COLUMN FOR MARCH 4TH 2006.
HEADLINE; POURED FOUNDATION REPAIRS

Q; *We live in a 12 year old home that has a solid concrete basement. We have owned the home for 4 years. When I bought the home it had a number of cracks in the concrete walls. My new neighbour says these could be a problem in a few years, however they seem the same to me, even after four years. What do you suggest?*

A: There are a number of common issues with most concrete, it will shrink, it will crack, it will get very hard over time and it is affected by extreme heat and cold. The first thing to confirm is if there is any activity in the cracks. You can make a home-style crack monitor with some epoxy glue and a few strands of a bristle from a paintbrush. To make a crack monitor, put a good-sized dab of epoxy on one side of the crack and imbed a single strand of bristle. Do not use strands from a nylon or synthetic brush, it must be pure bristle. Make sure the bristle is suspended off the wall after you imbed in the epoxy. Allow this to cure fully and then using a pair of tweezers, carefully imbed the other end in another smaller dab of epoxy on the other side of the crack. Hold this strand taunt for a few minutes until it sets and then let the epoxy cure. Cover with a heavy black plastic flap, a piece of a tire inner tube works great too. This will protect the monitor from the climate and remind you where they are. Now monitor this every monthly for a year. If the strand stays tight, there is a good chance the crack is not structurally unstable. If it comes loose or breaks you likely have some movement in the foundation. If you have cracks that are wider at one end than the other or they appear to grow wider or longer over time this should be investigated. You should call a civil engineer to establish the reason behind the cracks or why the monitor failed. He may recommend invasive investigation or additional crack monitoring.

Once you have established that the cracks are stable then you have a couple of options with respect to sealing them. Your neighbour is right in one respect, over time moisture and the freeze-thaw cycle can have an adverse affect on concrete and this may allow moisture into your basement under the right conditions. Your best choice is to use an expandable polyurethane injection kit. This type of crack filler will not add structural strength to your basement. It should give you a barrier that is impermeable to water if you install it properly. Polyurethane remains somewhat flexible and this allows the material to remain in place as the concrete contracts and expands over time due to moisture, heat and cold. I would recommend you dig down to the footings or the end of the crack which ever comes first. Wash the wall down with warm water only and scrub clean around the crack. Allow to dry; it does not have to be perfect as most Polyurethane's are not affected by dampness. Make sure the crack is clear of any loose concrete or foreign material and then follow the manufacturers instructions.

I have seen many homeowner repairs over the years where they use conventional caulking and this is not effective. Over time this will fail due to the moisture in the concrete. I have also seen where homeowners have gone to the effort of cleaning and chiselling out the crack and using hydraulic cement. While this is a quick patch that does inhibit water, it lacks elasticity and has a questionable long-term bond to most concrete.

If you aren't handy and our reader admitted he was not, your other option is to hire a professional foundation company that will use an epoxy injection to fix the crack. This method does provide structural strength. It actually fills the crack and becomes a bond that is stronger than the concrete itself. Epoxy will usually stop any elongation of the crack over time. The foundation contractor should make the effort to confirm that the cracks he is going to fix are not structurally active and offer a guarantee for his work. There is considerable surface preparation needed and the crack must be dry. For hairline cracks the installer will use a low viscosity epoxy that should run out of the other side of the foundation during installation. If the crack is wider, then they will use an epoxy gel. This repair takes time as the epoxy cures very slowly. There will be holes around your foundation for a few days while this repair is being completed.

Over 90% of foundation cracks are not structural and are mainly due to shrinkage, settlement of the building and age. It is wise however to get them properly sealed, over time this will assure that your foundation stays

stable and dry.

Last week I asked what the term “ft.b.m” meant. The answer was C) the volume of a piece of wood or foot board measure. This week I ask, what is an interceptor? Is it A) an electrical safety device B) a receptacle installed to prevent foreign material getting into a drain system C) a type of wooden expansion joint used for large concrete surfaces. The answer in next week’s column.

Cam Allen L.I.W. RHI is a former builder/contractor and teaches Home Inspectors on Heritage Home Inspection, He can be reached at cam.allen@sympatico.ca