

RADON MITIGATION SYSTEMS
DOWNSPOUT RADON VENT PIPES
SCIENCE OR AESTHETICS?

By

Brian Roy of www.OhioRadonPro.com

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.

There has been a trend to utilize plastic or aluminum downspouts externally on a home rather than round pipe for a radon mitigation system for only aesthetics. Let us explore several reasons why aesthetics is not good engineering. First, we apply the above considerations of gas flow volume. I will use approximate sizes. At worst the size of downspouts in average homes is 2 inches by 3 inches and at best 2.25 inches by 3.25 inches. Obviously, the different downspout corrugations vary the area. Thus, the area of gas flow is approximately between 6.00 to 7.31 square inches. A 4 inch diameter Schedule 20 pipe has an area of gas flow approximately 12.00 square inches. Why would you want to restrict your gas flow area in half? Second, the Radon Mitigation Standards specify the minimum thickness of a vent pipe shall be Schedule 20 Pipe. Plastic, vinyl, or aluminum downspouts do not meet this requirement. Finally, downspouts cannot be sealed permanently to be air tight by Radon Mitigation Standards. Downspout seals have a high rate of failure with resulting moisture damage to homes. Specifically, wood has rotted, brick/mortar joints have failed, ice has accumulated and mold growth has occurred in the vicinity of the failure. Among other environmental hazards, health issues, safety complications radon re-entrainment into the home may occur.

There is no good reason, aesthetics or science to install downspouts as exhaust pipes.

For the regulations and science behind this article please utilize the following technical source:
Radon Mitigation Standards (RMS) section 14.2.1 and 15.2.

Since this article has been written, The Ohio Department of Health, Bureau of Radiation Protection, Radon Licensing Program as of June 11, 2009 no longer allows downspouts for radon vent pipes in radon mitigation systems in the State of Ohio due to multiple failures and lack of RMS compliance standards.

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