10 Late Fall Building Maintenance Tips – Prepare for the Winter Weather

It's been a long, hot summer for much of the country. For a lot of us, warm weather lasted much longer than in years past. As the calendar turns to December, fall is well underway, and before you know it, the winter weather will be here, too. For some, this means wet, wintery conditions, and for others farther north, it means snow and ice.

Wherever you are in the country, here are ***10 important things to do as a building Owner or Director of Facilities*** to ensure you and your buildings are ready for the change in seasons:

Landscape

- Inspect the landscape materials around the perimeter of all buildings.
    - Over time, leaves and ground covers will accumulate and the roots from trees and shrubs, etc. can raise grades above weep holes and flashings, as well as finished floor elevations. The effects of this are discussed in more detail in the next section below.

- Prune all trees and shrubs that are in contact or may come in contact with the building systems.
    - This includes overhanging trees to keep the leaves and debris out of gutters and off the roofs. Consider the effect of wind and snow accumulation when pruning. Not only can trees and shrubs cause physical damage to building finish and roof systems, but when too close to a building or in direct contact, they will significantly slow the drying process of a wet building. Foliage should be cut back from outdoor HVAC equipment where free air space is necessary for heat rejection.

Site Grades

- Universal building codes require that finish grades are to be kept at a minimum of 6 inches below finish floor elevation, or from contact with any wood product not treated for ground contact.
    - This is particularly a challenge near building entries and patios, and especially for buildings that are slab-on-grade construction.
- Additionally, weep holes and flashings, which are critical components of the exterior building finish systems, must also be located below the finish floor elevation, but above site grades.
    - Unfortunately, most often we find site grades violate these code requirements and that drainage away from buildings is poor, especially if downspouts are not

properly located, maintained, or empty onto surface-located splash blocks rather than connected to underground rain leaders tied into the storm drainage systems.

- We recommend walking building perimeters to ensure proper slope and grades are maintained 6 inches below finished floors and that critical weep holes or flashing are not blocked with accumulated landscape materials.

    - Proper grades and drainage away from the buildings is just as critical in southern climates as it is in the northern areas that deal with snow and ice accumulation.

Exterior Site Concrete and Asphalt Pavement

- Ensure that walkways, including over asphalt roads, drain properly and will not become slipping or tripping hazards.
    - As a general rule, anything over a ¼ inch in height at a joint or a crack could be considered a tripping hazard per ADA. Tripping hazards, ponding water, and unexpected or excessive slopes are particularly important in areas where snow and ice accumulate, as they can contribute to nasty falls.
- Perform regular sealing or repairs of sidewalks during the fall (or immediately if considered a hazard). Water that freezes inside concrete cracks can cause the concrete to spall and deteriorate, heave, or crack further, leading to more costly repairs.
    - It is important to ensure that all concrete expansion joints are adequately sealed with a high-quality urethane joint sealant to prevent water from getting below sidewalks and softening the subgrade. Concrete surface sealers can be applied for further protection.
- Inspect all asphalt (and concrete) roads. Look for areas of fatigue (often referred to as “alligator cracking” or longitudinal cracking) in asphalt pavements, potholes or areas of ponding water.
    - Fatigue cracking is a sign that water has softened the structural base course under the asphalt surface course and, if left unattended, will result in potholes and ultimately complete pavement failure. Proper drainage is especially important in the northern climates as it contributes significantly to premature failure and safety hazards for both pedestrians and vehicles.

Check Exterior Faucets and Service Irrigation System

- Install frost-proof exterior hose bib faucets or drain older non-frost-proof faucets to keep them from freezing and breaking during the winter.

- This is also the time to have the underground irrigation system serviced and prepared for winter by a qualified irrigation contractor.

Perform Roof Inspections

- For low-sloped (flat) roofs, it is important to check weekly during the leaf falling season to ensure that roof drains are not clogged with leaves and debris.
  - Inspect all flat roof seams especially around penetrations, equipment curbs, and corners to ensure a full seam seal. Any seam seal that is beginning to fail allows for dirt and moisture to accumulate resulting in a premature failure.

- For shingled roofs, look for loose, missing, or damaged shingles, especially around the building eaves.
  - In northern areas, freezing temperatures will cause ice dams to form causing further damage, which allows moisture to enter under the shingles and the roof decking.
  - In addition, check flashings at vertical wall intersections, chimneys, and plumbing vent boots to confirm there are no holes, loose materials or other damage that can allow additional damage during fierce winds or water to enter the building during rain or snow accumulation.

- Inspect for roof nails that are exposed and have not been caulked or set with a rubber gasket. If necessary, reset or replace the nail, and then caulk the nail head.
  - When left uncaulked or set with a rubber gasket, exposed nails will eventually "pump out" resulting in a leak; these are often found at cap shingles, ridge vents or at the bottom of plumbing vent boots.

- Check the integrity of rubber plumbing boots to ensure the rubber is still flexible and has not dried out with age and sun exposure resulting in cracks that can allow water penetration into the attic spaces.
  - If lead plumbing boots are in use, check to see that the tops of the lead boots are turned down adequately into the tops of the vent pipes; 2 inches as a minimum is ideal. The side flange should be covered with shingles approximately 2/3 of the way down with nails installed under the shingles to ensure the horizontal portion of the boot flange is secure and set flush to the roof deck. If nail heads are exposed, they need to be set with a rubber gasket or the nail head caulked.

- Inspect all flashings, including parapet cap flashings, rain hoods, etc., for proper drainage and attachment.
    - All rain hoods for electrical, HVAC, or other roof-mounted equipment frames need to be inspected for proper clamps, gaskets, and fasteners. Just as with a shingled roof system, any exposed fastener, such as a nail or screw head, should be caulked or set with a gasket. All metal flashings, rain hoods, equipment frames, or other metal products, whether galvanized or painted, need to be inspected for rust and replaced or repaired as needed.

Clean Gutters and Downspouts

- Ensure all gutters are properly attached and sloped, that gutters and downspouts are clear of debris, and that they adequately drain water away from the building perimeter.
    - This continues to be important as the season progresses and leaves begin to fall.
    - Clogged gutters can cause water to back up, which will damage the roof and the trim around the roofs, eaves, and soffits, as well as siding. During frigid winter weather, standing and backed-up water in gutters freeze and cause ice dams that will damage gutters, flashings, roof, eaves, and sheathing, and lead to leaks. Downspouts should discharge immediately away from the building perimeter and into underground storm drain leaders, or with good surface drainage, they can empty onto splash blocks.

Building Exterior Finish Systems (Brick, Stucco, Stone, Etc.)

- Check integrity of flashings and caulking.
    - Properly designed exterior finish systems include redundant envelope components including building wrap, flashing and joint sealant (caulking) to minimize water penetration, and to re-direct to the outside water which has found its way behind finish materials.

- Check all expansion joints and caulk joints at all penetrations for a complete seal, and repair as need.
    - Note that horizontal flashings at the bottom of most penetrations should not be caulked; these are designed to drain any water that may have entered or condensation and, therefore, should not be caulked.

- Check for cracks, deficient mortar, etc at window sills, whether it be a wood, brick, stone or stucco sill.Sills must have a positive slope toward the outside.
    - Eroded mortar joints often are best tuckpointed, repaired with an appropriate mortar product. For brick, stone and stucco systems, be sure to inspect that the weep holes and the floor plate flashings are above grade and clear of landscape materials.

Inspect All Exterior Doors and Windows

- Check to make sure that caulking is still flexible and is sealing any gaps between window/door frames and exterior walls, and at penetrations.
    - This ensures the warm air stays inside the building during the winter and seals the exterior building envelope from water penetration and leaks.

- Be most careful to not caulk flashings designed to drain; this can trap water in and cause even more damage.
    - For added energy savings, check the weather stripping at all windows and exterior door frames to make sure it is still in place and serving its intended purpose. Check window and door hardware and latches to ensure they close snug against their gaskets.

Check Attics and Mechanical Closets

- Check the insulation in attics to confirm it is the proper thickness and is distributed evenly and penetrations are properly sealed.
    - Lack of proper attic insulation and unsealed penetrations are a major cause of heat loss in a building, which will increase heating costs. You should also check to see that all vents are operating properly and there is no insulation blocking soffit vents around the attic perimeter.

- Ensure that wet-pipe fire sprinkler lines located in unheated attics are adequately insulated to prevent freezing and breaking..
    - Some buildings will have some equipment or fire sprinkler standpipes in a closet accessed from the outside. Depending on geographic location, freeze protection can be provided in different ways: insulation, electric heat tape, and/or unit heaters. Check these systems for proper installation and operation.

Tune Up Your Heating System

- Inspect all the furnaces and indoor and outdoor heat pumps to ensure they are clean and operating properly. Replace dirty filters.
    - Clogged and dirty filters cause the heating system to work overtime and waste energy. Dirty filters also can cause negative pressures inside buildings contributing to even more heat loss.

- Check condensate drain pans at interior coil sections/air handlers to ensure they are in good condition, drain alarms are in working condition, and that the drain will empty into the building drainage system.
    - Remember that heat pumps also run in the winter months for heat, so proper refrigerant levels are just as important to maintain as in the summer.

- Check carbon monoxide and smoke detectors to make sure they are operational.
    - Clean chimneys to ensure they are clear and not clogged with soot and other debris, which can cause fire hazards and can cause gases to build up inside buildings.

- Contact a qualified HVAC contractor who will not only perform a visual inspection of the heating system, but will also remove covers and check refrigerant, filters, blowers, heat exchangers, and ensure flues are clear and operating properly, and perform other safety checks that will ensure a safe and warm environment for residents this winter.

Summation

Putting these items on your fall/winter "To-Do List" over the next month will help ensure energy-efficient, dry, and comfortable buildings, and most importantly, a safe environment this winter.

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