

Water Damage Prevention for Commercial Buildings

Grounds Maintenance and Landscaping

Grounds maintenance and landscaping are major components of the interconnected systems that work together to protect a commercial building from water damage. In sometimes unexpected ways, these outdoor activities and elements can have sudden and extreme impact on the building itself.

This quick guide will draw your attention to the visible - and often invisible - forces and hazards associated with grounds maintenance and landscape plantings. These tips, reminders and warning signs of potential problems will help you keep your building safe from water damage.



Water Usually Flows Downhill

The basic rule of thumb about protecting commercial buildings against water damage is straightforward. Any and all water that hits or surrounds a building must have a well-planned and well-maintained escape route away from the building. When it comes to successful grounds maintenance and landscaping, gravity can work for you – or against you. So can soil types.

What complicates the challenges of grounds maintenance further is that landscaping and outdoor elements are in a constant state of growth and change. They are also subject to the unpredictability of nature, which can damage or destroy your water management systems in a matter of seconds.

The Building and Grounds are a Unit

Good grounds maintenance involves paying close attention to the interconnected drainage system of the entire property, not just the portions of it that are outdoors. In fact, the building and grounds should be understood to be a single, unified water management system, designed to direct all water away from the building as quickly as possible.

Since the drainage system of the building and grounds are a unit, it follows that all building and grounds staff – including support crew such as lawn care and landscape subcontractors – should work together as a team. Let them know who to alert if they see developing or potential water problems.

Roof Leaks from Landscaping?

Does the building management think there's a roof leak? Maybe it's not a leak at all. Water can be forced to flow straight up to rooftop level – by the landscape itself. During a single rainstorm, enormous amounts of water can back up onto the roof, run down behind sidings and flashings, and penetrate to interior walls. Roofs and building components are often damaged by ground level maintenance oversights, such as when tree roots clog underground drain pipes. An attentive and alert grounds maintenance manager can play a big role in helping identify or prevent this counter-intuitive cause of water damage to a building.

Prevention tips:

- Keep an eye on maturing landscape trees, especially willows or other regional varieties whose root systems may infiltrate drain pipes. Have the vulnerable drain lines cleaned regularly, or have the offending trees replaced or removed.
- Communicate routinely with building management and staff. Ask about any signs of moisture or water problems. Investigate whether emerging problems may be related to grounds drainage.



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Parking Lots Demand Constant Attention

Parking lots deliver, by design, great volumes of runoff water into a building's drainage system. Debris that collects in parking lot-fed drains isn't merely unsightly. It puts the building at risk for water damage, especially if the parking lot is on a higher grade than the building foundation. Seasonal leaf litter, storm debris, or ice build-up during freeze and thaw cycles can quickly block drains and cause extensive damage. Windblown plastic grocery bags are a common culprit for sudden drain obstruction. It is essential to pay close attention to this part of the grounds.

Prevention tips:

- Routinely inspect all drains that handle parking lot runoff.
- Keep an eye out for standing water. It's a red flag.
- Watch for indications of damaged or broken curbs that are part of the water control system. Damaged curbs should be repaired immediately.
- After any storm, inspect the parking lot for signs of drain blockage.
- Ensure that snow removal crews do not obstruct storm drains with piles of parking lot snow. Avoid plowing snow up against or close to foundation walls.

Irrigation Systems May Need Timely Adjustments

It's no surprise that the water traveling through any underground landscape irrigation system is a potential hazard that requires constant surveillance. Sprinkler heads are easily damaged by mowers or landscape crews. Utility trucks or other heavy equipment can break supply lines below ground, where the damage cannot be seen. Most irrigation systems run after dark, when uncontrolled water release is likely to go unnoticed, and its source may be not readily traced during daylight hours.

Maintenance and prevention tips:

- Keep an up-to-date irrigation system map and routinely walk it to inspect for damage.
- See standing water in unusual places? Check irrigation system first.
- Regularly turn on the system during daylight hours for routine inspection.
- Adjust the watering schedule to respond to weather conditions or seasonal patterns.

Soil Type, Friend or Foe?

Be aware of the various soil types in lawns and planting areas. Healthy landscape soil that contains good amounts of organic material can be a significant benefit because of its moisture-absorbing qualities. But a dense or compacted clay soil resists water and can cause high rates of runoff during rain storms – which can lead to flooding. Clay soils can also cause serious silting and clogs in drain lines.

Prevention tips:

- If lawn areas frequently have standing water or do not absorb water effectively – and if excessive irrigation is not the cause – regular professional aeration may help prevent further risk.
- Compacted soil in planting beds may also require light spading or loosening annually to enhance water absorption and reduce excessive runoff.

Water Features are a Big Risk Factor

Despite their beauty and appeal, on-site fountains, brooks and ponds represent a significant risk for water damage to commercial buildings. Having a water feature included on the grounds calls for extra attention to landscaping maintenance, water management and disaster preparedness.

Time to Re-Think the Landscape?

A poorly-designed or overly mature landscape can contribute significantly to a building's risk for water damage. Overgrown, misplaced or high-maintenance plantings can also inflate the cost of building overhead by requiring considerably more water than that of an environmentally-friendly landscape plan. If you suspect that any of these conditions exist on your building site, consult with an experienced landscape design firm.

If the building is already experiencing landscape-related water management problems, such as a wet basement, re-grading or the creation of a temporary soil berm may help re-direct water safely away from a foundation wall immediately. However, a longterm landscape makeover - one that is water efficient and can be implemented in budgeted stages — should be developed.

Prevention tips:

- Buildings settle, especially in the presence of excess moisture. Chronic foundation problems may warn of chronic soil and landscape problems. Don't overlook the connection.
- Be alert to recurring runoff in specific areas. It can alter grading and lead to drainage problems.

Keys to successful grounds maintenance include:

- Identify any weaknesses of the building site. Develop both emergency and long-term plans that address site vulnerabilities.
- If you are involved in plans for a new building, consider how the foundation height, parking lot location and plantings will affect water management.
- Always contact the local planning and zoning department or agency for proper permits before doing grounds and landscaping work. Notify underground utility companies prior to digging.
- Be sure to include all subcontracted lawn care or landscape workers on your team to watch for signs of potential water problems.

Disaster Preparedness Mitigates Water Damage

Power outages, severe rainstorms, hurricanes, floods or other natural disasters can occur with little or no warning. If your building's Operations and Maintenance Manual does not currently include a concise emergency preparedness plan that addresses water management emergencies, develop a practical plan and add it to the manual.

Planning for such emergencies can make all the difference between successfully protecting a building and exposing it to devastating water damage. A water management disaster preparedness plan should include:

Power outages and back-up generators:

- Be sure that any active water management system elements, such as sump pumps, are hard-wired to the back-up generator in the event of a power failure.
- Test the back-up power system regularly.
- It's also a good idea to have a back-up sump pump for buildings at risk for flooding.
- Don't forget water drainage in the form of melting ice, snow or sleet.

Sandbags: If the building site is low-lying, subject to flooding, or has natural water features running through it, keep a supply of sandbags on hand to help divert unusually high water away from the building foundation.

Snow and parking lots: If heavy snowfall is a regular part of your weather profile, establish clear snow removal guidelines that protect drains and the building foundation. If necessary, flag drains to avoid plowing snow on top of them.

The illustrations, instructions, and principles contained in this material are general in scope and, to the best of our knowledge, current at the time of publication. No attempt has been made to interpret any referenced codes, standards or regulations. Please refer to the appropriate code-, standard-, or regulation-making authority for interpretation or clarification.

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