

Basement Leakage

Basement leakage is the most common problem in houses; 98% of all basements leak at some point during their life. While leakage rarely causes structural damage, water in the basement can be a major inconvenience and often damages interior finishes and storage. In addition, odors from mold, mildew, and lack of ventilation are particularly offensive to some people.

Unfortunately, wet basements cannot be assessed for their severity, frequency, and inconvenience during a one-time visit. Even if there are visible clues of dampness, those clues usually don't indicate the severity or frequency.

Visible moisture damage tells you that a basement leaks, but not how often. Some basements leak after every rain. Some leak only after periods of prolonged rain, and others leak only with wind-driven rain or during a spring thaw.

In addition, clues indicating the presence of moisture can be hard to interpret. For example, efflorescence — crumbly deposits on the walls — forms as water migrates through the walls and evaporates, leaving minerals behind. Most people assume more efflorescence indicates a more severe the problem. In reality, drier basement air increases the rate of evaporation, increasing the mineral deposits — that's why using a dehumidifier increases efflorescence. And while the presence of rust, mold and mildew can be a sign of a basement leak, it also could simply indicate that condensation forms on foundation walls as hot, humid summer air comes in contact with the cool walls.

Sealing Cracks in Basement Walls

If your basement is only wet next to obvious cracks, patching may be a practical approach. Cracks in poured concrete basement walls can sometimes be fixed from the inside, inexpensively, using an epoxy product. Some epoxies require the crack to be dry, while others can be applied to wet walls.

Although hardware stores sell epoxies for do-it-yourselfers, it's often best for a contractor to install epoxy, because it must be mixed and installed properly.

Patching cracks from the inside is usually only successful for minor problems, and seldom is effective for hollow block walls.

Epoxy differs from most patching materials in that it has structural integrity. A properly installed epoxy patch never cracks again. However, if the forces that caused the crack are still present, a crack parallel to the original crack forms. For this reason, some contractors prefer polyurethane injection, which remains flexible.

Patching cracks does not remove the water problem; it only traps it outside the basement. In many cases, the water simply finds another way in. That's why it's best to prevent water accumulation outside the basement.

Patching from the outside is more expensive, but more often successful. Covering a patch with a material that drains well, such as glass fiber insulation board designed for below-grade use, helps protect the patch and keep water away.

Draining Water from Inside Your Basement

Because excavating near a home's exterior is expensive and often disrupts patios, driveways and landscaping, a less-expensive drainage alternative is to install drainage tile inside the basement.

With this approach, a roughly 10-inch-wide strip of the concrete floor is broken up along the inside of the foundation wall to accommodate drainage tile below the basement floor, between the footings. The tile is usually surrounded with gravel. In some cases, holes are drilled through the foundation wall just above the footing to allow water to drain into this tile system. The water can then be run into a waste sewer system, if gravity permits, or a sump.

This method's biggest drawback is that water still enters the basement, either through the walls or under the footings. In rare cases, the water can undermine the footings. Also, with no exterior excavation, dampproofing or waterproofing the outside of the foundation wall is not possible.

The cost of this approach is typically one third to one quarter of the cost of exterior work. This method often provides satisfactory results, although it's difficult to predict whether it will work in a specific case.

Draining Water Away from Your Home

Regrading your home's exterior to drain water away from the house is one of the most effective solutions to wet basement problems. Ideally, the ground should slope down away from the house at a rate of one inch per foot for the first six feet. Impervious surfaces such as asphalt driveways can slope less, with almost any positive slope being effective.

Regrading can be expensive if you have to lift driveways, patios or sidewalks. In lawn and garden areas, adding some inexpensive topsoil is all that is required. Gravel is a poor material to use, because water flows through it easily. Well-compacted soils that forces most of the water to run across the surface is preferred. Even if your basement doesn't leak, make sure to plan good drainage into any landscaping or driveway work.

If you can't improve grading, use catch basins that carry water to a drainage system. Catch basins are prone to clogging and frost heaving, so plan to maintain them often.

If your basement is affected by a grading problem on a neighboring property, see if local building authorities can help resolve the problem.

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