



Your Guide to Home Flood Protection



August 2004




Notes

A series of 20 horizontal dotted lines for writing notes.




Why protect your home and the homes of others from damage from sewer backup and stormwater?

- 
- Prevent valued possessions from being damaged or destroyed;
 - Keep insurance costs down, by keeping sewage backup claims in check;
 - Help avoid increases in costs for maintenance and repairs on your part of the Domestic Sewer system;
 - Safeguard your family from potential danger to health and safety;
 - Help to keep sewer rates from increasing unnecessarily;
 - Save yourself and neighbors in all parts of the city from a lot of stress and the mess of dirty cleanup jobs.



Your Guide to Basement Flood-Proofing

This brochure was prepared by the City of Regina to assist property owners and renters. In distributing this booklet, the City of Regina 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 procedures described in this booklet.





Foreword

Regina has two modern, separate sewer systems that take away stormwater and sewage: the **Domestic Sewer** transports wastewater from sinks, toilets and tubs to the Sewage Treatment plant to be treated and cleaned. The cleaned water byproduct goes safely back into the eco-system as part of the water cycle. This system is effective and environmentally friendly, but treating sewage is expensive.

The **Storm Sewer** receives rainwater and snowmelt from street drains and transports it to Wascana Creek and back into the water cycle. This system is less expensive because the water doesn't need to go through the Sewage Treatment plant.

Both of these sewer systems work well when they are carrying the liquids they were designed to handle. When the systems are overloaded or misused, basement flooding can occur. This is costly to homeowners .

Many Regina homes drain the rainwater from their weeping tile into the Domestic Sewer, instead of the Storm Sewer (*see illustration 5 on page 8*). This can overload the capacity of the Domestic Sewer, and sewer backup into basements may result, even in "high ground" areas.

NOTE: Basement flooding can cause incredible damage –for example, in 1983 over \$50-million in residential property damage occurred from one major flood event during a large summer storm.

What can be done to help prevent this? The City of Regina has ongoing stormwater management upgrade projects including Home Owner Flood Protection education programs throughout the city: the annual budget for storm damage infrastructure rebuilding averages several million dollars, and it increases each year.

City storm waste management upgrading includes creating surface storage by lowering parks, constructing detention and retention ponds, building large underground reservoirs, upgrading and maintaining storm channel capacity, installing new sewer pipes and enlarging existing ones.

Basement floodproofing is everybody's business. Residents need to partner with the City to reduce the risk of basement flooding and the damage it can cause. That's what this booklet is all about.

Read it through. Check the tips and suggestions on the Checklist. See what you can do to partner with your friends, neighbors and the City of Regina to prepare for and prevent basement flooding. **Be prepared!**




Table of Contents

Introduction.....	1
How Regina’s two sewer systems work.....	2
Why Regina Basements Flood.....	3
• Backfill Problems.....	4
• Faulty rooftop drainage and poor grading.....	5
• Faulty foundation drainage.....	7
• Improper disposal of stormwater into the Domestic Sewer.....	8
Flood Prevention Strategies.....	10
• Over-all Floodproofing.....	10
• Targeted Floodproofing.....	10
Floodproofing Actions.....	11
• Locating your Sump Pit.....	11
• Diagnosing and Solving Flooding Problems.....	13
• Setting your Plan in Motion.....	19
• Professional Floodproofing Services.....	20
• Flood Protection While on Vacation.....	20
Glossary.....	21
Floodproofing Troubleshooting Chart.....	23
Solutions Chart.....	24
Floodproofing Checklist.....	25
Record of Home Floodproofing Activities.....	26

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Introduction

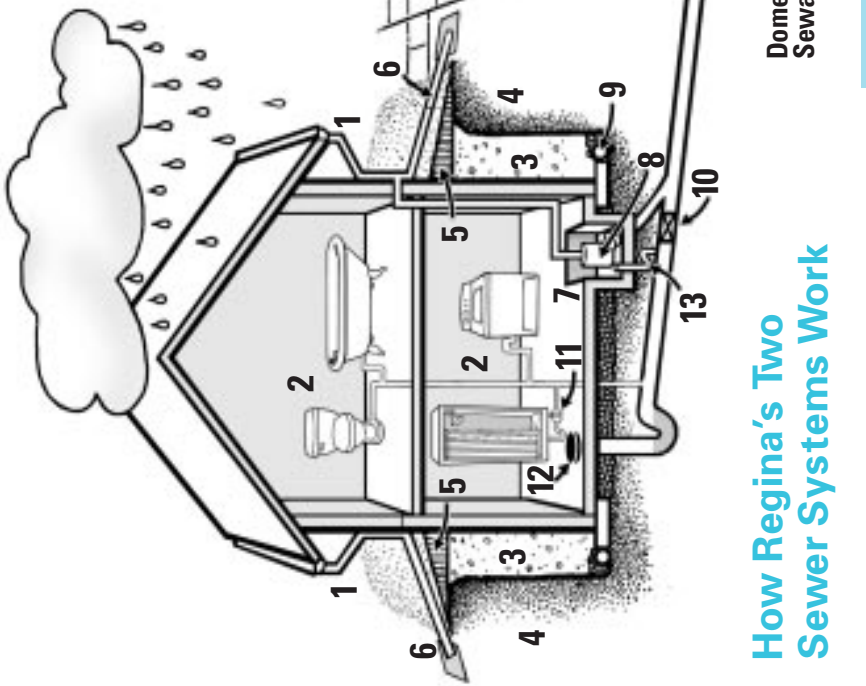
The City of Regina has prepared this booklet to provide some practical information to help you floodproof your home. It also outlines the causes of basement flooding, and suggests some solutions.

Let's begin by identifying the things we'll be talking about throughout this booklet as they relate to floodproofing your home: (*see illustration 1 on page 2*).

1. Eavestroughs properly placed and maintained to drain rainwater away from your roof.
2. Household fixtures and appliances (sinks, tubs, showers, toilets, washing machines and dishwashers, laundry tubs, etc.) that drain into the Domestic Sewer system.
3. The backfill soil zone around your foundation.
4. Undisturbed soil outside the backfill soil zone.
5. Fill dirt (preferably clay) around your house (including under decks, steps, and other hidden areas) sloped so water will drain away from the foundation.
6. Downspouts that extend at least 3 to 5 metres (10 to 16 feet) away from the foundation of your house, with splash pads.
- 7.&8. Sump pit and sump pump.
9. Weeping tile.
10. Automatic backflow valve.
11. Gate valve.
12. Floor drain capped.
13. P-Trap.
14. Storm drain.
15. Access manhole to Storm Sewer.
16. Storm Sewer.
17. Underground Stormwater Reservoir or Surface Detention Pond.
18. Access manhole to Domestic Sewer.
19. Domestic Sewer.

See the Glossary on page 21 for definitions of these and other terms.

- | Legend | |
|--|--|
| 1. Eavestrough Downspouts | 11. Gate Valve |
| 2. Fixtures / Appliances | 12. Floor Drain capped |
| 3. Backfill Soil Zone | 13. P-Trap |
| 4. Undisturbed Soil | 14. Storm drain |
| 5. Backfill Soil Zone capped | 15. Access Manhole - Storm Sewer |
| 6. Downspouts & Extensions to Splashpads | 16. Storm Sewer |
| 7. Sump Pit | 17. Underground Stormwater Reservoir or Surface Detention Pond in some areas of the city |
| 8. Sump Pump | 18. Access Manhole - Domestic Sewer |
| 9. Weeping Tile | 19. Domestic Sewer |
| 10. Backflow Valve | |
- See the Glossary on page 21 for definitions of these and other terms.*



How Regina's Two Sewer Systems Work

Domestic Sewer to Sewage Treatment Plant
Storm Sewer to Wascana Creek

Illustration 1

Why Regina Basements Flood

Each year, hundreds of Regina basements flood or suffer sewer backup damage—even in homes that appear to be high and dry. Unfortunately, there's no way to tell when Regina's going to get a heavier-than-usual downpour, so it's smart to be prepared!

Causes and contributing factors of basement flooding may include:

- poor backfill soil zone compaction,
- faulty handling of rooftop drainage,
- poor grading around house perimeter,
- faulty handling of foundation drainage,
- disposal of weeping tile drainage/stormwater in the Domestic Sewer,
- sewer backup.

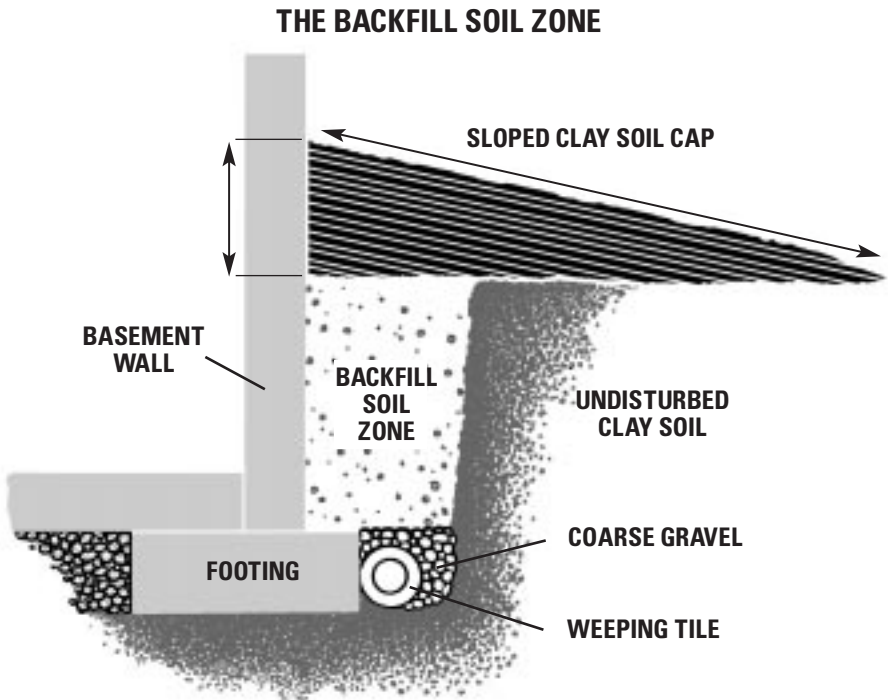


Illustration 2

Backfill Problems

When a new home is being built, the basement is dug out of undisturbed clay soil. When the basement is near completion, backfill soil is pushed into the space between the exterior basement wall and the undisturbed clay walls of the open excavation.

(see “THE BACKFILL SOIL ZONE”, *illustration 2 on page 3*).

In most cases, the soil that was removed to create the basement is reused as backfill material. Because the soil has been dug up and disturbed, it now is less compact than undisturbed soil. This means the backfill will continue to settle and pack down for many years.

You will probably notice where the soil has settled around your house’s foundation. The backfill will also have settled in less visible areas under decks, stairs or patios. This is not good. When it rains, water puddles in these low areas next to your house. The water then seeps down along your basement wall, potentially causing problems.

To solve this problem, a 20 to 25 cm (8 to 10 inch) cap of clay soil is recommended for the backfill area (*see illustration 2 on page 3*). (Sandy soil, gravel or topsoils are not recommended for this cap, as they allow water to percolate down into the backfill soil zone.) Slope the clay cap and extend it from the house several metres where possible, so water will drain well away from the foundation.

If you want a flower bed or other plantings around the house, add topsoil on top of the clay cap.

TIP: Check every year to see if your backfill soil zone is settling, and to replace soil so water will drain well away from your foundation.



Faulty Rooftop Drainage and Poor Grading

NOTE: Much of the land surface in a city sheds rainwater—streets, parking lots, driveways, sidewalks and rooftops all shed water. One inch of rain falling on a bungalow produces about 3 cubic metres (about 700 gallons) of water! How does it drain from the rooftop? Where does it go? Where **SHOULD** it go?

On a typical house in our city, eavestroughs and downspouts receive rainwater and direct it to the ground.

Downspouts that are too short (*see illustration 3 on page 6*) will direct rainwater into the backfill soil zone, which, if poorly graded, will cause a buildup of water in the backfill and drainage into the weeping tile.

Ideally, (*see illustration 4 on page 6*) each downspout ends in an extension that extends beyond the well-graded backfill area and rests on a splash pad so the water can flow onto the lawn or into the street.

Some homes may still have downspouts that carry rainwater to the Storm Sewer through a stormwater plumbing stack in the basement. These homeowners should redirect the downspouts so the rainwater goes directly to the yard using proper extensions and splash pads. Once the downspouts are redirected, it is imperative to securely cap your former stormwater plumbing stack to prevent any backup of stormwater through this stack.



DOWNSPOUT TOO SHORT AND POOR GRADING

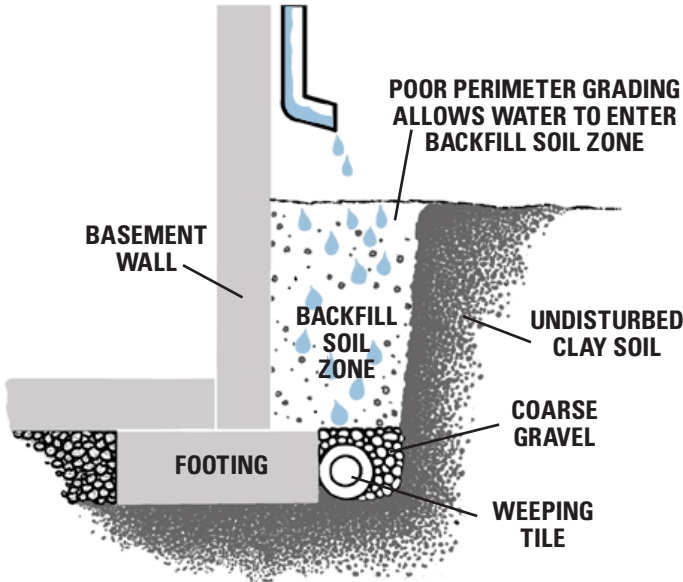


Illustration 3

CORRECT DOWNSPOUT EXTENSION WITH SPLASH PAD AND GOOD GRADING

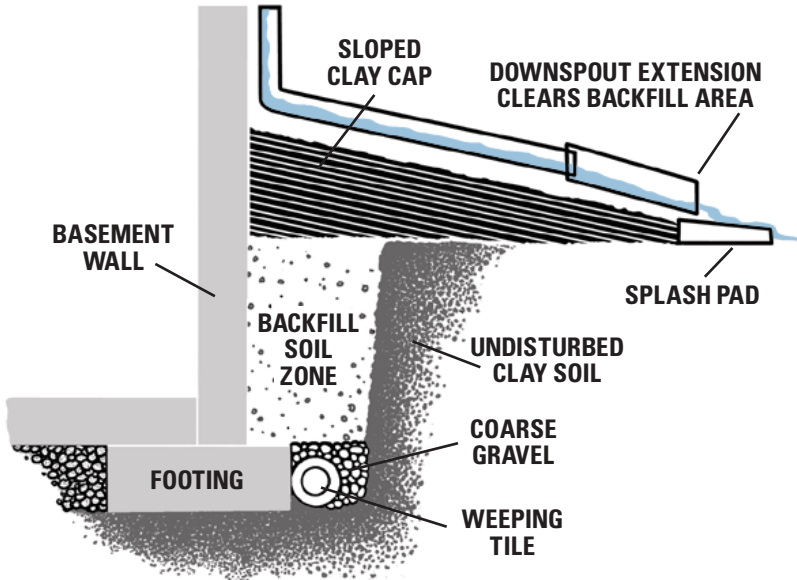


Illustration 4

Faulty Foundation Drainage

Since the early 1950s, Regina home builders have been installing weeping tile in new homes. These underground pipes, also referred to as “foundation drains,” offer an escape route for stormwater which collects in the backfill soil zone.

Weeping tile is a perforated plastic pipe 15 cm. (6 inches) in diameter. When a basement is being built, weeping tile is placed around the entire outer edge of the concrete footing, in a layer of coarse gravel. When water percolates down through the backfill soil zone along the outside of basement walls, it is drained into the weeping tile (see illustration 4 on page 6). From there, it flows by gravity into the basement’s sump pit.

Unfortunately, many homeowners drain the water gathered in the sump pit into the Domestic Sewer system (see illustration 5 on page 8). This is not recommended for several reasons:

- Stormwater that doesn’t need treatment is put through the expensive sewage treatment process. The cost of sewage treatment increases for everyone;
- Extra water in the Domestic Sewer system can cause sewer overload that can back up into basements, even in homes that appear to be high and dry.
- If the Domestic Sewer system is severely overloaded, it could cause an overflow of untreated sewage into Wascana Creek.

NOTE: The quantity of water which enters a home’s weeping tile varies from house to house. The flow can range from a few teaspoons to hundreds of gallons per day during a long or exceptionally heavy rainstorm. The objective is to minimize this flow to protect your home.

If dampness or seeping water is found around the edge of your basement floor where it joins the walls, the weeping tile may be blocked, and it may be necessary to call in a professional foundation service company.

Improper Disposal of Weeping Tile Drainage or Stormwater into the Domestic Sewer

There are good reasons why Regina has TWO separate Sewer systems—the Domestic System and the Storm System:

- Sewage contaminates stormwater.
- Stormwater that doesn't need treatment does not have to go through the expensive sewage treatment process.

When homes put rainwater (weeping tile water) into the Domestic Sewer system, the cost of wastewater treatment increases for everyone. Extra water in the Domestic Sewer System can cause overload resulting in basement flooding; any home in the city—even those that appear to be high and dry—can suffer sewer backup! It's important to protect your basement, and the basements of others, from sewer backup.

IMPROPER WEEPING TILE DRAINAGE INTO THE DOMESTIC SEWER

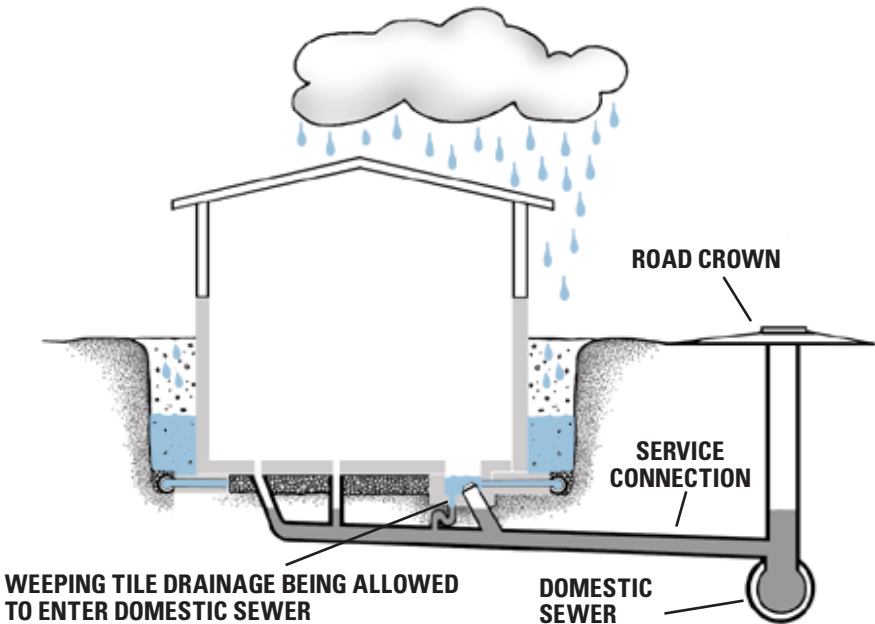


Illustration 5

NOTE: The volume of weeping tile water from one home may not be large, but when ten, twenty or thousands of homes put their weeping tile water into the Domestic Sewer System, a serious problem can develop.

PROPER WEeping TILE DRAINAGE TO STORM SEWER

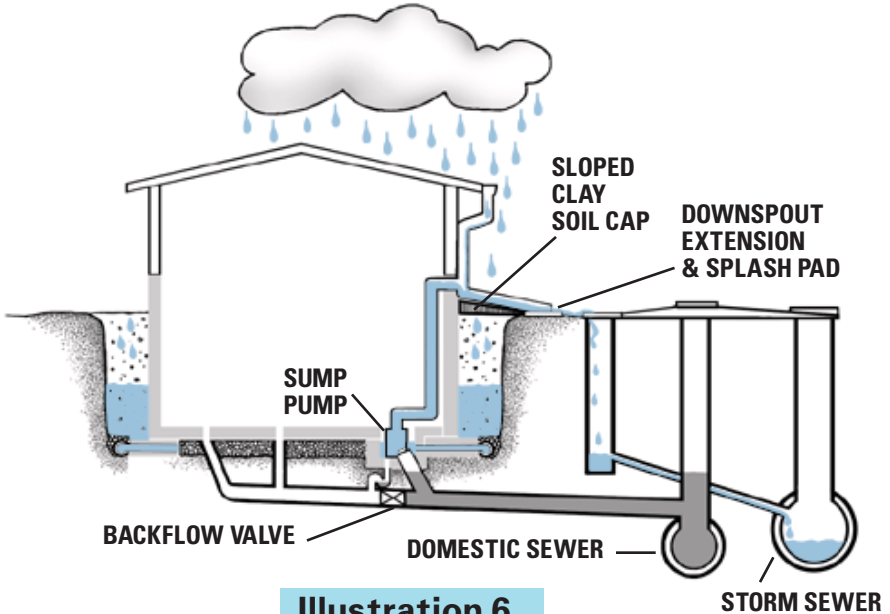


Illustration 6

Illustrations 1 (on page 2) and 6 (above) show some of the things that should be done to help prevent Domestic Sewer System overload that results in sewer backup: install a sump pump; make sure your sump pump directs the weeping tile water outside to the lawn well away from the house; install a backflow valve; slope soil away from the foundation to drain rainwater; check and clean eaves and downspouts; make sure downspout extensions discharge properly to a splash pad, well away from the backfill soil zone.

TIP: Install a sump pump in your sump pit to pump weeping tile water out of your basement and onto the lawn or into the street. A properly installed sump pump is an important way to reduce the risk of sewer backup in your home and other homes throughout Regina.

Flood Prevention Strategies

There are two strategies that you may wish to consider when you begin to floodproof your home:

Over-all floodproofing or **Targeted floodproofing**.

Over-all Floodproofing

This is an all-inclusive approach which involves taking a wide range of actions to keep water and sewage out of your home. An over-all plan might include such things as:

- installing proper eavestroughs, downspouts with extensions, and splash pads;
- filling sunken areas around the home foundation;
- maintaining a sump pit and sump pump; and
- keeping caps on your basement Domestic Sewer floor drains and/or installing a backflow valve on your main sewer from the house.

Over-all floodproofing is the most thorough approach. It offers the best measure of protection from basement flooding, but it can be more expensive since it is done all at once.

Targeted Floodproofing

This process begins by identifying sources of floodwater and then devising the most cost-effective ways of stopping the water from entering your basement.

NOTE: Whichever approach you decide to adopt, you'll get better solutions at a lower cost if you start by diagnosing the cause of your basement flooding problems.

Check the Floodproofing Troubleshooting Chart on page 23 for help in diagnosing flooding symptoms in your home and identifying possible causes and solutions.

Floodproofing Actions

Locating your Sump Pit

To find out whether your home has weeping tile, a sump pit, and a sump pump, you first need to locate the sump pit. Check along the floor next to the basement wall that faces the street (see illustration 7 below). If you live on a corner lot, check along both walls that face the street.

If your basement has a finished floor, the sump pit may be hidden under a plywood cover. Tap a broom handle along the floor until you hear a hollow sound. This should indicate an opening in the basement floor below the plywood sub-floor. Most sump pits are about 46 cm x 46 cm x 61 cm (18 inches x 18 inches by 24 inches deep). There may be several openings in your basement floor, so keep checking until you find a hole of this size, usually containing one or more capped pipes, open pipes and possibly a sump pump.

LOCATING YOUR SUMP PIT AND CHECKING ITS DRAINAGE

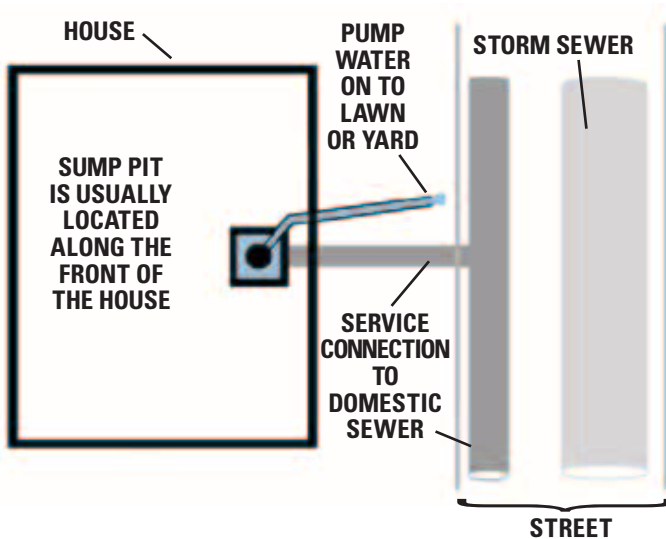


Illustration 7

Once you find the sump pit, check for the following:

- Is it wet or dry? Depending on the season, the pit could be bone dry, but if it DOES have water in it, chances are pretty good that you DO have weeping tile.
(see Illustration 8 below).

- Is there an open pipe about 10 cm (4 inches) in diameter on the side of the pit? If so, then this is likely a weeping tile outlet, and indicates that your home has weeping tile.

- If there is a clean-out pipe; usually about 10 cm(4 inches) in diameter; in or beside your sump pit, it will generally be threaded and capped. In this case, keep it capped. This is the Domestic Sewer.

- Is there a P-trap in the sump pit? This is a 5 cm (2 inch) plastic drainpipe on the bottom of the pit. Weeping tile water entering the sump pit drains through the P-trap into the Domestic Sewer. Most often, the open end of the P-trap is threaded to receive a cap. It is strongly recommended that you cap the P-trap and install a sump pump that discharges the weeping tile water to the lawn.

TYPICAL SUMP PIT (WITHOUT SUMP PUMP)

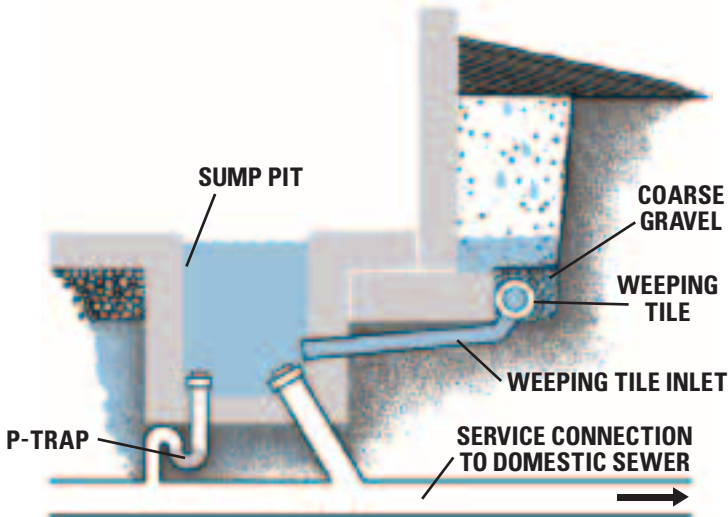


Illustration 8

TIP: A sump pump will start automatically when water begins to collect in the sump pit. Save yourself a sleepless night of bailing by installing a sump pump now! For even more peace of mind, have your sump pit enlarged to hold 260 litres (60 gallons) of weeping tile water.

Remember that weeping tile water is rain water that has made its way through the soil into your weeping tile and into the sump pit. A properly functioning sump pit includes a sump pump that will remove weeping tile water outside the house where it can run overland into the Storm Sewer system. (**Do not drain the weeping tile water into the Domestic Sewer System**). Stormwater that is handled this way will not enter the Domestic Sewer and will not contribute to sewer overloading and the flooding of someone else's basement.

Diagnosing and Solving Flooding Problems

In this section, we present some common flooding situations, identifying symptoms, probable causes, and some solutions.

1. Problem:	Water entering through basement walls and concrete floor.
Symptom:	Wet carpets and floors along basement walls.
Probable Cause #1:	Downspouts are too short and water is running onto the backfill zone.
Solution #1:	Extend downspouts so they discharge rainwater at least 2 to 3 metres (6 to 8 feet) from the foundation onto a splash pad.
Solution #2:	If using a rain barrel to catch rooftop water from the downspout, be sure to have an overflow spout and splash pad so the excess water will be discharged away at least 2 to 3 metres (6 to 8 feet) from the foundation.

Probable Cause #2:

Downspouts and/or eavestroughs are clogged and rainwater is spilling onto the ground around the foundation and percolating into the backfill zone.

Solution #1:

Clean, repair and leak-proof eaves and downspouts each spring. Consider putting screens over the eavestroughs to catch leaves and debris.

Solution #2:

If your eaves are clean and working well, yet water is still spilling over, a downspout or underground yard pipe may be blocked with roof debris. A downspout may be checked for blockage with a flexible "snake," or by using a garden hose down the spout to test for blockage. If the downspout is clear, but the blockage persists, disconnect the downspout the next time it rains. If there is a sudden, strong, steady flow of water that quickly slows, the underground yard pipe is plugged. You may wish to direct the downspout to the surface, adding an extension and splash pad. If you wish to continue using the underground pipe, it will most likely need to be removed and cleaned, or replaced.

Probable Cause #3:

Low spots on the backfill zone are allowing water to puddle next to the foundation.

Solution #3:

Add clay soil over the backfill soil zone, sloping it away from the foundation. Pay special attention to hidden areas under decks, steps and other covered spaces. If these are neglected, they can contribute to wet basements.

2. Problem:	Water entering the basement from under the basement floor from the sump pit (there is no sump pump in place). <i>(see illustration 8 on page 12)</i>
Symptom:	Water flowing from sump pit onto basement floor, or heaving basement floor.
Probable Cause:	Water being collected by the weeping tile is accumulating in the sump pit where the P-trap cap is in place.
Solution #1:	Install a proper sump pump to move weeping tile water outside the house and away from the foundation. <i>(see illustration 9 below)</i> This is the recommended solution.
Solution #2:	If you are unable to remove the P-trap cap, or don't want to risk it, and weeping tile water is filling the sump pit, hand bail to dispose of the weeping tile water.
General Comment	As a rule, cap your P-trap during storms. If you have a sump pump, P-trap cap in place, and floor drains capped during and after storms, you can expect to have a high measure of flood protection.

TYPICAL SUMP PIT (WITH SUMP PUMP)

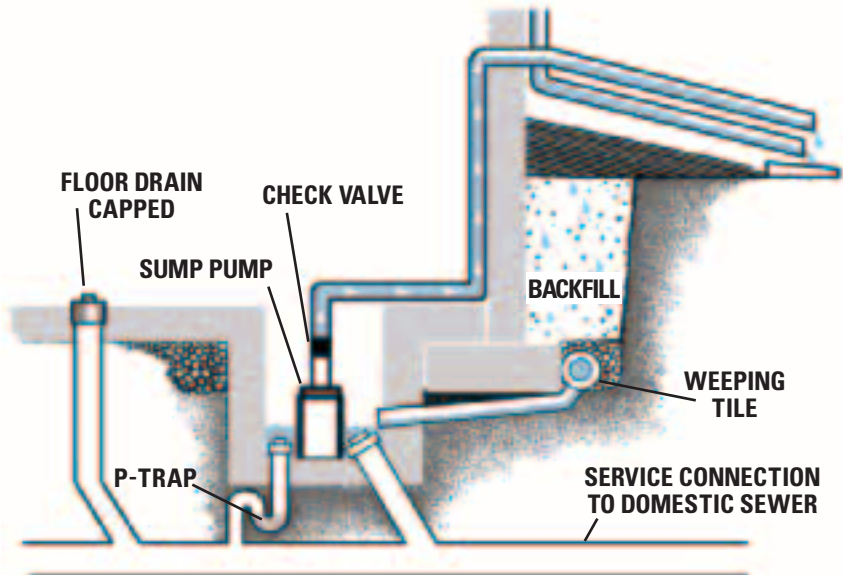



Illustration 9



3. Problem: You have a sump pump in place, but water is entering the basement from the sump pit.

Symptom: Water flowing onto the basement floor out of the sump pit.

Probable Cause: The sump pump has failed.

Solution: If you want to service the sump pump yourself, here are some things to check:

- Is there electricity to the pump?
- Are the floats stuck? (Submersible pumps don't have floats.)

If your basement is flooding with weeping tile water, a call to a plumber may be the quickest answer.

Replacing the failed pump with a new one is also an option.

Meanwhile, if your basement is flooding, you may need to hand bail the sump pit to prevent overflow.

General Comment: Sump pumps contain parts that may be continually submerged in water. Regular inspection and maintenance are important since rust and small soil particles can damage the pump. Servicing the sump pump regularly will ensure it is ready to function when you need it.

CAUTION: Use extreme care when you are near the sump pump, as you will be working with electricity near water. Follow the instruction manual supplied with the sump pump. If in doubt, call a plumber.

4. Problem: Sewer backup is entering at basement floor drains.

Symptom: Sewage flowing from floor drains and basement plumbing such as toilets, showers, and washing machine standpipes.

Probable Cause: Too much storm water in the Domestic Sewer System is causing the sewer to back up.

Solution #1: Thread in all basement floor drain caps, including the P-trap. Also, close the gate valve by cranking it manually until the flow of sewage from the floor drains stops. The gate valve is usually a large, red-handled valve, sometimes recessed in the floor. In developed basements, the gate valve is often hidden between walls or under a sink vanity. The gate valve protects only the plumbing connected to that pipe. Remember to open the gate valve again after the storm has passed. (See illustration 1 on page 2 which shows a gate valve isolating the basement shower/bathroom).

Solution #2: Install a sewer backflow valve (*see illustration 10 on page 19*). This prevents sewer backup from the Domestic Trunk Sewers, automatically preventing raw sewage from entering your home. A combination of a backflow valve and a sump pump offers a high level of basement flooding protection.

NOTE: Some automatic backflow valves require venting. Discuss this with your plumber.

5. Problem: Your sump pump operates continually, but doesn't move much water.

Symptom: Only small volumes of water are pumped although the sump pump works constantly, and the water level in the sump pit hardly drops.

Probable Cause: There is no check valve in the sump pump discharge pipe. Without a check valve, water flows back down the discharge pipe into the sump pit, partially refilling it and initiating another pump cycle.

Solution: Inspect the sump pump to see if there is a check valve in the pipe. Check valves can be located just above the sump pump or near the basement ceiling where the pipe passes through the house wall. *(Two check valve locations are shown at points A and B in (illustration 10 on page 19).*

6. Problem: The sump pit overflows quickly during a power outage.

Symptom: Water flowing onto the basement floor from sump pit during a power outage.

Probable Cause: The sump pit is too small to accommodate the weeping tile water until the power comes on again.

Solution # 1: Enlarge the sump pit to handle a two-hour power outage. The sump pit should have a storage capacity of 260 litres (60 gallons) of water.

Recommended minimum dimensions are:
Length & Width - 61 cm (24")
Depth - 76 cm (30")

Solution # 2: Purchase a back-up power source.

SUGGESTED CHECK VALVE AND BACKFLOW VALVE PLACEMENT

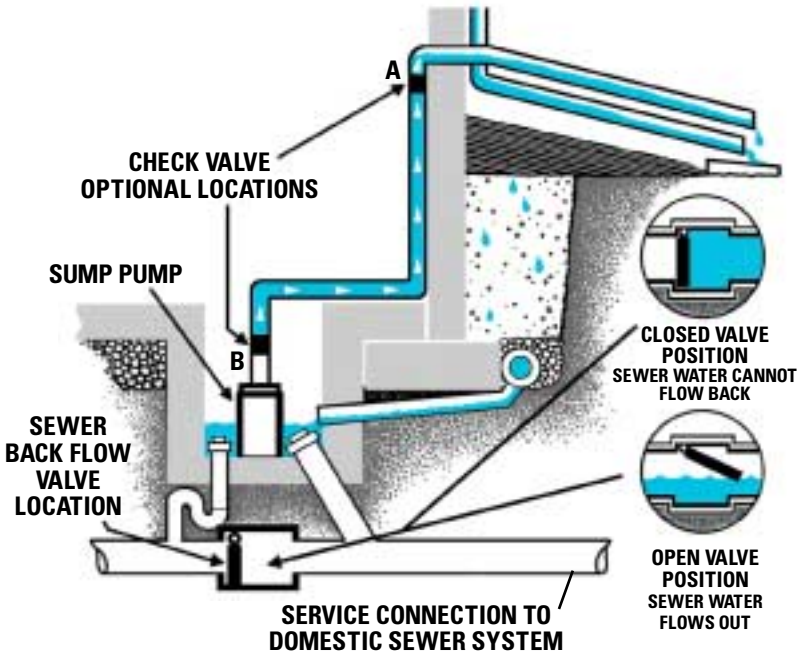


Illustration 10

Setting your Plan in Motion

Are you planning to do it yourself?

Even the best “do-it-yourselfer” can always use a little bit of assistance and advice. So, while making plans to floodproof your home, please consider the following:


- The City of Regina periodically offers classes to assist residents in understanding floodproofing. Call 777-7000 for current information on upcoming classes.
- Remember to obtain a City of Regina Building Permit if you intend to install a backflow sewer valve. The City will inspect the work on the Domestic Sewer System to ensure that the job has been done according to the plumbing Code. A plumbing permit is not required if you are installing a sump pump.

Professional Floodproofing Services

The City of Regina recommends that you treat floodproofing services as you would any other major service for your home. Remember to:


- learn all you can about floodproofing;
- arrive at an accurate diagnosis of the problem;
- get three written estimates from potential contractors;
- obtain references from each of the service providers; and
- ask for a “full flood proofing” assessment.

Local contractors are equipped to assist you with your floodproofing requirements. The following categories of service providers offer elements of floodproofing expertise:

- plumbing companies;
 - home inspection services;
 - eavestrough suppliers;
 - concrete and basement repair companies;
 - landscaping firms;
 - security firms; and
 - home renovation, hardware and building retail outlets.
- 

Flood Protection While on Vacation

If you are planning to be away on vacation, make arrangements with a trusted neighbor to monitor your home for potential flooding. Make a list of the following details for their benefit:

- location of gate valve;
 - proper P-trap and floor drain cap installation;
 - location of sump pit and sump pump; and
 - any past conditions that could lead to basement flooding
- 

Glossary

Backfill Soil Zone: The soil (usually reused soil from the original excavation) surrounding basement walls. Stormwater may percolate through backfill into the weeping tile or foundation drain.

Backflow Sewer Valve: A valve that allows one-way flow of sewage out of the home while blocking sewage from flowing into the basement.

Check Valve: A valve that allows a one-way flow of weeping tile water from the sump pump through a discharge pipe.

Downspouts: Pipes connected to the eavestroughs to carry roof water to the ground level; sometimes referred to as “roof leaders.”

Domestic Sewer System: An underground sewer system designed to receive sewage and transport it from homes to the Sewage Treatment plant. This system is not intended to receive stormwater (such as weeping tile water).

Footing: A concrete base upon which basement walls are placed, and against which weeping tile is placed.

Foundation Drain: (Weeping Tile) A special piping system that surrounds the basement footing and is designed to receive water that has percolated down from the surface through the backfill soil zone.

Gate Valve: A manually-operated valve that isolates the basement plumbing connected to the pipe on which it is installed. It is usually a large, red-handled valve, sometimes recessed in the floor, or hidden between walls or under a sink vanity. Closing a gate valve will also prevent sewer backup from entering basement floor drains. (Remember to open it again after the storm has passed.)

Impervious Surface: A surface which does not allow water to pass through.

Over-all Floodproofing: This is an approach to floodproofing which encompasses all possible means to prevent basement flooding.

Percolating Water: Stormwater that passes through the backfill zone and into the weeping tile, much as water passes through sand.

P-trap: A discharge pipe which drains water from the sump pit into the Domestic Sewer System.

Sewer Backup: A condition which occurs when too much stormwater is in the Domestic Sewer System, and its contents flow back into homes instead of out of them. This condition can also occur if a sewer becomes blocked with kitchen grease or other debris.

Splash Pad: These are often concrete receptacles that receive water from downspouts. They help prevent erosion and move water away from the foundation.

Stormwater: Rainwater that has reached the surface and has begun soaking into the ground or running off into the Storm Sewer.

Sump Pit: A pit located in a house's basement to receive percolating stormwater discharged from weeping tile.

Sump Pump: A special pump designed for automatic operation to pump weeping tile water that accumulates in the sump pit. There are submersible and non-submersible sump pumps.

Targeted Floodproofing: A floodproofing concept where sources of specific types of flooding are first diagnosed, and then a solution is devised.

Weeping Tile: (Foundation Drain) A special piping system that surrounds the basement footing and is designed to receive water that has percolated down from the surface through the backfill soil zone and take it to the sump pit.

Floodproofing Troubleshooting Chart

Flooding Symptom in Your House	Probable Causes:							
	Downspouts are too short	Downspouts blocked	Weeping tile water held in sump pit	Sump pump failure	Storm water overload in domestic sewer	Check valve missing	Power failure with too small sump pit	Weeping tile blocked
1. Wet carpet around edges of basement walls	A, B	C, D						M
2. Clear water overflow from sump pit or heaving basement floor			E, F, G, H	H				
3. Clear water overflowing from sump pit (sump pump installed)				H				
4. Sewer backup at floor drains					I, J			
5. Continual sump pump activity	A	D		H		K		
6. Clear water flowing onto basement floor from sump pit	A	C	E, F, G	H			E, F, L	
7. Water ponding around house next to basement	A	C, D						N


(see chart page 24)

Solutions Chart

Solutions	Do-it-Yourself (Yes or No)	Get Estimate	Cost
A. Extend downspouts and add splash pads			
B. Install rain barrel with overflow to splash pad			
C. Clean and leakproof eaves			
D. Disconnect downspout from underground yard pipe			
E. Remove P-trap cap to drain sump pit			
F. Hand ball sump pit			
G. Install a sump pump			
H. Service sump pump			
I. Close all basement drains, P-traps, valves			
J. Install backflow valve			
K. Install check valve or sump pump discharge pipe			
L. Enlarge sump pit to hold 260 litres (60 gal.)			
M. Call professional foundation service company			
N. Add clay soil around house to drain water away			



Floodproofing Checklist:

- Slope the soil away from your home's foundation.
 - Cap your basement drains and P-traps, and ensure gate valve can be closed when necessary.
 - Install a sewer backflow valve.
 - Install a sump pump that discharges to your lawn area.
 - Extend downspouts and add splash pads so rain water drains well away from your home.
 - Clean and repair eavestroughs, downspouts and underground yard pipes.
 - Make sure your weeping tile drainage gets to the Storm Sewer System and not the Domestic Sewer System.
 - Call 777-7000 to register for upcoming City of Regina flood-proofing classes.**
- 

Record of Home Floodproofing Activities

Floodproofing Maintenance

Eaves Cleaned

Date:

Downspout extensions checked and in place

Date:

Checked slope of soil away from foundation

General Grade Around House	Dates checked		
Under Deck	<input type="text"/>	<input type="text"/>	<input type="text"/>
Under Back Step	<input type="text"/>	<input type="text"/>	<input type="text"/>
Under Front Step	<input type="text"/>	<input type="text"/>	<input type="text"/>
Under Sidewalks	<input type="text"/>	<input type="text"/>	<input type="text"/>
Under Driveways	<input type="text"/>	<input type="text"/>	<input type="text"/>

Sump Pump Maintenance

Installation Date:

Supplier:

Warranty:

Visual Inspection and Test:

Sewer Backflow Valve

Date Installed:

Supplier:

Flood Response Plan

Filled in:

Last Time Update:

