



Water Kills

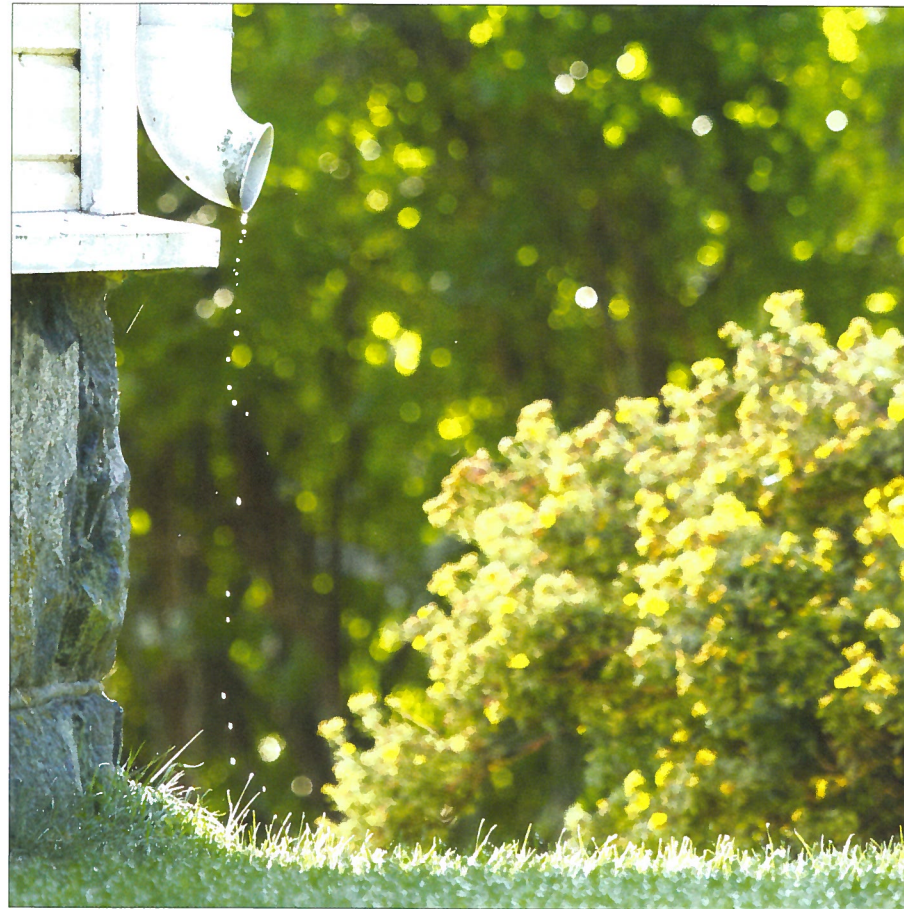
A Proper Plan Can Help Keep Basements Dry

Yes, water kills buildings. It is probably why they built the pyramids in the desert. Unauthorized water in a building comes in many forms, from roof leaks to flooded basements and from façade moisture infiltration to plumbing problems. Though condo buildings come in many different style and construction types, all can experience damage from water. For this short article, let us focus on the typical condominium's foundation and the common issues faced in keeping it dry.

Foundations are usually constructed with poured concrete or concrete block. Modern foundations are protected with a waterproof coating on the exterior surface and a foundation drain around the foundation perimeter at the base of the footing and often with an under-slab drainage system with an associated sump pump. With these operating properly, basements should be dry.

If a modern foundation (less than 30 years old) experiences water infiltration, something is not working right and the source is probably surface water. If someone tells you it is due to rising ground water, be skeptical. Keep in mind the water table is the depth in the earth that is permanently saturated with water. By building code, modern foundation basement slabs are built above the water table. If the water table is too high, then the building will not have a basement, but rather, it will be built on a slab on grade. If you have any question about where the water table is, the municipal code officer or a local foundation excavating contractor can help.

Therefore, if your foundation is leaking, you need a two-step action plan.



First, fix the wall problem allowing water to infiltrate into the basement; second, minimize surface water reaching the exterior of the foundation wall. As it will prove difficult and expensive to reapply waterproofing to the exterior wall, the typical repair is a pressure injection of polyurethane or other type of foam product into cracks in the wall. The second step is just as important.

Surface water comes from a variety of sources. It can be rain or snow melt on the roof, rain falling on the soil near the foundation, or water from nearby sloping land. Roof gutters are supposed


to divert water away from the building, but often they are the primary source of water to the ground around the foundation. Gutters are frequently poorly designed by either being undersized in handling the flow of water off the roof area, do not have enough downspouts to handle the quantity of runoff water, or the gutter/downspout is broken or incorrectly placed.

If gutters are installed too low at the roof edge, steep roofs will create a velocity in the laminar flow of water to overshoot the gutter during heavy rain events. Downspouts often discharge

their water near the foundation rather than diverting it away from the wall. I recommend adding a minimum of 6-foot extension to the end of the downspout. Furthermore, you should treat the drip edge area along the foundation wall as a "secondary" roof. By this, I mean you should seal the drip edge from allowing water from the roof or other source to enter the soil near the foundation.

Keep in mind the soil has been cultivated and it absorbs water readily. Newer homes also have the problem of the soil along the foundation being backfill soil that is not compacted well allowing easy water passage — in effect creating a short circuit from the roof to basement. This soft soil also is susceptible to settlement creating a place for water to pool or cause erosion allowing even more water to enter the soil.

To prevent this problem, you must first create a positive slope on the surface away from the foundation. A good rule of thumb is to create a slope dropping 3 inches over 6 feet. Once the proper slope is in place, cover it with 6-mil poly plastic approximately 18 inches wide along the foundation perimeter. This is your "secondary" roof preventing water from entering the soil. Cover this waterproof barrier with stone or other suitable material to prevent the poly sheet from moving.

You may also have to slope the land nearby to prevent your neighbor's land from contributing to your surface water. This can be done with shallow surface ditches called swales or buried ditches called French drains. This type of drain is a trench at the foot of a slope shedding water toward your home designed to intercept surface water from reaching your foundation wall. Buried in the trench is a perforated pipe to divert water. Your property manager or landscaper can provide more details on options available. With a logical plan, you can have the dry basement you deserve. 

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