Position Statement
Granite Countertops and Radon Gas

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From the Technical and Science Committee
of the American Association of Radon Scientists and Technologists (AARST)

Radon Risk

The primary concern about indoor radon gas is the increased risk of lung cancer that exists from breathing radon and its byproducts. The magnitude of the risk depends on the radon concentration in the air you breathe and how long you are breathing it. Radon gas is a serious national concern. The risk of radon-related lung cancer increases the longer you are exposed although any exposure to radon poses some risk.

Testing for radon in the air you breathe should be a high priority and the first step for anyone concerned about radon gas. The US Surgeon General, US EPA, AARST and the American Lung Association recommend that all homes be tested for radon gas.

At this time, the EPA does not believe sufficient data exists to conclude that the types of granite commonly used in countertops are significantly increasing indoor radon levels.

Radon Sources Including Granite

Soil, sand, and rock underneath the home are the primary sources of indoor radon gas. The soil under a house always contains traces of uranium that eventually decays into radium that then decays directly into radon. This soil constitutes an enormous surface area for release of radon gas into the air and into buildings. Materials inside a building such as concrete, granite, slate, marble, sand, shale and other stones can also contain traces of radium that release radon with varying intensities. While natural rocks such as granite may emit some radon gas, the subsequent levels of radon in the building that are attributable to such sources are not typically high. The contribution from building materials to the indoor radon concentration is very dependent upon the building ventilation rate.

Appropriate Radon Testing Methods

Direct measurements in a building of the gamma radiation or radon emanation from a material, such as granite, is not a reliable indicator of radon concentrations that will be in the air you breathe. Attempts to use such measurements for estimating risk are subject to large errors due to the:

a) wide variability of radon emanation rates across the surface of granite.

b) significant variability in ventilation rates from home to home and room to room.

c) volume of space that the building material is contained in.

This position statement does not address the risk, if any, of gamma radiation from indoor building materials.

Practical Diagnostic Test
Diagnostic measurements of the radon in the air you breathe can provide better risk estimates.

Perform a radon measurement according to testing protocols (specified by EPA or AARST as noted below) in the lowest level (or lived-in level) of your home.

At the same time, perform another test in the room where the granite countertop or other suspect building material exists. You may also want to test in a highly occupied room, like your bedroom. (Use different rooms if these locations are on the same floor.)

Place the test devices at least 20 inches off the floor according to testing protocols and at least 20 inches away from the countertop or suspect material. Carefully follow all manufacturers' test kit instructions.

You may also contact a State licensed or nationally certified radon measurement professional to conduct the measurements for you.

If any of the test results are at or above the EPA recommended action levels retest these areas to confirm the initial results.

Interpreting Radon Test Results
For guidance on test results and protocols for measurements of radon in the air, see documents such as EPA's Citizens Guide to Radon or other EPA publications at http://www.epa.gov/radon/pubs. Other information and publications for measuring radon in the air for home and multi-family dwellings can also be found at http://www.aarst.org.

If confirmed measurements are at, or above, the EPA recommended action levels, contact a State licensed or nationally certified mitigation professional to fix the home to reduce the radon levels.

Reducing Radon Concentrations
The best approach to reduce radon in the home is to install an active soil depressurization system (ASD) and reduce the entry of radon coming from the soil. In some cases, increasing the entry of outdoor air to the home is an appropriate method to reduce radon levels by dilution and improve indoor air quality. Both of these methods require a qualified radon mitigation professional to design and install the appropriate radon reduction system. Only in extreme cases would removal of the granite be necessary to reduce the radon concentration, assuming appropriate measurements confirm it as the significant source.

In Conclusion
Testing the air you breathe is the best method to determine your risk from radon, whether the source of the radon is from the soil or from a material inside the building.

We support peer-reviewed research to identify and quantify the contributions of various building materials to indoor radon concentrations.

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