



23177 Commerce Drive • Farmington Hills, MI 48335 • Phone (248) 476-4944 • Fax (248) 476-5543

GRANITE AND RADON: THE REAL TRUTH BASED ON SCIENCE AND FACT ALONE

On Thursday, July 24th, the New York Times printed an article about granite countertops and the danger they pose from radon emissions. Subsequently, local television stations and other media outlets have rerun the story, and some of our mutual clients have expressed concern regarding the story's content.

A fact that everyone needs to know is that BuildClean, a "non-profit that educates consumers about safe, healthy and environmentally friendly materials," is driving all of the recent media hype. Silestone and Cambria, two companies that manufacture synthetic stone countertops, fund this organization (sales of synthetic stone countertops have declined as the popularity of granite has grown in recent years). Also, other parties who are funding the fear-mongering efforts are radon detection consultants who will benefit from the sale of their services.

On Friday, July 25th, the EPA (US Environmental Protection Agency) released its statement saying, "The EPA has no reliable data to conclude that types of granite used in countertops are significantly increasing indoor radon levels." "The EPA believes the principal source of radon in homes is soil gas that is drawn indoors through a natural suction process."

With respect to the NY Times article itself, it is essential to note that the article was poorly researched, cited inaccurate testing methods and it contains "junk science" and hype that is being fed to the media by the organizations mentioned above that stand to benefit financially from the public fear and panic they hope to create.

SOME OF THE STATEMENTS AND MISINFORMATION CONTAINED IN THE NY TIMES ARTICLE ARE AS FOLLOWS:

- ❑ Testing for the article was done using a Geiger counter, which cannot accurately measure radon concentrations.
- ❑ The article failed to mention that the home of Lynn Sugarman, a pediatrician who replaced her granite countertops, is in Lake George, N.Y., a region with some of the highest levels of naturally occurring radiation in the U.S.
- ❑ The article does state that Dr. Sugarman replaced her granite countertops with – GRANITE COUNTERTOPS. If granite is so dangerous, why buy more?
- ❑ In the article Dr. David J. Brenner, director of Radiological Research at Columbia University in New York, said the cancer risk from granite countertops, even those emitting radiation above background levels (those we are exposed to every day from the soil, drinking water and outdoor air) is "on the order of one in a million.... being struck by lightning is more likely."



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- ❑ Indeed, health physicists and radiation experts agree that most granite countertops emit radiation and radon at extremely low levels. They say these emissions are insignificant compared with so-called background radiation that is constantly raining down from outer space or seeping up from the earth's crust, not to mention emanating from man-made sources like x-rays, luminous watch faces and smoke detectors.

OUR FACTUAL RESPONSE TO THIS LATEST ROUND OF MISINFORMATION:

This is hardly the first time that competitors like Cambria and Silestone have tried to undermine consumer confidence in granite countertops. For years now, as granite has grown in popularity and taken sales from solid surface (Corian, etc.) and synthetic stone countertops, these industries have advertised relentlessly using misinformation and scare tactics to drive sales back to their products.

To further prove that granite is completely safe for countertop use we have sorted through our industries factual response to this most recent attack as well as other independent test data and we have compiled the following **FACTS AND TEST RESULTS** for your reference:

- ❑ Radon is a naturally occurring gas generated by the decay of trace amounts of uranium found in the earth's crust throughout the world. It is an unstable gas that quickly breaks down and dissipates in the air. Primary sources of radon in a home or other buildings are the soil under and surrounding the structure, outdoor air and drinking water. The EPA's remedy for naturally occurring radon gas is ventilation.
- ❑ One research group advises that most findings reported to date are flawed because they ignore ventilation and air transfer commonly found in homes. That means most radon scare studies assume we live in totally sealed buildings, not homes with windows, doors and other forms of ventilation
- ❑ **Consumer Reports**, America's foremost consumer protection institute, recently conducted its own limited independent tests of granite countertops and found no evidence that they pose a health risk. In fact, none of the countertop samples tested by Consumer Reports emitted any radon at all. According to Consumer Reports, similar findings were recently generated by other well-conducted studies of granite countertops.
- ❑ Scientific research shows that granite countertops pose no health threat. An independent scientific analysis of a variety of studies shows that, accounting for normal airflow in the typical home, radon contributed by granite countertops ranges from 0.01 – 0.02 pCi/L; these levels are 200 to 400 times lower than the EPA guideline of 4 pCi/L. By some measures, the amount of radon emitted by a granite countertop is less than *one millionth* of that already present in household air from other sources. Many types of granite emit no radon at all and treating countertops with a sealant reduces the already insignificant emissions even further.
- ❑ Granite countertops have been under attack as far back as 1995. Solid Surface Magazine, The Journal of the Solid Surface Industry (Corian, etc.) published an article titled "Granite and Radon." In defense of the pseudo-science and unfounded assertions made in the article, the Marble Institute of America had a scientific study performed by Dr. Donald Langmuir, PhD, Professor Emeritus of Chemistry and Geochemistry at the Colorado School of Mines. Dr. Langmuir received his BA (with honors), and his MA and PhD degrees in geochemistry from Harvard University. He served as a geochemist with the Ground Water Branch of the U.S. Geological Survey's Water Resources Division and subsequently taught and conducted research for 11 years at Pennsylvania State University, with temporary appointments at Rutgers University, the Nevada Desert

Research Institute, and the University of Sidney, Australia. Dr. Langmuir has been a full professor at the Colorado School of Mines since 1978.

Here is Dr. Langmuir's response to the allegations of radon levels in granite:

"I am appalled and dismayed that any journal would accept a pseudo-science article such as this for publication. If this article had been submitted to a reputable scientific journal, the editors and reviewers would have demanded that the author supply scientific evidence to support his/her many unfounded and unsupported assertions and conclusions. Lacking such evidence they would have rejected it for publication. As a separate point, I am very suspicious of a paper that has no named author. Who is responsible for this attack on granite countertops? Is it someone who stands to benefit economically?"

*Two of the scientific experts who the author (or authors?) cites repeatedly in the bibliography as sources of the arguments have become aware of the 'Granite and Radon' paper. They agree with me that the author's conclusion that a granite countertop could emit a high and dangerous concentration of radon to a home is both totally fallacious and ludicrous. **In fact, as you will see below, the amount of radon released from a typical granite countertop is certain to be completely negligible and well below detection by any known method of radioactive analysis.** I would be delighted to have a granite countertop in my home!*

As admitted by the author of 'Granite and Radon', there have been no direct measurements of radon release from granite countertops. Model calculations suggested by Dr. Richard Wanty, using a standard, scientifically accepted approach and conservative assumptions, indicate that the radon release from a granite countertop is orders of magnitude below detection by any known analytical method. Incidentally, Dr. Wanty, who is a geochemist with the U.S. Geological Survey, co-authored or co-edited four of the expert references cited in the author's bibliography

*The EPA standard, which is not to be exceeded in indoor air, is 4 picoCuries per liter of air (4 pCi/L). Eisenbud 1 indicates that the average contributions of radon from various sources to indoor air are 1.5 pCi/L from the soil (under and around the house), 0.01 pCi/L from public water supplies (0.4 pCi/L) from private wells), 0.05 pCi/L from building materials, and 0.2 pCi/L from outdoor air. These values are for the average house that is ventilated such that over one hour the air is changed 0.5 to 1.5 times. The vanishingly small amount of radon in household air that might be released from a granite countertop (0.00000074 pCi/L) as computed below, has been calculated assuming no exchange of indoor and outdoor air, which would further trivialize its significance. **Note also that the radon content of outside air is 270,000 times greater than that released by the countertop.**"*

"As to my credentials to evaluate and refute 'Granite and Radon', I have been conducting funded university research and publishing in peer reviewed journals on the geochemistry of radioactive elements for nearly 20 years at Penn State University and the Colorado School of Mines. In recognition of this expertise, I was nominated by the National Academy of Sciences and appointed to serve as a member of the U.S. Nuclear Waste Technical Review Board by President Reagan in 1989, and reappointed to that position for a second four-year term by President Bush in 1992."



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- In May 2008 The University of Akron in Ohio announced the conclusion of a recently conducted scientific study of thirteen of the most popular granites used for kitchen countertops in the United States during 2007.

“This is the first time anyone has taken a comprehensive, scientific look at the array of granite actually being used in kitchens across the U.S.,” said L.L. Chyi, a PhD and professor of Geology and Civil Engineering at The University of Akron in Ohio. Dr. Chyi's test results show that the granites that are currently found in the United States' market place are insignificant contributors to radon levels in the home. Based on the testing results and EPA standards, we can conclude that the most popular granites used as countertop surfaces pose no health threat to homeowners. Also, because the study does not reflect the natural ventilation typically found in homes, real-world radon concentrations are likely to be even lower than those measured in this study”, said Dr. Chyi. The test results are available on MIA's website, www.marble-institute.com.

When the NY Times and the local media aired this latest round of misinformation and attacks against our industry we felt it was necessary to invest our time to collect the properly researched scientific facts and present them to you in a concise format.

We did this so that you, our industry peers who design with, build with, fabricate and sell granite for all types of residential and commercial applications, had the proper information at hand to be able to reassure your clients that granite is safe for all of their desired applications.

If you have any questions or concerns or would simply like to discuss the information I have provided in greater detail, please feel free to contact me directly at 248-476-4944.

Respectfully,

Tim Dwyer
Dwyer Marble & Stone Supply