# A Brief Guide to Grading and Drainage Issues And How to Reduce Moisture in Basements

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**Moisture in basements is the number one concern of homeowners** and most homeowners are extremely frustrated by wet or damp basements because the cause and cure is often misunderstood.

Before we talk about how to get rid of moisture we need to understand what moisture is. For the purpose of this guide we are talking about all forms of moisture whether it's visible, invisible, liquid, vapor, damp, wet, musty, etc. – it's all moisture. Moisture frequently provides evidence of its existence in the form of standing water on the floor; water stains on the floor, or walls; rust at the base of metal objects (posts - furnace); musty odor; efflorescence (white powdery substance) on concrete walls, or floor; mildew on carpet and curtains. Sometimes a cardboard box may stick to the floor or leave a ghost imprint on the floor when lifted.

**Poor exterior grading and drainage is usually the cause of moisture in basements**. Occasionally, leaking water pipes, underground lawn sprinklers, swimming pools or a dripping garden hose and faucet may be the cause. Rarely is high water table or an underground spring the cause.

**If you don't want water inside, keep it outside**. It's that simple! Water will naturally flow down hill, so the key to reducing interior moisture is directing the flow of water downhill and away from the home. Keep in mind that most landscapes include features that often interfere with positive downhill flow. You may discover a depression next to the foundation that is filled with rock or mulch; when this happens water will flow down through the rock until it reaches the ground under the rock. Ground in this area is at risk of becoming saturated each time it rains. Many homeowners think adding more rock will cure the problem – it won't. In addition, many landscape areas are surrounded by sidewalks, which further restrict the flow of water. Improperly installed landscape edge may act as a dam. Improperly sloped sidewalks, patios and driveways can direct water toward the foundation. Improperly installed gutters and missing or inadequate downspout extensions can deposit an enormous amount of water in a small area directly next to the foundation. Sometimes extensions are present, but water makes a u-turn back to the foundation.

**The cure -** The perimeter grade around the home must slope away from the home and be free of any depressions. A minimum slope of 1" per linear foot over the first 5-6' is recommended, and thereafter ½" per linear foot for a reasonable distance. Hard surface should slope ¼" per foot. In new construction, substantial settlement may occur next to the home and an initial slope of 2-3" per linear foot over the first 5-6' may be advisable. Landscape rock and mulch must be installed on top of sloped soil. When creating a slope use only black dirt or fill dirt, not sand or gravel. If necessary, consider installing gutters and downspouts to help divert water away from the house. In rare cases, an alternative underground drainage system may be necessary.

| **Common problem areas include:** | **Common cure:** |
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| • Flat or backward slope toward home | Re-grade landscape to achieve slope away from home |
| • Improper depression next to home | Remove any mulch and fill with soil to achieve slope |
| • Lack of drainage path to street | Create downhill drainage path (swale) to street |
| • Improperly sloped sidewalk or patio | Raise concrete (mud jacking), remove, or pour new |
| • Missing/inadequate downspout extensions | Install new or longer downspout extensions |