

Ask Jon Eakes

The river is rising – preparing for a flood: OVERVIEW

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This article is about stopping water outside the house, then if necessary, controlling the situation as your basement floods. For some very interesting water alarms, covering both plumbing and overland water, see Stopping Plumbing Floods.

SANDBAGGING

The first line of defense is sandbagging – that wall of sacks that we hope will slow the water down enough that we can handle it until the water source subsides. Old fashioned sandbags work – but they are slow to fill with sand, heavy even before they get wet and a lot of backbreaking work to get rid of them when all is over. That is why they call the military out for sandbagging operations.

See “Segmented Pumping” below for an excellent use of sandbags to increase the efficiency of a water pump in the basement.

Sandless Sandbags

A very interesting new development is the sandless sand bag. These are relatively flat bags filled with an absorbent material that when wet, swell up and present as good if not a better barrier to rushing water than old fashioned sand bags. There are basically two categories of these flood control products – Individual bags, much like sandbags or elongated into snakes and large water barriers.

The sandbag replacements

If you want to protect a low entrance door, or a garage door at the bottom of a down sloped driveway, you should buy them well ahead of time and store them high and dry in the garage. They don't take up a lot of space and are extremely light before they are activated. Plunge them into a bucket or pool, or simply hold or secure them in the line of water flow, and the water will swell them to full size and weight. You could use the flood itself to supply the water right where you need it. No they are not reusable. Also realize that although these things were developed in Europe they do not have the same effect there as here – because European houses are basically waterproof up to the windows – if you put a partial barrier on the door. Our Canadian houses all leak as soon as the water level reaches the floor level as it comes right through the siding. Europe has foundations at ground level; we have foundations generally higher than ground level, precisely to protect our wood frame construction from surface water flow.

As they are relatively new to the market, allow me to give you details of where you can find them, at least in the Montreal area. Individual bags and snakes are available at HomeDepot Canada under the brand Quick Dam. The criticism I have received of these products is that they tend to slip when you stack them. So a single row of “bags”, or one of the 5', 10' or 17' snake like “flood barriers” would probably do a good job for protecting that garage door or a low side door against a low level of flood water.

For more serious barriers that you can stack as high as you need, you will want to find the bags and snakes of the brand DamEasy HydroPads and DamEasy HydroSnake distributed by www.HydraProtects.com. These are the bags in the photos.

Large scale water barriers

These stackable Pads and Snakes are part of a much larger family of flood control products. Muscle Wall is a water filled barrier that looks like road construction concrete walls. Pierrefonds-Roxboro is one municipality that has already invested in the Muscle Wall barriers. Now it will take a municipal

maintenance crew only a few hours to build a barrier that required the army a few years ago working with sandbags.

For large waterfront exposure – or where there is a history of the street overflowing onto a property, the water filled Water Block giant snake can actually hold back the lake, and its debris or redirect water on down the street and not across your property. SRS/Hydra sells the products but also can sell the service of warehousing it and being on stand-by for very quick deployment.

Compare sandbagging the street to having a truck roll out this snake and then filling it from either fire hydrants, or from water flowing down the street itself.

Large American companies now have Canadian distribution for both major high wall barriers with the IBS System and the ability to remove water or what is called "dewatering" with Atlas Dewatering Corporation.

That's the best I can do to help you keep the water away from your house. But even if this avoids a full scale flood, we need to look at how to deal with water that may still reach the basement.

TAKING CONTROL

With our changing weather patterns, homes that never previously experienced flooding are faced with river and lake water reaching into their basements. Sand bagging is of course the first defense, hoping to slow the water down, but what can we do to minimize danger and damage when the rising river actually begins to enter the basement?

There are three critical phases to water rising in a basement:

A few inches of water – your plumbing drains are probably totally blocked and your heating system may need to be shut down;

A few feet of water – once water rises up high enough to touch electrical outlets you are in phase two; Water that reaches the electrical panel – game over for power to the house. If you don't disconnect the power before this stage, the water could cause an electrical fire.

PRIORITIES

ELECTRICAL

GAS & OIL

PLUMBING

PUMPING

RESTORATION

Priority #1 - ELECTRICAL

There are two dangers when you mix electricity and water:

you can cause a short circuit which can blow out the power or even cause a fire (wonderful, a fire in a flooded house);

if you are standing in the water it can be electrified and if you touch the electrical panel, perhaps even just a plumbing pipe, you could get electrocuted.

The absolute first priority, even before sandbagging, is to be ready to secure the electrical system of the house as best you can. When there is no water in the basement, it does not require an electrician to identify the circuit breakers associated with all low lying electrical connections – generally the wall outlets. Simply plug a lamp (or radio) into each outlet, first assuring that the lamp functions, then switch circuit breakers until the lamp or radio goes out. Put a little piece of red tape next to every low lying circuit breaker so you know easily which circuits could come into danger. An ideal electrical layout will have all of those lines on their own circuits and you will not be turning off lights or other outlets in the house – but in reality there are often other things connected to these lines.

If the lights do go off someplace, prepare a battery driven light, or a light from an extension cord that will provide light if you need to turn off the water endangered circuits for the duration of the flood.

Any appliance sitting on the floor will probably be knocked out as soon as your basement collects just a few inches of water: refrigerators, freezers, water pumps (unless they are submersible) and the

furnace. If possible, take appliances to the upper floors of the house, or raise the freezer off the floor to buy time. If you run extension cords through the basement during a flood, any connection between extension cords that sits in water will be a danger. Do not run extension cords through the basement windows, you need these to be as water tight as possible in case the sandbags give way.

This is all preparative work before any flooding or during the first phase of flooding. If the sandbags give way and water is rushing through a window, you do not have time to do this but you probably do have time to flick off all those red labeled circuit breakers!

It is never recommended that someone standing in water reach over and touch an electrical circuit box. That should be left to an electrician. But let's be realist, in a time of crises there are not enough trained electricians available. So what are the professional precautions? Wear rubber boots, wear rubber gloves. Then use a dry wooden or fiberglass stick to reach over and flick the breaker switches. To do that after the water gets into the basement I would recommend that the panel door be taped or wired open when you do the initial circuit identification described above. With the door open and the circuits identified with your red tape, you should be able to disconnect all those low lying circuits – or even flip the main breaker and shut the house down safely.

ELECTRICITY AFTER THE FLOOD

After the water is gone you must have an electrician inspect the wiring before turning anything back on that got wet. You could turn it on and it seems to work properly while in fact there are resistance shorts that are heating up the wiring. Don't burn your house down after the flood.

Priority #2 -- GAS & OIL

If you do not require any heat in the house, turn off the fuel supply to a fuel fired furnace or hot water tank as soon as there is a real threat of flooding. If you are trying to stay in the house and hope to have minimum water in the basement, turn off the fuel supply as soon as the water approaches the height of the burner, where you can see the flame. Also switch off any electrical line that goes to these appliances.

During your preparation, locate the valve to close off the fuel supply so you know where it is and what tool you may need to shut it if you can't simply turn it off by hand. Identify any circuit breaker on the electrical panel that provides power to these heating appliances.

Natural Gas : Turn off the valve at the meter.

Propane Gas : Turn off the valve at the gas tank.

Oil : Turn off the valve where the fuel line comes out of the bottom of the tank.

There are safety devices that should shut this down if water puts out the pilot, but safety dictates to simply eliminate the remote possibility that any gas or oil might just bubble through the rising water in the basement. Shutting off the valves also protects against fuel leaks from someone accidentally disconnecting the supply pipes while walking around in muddy water.

GAS AND OIL AFTER THE FLOOD

After the flood you will want to use heat to help dry out the basement, but do not attempt to turn it back on until it has been inspected by a certified heating contractor.

Priority #3 – PLUMBING

If the streets are covered in water and there is an inch of water on the basement floor, most likely the city discharge system is no longer functioning and for those of you with a leaching field now in the bottom of the lake, the drains in the house won't be working any better. You may still have fresh water available, or at least a source of water you can boil, but no way to get rid of the waste. That means that the toilets, showers, and even sinks are all condemned. If you do try, you will probably discover that whatever you try to flush or drain away is just rising up with the rest of the water in your own basement!

If you do find city sewage in your basement that is not coming from your own house or you can feel water rising up from the floor drain, you do not have a back-flow damper, or if you do, it is not working. One of the first things to do during the restoration is to install this safety valve(s) under the basement floor that lets your water out, but no-one else's back in. Follow this link for more information

on Back-Flow valves. Without a working backflow valve you will need to stuff rags into floor drains, shower drains, toilet drains and plugs in sink drains and sink overflow drains to stop water from entering the basement through the plumbing drain system. You may even need to weight down these "plugs" against the pressure of the water outside.

Whoever wants to stick it out and fight back the rising river must set up composting toilets, use bowls like in the old days that you fill to wash yourself and then you throw the dirty water out the window.

You are now officially in camping mode. If you are not prepared for that or willing to undergo the adventure, move out to higher ground for your daily necessities and consider the house a work site where you try to save what you can.

Priority #4 – PUMPING

You will quickly learn that even with good sandbags around the house, some water trickles through. You will have slowed down, but not stopped the water from reaching the foundation wall. If you have slowed it down enough, good water pumps might be able to keep the basement water to just a bit on the floor. Of course gas powered water pumps, or a gas powered generator to make electricity to run the pumps is the best in an emergency situation because the electrical power could go out at any time. Also they will continue to work even if you have turned off the power supply yourself. But never run a gas powered motor indoors -- it must be totally ventilated.

If you have simply run the pump discharge through the basement window, you will quickly realize that creates a large breach in your water barrier. You could replace the window with plywood with a sealed hole for the pump pipe to exit – that can give you a lot more time to wait for the river to recede. Better yet, run the discharge up the stairway and out from the upper floor – keeping the basement as well sealed as possible.

Remember to keep the pump itself out of the water if it is not specifically sealed as a submersible pump. That may mean installing the pump up on a higher level of the house with the hose going down that stairway.

SEGMENTED PUMPING

If you have ever watched a powerful water pump or two working to empty a basement, you were probably surprised to see so much water coming out and the level of the basement dropping so slowly. There is a lot of water in a basement. Usually everything gets damaged equally by the level of water in the basement. There is one trick that could save some important appliances, like the furnace and perhaps the food freezer.

If you were to bring some of those sandbags into the basement, and create a barrier around a small section of the basement, like the furnace room, you will discover that a water pump can keep water low in that small area even if it is rising seriously in the rest of the basement. What is happening is that you are using all of the pumping power for a small basin, even if the larger basin is spilling over. This doesn't work in all circumstances nor forever, but it could buy you a few hours of safe time for some critical household appliances – still pumping out the basement but with at least one of your pumps set to a priority task. Flood control is all about time – holding out until the river recedes.

AFTER THE FLOOD

Once the flood is over, keep those pumps going until the basement is dry – then change them out for large fans to start drying out the rest. If the water got into the walls, cut them open and remove the wet drywall as well as any wet insulation – and get it all outdoors. Take dated photos, but do not wait for an insurance adjuster, again time is of the essence. As a general rule, once the water is gone and oxygen can get to wet organic material, you have 24 to 48 hours to dry the basement out to avoid the growth of mould.

Priority #5 - RESTORATION

Click [here](#) for more information on Flood Restoration. Flood restoration specialists will gut walls, dry everything and check electrical wiring as emergency tasks, then set about seeing just what needs to be done. If you want to tackle clean-up yourself, familiarize yourself with the recommendations relating to cleaning up mould. Given the size of the problem in a flooded basement you may wisely

decide to hire a professional, preferably one trained and certified in the official protocols for mould clean-up established by the IICRC, the Institute of Inspection, Cleaning and Restoration Certification, a North American standards body. Anyone else may be following the advice of a kid at the renovation centre.

Before rebuilding, take a look at the TekSill spacer for basement walls. This ingenious device can be put under both new and existing stud walls and allow the water from your next flood to drain away immediately; no more trapped waterflow.

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