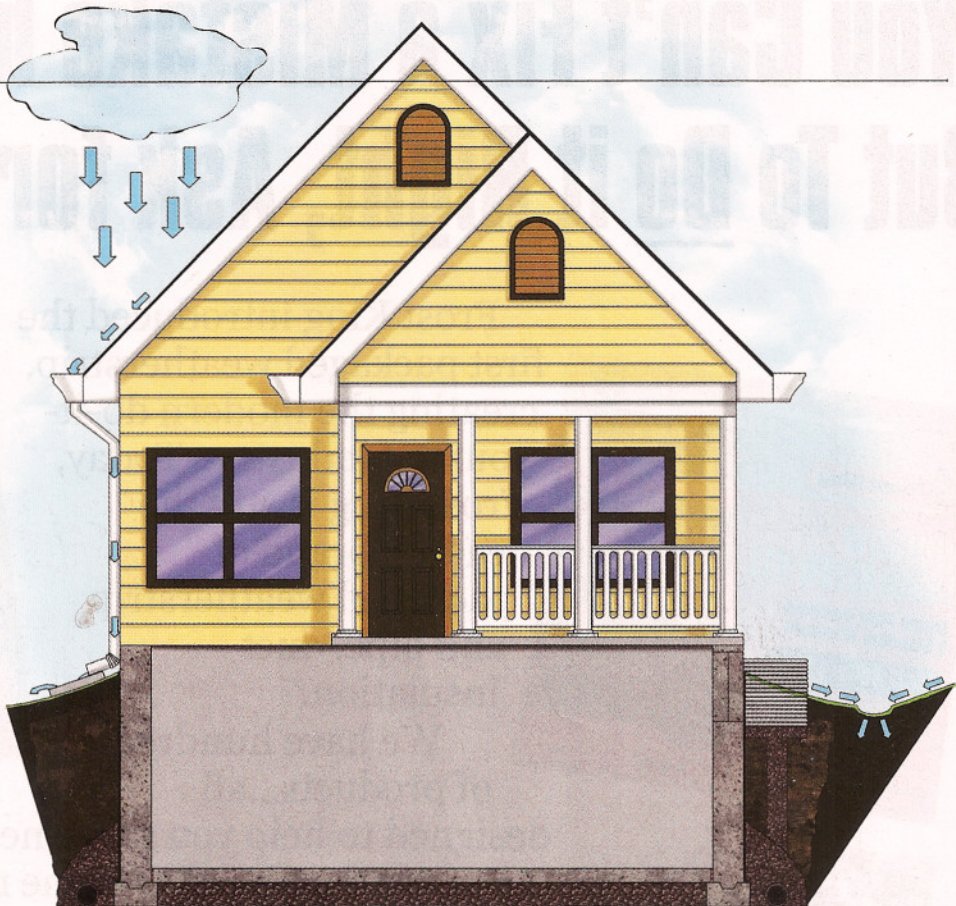


Keep Water Away!

Don't ignore a wet basement or a leaky crawl space. Deal with drainage problems and re-grade your property before the damage escalates.

By Mickey Goodman



WHEN ECHO AND KEVIN Garrett of Marietta, Georgia, first discovered pools of water in their crawl space, they tried leveling their backyard, which they had noticed sloped toward the house, but the first serious rainfall derailed their do-it-yourself efforts. So they called local water-proofing contractor Buddy Wofford for AquaGuard Basement Systems who installed a drainage trench covered with gravel to redirect the groundwater that had been seeping into the house. He also sealed up the crawl space with heavy plastic to protect from mold and mildew.

"A homeowner's biggest misconception is thinking that only addressing surface water will stop the leak," Wofford says. "Most basements leak from the ground up where the floor, the footer and the wall meet. As the pressure from underground water increases, it pushes up and through the walls."

Bob Beisbier, president of BK Home Inspections in Mukwonago, Wisconsin, agrees. "Grading the lawn helps only after drainage problems indoors and around the foundation are addressed," he says.

In addition to wet basements, telltale symptoms of groundwater seepage include bulging walls, cracked foundations and joints, crooked chimneys, failed retaining walls and mold and mildew.

"These issues are the number one item on most inspection reports," Beisbier says.

THE LIKELY SUSPECTS

A number of problems can cause water issues including blocked or collapsed drainage pipes, improper footing drainage and driveways or patios that have improperly settled so they no longer channel away runoff. Downspouts that end less than five-feet from the foundation are one of the most likely causes of wet basements. They can be buried

to dispense water underground rather than on the surface, but that arrangement can also result in water build-up and create seepage. Clay soil, meanwhile, can play a role by expanding and putting force on exterior walls.

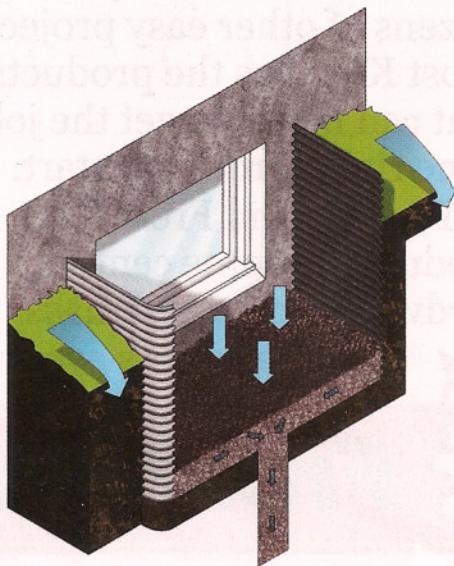
But while solutions always start with correcting drainage issues, having the property professionally graded is the key to long-term dryness.

GRADING PROPERTY

According to Liz Pulver, a landscape architect with Town and Gardens in New York City, grading should be considered from the beginning of a project, whether buying a home, building a new one or installing new landscaping.

"All lawns and planting areas should have at least a two percent slope away from the house, but it can't be too great," she says. "Pavement should have a one to two percent slope away from the house, and never greater than five percent." The national building code in Canada requires ground to be graded at two percent away from the foundation, which is also standard practice in the U.S.

Back-to-front grading is the answer when the rear lot line is the high point of a property, like the Garretts'. An elevated apron around the house allows surface drainage to flow toward the front,



then directs it to the street or the edges of the property.

When the house sits at the high point of the property, however split grading is the best method. Here, the yard is graded so that surface drainage flows toward the street in front and toward the back of the property. A swale or catch basin might be needed along the property line to control drainage.

If you have window wells beware; they create a catchment for water right next to the house. This can easily be repaired by a pro. The process includes sealing the window wells, installing a drain and then grading a two percent slope (a one-fourth inch drop per foot) away from the foundation.

If you're having trouble with your concrete driveway and patio settling, you'll find the fix is actually less disruptive than digging up the yard. A process called mud-jacking can raise the pitch without removing or replacing the concrete. It involves drilling a hole in the slab, hooking up a hose and pumping liquid concrete underneath it. As the mix solidifies, the slab is raised enough to direct water away from the home's foundation.

As grading is often the final step in clearing up problems, advance preparation is key. Homeowners should have buried lines (phone, gas, cable, water and electricity) flagged by utilities and secure the necessary permits before hiring a contractor to start work. Permit regulations vary according to the municipality and may depend on the amount

of dirt that must be moved. It's also wise to have the soil tested to determine if amendments (material added to soil to improve plant growth and health) are needed. The type depends on the current soil composition, climate and what is needed to prevent further erosion.

WHEN THE TROUBLE IS SURFACE WATER

Because pooling surface water can create havoc, the best time for a prospective homeowner to get a true picture of their drainage situation is following a heavy rainstorm. When water can't find a way to run off, it will eventually seep into the ground and overwhelm the foundation drains causing flooding issues.

Dartmouth, Nova Scotia homeowner Jean-Paul Deveau, president of Acadian Seaplants Ltd., recognized a drainage problem before building his home and called in an expert. "My lakefront property had a stream running across it and six feet of standing water settled during the rainy season exactly where I wanted my builder to situate the house," he says.

Since it was imperative to solve the problem before construction, he hired Tom Giovannetti, an engineer with CivTech Engineering in Westphal, Nova Scotia, who conducted an elevation survey. Giovannetti then graded the two-acre lot away from the dwelling site towards a drainage ditch with culverts sized to accommodate storms. "The project required a lot of grading and drainage engineering," Giovannetti says.

TIPS

»»HIRE

licensed experts with proven track records, beginning with a home inspector who can pinpoint problem areas.

»»INSIST

that each contractor working on the project signs a contract outlining the work to be completed.

»»WITHHOLD

10 percent of payment for 30 days after completion of the work or until the first rainfall.

—Tom Giovannetti,
engineer, CivTech Engineering

In homes where the water table (the level at which the groundwater is found) sits above the foundation, a sump pump may be necessary to collect water in a small pit in the basement before discharging it at least 20 feet from the house.

The end result of having an expert correct structural issues and re-grade a lawn is not only a dry basement, but a healthier home, without the worry of mold and mildew for years to come.

HOW A PRO GRADES

- 1 Remove the top soil and set it aside, then rough grade the site, evening out high and low spots, with a bulldozer or excavator (a small rigid machine with lift arms for various attachments). These machines are extremely maneuverable on small properties because they are capable of zero-radius "pirouette" turning.
- 2 Remove rocks and break up lumps.
- 3 Combine two inches of the reserved top soil with two-inches of subsoil and till the site.
- 4 Spread the mixture to a depth of approximately four inches and fine grade, sculpting the soil to fit whatever contours are necessary to solve drainage issues, using an excavator with a planer attached.
- 5 The property is now ready for the landscaper to seed or sod the lawn to control erosion and provide storage for rainwater.

