Preventing Leaks in Basements

Quick thaws or heavy rains can cause damp or flooded basements. Leaks in basements may be caused by cracked walls, improper grading, water in window wells, or water pressure under floors. Due to costs and the difficulty in keeping a basement dry, many new homes are built without basements. Older, rural homes with laid stone basements are especially vulnerable to flooding. There are contractors who specialize in making basements and crawl spaces more water resistant and should be consulted if flooding is a common occurrence.

***Cracked walls or floors***

Concrete walls should be free of cracks to prevent water seepage into the basement. Fill cracks when the soil is dry, so cracks will be dry. It is best to fill cracks when there is no artificial heat in the basement, so thin layers of mortar can cure.

1. Wide cracks (1/2 inch or more). "V" out the crack with a star drill or cold chisel. Fill with mortar.
	1. Chisel out the sides of the crack to make a "V" opening about 1 inch deep and 1 inch wide at the surface.
	2. Coat the crack with a creamy mixture of cement and water.
	3. With a trowel, immediately fill the opening with a 1 to 2 mixture of cement and sand mortar. Or use a chemically treated cement formulated specifically for water proofing basements, which is available at hardware stores or building supply stores.
2. Hairline cracks. Fill the cracks with a cement base paint. With a scrub brush apply a cement wash of Portland cement and water. Or check for other leak-stopping materials at your local lumberyard or hardware store.

***Grading***

The ground around foundations should slope away from the house at a rate of at least 6 inches in 10 feet. You should regrade by cutting and adding fill dirt if you notice water standing along foundations, or if the surrounding ground is flat or slopes toward the house.

Roof water should be carried away from the building by eave gutters and downspouts, and in some cases tiling. Often basement flooding is caused by malfunctioning or poorly designed eave troughs and downspouts. Water from downspouts should be carried at least three feet away from the foundation wall. Be sure the water does not flow back against the house. Use a splash block, directed down spouting, or tile drain. Heavy duty 24 inch rubber splash blocks are available at most building supply stores.

If water accumulation around the foundation is a frequent problem, consider having a contractor lay tile completely around the foundation with outlets to a nearby ditch or tile system.

***Window wells***

1. Check window wells to be sure that surrounding ground is a few inches below the top of the well.
2. To prevent water seeping down the outer surface and under the well, compact several inches of dirt around the well.
3. If there is tile already around the basement footing, dig a hole using a post hole digger inside the well to this tile. Fill with clean gravel to provide a path for the water to flow more easily to the tile.
4. If there is no tile around footing, improve drainage by laying drain tile from the bottom of the window well to a lower point in the yard.
5. Clear plastic covers can be placed over window wells to divert rain water or roof overflow.

***Floors***

Water pressure under concrete basement floors may cause them to leak or buckle. To relieve this pressure:

1. Build a sump so water can run into it and be pumped out.
2. If there is a layer of clean gravel under the floor, drill a hole in the side of a floor drain. This will allow water to flow through the gravel to the drain, and will relieve the pressure under the floor.
3. Leaks can sometimes be diverted through concrete lined channels below or above floor level. Make a channel by chipping away floor and smoothing it with mortar, or by building a ditch above floor level. Carry the channel around the wall to a floor drain.

***Sump Pumps***

Most building codes now require the installation of a sump pit and sump pump at the time of construction. These pits provide a low point, well below the floor surface, for water to drain, and then be pumped out away from the house. If the house is located in a developed area, the excess water is pumped into a municipal storm drain. Older rural homes may have the sump pump connected to a nearby drain tile.

Sump pumps typically operate using a float switch. When the water rises in the sump pit, the float activates the switch turning on the pump to lower the water in the pit. Under heavy flooding conditions, the pump may run almost continuously, while at other times of the year it may not turn on for weeks or months. To check if the pump is working simply raise the float on the pump, and it should come on.

Never attempt to work on a sump pump that has been flooded or is underwater and still connected to the electrical power. Disconnect the power, or better yet call a plumber who can determine if the pump has been damaged.