

# PREVENTING WET OR FLOODED BASEMENTS



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## TABLE OF CONTENTS

Prevention Tips.....	Page 1
Why is there Water in my Basement? .....	Page 2
City of Saskatoon Sewer Systems .....	Page 3
Why Does Saskatoon Have Two Separate Sewer Systems?.....	Page 3
What Causes Sanitary Sewer Backup?.....	Page 3
What is the City Doing to Reduce the Risk of Sanitary Sewer Backup? .....	Page 4
What Can I Do to Decrease the Risk of Water in My Basement? .....	Page 4
What Can I Do to Protect My Property?.....	Page 7
For More Information .....	Page 8

## PREVENTION TIPS

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 described procedures.

## WHY IS THERE WATER IN MY BASEMENT?

You are most likely to find water in your basement during or after a heavy rainfall or during spring thaw when snow is melting.

### **If your basement is damp or wet, possible causes are:**

- Poor lot drainage
- Overflowing eavestroughs
- Leaking, plugged, or missing downspouts or downspouts that are too short
- Failure of the foundation drainage system (weeping tile) around your home
- A leak in your basement walls, floor, windows or doors (seepage)

### **If your basement is flooded, possible causes are:**

- A blocked connection between your home and the sanitary sewer main in the street
- A backup (surcharge) of wastewater in the sanitary sewer system
- Failure of a sump pump used to pump weeping tile water
- A capped floor drain is preventing weeping tile water from draining

Basement flooding can result in serious property damage. Be mindful of your health and safety when cleaning up your flooded basement. Floodwater may carry waterborne diseases, corrosive cleaning agents, irritants, and sharp objects. Electrical accidents are possible because of contact between appliances and water. Dress appropriately; wear overalls, gloves, protective eyewear, protective boots and a mask. Open windows and stay away from electrical equipment and outlets or shut off the electrical power.

Preventing wet or flooded basements requires that you understand the City of Saskatoon's sewer system and how to direct the drainage from your property appropriately.

## CITY OF SASKATOON SEWER SYSTEMS

The City of Saskatoon maintains two separate sewer systems. The **sanitary sewer system** carries wastewater from homes, commercial buildings, and industry to the City's wastewater treatment plant. After treatment, the water is returned to the South Saskatchewan River. The **storm sewer system** carries rainfall and other surface run-off from parking lots, roads, and private properties directly to the river. This water is not treated before it enters the river.

## WHY DOES SASKATOON HAVE TWO SEPARATE SEWER SYSTEMS?

Our summer storms tend to drop large amounts of rain over short periods of time. If sanitary sewage and stormwater were collected in the same system, the large volume of water from a rainstorm would fill the sewers very quickly.

With two separate sewer systems, stormwater that doesn't need treatment does not have to go through the expensive sewage treatment process. Sanitary sewage, which would contaminate the stormwater, is handled by a separate system. This reduces the cost of sewage treatment for everyone.

## WHAT CAUSES SANITARY SEWER BACKUP?

The storm sewer system has a much higher capacity than the sanitary sewer system in order to handle the large volumes of water that can be produced by major storm events. Problems arise when water that should be directed to the storm sewer system makes its way into the sanitary system. Water that doesn't need to be treated goes to the wastewater treatment plant, which increases the overall cost of handling and processing wastes. If too much storm water enters the sanitary system, the sanitary sewer may backup (surcharge) and overflow. When this occurs residences at lower elevations, especially those without adequate backflow protection, are most at risk of experiencing sewer backup.

## WHAT IS THE CITY DOING TO REDUCE THE RISK OF SANITARY SEWER BACKUP?

- Increasing the storage capacity of the storm sewer system to reduce surface flooding
- Increasing catch basin capacity and sealing off sanitary manholes in intersections that frequently flood
- Creating an Emergency Diversion Plan for critical sanitary sewers
- Mandating the installation of backflow prevention devices for all basement fixtures in newly constructed residences (since February 1, 1997)
- Promoting the installation of backflow prevention devices for residences constructed prior to February 1997 that are prone to flooding
- Promoting the removal of property drainage from the sanitary sewer system

No municipal sewer systems can guarantee every house complete protection against basement flooding. There are many steps residents should take to reduce the risk of basement flooding and the damage that it can cause.

## WHAT CAN I DO TO DECREASE THE RISK OF WATER IN MY BASEMENT?

Preventing wet or flooded basements requires that you understand the cause of the problem and how to direct the drainage from your property appropriately.

Drainage from your property is of two types:

- 1) Water from rainstorms and snowmelt will drain from the roof of your residence and from the ground around your house. Ideally, the excess water that does not stay on your property should be collected by the storm sewer system.
- 2) Water from appliances and plumbing fixtures such as toilets, showers, sinks, dishwashers, and clothes washers is directed into the plumbing system in your home and collected by the sanitary sewer system.

**Wet or damp basements** can usually be addressed by regular maintenance and by improving the drainage of your property:

- Check for and fix leaks in walls, floors, windows, and doors
- Use window wells around basement windows to prevent your window sills from rotting
- Clean debris from eavestroughs regularly. If they overflow even when clean, replace them with larger size eavestroughs and downspouts
- Take steps to prevent water from soaking into the "backfill zone" that exists within two meters (six feet) of your house. Water that soaks into this area will accumulate next to your basement walls and floor
- Extend downspouts so that water flows away from your home and doesn't pool next to the basement walls or windows. If your downspouts are connected to your home's interior plumbing system, disconnect them. Splash pads or eavestrough extensions can be used to direct the water that is discharged from a downspout
- Build up the ground around your house so that water flows away from your basement walls. Note that sidewalks, patios, decks, and driveways can settle over time and allow water to drain back toward your home
- Outside the "backfill zone" consider landscaping in the rest of your yard that allows stormwater to soak into the ground
- Repair/replace damaged weeping tile systems
- Have a plumber or drainage specialist inspect your home's protective plumbing devices, such as backflow valves, sump pumps, floor drains or caps, to ensure they're working properly

**Be sure that your drainage improvements do not cause drainage problems for your neighbour!**

**Flooded basements** can be harder to deal with, as the cause of the flooding may originate inside your home, but may also be part of a larger, system-wide problem.

Flooding that originates inside your home may be caused by tree root blockage, a build-up of grease in your plumbing system, or the insertion of inappropriate objects into your plumbing system. To prevent this type of flooding:

- Have your connection to the main sanitary sewer cleaned periodically
- Avoid pouring kitchen grease into your drains as it will solidify in your plumbing system
- Avoid putting inappropriate objects into your plumbing system through toilets or drains

**Homeowners can help prevent flooding caused by system-wide overloading of the sanitary sewer system in a number of ways. One of the most effective means is to stop runoff from your property from entering the sanitary sewer system.**

The quantity of water entering the sanitary system from individual private properties can range from zero on an average day to hundreds of litres during a long or heavy rainstorm. The volume of water from one home may not be large, but when thousands of homes put runoff from their property into the sanitary sewer system, serious problems can develop. Stormwater that doesn't need to be treated is put through an expensive water treatment process, extra water in the sanitary sewer can cause sanitary sewer surcharge that results in basement flooding throughout the city and, if the sanitary sewer system is severely overloaded, untreated sewage may overflow into the South Saskatchewan River.

**The City of Saskatoon is asking that homeowners assess their property drainage and make changes to remove unwanted water from the sanitary sewer system.** The benefits of doing this are to:

- Reduce the risk of sewer backup for yourself and for your neighbours in all parts of the city
- Reduce potential risks to health and safety and the loss of valuable property
- Reduce insurance costs for sewer backup protection
- Help to keep costs for maintenance and repairs of the sewer system from increasing unnecessarily
- Help to keep sewer rates from increasing unnecessarily

**Every bit of help from individual property owners goes a long way to improving the sanitary sewer system's performance for everyone.**

Although measures vary from property to property, the following have been found to help:

- Build up the ground around your house and extend downspouts so that water flows away from your home and doesn't get into your foundation drainage
- If your downspouts are connected to your home's interior plumbing system, disconnect and extend them so that water flows away from your home
- Install a sump pumping system to discharge foundation drainage to the ground surface away from your home and not into the sanitary sewer system



## WHAT CAN I DO TO PROTECT MY PROPERTY?

Installing appropriate protective plumbing devices in accordance with City by-laws and building code requirements will help to protect your property against sewer backup.

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 system 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. You may need more than one valve depending on your home's internal plumbing. A licensed plumber can look at your system and recommend the appropriate installation.

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.

## FOR MORE INFORMATION

**[www.saskatoon.ca](http://www.saskatoon.ca)**

and look under "F" for Flooding - Basement

City of Saskatoon Water & Sewer Trouble Line

**975-2476**





**FOR MORE INFORMATION**

Building Standards Branch  
975-2645

Infrastructure Services Department  
975-2454

[www.saskatoon.ca](http://www.saskatoon.ca)