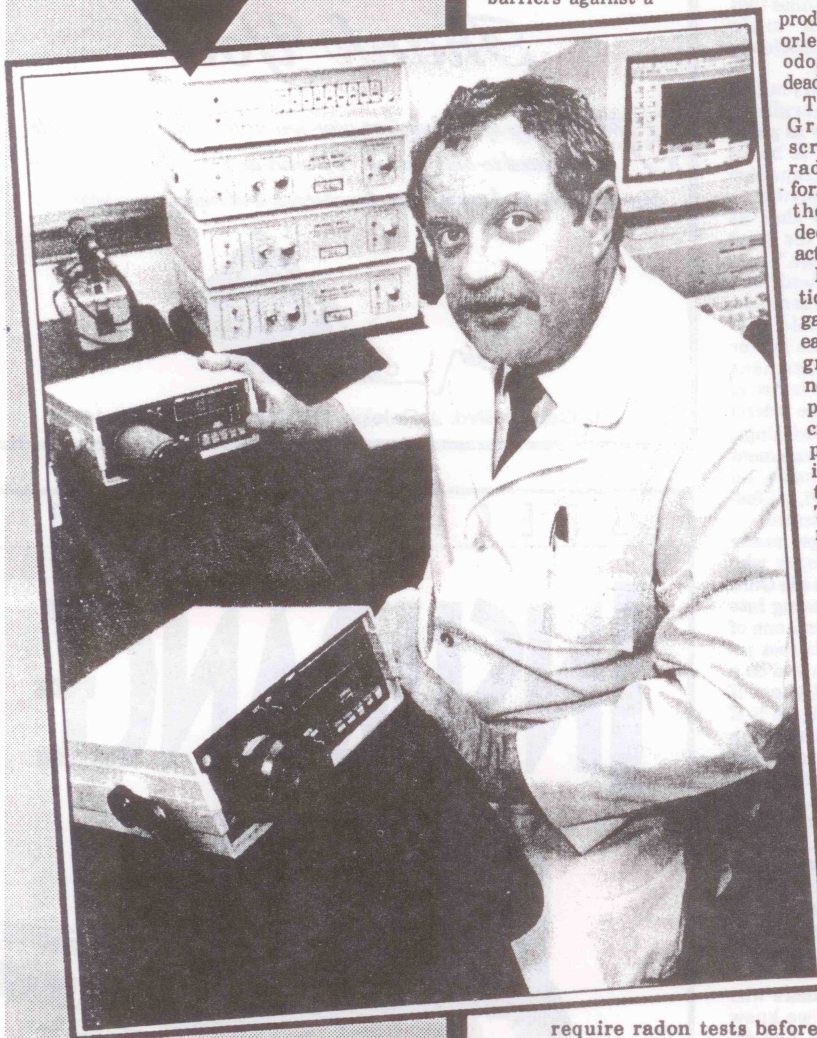
"Then radium decays to radon 222. And that's the problem, because now for the first and only time in the decay chain, you have formed a gas as opposed to a metal. All the other elements that occur when uranium decays are metals and those metals stay put. They stay where the parent is. Radon, being a gas, can now leave its home, if you will, and migrate somewhere else and create a problem there."

As the gas is formed, pressures under the ground push it toward the surface. Radon comes up from the ground constantly, but most of the time it's released outside and is not a major problem. The air just moves it around and the concentrations outside are relatively low.

The Environmental Protection Agency and scientists who take radon measurements do so in picocuries per liter of air — the number of disintegrations per minute in a liter of air. If there are four picocuries per liter of air or higher, the EPA says that is the level of radon that is unacceptable and attempts should be made to lower that radon level.

"The gas itself is essentially harmless," Gromadzki said. "You can breathe it in and you

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ZYGMUNT C. GROMADZKI, Ph.D.
CHIEF EXECUTIVE OFFICER

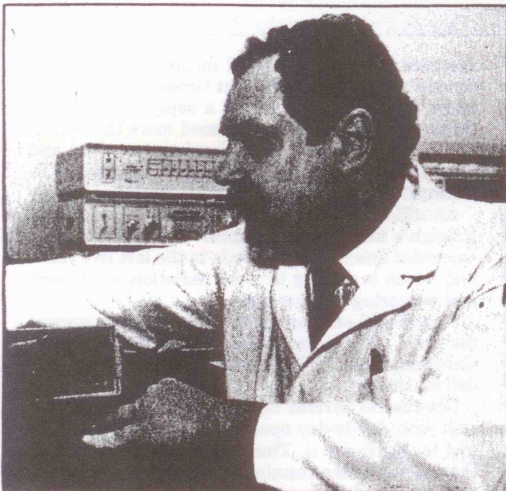
RADON TESTING LABS, INC.
AND
**TRIANGLE RADIOLOGICAL
PHYSICS INC.**

GROMADZKI

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can breathe it back out again. Radon is one of the inert elements. It's in the same family with argon, helium, neon, krypton and so forth, so it doesn't chemically react with anything.

"However, should the gas decay into its first decay product, now that again is a heavy metal. Radon gas has a half life of 3.8 days. That means if



Zygmunt Gromadzki of Radon Testing Labs Inc.

you had a quantity of radon gas in this room, in 3.8 days half of that gas would have decayed away into plutonium 214. So as long as you eliminate the source, the amount of radon in a room will decay away quickly and it's not a problem to you anymore. But if you don't get rid of the source, you've got a problem, because radium, the parent of radon, has a half life of 1,600 years and so it will just keep on generating radon forever and forever.

"The most efficient way to get rid of a radon problem is to attack it at the source and keep it from getting into circulation. That's what's called mitigation," said Gromadzki, whose company takes care of both detection and mitigation.

The existence of radon can vary widely. "There are, for example, areas of Raleigh that tend to have more radon than others," he said. "Zip code 27609 is probably the worst zip code in Raleigh for radon. That basically is Northeast Raleigh, North Ridge, North Hills and so forth.

"If you were to divide Raleigh by the clock, 12 o'clock being Creedmoor Road and 3 o'clock being U.S. 64 East out towards Wendell, that quarter segment of the pie is going to have most of the radon in Raleigh in it.

"One of the highest levels recorded was in Quail Hollow, which is right off Millbrook Road. It was a 92 and remember we said a 4 is what the EPA says is a cutoff. That 92 is extremely high and is relatively atypical for Raleigh. That was a reading for one home, and that home has been mitigated."

By comparison, naturally occurring background radiation outdoors is about 0.5 and the background in the typical home, according to EPA, is about 1.0.

Gromadzki, who was born in

Scranton, Pa., said he always has been interested in science:

"I think I've wanted to be a physicist since I was 10 years old. Several people tried to talk me out of it, including two uncles, one a physician and one an electrical engineer."

"I wanted to be a chemist when I got to high school, but I started asking my chemistry teacher things and he would say, 'Well, the answers to that are really found in physics.'"

Gromadzki said a lot has changed over the years: "When I came into the business there was a lot of seat-of-the-pants stuff. As recently as 10 years ago, you'd have someone come in and say, 'I want you to sprinkle some rays on this person.'"

"Now we deal in millimeters and tenths of millimeters. The strides that have been made have been absolutely tremendous.

"We're trying to get the margin of error as low as possible. I tend to be an obsessive compulsive individual anyway.

"I guess that at bottom it's the quest for knowledge."

What's ahead? The federal government has instituted programs — the Indoor Radon Abatement Act of 1988 and the Clean Air Act of 1990. Both mandated that the federal government test federal buildings, buildings that the federal government is leasing, courthouses, schools, all federal installations. By 1995, all federal installations need to be tested.

Said Gromadzki: "We get many calls from a property manager who says, 'We just got a call from the GSA. The IRS, for example, is moving into some space that we've got and one of the conditions to the lease is that we do a radon test.' So we go in and do a radon test for them, tell them if there's a problem and mitigate it if there is. Right now we're submitting a bid to do the IRS building in Charlotte — 32,000 square feet. And they've got a radon problem. It won't be hard to take care of, but it's just such a big project to work on."

Gromadzki sees many years of education ahead before radon is widely understood. And more research is needed. For example, are statistics on lung cancer caused by radon reliable?

"Yes and no," said Gromadzki. "The data comes from radium miners who are the largest population we know that's been exposed to radon. And depending on whose studies you look at and which mines, you can come up with varying statistics. What the EPA now says is that somewhere between 7,000 and 30,000 non-smokers die each year of lung cancer.

"We get questions all the time like: How many corpses have you found of people who have died of radon? Deaths where the coroner said the cause of death was radon?"

"Since radon was discovered as an environmental problem in a home only in 1986, we obviously have a small database. That is being changed now.

"The state of New Jersey, I think it is, is investigating the deaths of peo-

ple who died of lung cancer and never smoked, seeing if they can do autopsies and detect effects of radiation on their lungs.

"Five out of six cases of lung cancer are cigarette- and tobacco-related. The other 25,000 people who die every year of lung cancer typically get it from other things — working around chemicals, asbestos, other

types of volatile, dangerous compounds. Most lung cancers are induced by some kind of trigger that is not normally found inside the body."

But education remains a key. Said Gromadzki: "I still get the response: 'I never heard of radon.' One wonders what planet they've been on for the last four years."

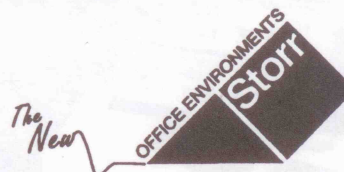
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