

Keep Your Basement Dry With a Curtain Drain

If your house is under assault from groundwater, make perforated pipe your first line of defense

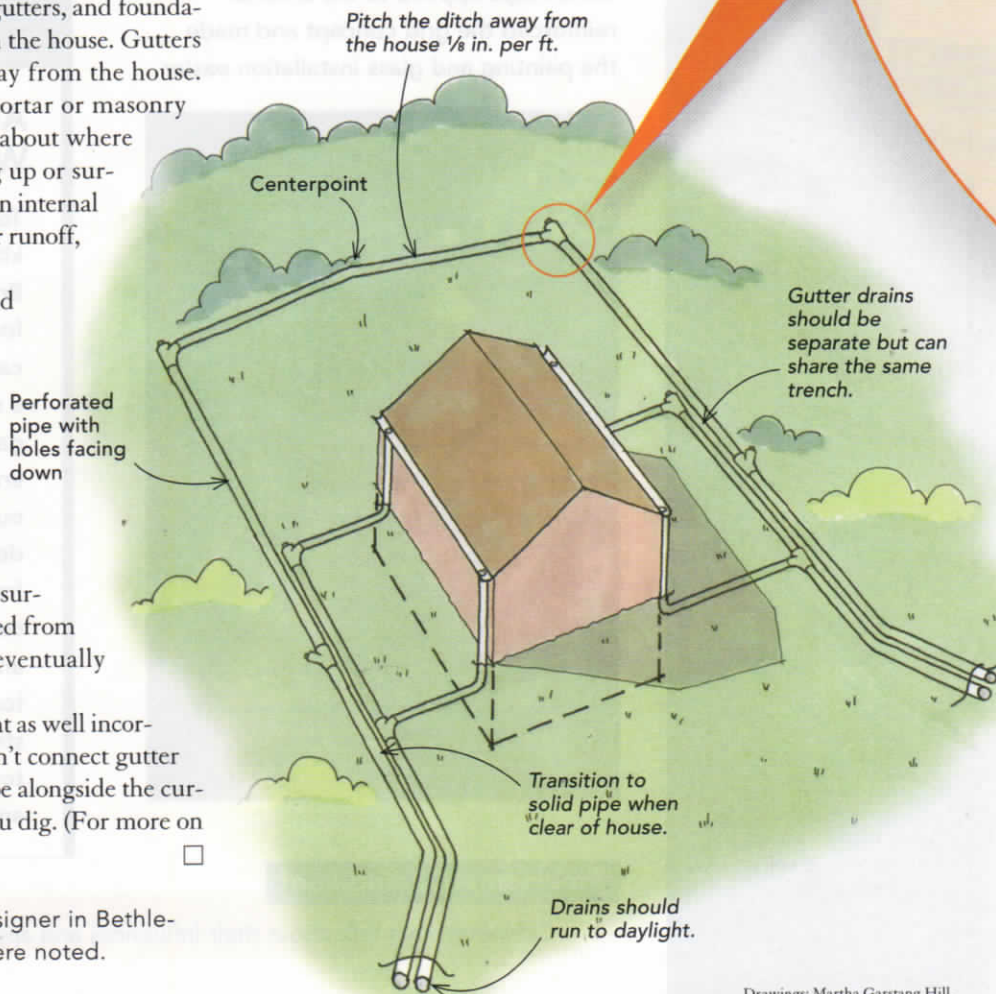
BY ERIC NELSON

When it comes to unwanted moisture in the basement, an ounce of prevention is worth many gallons of cure. That's why I start solving basement water problems by looking at grade, gutters, and foundation cracks. Grade should be pitched away from the house. Gutters should be clean and should channel water away from the house. Foundation cracks should be repaired with mortar or masonry sealant. If you still have water problems, think about where the water is coming from: groundwater seeping up or surface water seeping down. For high water tables, an internal drain with a sump pump could be the answer. For runoff, a curtain drain is a great low-tech solution.

A curtain drain is a trench filled with gravel and a perforated pipe to channel water away from the house; line the ditch with filter fabric to increase its longevity. I avoid generic landscape weed-blocking fabrics, opting instead for a high-quality product such as Typar landscape fabric (www.typarlandscape.com). Don't overlap the ends of the fabric close to the pipe. Instead, line the ditch sides with fabric, then fold the fabric over the gravel a few inches below the surface. Fine aggregate, such as silt, will be prevented from sifting down deep into the curtain drain and eventually clogging the pipe.

As long as you're digging up the yard, you might as well incorporate gutter drains into the same ditch, but don't connect gutter drains to perforated pipe. Instead, run gutter pipe alongside the curtain drain. And don't forget to call 811 before you dig. (For more on 811, see "Cross Section," p. 20). □

Eric Nelson is a landscape contractor and designer in Bethlehem, Conn. Photos by the author, except where noted.



Drawings: Martha Garstang Hill.
Product photos, facing page: Krysta S. Doerfler.

IT'S LIKE A GUTTER FOR THE FOUNDATION

When installed correctly, a curtain drain can intercept surface runoff and groundwater before it gets to the foundation. The water flows into a gravel-filled ditch that contains a perforated pipe pitched to promote good drainage. The ditch should be 18 in. to 24 in. deep and slope downhill. Terminate the drain in an area where flowing water won't create problems. Lining the ditch with filter fabric helps to keep the pipe clean so that the drain works maintenance-free for a long time.

Line ditch with high-quality filter fabric, not landscape weed-blocker.

Fill the ditch with gravel; ¾-in. stone percolates well and is easy to shovel. For a finished look, use decorative gravel on top.

Tip: Avoid large rocks in the backfill; they can crush the pipe.

Ditch is 18 in. to 24 in. deep.

Use gravel under pipe to fine-tune the pitch of the ditch.

Undisturbed or compacted soil

Rigid PVC is crush-resistant. Available in 10-ft. lengths, PVC pipe's straight and bell ends are glued together with PVC primer and cement, with the bell end facing uphill. The 3000-lb. crush strength meets almost all needs. Cost: 65¢ per ft. For under-road or -driveway applications, use SDR-35 sewer pipe.



Flexible black plastic is less expensive than rigid PVC. Available in rolls with specialized fittings, flexible pipe is easy to work with, but not as tough as PVC. Be careful not to crush the pipe with rocks while backfilling. If you use flexible black-plastic pipe, don't clear clogs with a power snake, or you could destroy the pipe. Cost: 40¢ per ft.

Cleanouts can prevent a big headache

It's a good idea to think ahead to the day when the drainpipe becomes clogged with some type of debris. If you use sanitary tees in the corners and add wye fittings in long runs (and mark them or photograph them), you'll be able to blast the system out with a power snake, which saves a lot of digging and pipe replacement.



Wye fitting Sanitary tee



Use a level to make sure the trench isn't. The trench should slope away from the centerpoint to prevent puddling. Don't overdig because backfilling with uncompacted soil causes settling and low spots.



Set the pipe in a bed of gravel. Filter fabric lines the trench to keep silty sediment from clogging the pipe. You can adjust the pitch of the ditch before laying the pipe by varying the thickness of the gravel layer.



Keep the fabric near the surface. The top layer of filter fabric eventually clogs. If that top layer is close to the pipe, you'll have to do a lot of digging to fix the problem. By folding the fabric over the gravel a few inches below the surface, you leave it accessible.



Top the trench with gravel. For a better look, you can buy decorative gravel that matches the landscape for the top layer. Where the underlying pipe is nonperforated (beyond the curtain drain and into the bulk-water removal), you can skip the top layer of gravel and plant grass.