

Ask Jon Eakes

What makes a good sump pump pit?

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It is rather surprising to me how little information there is available on sump pumps and more specifically on sump pump pits.Â

We find two basic kinds installed in homes.

One is just a water collection box where perimeter drains flow and a pump then lifts the water up and away from the house.

The second, sometimes combined with the first, is designed to relieve water pressure from below the foundation where basements are placed over a high water table. In most of these cases, the high water is not a permanent situation but more likely related to spring run-off and high near-by bodies of water or rivers.

On/Off set points

One of the operational rules that applies to all sump pumps is that the water should be allowed to rise in the pit before the pump goes on. Then the water drops to a certain level before it goes off. If it were to pump as soon as a small quantity of water arrived in the pit, the pump would be cycling on and off constantly. There needs to be a few inches of margin where it fills then it empties.

Closed bases

One important detail of all good sump pump pits is that they are not open on the bottom of the pit. The reason for this is that the pump always sucks from the bottom of the pit, and if it becomes a point of direct suction, it will create soil erosion below the pump and eventually in the whole area and even in some cases erode the soil below the foundation footings.

One great example

The Saber pit in the photos is a good example of good engineering from Winnipeg. The entire lower "reservoir" section of the Saber pit is closed to the soil. This is the area in which the water will rise and fall with the filling and emptying of the pit. The holes are located higher up, and there is a fair distance between the level of the basement floor and the reservoir. If water rises above the reservoir and begins to approach the bottom of the basement slab, it will drain passively into the pit through all the holes in the side of the upper portion of the Saber pit. This water will simply fall into the reservoir without any flow pressure caused by the pump. This minimizes soil erosion in the area while keeping the water pressure away from the basement floor.

If necessary the top of the pit can have a drain in it, at the level of the basement floor to allow any basement flooding to also drain into the pit, and any pipes from perimeter drains can also be directed to the pit. www.SaberSumpPit.com

Change post mounted pumps to submerged pumps

Traditionally we had motors that sat on a tall pipe driving the pump which was at the bottom of the pit. Water levels were controlled by a float on a wire going up to the motor. These pumps forced us to have open sump pits, and often there were overheating problems with the motor and fouling problems with the floats. It is always preferable to use a modern "submerged" pump. The motor is with the pump right inside the pit and under water. That helps to keep the motor cool and prevents burnout. The switch is inside a "beaver tail" that floats up and when turned up-side-down, turns on the motor. This kind of pit can actually be sealed shut if no floor drain is necessary. If a floor drain is necessary you should look at the possibility of using a "Dranjer" "dry trap", to keep odours out of the basement while keeping the floor drain open.

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Complete Units and multiple pumps

Another company is now making complete sump pump systems that meet these standards:

[Basement Systems.com](http://BasementSystems.com)

In one unit they make a pit with a motor and a cover that has a water flow drain on the top.Â As well

they make systems adjusted for your water flow needs, some with more than one pump. The sealed lid with a flow through water drain also becomes part of a radon control system -- letting no gasses from under the house rise into your basement through the sump pump.

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