



ENERGY/AIR QUALITY ADVISORY COMMITTEE

May 6, 2013

Subject: Recommendations Concerning Prevention of Lung Cancer from Radon Exposure

Montgomery County Executive Isiah Leggett
Executive Office Building
101 Monroe Street
Rockville, MD 20850

Dear Mr. Leggett:

The charter of the Montgomery County Energy and Air Quality Advisory Committee (EAQAC) is to advise you of significant issues concerning energy and air. For the past two years we have been carefully following developments of a new national Radon Resistant New Construction (RRNC) model code and we judge this is the appropriate time to bring this to your attention.

Summary

Radon is a major health problem in Montgomery County, principally due to our geology which has caused us to be classified as a “Zone 1”, highest radon county. More than one-third of our homes exceed the national radon action level. About two decades ago the County adopted passive radon resistant building standards to mitigate the effect of our geology. Our population continues to grow, especially in up-county areas where radon levels in houses are the highest. Recently, a new national radon standard has been developed and approved by the nation’s premier standards organization-American National Standards Institute.

After our careful consideration, EAQAC finds that this new national standard is based on sound science, would not increase costs significantly and would provide health benefits. We unanimously recommend its early adoption by the County.

Background

Our county was the first jurisdiction in the Nation to adopt a passive radon resistant housing code. We did so more than 20 years ago. We can again show leadership in this field, of which the County is properly proud.

Since then, our population has increased by more than 30 percent and much of this growth is up county, closest to the highest radon areas. Researchers (including internationally recognized seminal work performed at NIH by a County resident) have confirmed direct evidence of the

association between residential radon and lung cancer risk, and substantial advances have been made in radon mitigation measures.

Radon remains a very significant health concern for Montgomery County because geology has caused us to be rated a Zone 1 region, the highest possible radon rating. U.S. Environmental Protection Agency data indicate that elevated levels of radon are present in over one-third of our homes. Radon is the second-leading cause of lung cancer deaths in the United States and the greatest cause of lung cancer among those who do not smoke. Two years ago the Council and the County Executive recognized this issue by issuing a proclamation declaring January to be Radon Awareness Month in the County.

Currently, the radon section of our residential building code (called Appendix F) requires radon resistant building practices. DPS plan reviewers require such practices in new home plans. The current code does not require testing before new single family home occupancy.

Recent Events

Earlier this year a new code, RRNC 2.0, in new homes was adopted by a consortium of public and private organizations¹. RRNC 2.0 has been approved by ANSI² and is fully available for adoption by local and state jurisdictions. It would govern the installation of radon controls and radon testing for new construction and would replace the existing county building code (called Appendix F).

The new standard provides code-specific language for dealing with radon in new construction. It would substantially reduce the likelihood that new homes would present a radon risk for occupants or long term liabilities for developers, bankers, and builders.

The key difference between new model code and existing Appendix F is that RRNC 2.0 requires the installation of an active radon control system or other changes in houses that do not meet the national action level of 4 picocuries per liter after testing but before occupancy.

This pre-occupancy testing required by the new code does not add significantly to the cost of a home built in compliance with current code, because existing code requires much of the same construction methods found in RRNC 2.0. More importantly, testing is the only way to know if occupants are at risk from radon. This is critical in Montgomery County, which is a Zone 1 radon potential region. Nationwide, EPA and the Surgeon General have recommended testing all homes for radon, which is the second-leading cause of lung cancer deaths in the United States and the greatest cause of lung cancer among those who do not smoke.

¹ The AARST Consortium on National Radon Standards. AARST is the American Association of Radon Scientists and Technologists. AARST is an ANSI accredited standards writing organizations and a nonprofit, professional organization of members who are dedicated to the highest standard of excellence and ethical performance of radon measurement, radon mitigation and transfer of radon information for the benefit of members, consumers and the public at large.

² American National Standards Institute. The American National Standards Institute is a private non-profit organization that oversees the development of voluntary consensus standards for products, services, processes, systems, and personnel in the United States.

EAQAC Recommendation

EAQAC has carefully examined the RRNC 2.0 requirements, participated in a briefing by Mr. Jacques Sirvain, a resident of Potomac, an architect, home inspector and one of the members of the committee that developed the new standard, and Dr. Jay Lubin, a Bethesda resident and scientist whose seminal studies provided direct evidence of the association between residential radon and lung cancer risk.³ After this careful consideration, EAQAC finds that this new national standard is based on sound science, would not increase costs significantly and would provide health benefits. We unanimously recommend its early adoption by the County.

Sincerely,

A handwritten signature in black ink, appearing to read "Paul Bubbosh". The signature is written in a cursive style with some loops and flourishes.

Paul Bubbosh
Chair, Mo. Co. Energy and Air Quality Advisory Committee

CC:

Council President Nancy Navarro, Montgomery County Council
Council Vice President, Craig Rice, Montgomery County Council
Diane Schwartz-Jones, Director, Department of Permitting Services

³ Daniel Krewski, , Jay H. Lubin, et al. "A Combined Analysis of North American Case-Control Studies of Residential Radon and Lung Cancer." *Journal of Toxicology and Environmental Health, Part A*, 69:533–597, 2006.

Appendix

As stated in the body of our letter, current Montgomery County Code (424.1) specifies that all R occupancies shall have appropriate radon control features prescribed in Appendix F in the International Residential Code, 2012 edition. Appendix F is a voluntary standard, in the sense that jurisdictions that adopt the International Residential Code do not necessarily adopt the radon requirements of Appendix F. But insofar as Appendix F itself evolved from the requirements Montgomery County developed twenty two years ago, in effect we have had passive radon resistant code requirements for the last 22 years.

What is new is the pre-occupancy radon test. The specific language in the new model code is as follows:

1101.1 Radon Testing Prior to Occupancy. A radon test shall be performed prior to occupancy and shall be performed by a certified/licensed measurement professional. Testing shall be performed in accordance with applicable state protocols or requirements; or if there are no state protocols or requirements, with accepted Federal protocols or "Protocols for Radon Measurements in Homes," AARST Consortium on National Radon Standards. Where testing results are greater than the NAL (national action level, now 4 pCi/3⁴), a certified/licensed Mitigator shall be required to perform diagnostics tests, remedial action and radon testing shall be required until radon concentrations below the NAL are achieved.

RRNC 2.0 is not the first instance of a pre-occupancy testing requirement. It is required by ASTM International's⁵ *ASTM E-1465* ("Standard Practice for Radon Control Options for the Design and Construction of New Low-Rise Residential Buildings"). If the testing indicates unacceptable radon concentrations, a fan (active system) must be installed.

⁴ PicoCuries per liter (pCi/L) is a unit for measuring radioactive concentrations. The curie (Ci) unit is the activity of 1 gram of pure radium-226. Pico is a scientific notation denoting a factor of 10^{-12} . One pCi is one trillionth of a Curie, 0.037 disintegrations per second, or 2.22 disintegrations per minute. Therefore, at 4 pCi/L (picoCuries per liter, the EPA's recommended action level), there will be approximately 12,672 radioactive disintegration events in one liter of air during a 24-hour period.

⁵ ASTM International, formerly known as the American Society for Testing and Materials (ASTM), is a globally recognized leader in the development and delivery of international voluntary consensus standards.