

SURFACE WATER MANAGEMENT.

Annually, Alberta receives approximately 355 mm (14") of rain between May to October. That means your home receives approximately 144,800 litres of water a year, enough to fill 638 bathtubs!

Six mm (1/4") of rainfall on the roof of a 2,000 sq. ft home creates 1,200 litres of water. In addition to the rain, consider the annual spring snowmelt and the water used to maintain your lawn and flowerbeds... that's a lot of water to manage!

Uncontrolled water can cause significant damage to your home, well beyond the inconvenience of a wet basement. Establishing and maintaining an effective surface water management plan will be well worth your time and effort, as it helps to keep your home safe, and maintain your home warranty coverage.

We've outlined five key areas to consider when directing rainwater, snowmelt, and sump discharge away from your home and off your property.

1. Settlement

Over time, the soil on our lot settles. It is important to fill in these low spots to keep water draining away from your house. If the soil slopes towards your foundation, water can leak into your basement.

We recommend that depressions and settlements are filled as they occur.

How do I fill in a low spot?

To fill a low spot, remove the topsoil and fill the low spot with compacted clay, ensuring it slopes away from your foundation. Once filled with clay, topsoil can be added again.



Why does settlement happen around my foundation?

During construction, the excavation of your basement typically extends three to four feet beyond the foundation walls so foundation formwork and, if required, weeping tile and crushed rock can be installed. The additional excavation space is then backfilled, however backfill is less compact than the undisturbed soil, which can lead to rainwater and snow melt consolidating and subsiding the soil. **This is considered normal, and not a warrantable defect, which is why it is important to fill in low spots properly.**

What to know about lot grading

In residential construction, a builder is generally responsible for bringing a lot to the required rough grade elevation outline in the approved grading plan. This plan details the surface water drainage patterns and swales required for the lot. It's important not to alter the rough grade of the property.

Some municipalities require an approved lot grading certificate. This certificate verifies that proper grading elevations and drainage patterns have been established.

When landscaping, topsoil (also known as the final grade), should not exceed depths of four inches, or as specified by the local lot grading bylaw. It's recommended that there is sufficient clearance between the final grade and any exterior cladding that may be negatively affected by moisture (such as wood). Check your local code for more details.

2. Window wells

Ensure your window wells are kept free of leaves and other debris to ensure water can flow through the drain tile to the weeping tile system.

Window wells provide egress for basement windows and should always be clear of any obstruction. They should be situated above the finished grade to divert water away from the well

What is a weeping tile system?

Weeping tile is installed at the footing of a home, designed to manage subsurface groundwater. Not all municipalities require the installation of weeping tile systems, depending on the soil composition and the underground water table.



Weeping tile should not be relied on as a primary defense to control surface water. Rather, it assists with the removal of water at the base of the foundation, especially during heavy spring thaws and prolonged rainfalls.

Weeping tile also reduces the pressure exerted by water standing against the foundation walls and drains water to a sump or storm sewer.

3. Eavestrough & downspouts

If water is not directed away from the foundation, it may collect near your foundation wall, increasing the potential for water penetration into the basement. In the winter, this water can freeze, which may cause frost heave, potentially lifting decks, driveways, and sidewalks. Frost heaves can also cause foundation problems.

Eavestrough and downspouts channel water off the roof and away from the foundation wall into drainage swales. These swales direct water off the lot.

Keep your eavestrough clear

Eavestroughs can often get clogged with debris, causing water to overflow, and become trapped next to your foundation. To prevent this, clean your eavestroughs at least once a year.

Proper downspout placement

Downspouts should be positioned to drain into a property line swale or toward the street or back lane. They should not be directed towards a neighbouring home.

Ensure your downspout extensions are extend beyond the backfilled area of your house (at least four feet) and are used year-round. Extending the downspout into a drain buried in the soil is not recommended.

What are drainage swales?

Swales are shallow depressions in the rough grade designed to direct surface water runoff away from the home.

Swales are usually located along property lines and occasionally at the rear of the lot. Depending on the general slope of the lot, additional drainage swales may be required.



Swale drainage should be directed to the nearest street, land, or storm water management lake – not to backfilled areas or a neighbour's yard. Each lot must conform to the approved grading plan for directing surface water to municipal streets or swales.

The slope of a swale must be maintained to ensure the water movement away from the foundation. Swale alteration could cause flooding.

4. Sump system

Sump systems (sump pump and pit in the basement area) remove water that may accumulate under the basement slab. It is important to not sump systems are not required in all municipalities – it's recommended you check with your builder to see if your home requires a sump system.

As part of your maintenance program, ensure your sump pump is working. If your sump pump runs continuously, it's possible the water being pumped out is seeping back down against the foundation wall and is simply being recirculated. To avoid this, ensure there is proper surface grade to direct water away from the foundation.

Installing a discharge hose will also move the water collected in your sump pit farther away from your home.

5. Landscaping

The placement of your landscaping really matters! Grassy areas and planting beds require drainage slopes to move water away from your home.

When landscaping, it is important not to alter the rough grade of the property, as maintaining the function of the swale is a necessity. The rough grade design typically allows for approximately four inches of topsoil and sod.

Flowerbeds - what do I need to know?

Ideally, flowerbeds should not be placed immediately adjacent to the foundation. Watering may overload the drainage system. Flowerbeds must be designed carefully if placed next to the foundation wall.



Irrigation systems

Careful attention is required in the design, installation, and maintenance of your irrigation system.

A few tips to keep in mind:

- Sprinkler heads should not direct water against the foundation or cladding Avoid placing the sprinkler head within the backfill area near the foundation if lot size allows
- Rain sensors can be added to avoid overwatering
- Connections to the system should be secure

Service your system regularly to avoid damage to piping. For example, splits from freezing.

With mindful home and yard maintenance and careful planning, protecting your home from potential water damage will save you time and money and keep your investment as good as new.

