

RADON MITIGATION SYSTEMS
EXHAUST PIPE RAIN CAPS & SCREENS ON RADON VENT PIPES
SCIENCE OR AESTHETICS?

By
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This article is written in laymen's terms and not scientific terms to explain the venting of radioactive radon gas into the atmosphere.

A radon mitigation system is designed to change a highly negative air pressure in a basement to slightly negative to neutral air pressure. In the case of a slab home it is the first floor. Yes, that is correct, slab homes have radon gas. All homes have radon gas. How much? All homes should be tested. No exceptions.

A well engineered radon system minimizes the number of pipe bends. Basically, the fewer the bends, the better the flow of gas through the system because there is less friction. The better the flow of gas through the system the greater the volume of gas is moved through the system. The greater the volume of gas moved has multiple benefits. What are those benefits? The radon mitigation fan may be able to be downsized both mechanically and physically. If there is less load on the fan, it will run more efficiently resulting in less energy consumption and the fan service longevity/efficiency will be extended. Also, in combination with several other factors in a well engineered system, the noise and harmonics will be reduced.

The vertical exhaust point/end of a well engineered radon mitigation system should vent the gas as far away from the home and living areas as possible. The use of screens on the exhaust end does restrict the gas flow. Use of these screens sometimes referred to as varmint guards gives a sense of security that something will not crawl down into the system or leaves/twigs/objects will not drop down inside. Have you ever seen a house with screens on their soil stacks? No. Is there not a high volume of gas flow coming out the exhaust end of a radon mitigation system? Yes. Is there a high volume of gas coming out of a soil stack? No. So why do radon mitigation contractors sometimes put screens on the exhaust ends? There are several answers, none which are aesthetic or science driven and not all possibilities are addressed. The radon contractor is reducing the customer worry factor (hassle) and eliminating the very rare "what if" factor. He may be hiding an unevenly cut exhaust pipe or using this as a compromise to create customer satisfaction and obtain the mitigation project.

The use of exhaust pipe rain caps is totally unacceptable in a well engineered radon mitigation system. The caps stop the vertical flow of gas exhaust into the atmosphere. Rains caps restrict the gas flow and redirect the exhaust gas laterally and downward towards the home. The lateral and downward redirection may create radon re-entrainment into the home. Other environmental hazards, health issues, and safety complications may occur, including, but not limited to mold growth, wood rot, brick/mortar deterioration and ice accumulation. There is no good reason or science to install a exhaust pipe rain cap on the exhaust end of a well engineered radon mitigation system.

For the science and regulations behind this article please utilize the following technical sources:

Exhaust Discharge Requirements: Section 14.2.8 of Radon Mitigation Standards

Technical diagrams and data on air discharge velocities and directions using rain caps: American Conference of Governmental Industrial Hygienists (ACGIH). 2004 Industrial Ventilation A Manual of Recommended Practice (25th ed.) Cincinnati, OH: ACGIH. Page 5-70, Figure 5-33.

Since this article has been written, The Ohio Department of Health, Bureau of Radiation Protection, Radon Licensing Program as of August 20, 2009 no longer allows rain caps on radon mitigation systems in the State of Ohio due to lateral and downward exhaust redirection.

About this published author:

University degreed Brian R. Roy educates the community in laymen's terms on technical matters. He has been a federally approved expert witness and has a depth of practical knowledge of over forty years in residential and commercial maintenance. Mr. Roy has appeared on television and has been the featured expert radon spokes person on radio with the nationally syndicated home improvement talk show host Gary Sullivan (www.GarySullivanOnline.com) Since Mr. Roy's father and uncle passed away from lung cancer his passion is educating people on the health hazards of radon gas and installing well engineered radon mitigation systems in homes. He educates consumers on environmentally friendly / "green" cleaning products. For further information, regulations, standards, education and links please research: www.OhioRadonPro.com