

White Paper

For The Homeowner: How to Solve a Wet Basement

Your basement is wet. You, the homeowner, must determine where the water is entering. To solve the problem, identification of the entry location is imperative. There are 6 places where water can enter the basement:

1. Where floor meets wall
2. A visible wall crack
3. A visible floor crack
4. A bulk-head or stairway entry area
5. A window in the wall
6. Over the top of the foundation (where the foundation meets the wood-framing of the home).

It is important the Homeowner identify where the water is coming in while it is raining (or while it is actually entering the basement). If we have this information, the problem is easily solved.

The solution to a wet basement for the Homeowner is an easy one if the source of the water entry is identified. It is important to keep in mind that instant or quick-fix solutions will usually not work permanently.

1. **Floor/wall joint:** in this scenario, the water entry into the basement originates at the joint where the floor meets the wall. The solution here is to remove the concrete by the floor/wall joint (on the floor) and install a low pressure system. Specialty contractors totally experienced in this type of work must be employed to complete this type of project. The goal is to alleviate the water pressure and have the water which threatens the floor run laterally into a drop-off point (either a sump pump or a drain running to air).
2. **Floor crack:** if water is entering through a visible floor crack or penetration in the floor, this water pressure must also be relieved by a specialty contractor who will install a low-pressure system. Sealants, paints, concrete etc. will NOT be a permanent solution for this particular problem. The solution for floor-crack seepage is similar to the floor/wall joint seepage.
3. **Wall crack:** if water is entering through the foundation wall, there are several options available. There are basically three types of foundation walls: *Poured Foundation – Block Foundation – Stone/Brick/Rock Foundation*

- A. Poured Foundation: the easiest solution for a wall crack is to use a polyurethane or epoxy injection. This will stop the water from coming in through the wall crack permanently. Polyurethane injection is a process that is performed on the inside with an expanding foam that stops the water from coming in when the foam expands to the outside of the wall and prevents the water from entering the foundation crack. The foam is flexible and will endure while the poured concrete wall expands and contracts with the changing seasons and temperatures. The epoxy injections on poured foundation walls will stop the water at the source of entry on the inside. The epoxy injection welds the poured foundation walls together and stops the water from entering.
- B. Block Foundation: with a block foundation, the water can enter from any number of spots – especially between the mortar joints from the outside or where the water enters over the footing. Here the blocks can fill up with water, creating pressure, coming out in between the mortar joints on the inside. The best solution to permanently stop block wall seepage is a sub-floor system - excavating the floor and installing a low pressure system – that allows the water to move laterally (left to right) relieving the pressure at the floor-wall joint. Use this in conjunction with drilling 3/8” to 5/8” holes into the block to allow the water in the block to pour into the low-pressure system installed at the floor/wall joint. Sealant methods on block foundations are performed on a trial basis. At times, hydraulic cement or polyurethane one-part sealants can be utilized to stop the water from coming in at the mortar joints or cracks temporarily. In conjunction with a full perimeter sub-floor low pressure system, a barrier on the wall is extremely helpful. Areas can be installed and tucked into the sub-floor system that will stop the water from entering onto the floor in the basement.

Exterior excavations on block walls in a post-construction environment are extremely expensive. With decks, shrubs, sodded lawns etc. in the way, the financial stress can be significant. Sealing from the outside is usually not an option in a post-construction waterproofing setting.

- C. Stone/Brick or Rock foundation: When dealing with a stone, brick or rock foundation, the water has multiple potential entry points since the stones or brick are “joined” by mortar. Thus, the potential for water entry with a stone or brick foundation is greater than with a poured foundation. Usually, these types of foundations do not have footings to “rest on” and water from the outside easily enters from below the floor. Special consideration should be given for walls without footings. At times, restricting the flow under the walls by special barriers and “footing replacements” is necessary to insure the dirt does not “wash out” from under the wall, which could potentially cause a wall collapse.

Pointing the mortar joints with more mortar enhances the aesthetics, but will not prevent water entry. Commonly, the best approach is to repoint and then install a barrier over the foundation wall which is “tucked in” to a sub-floor system.

4. **Bulkheads and Stair Entries:** the variables with bulkhead and stair entries are so extensive that a goal must be kept in mind in these areas. When the goal is to stop the water from getting onto the floor on the inside, the best alternative is to install a floor grate at the foundation wall on the inside – catching any water that may enter from the bulkhead or stairway and drain under the floor to a low pressure sub-floor system installed by a specialty contractor.
5. **Window Wells and Windows:** Foundations that are at the base of a hill, with water streaming down the hill and collecting at the foundation wall and dropping into a window well are very common. Exterior excavations at a depth of approximately 8 to 12 inches are common utilizing low pressure systems to re-route the water to another area of the lawn. These types of excavations should be performed by a specialty contractor and are used on a trial-only basis. Other methods available are to drill through the foundation wall below the window - excavating the window well down to about 18” and replacing with stone – putting a barrier on the inside of the foundation wall – taking the water from the window well underneath the window sill and bringing it to the inside into a interior sub-floor low-pressure system (installed by a specialty contractor).
6. **Over the Sill Plate:** commonly, home foundations are built low to the ground. Homes that are located at the base of a hill are especially prone to this type of water entry. It is important to determine if the water is coming from the top of the foundation wall and running down. If this is the case, there are two basic methods of remedy: 1) Install an exterior low pressure system at a depth of 8” to 12” relieving the surface water from the outside – draining down and bringing to another spot on the lawn. 2) If the first method is not successful, in conjunction with the first method, an interior system can be installed – utilizing a vapor barrier over the wall – taking the water that is filtering in and draining it to an interior sub-floor low pressure system (installed by a specialty contractor).

For the Homeowner, it is important to note that a wet basement can easily be solved by a specialty contractor if the source of the water entry is known. The fully educated Homeowner will know what needs to be done by reading these pages and should expect a specialty contractor to offer the appropriate remedy.