

Tips for Dealing with Old Man Winter.



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Snow and Ice Management

By the time you read this, your community no doubt has a snow and ice management plan in effect, but that does not mean it cannot, or should not, be tweaked. Often overlooked in such plans is preparation. The following steps will help facilitate snow removal and mitigate weather related problems

- Clear debris from the paved areas, particularly catch basins and storm water inlets. Impaired drainage can result in ice formation and its attendant problems. Storm water conductors should be routinely inspected and cleaned as necessary.
- Inspect and adjust utility access covers in paved areas as needed to ensure they are flush with the pavement. Snowplows can damage or dislodge fixtures they encounter. Also, impact with utility rings can inflict damage on snow removal equipment. Some municipalities and utility providers will repair these features for free, if only to prevent emergency calls for missing or broken lids.
- Repair potholes in asphalt before winter or they will almost certainly expand. Proper repair entails complete removal (full-depth) of distressed pavement and patching with hot-mix asphalt. "Cold-patching" should be avoided if possible. Cold patch materials will not bond with the underlying or adjoining asphalt and will easily dislodge. Hot-mix asphalt is often unavailable during cold weather and cold-patch can be used as a temporary fix.
- Designate areas for placement of removed snow. Suitable space may be limited in some communities and it could be necessary to identify less desirable, secondary locations. An extraordinary snowfall could mean you have to sacrifice parking spaces, fences, landscaping elements, etc. As an alternative, you could arrange to have snow transported off-site, but that would be at considerable cost and there is no guarantee that transportation will be available.
- Never deposit snow around fire hydrants, mailboxes, wheelchair cutouts/ramps, or trash receptacles. Fire hydrants should be clearly mapped in anticipation of snowfall heavy enough to conceal them and your snow management plan should include measures to keep the hydrants accessible. Speed bumps and wheelchair cutouts should also be mapped so plow operators can avoid them.
- Take photographs annually (ideally before deciduous trees shed their leaves) of the property that could be affected by

snow removal operations. This should apply to paved areas, islands, any signage within the reach of a snowplow, and landscape features. This record will help with property damage claims in the event of carelessness or mishap.

- If your community uses a contractor, the following items should be considered:
 - Always require certificates of insurance (for general liability, vehicles, workers compensation, etc.) from the contractor. Be sure it lists the community and management as additional insureds and that the levels of coverage are adequate. They should also be required of any subcontractors.
 - Have the contractor provide a list of materials to be used, along with a Material Safety Data Sheet (MSDS) and manufacturer's recommendations for each product.
 - To the extent possible, confirm response times, adequacy of materials on hand or readily available, etc.

A critical aspect of snow and ice management is prevention of slip and fall accidents in pedestrian areas; chemical deicers are commonly used in that effort. Keep in mind though, that deicing agents have one purpose – to treat ice. They are not intended to melt snow.

Crumbling concrete is often blamed on deicing agents; especially salt (sodium chloride). Salt does not attack concrete chemically, but inflict damage by other processes. Deicing agents produce an initial reaction with ice that generates heat, but they also create a form of brine which has a lower freezing point than fresh water. Because brine concentrations change constantly through the course of a day, dozens or even hundreds of freeze-thaw cycles can be engendered. It is the freeze/thaw cycle that is destructive, especially to poor quality concrete. The more cycles that occur typically generates more damage.

Salt and nitrate-based agents (such as fertilizer) generally create brines that freeze around 25 degrees Fahrenheit. Calcium and magnesium chlorides can reduce the freezing point below zero degrees, making refreezing less likely here in the Mid-Atlantic region.

Except for fertilizers, chemical deicers are harmful to plants. These contaminants can remain in the soils for up to a year or more, depending on the amount of material applied. To help reduce the potential harm to plant life, deicers should be removed

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Photos of typical winter damage. From left to right: crumbling concrete, damaged steel sprinkler pipe, expansion joint damage, damaged lastic pipe

using vacuum trucks or self-propelled vacuums. Sweeping or rinsing deicers away with water would help reduce damage to concrete, if not plant life.

The use of any chemical deicing agent has environmental consequences. They will eventually enter the water table and the watershed. Storm water management systems help remove contaminants before they can reach the watershed, but they can be overloaded to the detriment of beneficial plants in the basins and wildlife that inhabit retention (wet-pond) systems.

The low-tech approach to snow and ice management (sand application) remains effective and is used exclusively in many parts of the country that experience harsh winters. Coarse sand is best. However, it can be messy and sand tracked in on shoes can damage interior flooring, especially wood.

Snow removal from parking garages requires special consideration, especially if waterproof membrane coatings have been applied. These materials can be scraped off by conventional steel plows and only rubber-tipped plow blades may be used. Skid-steer type equipment will tear the coating off a concrete deck so it should be never be used.

Expansion joints must be well marked so plow operator can easily identify and avoid them. Large piles of snow can overload parking garage slabs and the perimeter walls or guardrails are often damaged by piles of snow or by equipment impact.

Building Elements

Winter can also be hard on your building and its systems. A major issue is frozen and burst water conductors. According to State Farm Fire and Casualty Company, an average of 250,000 American families experience damage from frozen pipes each winter. The average frozen pipe claim is about \$10,000 and Maryland is one of the top five states for such claims.

When water freezes, it can exert pressures up to 20,000 pounds per square inch. When it freezes in a closed space (like a plumbing or fire sprinkler line) major damage will occur, not to mention major expenses.

Water conductors are usually routed within interior walls where they tend to stay above freezing temperatures, but some lines (especially for sprinklers) are necessarily located in attic spaces or in exterior walls. Heat loss at those areas is inevitable. Insulation is installed to help reduce loss, but no amount of insulation can stop it entirely.

Under normal circumstances, and as long as the insulation is adequate (with respect to thermal resistance), dry, uncompacted, and positioned between the pipes and the unheated side of the wall or attic, the pipes should be protected against freezing. Where problems often arise is during prolonged absences from home (such as vacations) during winter months when occupants

turn their thermostats down to conserve energy.

A setting of 60 degrees, as an example, only assures something close to that temperature at the thermostat. Heat loss through attics and walls could easily produce freezing temperatures at the pipes therein. Turning heat off entirely (which also happens) obviously makes matters far worse.

It could be beneficial for condominium associations, apartment complexes, etc., to establish a policy that thermostats are not to be set below a reasonable temperature during heating season. 65-68 degrees would probably suffice for most properties in the Washington/Baltimore area, but a higher minimum may be indicated for older buildings or those in harsher climates.

Another problem area is interruption of electric or gas service for non-payment, which of course translates to no heat. Units that are abandoned or in foreclosure are particularly vulnerable. We recommend that arrangements be made with gas and electric providers to notify management when service to condominium units, townhomes, or apartments is about to be discontinued. If necessary, paying those utilities until accounts are transferred or settled is far less costly to an association than the cost of repairing damage caused by frozen and burst water lines. Even if the damage is covered by insurance, the rate hike the carrier is sure to impose will likely be considerable.

Sprinkler systems in unheated areas (such as parking garages) are usually installed in a "dry pipe" configuration that uses air compressors or pumps to provide the air buffer. Most systems leak a little air and compressors cycle on to replenish the losses. When they do, they introduce water vapor that will condense to liquid water, which can freeze with messy consequences. Dry-pipe systems must be serviced and drained regularly, especially in early fall.

Ice dams can form on sloped roofs under some circumstances. Ice dams form when accumulated snow above heated interior spaces melts, flows downslope and refreezes when it encounters that portion of the roof beyond the heated space, especially if the attic is not well insulated and ventilated. As the ice builds up, it penetrates beneath and lifts shingles. If it backs up far enough, the ice below the shingles will melt and leak into the building.

Ice damming can be controlled by ensuring the attics are insulated (a minimum thermal resistance rating for the region is R-38) and ventilated. Eave flashings (membrane material, extra layers of roofing felts, etc.) are typically installed below the shingles to help prevent interior damage from leaks.

Nature always prevails, but we can be proactive to minimize the consequences of bad weather. The suggestions presented here are by no measure exhaustive or comprehensive. We encourage you develop plans suited to your community and its special needs. ☑