

ASK THE INSPECTOR COLUMN FOR SEPTEMBER 21, 2016

HEADLINE: IS RADON AN ISSUE?

There has been considerable talk again, recently, about the effects of radon and as to whether it affects occupants of a home. Up until 2005, there was no clear connection between any major harm to our health and radon gas. A study released in the US and in Europe has shown that effects of radon in “some” homes, depending upon the length of time the occupants were exposed to the interior air, are now confirmed. It is well documented that poor indoor air quality of any kind can cause health problems, more so in children, seniors and anyone with immune deficiencies. The acceptable standards in Canada, up until a few years ago, were about four times higher than the majority of the rest of the world, especially in the US. I have an engineer friend in Pennsylvania whose firm has full time staff doing radon testing, which is mandated for every house sale in that state. Pennsylvania also has huge deposits of coal and its side effect, uranium.

First, let's discuss what radon gas is. It's a colourless, odourless and tasteless radioactive gas that occurs naturally in our environment. It is a reaction of the natural breakdown of uranium in the ground. It can also be found in some concrete, drywall and bricks. There was some talk a little while ago about granite counter tops and radon gas. A test was done in 2012, by Health Canada, of 33 types of countertops. None were found to have a significant level of radon.

Radon is released from the ground and water very, very slowly. Once this gas enters the atmosphere it breaks down into particles called radon daughters or progeny. These can be breathed into your lungs. Over an extended period of time, it has been proven that this exposure can cause lung cancer. Released into the atmosphere, as the majority of it is, it has no direct effect on humans. Where it does become an issue is when it is entrapped in a well-sealed, insulated home. Radon concentrations do change, mostly due to seasons. In the summer, homes are opened up and naturally ventilated, in the winter...not so. This is why we only recommend testing from the late fall to early spring.

Health Canada has established acceptable levels of radon in our homes and places of work. Radon is tested by measuring the units of Becquerel's per cubic meter (Bq/m³) or picocuries per liter. These are units of measurement used for radioactive concentration. In Canada today, the base level before any remedial work is required is 200 Bq/m³. These guidelines were announced in 2007, bringing Canada in line with most of the developed world's standards.

A homeowner using a do-it-yourself kit can do the short term testing and these kits are available on line. The most common test kit is the charcoal canisters known as the E-Perm Radon Monitor. These are set out in an area that has been effectively sealed off for the prescribed time. These charcoal containers are exposed to the air for a few days and the charcoal absorbs the radon gas. The canisters are then sealed and sent to a lab for analysis, with respect to the amount of radioactivity absorbed by the charcoal. Each kit comes with full instructions as to how to do the test and where to send the canisters. One of the best sites I have seen is the one at Radiation Safety. They have these kits for sale at \$55.00 CDN. Their web site at www.radiationsafety.ca will provide most of the information you will need. Every time we get a call on radon, this is where we

recommend the homeowner start. There are simply too many “bogus” testing companies using the “cry wolf” method of getting your business. If the canister comes back over the guidelines, then you should call in the pros.

If someone calls you soliciting for Radon Testing, the first question you should ask is “are you a C-NRPP certified testing organization?” If not, say thanks and hang up. If you suspect radon, find a certified professional. The Canadian-National Radon Proficiency Program is a program training and certifying Radon Technicians. Go to www.c-nrpp.ca for more information.

There is no simple answer as to who has what level of radon in a home. Just because your neighbour may have had a test over 200Bq, does not mean your house has similar air quality issues. It is also known that high radon levels are not widespread in Canadian homes. Because radon is in the soil, it generally shows up first in your basement. Your concrete floor will slow the entry, but cracks in the floor, open sump pump holes and concrete block walls will allow this odourless colourless gas to enter your home. The largest reason we are seeing increased concentrations in homes today is the fact that we are going to great lengths to make our homes air tight and to reduce the air exchange in the home.

The most obvious question is, “How do I reduce the possibility of radon in my home?” The first step is to seal any cracks in your concrete floor. This includes the joint at the pad and the foundation. If you have exposed basement walls, it is known that epoxy paints are the most effective in sealing the pores in concrete blocks. If you have a sub floor it should be allowed to ventilate. This is where the raised sub floors like Dri-Core are among the best answer. Properly seal covers for sump pumps and caulk any openings, such as plumbing drains and the joint around your metal support posts, if they are set into the concrete pad. One test stated that dirt floors in crawl spaces and basements were shown to be amongst the highest in any radon testing done. Increased ventilation is also one method of reducing radon in a home. Here, a well-balanced, properly installed HRV can make a considerable difference. I have been touting the benefits of HRV’s for a number of years and this is yet another reason to correctly ventilate your home.

A home that has been recently upgraded and sealed, as well as a new home are candidates for radon testing. It’s a personal choice; it’s not required by law as yet and the on-line “e-perm canister” testing is a good place to start.

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