

PROTECTIVE PLUMBING

What is it?



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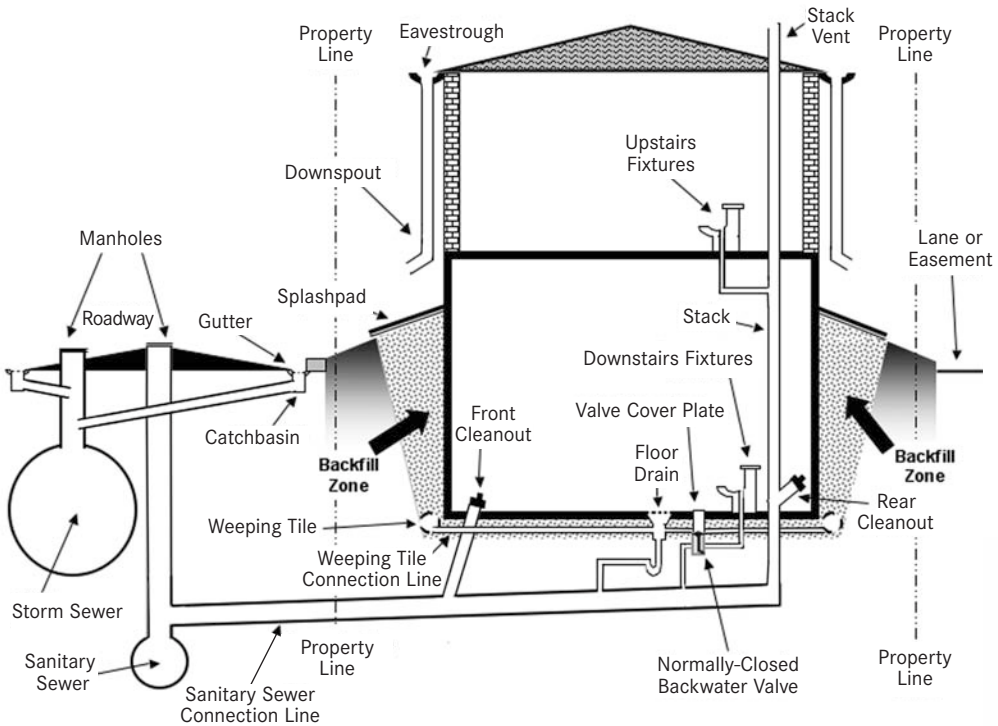
PROTECTIVE PLUMBING – WHAT IS IT?

Protective plumbing is a term used to describe various devices that can be used to provide some protection to property owners against basement flooding.

This information was prepared by the City of Saskatoon to assist property owners and renters. In distributing this information, the City assumes no liability for any property damage or loss, or any injury that may occur as a result of the use or misuse of the information.

WHAT IS FOUNDATION DRAINAGE?

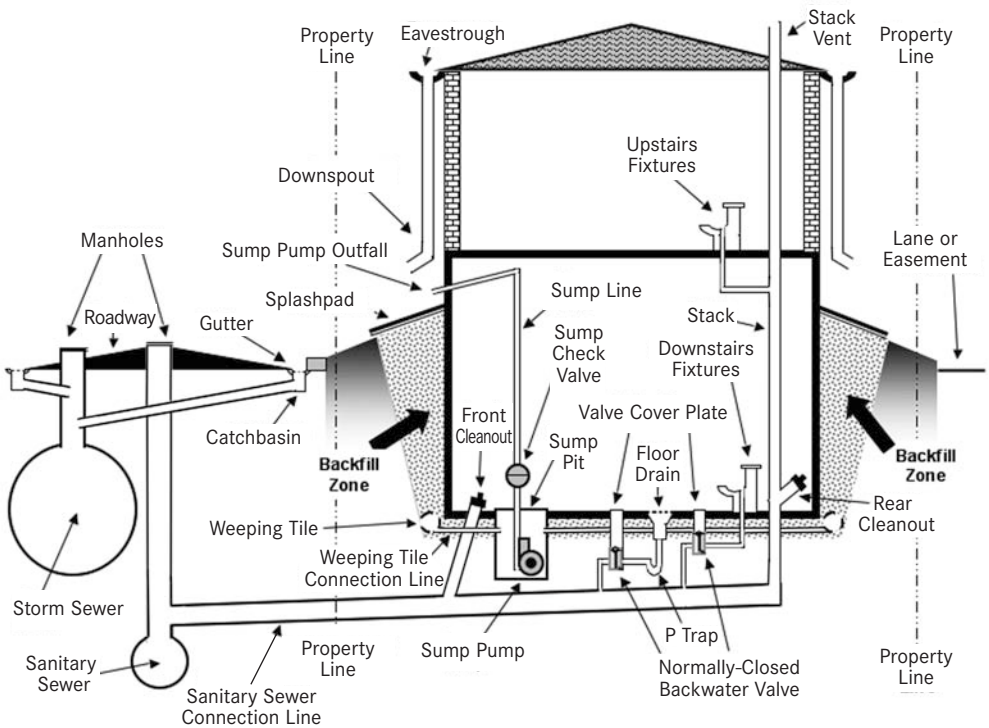
If your house was constructed after the early 1960s, it is likely that a foundation drainage (weeping tile) system was installed. This system consists of a perforated plastic pipe that was placed around the outer edge of the concrete footing of your basement. The pipe is embedded in a layer of coarse gravel and is covered by the soil immediately surrounding your home. The weeping tile is intended to collect any water that flows downward through this soil. Homes constructed prior to the early 1960s likely do not have such a foundation drainage system.



Foundation Drainage for Homes Constructed prior to January 1 - 2004

For homes constructed between 1965 and 2004, water from the weeping tile was probably directed inside your home to the floor drain in your basement. Refer to the diagram *Foundation Drainage for Homes Constructed prior to Jan 1 - 2004* (page 2) for an illustration of this foundation drainage configuration. Your home may not have this exact configuration, but most homes from this period have been constructed in a similar fashion. **Note that the water from the weeping tile is entering the sanitary sewer.**

The City of Saskatoon has changed the requirements for weeping tile drainage. As of January 1, 2004 all new homes must be constructed so that the water in the weeping tile drains by gravity into a sump pit inside your basement. This water must be pumped out of the pit by a sump pump and discharged to the ground outside of your home. Refer to the diagram *Foundation Drainage for Homes Constructed after Jan 1 - 2004* (below) for an illustration of the configuration that is currently required. **Note that the water from the weeping tile is NOT entering the sanitary sewer.**



Foundation Drainage for Homes Constructed after January 1 - 2004

WHAT IS A SUMP PUMPING SYSTEM?

A sump pumping system includes a sump pit, a sump pump and a pump discharge pipe. The sump pit, set into the basement floor, collects water from the weeping tile around your basement. The pump pushes the water outside your home through the discharge pipe.

A sump pit may be round or square and should have a cover. If you are not sure whether you have a sump pit, look for a hole in your basement floor that is about 750 mm (30 in) deep. There should be a pipe entering the side of the pit and there may be a pump in the pit. If you do not have a sump pit, but you do have a foundation drainage system, water from your weeping tile is probably flowing into the sanitary sewer system.

DOES PART OF MY BASEMENT FLOOR HAVE TO BE REMOVED TO INSTALL A NEW SUMP PIT?

Installing a new sump pit will involve removing a portion of your concrete basement floor and any flooring that has been laid down at that location. This location should always remain accessible to allow you to routinely inspect and maintain your sump pumping system.

Criteria for installing a sump pit are contained in the National Building Code of Canada. The Code specifies that, where a sump pit is provided, it shall be:

- Not less than 750 mm (30 in) deep;
- Not less than 0.25 m² (2.7 ft²) in area; and
- Provided with a cover that is designed to resist removal by children.

The sump should be located a minimum of 0.45 meters (18 inches) away from any footing; which normally means that a sump pit must be placed within 0.60 meters (24 inches) of a basement wall. Additionally, provision is required to prevent soil gas from entering the dwelling from the sump pit and the weeping tile. The sump pit may be constructed of concrete, corrosion resistant steel or plastic, and should be sealed to prevent seepage from any other areas below the floor from entering the pit.

WHAT TYPE OF SUMP PUMP DO I NEED?

There are many types of sump pumps on the market. Submersible pumps sit on the bottom of the sump pit and are sealed so that they will not be damaged by water. Non-submersible pumps sit on the basement floor and have an intake that extends down into the pit. These types of pumps are typically susceptible to water damage if they are submersed.

Pumps can be set up to operate automatically when the water reaches a certain level in the pit, or to require manual activation. If your sump is frequently wet or if your home is susceptible to basement flooding, you may wish to invest in an automatic pump. Battery backup systems that will allow the pump to continue operating during a power outage are also available.

It should be noted that the electrical connection for your sump pump must be installed in accordance with the appropriate regulatory requirements. Always take care when maintaining or operating a sump pump as you are dealing with an electrical hazard in a wet environment.

WHERE DOES THE WATER FROM THE SUMP PUMP GO?

Discharge may not be directed onto a porous ground surface within two meters (6 feet) of any building. If water is allowed to discharge near the building it will recirculate back to the sump pump through the weeping tile at the base of the foundation. Do not allow water from your sump pit to be discharged onto your neighbour's property. The installation of sump pump discharge piping will vary depending on the physical constraints in each home and the drainage conditions outside of the home.

HOW DO I MAINTAIN A SUMP PUMPING SYSTEM?

You should consult a qualified plumbing contractor to ensure proper maintenance of your sump pump system. Your sump pumping system must be maintained properly to reduce the risk of equipment or system failure. The following tips may help with regular sump pump maintenance:

- Weeping tile drainage may carry small amounts of soil and sand into your sump pit. Clean the pit each year after the ground has frozen.
- Water that remains in the pit will smell musty after a long period of time. Flush the pit by adding fresh water until the pump removes the stale water. Any remaining water can be bailed or sponged out of the pit.
- Check and test your pump before each spring thaw and before you leave your house for a long time. Pour water into the pit to test the operation of the pump.
- Remove and thoroughly clean the pump at least once a year. Disconnect the pump from the power source before you handle or clean it.
- Most pumps have a screen that covers the water intake. You must keep this screen clean.
- Inspect all couplings for leaks and make any necessary repairs.
- Build up the ground around your house and extend your downspouts so that water flows away from your basement walls. This will extend the life of your sump pump by reducing the amount of work it has to do.
- Install a check valve in the discharge piping to prevent water from flowing back into the sump pit.
- Check the place where the discharge pipe leaves the house. If the pipe is leaking at the basement wall, the water will drain down to the weeping tile and continuously cycle through the system.
- Check the discharge point regularly to make sure that nothing is blocking the flow.

Additional tips for maintaining protective plumbing devices are provided in the City's Spring Cleaning Checklist, which can be found at www.saskatoon.ca under "**F**" for Flooding – Basement.

WHAT IS A BACKWATER VALVE?

A backwater valve is a device that prevents sewage from backing up into your basement. A valve will automatically prevent water from the sanitary sewer from coming back into your home's plumbing system. A properly installed backwater valve must be placed so that sewage backup will be stopped and not come out through plumbing fixtures or the floor drain in your basement.

Any in-line backwater valve that is CSA approved is an acceptable backflow prevention device. Backflow devices that are not in-line and screw directly onto a floor drain are not acceptable devices because they cannot withstand the pressure of a large sewer backup. There are two types of in-line valves; normally-closed and normally-open. Normally-closed valves may be more reliable; however a normally-open valve may be required because of the plumbing configuration in your house. Ask a qualified licensed plumbing contractor which valve is best for your home.

If you are going to put in a backwater valve, a licensed plumbing contractor must install it properly and a City of Saskatoon plumbing permit is required. The valves also require periodic inspection and maintenance to remove debris and reduce the risk of failure. Ensure that your valves are covered with a cover plate and that the cover plate can be removed easily. Do not place permanent carpet or other flooring over top of the cover plate as the backflow valve must always remain accessible. Ask a licensed plumbing contractor how to properly inspect and maintain the specific backwater valves that are present in your home.

It is important to note that a backwater valve is designed to be closed during sewer surcharge conditions, to keep water from the sanitary sewer system from getting into your home. When the backwater valve closes, water from the inside of your home also cannot get out. When there is a risk of sewer surcharge, such as during a heavy rainstorm, you should avoid using the toilet, sink, shower, washer, dishwasher or any other appliance that releases water to the sanitary sewer system. The water will

not be able to get past your backflow prevention device(s) and will have nowhere to go except back into your home. This is referred to as "self-flooding" as the basement will have flooded with wastewater that originated within your home.

Regardless of whether or not you install a backwater valve, if storm water from your property still enters the sanitary sewer system you are increasing the risk that your property and the properties around you may flood. If you redirect drainage from your property to the storm sewer system, you will reduce the risk of flooding for yourself and for your neighbors.

DOES PART OF MY BASEMENT FLOOR HAVE TO BE REMOVED TO INSTALL OR REPLACE A BACKWATER VALVE?

Installing or replacing a backwater valve will involve removing a portion of your concrete basement floor and any flooring that has been laid down at that location. More than one backwater valve may be needed to ensure that all below grade plumbing fixtures are adequately protected. The plumbing contractor will be responsible for ensuring that the valve or valves are installed appropriately. The installation(s) must then pass inspection by a City of Saskatoon Plumbing Inspector before new concrete is poured and the flooring is replaced.

Your backwater valve should remain accessible so you can easily maintain it. A cover plate placed flush with the floor is normally installed over the valve. Do not place permanent carpet or other flooring over this plate as you must be able to access the valve to maintain it properly. Backwater valves must be regularly maintained so that they function properly and provide continuous protection for your home. Ask a licensed plumbing contractor for the best way to maintain your backflow device so that it is always working properly to protect your home.

HOW CAN I FIND INFORMATION ABOUT MY PLUMBING?

City staff can perform a Property Information Disclosure (PID) search for your property that will tell you what plumbing has been permitted and inspected. The cost is \$20.

Please note that if there is any plumbing in your property that has not been appropriately permitted and inspected, you would normally be required to expose this plumbing and pass inspection before you could make any further modifications. This requirement would exist regardless of who installed the plumbing and whether or not you were aware that no permit and inspection had been obtained.

To request a Property Information Disclosure Search for your property or if you have questions about permitted plumbing please contact the City of Saskatoon's Building Standards Branch at 975-2645.





FOR MORE INFORMATION

Building Standards Branch
975-2645

Infrastructure Services Department
975-2454

www.saskatoon.ca