Beyond Blocks and Bricks

Number Twenty-one

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Removing snow and ice from pavers

Rule #1: Brush, shovel and blow snow

Rule #2: Save the salt for ice

Brush, shovel, and plow snow

Since compacted snow is more difficult to remove and may become ice, avoid compacting snow. Clean an area and work outward from there.

If you can, brush snow. Too much snow? Shovel. Then brush to remove the small stuff.

Too much area? Plow. Raise the plow a bit above the surface on mushrooms or wheels so that the blade does not catch the edges of slightly elevated pavers.

Remove the snow earlier in the day rather than later to take advantage of the heat of the sun melting the small stuff and evaporating water from the surface of the paving.

Do not use salt to remove snow.

Cast sand on the paving

Sand gives walkers a feeling of traction and stability. Remember, wet paving can be slippery.

If the sun leaves a surface wet from melted snow, and there is a concern about the water freezing overnight, cast sand on the pathways. Do not apply salt until ice has formed.

Because ashes and cinders usually have a substantial soluble component which can cause efflorescence, do not cast ashes on pavers.

Don't allow ice to form

Because freezing rain is uncommon, ice on paving usually forms from compacted, melted snow. If snow is removed quickly, ice will not form.

Salt is for ice

Only use salt to melt ice. Ice is bonded to the paving and cannot be removed by brushing, shoveling, or plowing. Because snow is not bonded to the paving, it can be brushed and shoveled.

If piles of salt form, you are using too much salt. Lots of salt can kill surrounding grass and plants. Also, more salt increases the possibility of efflorescence.

Mix sand with the salt to increase traction. Wet pavers may be slippery.

What kind of salt?

Calcium chloride is a common and very effective deicing chemical. It will melt ice at minus 20°F. Although less damaging than sodium chloride, regular use of calcium chloride will damage poured Portland cement concrete surfaces and the mortar in mortared paving systems. Calcium chloride is also a major source of efflorescence. It is more expensive than sodium chloride. Apply at a rate of 2 to 4 ounces per square yard.

Magnesium chloride melts ice above +5°F. It is harder to find in stores than calcium chloride, but it is said to cause less efflorescence. Sometimes, magnesium chloride may leave an oily-appearing residue on paving. Apply at a rate of 8 ounces per square yard.

Sodium chloride (table salt or Halite) will melt ice at +15°F. Regular use of sodium chloride will damage poured Portland cement concrete surfaces and the mortar in mortared paving systems. Sodium chloride also kills plants. Apply at a rate of 8 ounces per square yard.

Calcium magnesium acetate (CMA) and potassium chloride are not effective below +15°F. CMA is better at preventing refreezing than melting ice. Also, calcium magnesium acetate is rather expensive. CMA is safe for concrete and plants. Apply CMA at a rate of 8 ounces per square yard. Potassium chloride damages concrete. Apply potassium chloride at a rate of 8 ounces per square yard

Urea only works above +20°F. It is also corrosive and promotes spalling of Portland cement concrete.

If a deicer must be used, use CMA above +15°F. Use magnesium chloride down to +5°F and calcium chloride below +5°F.

If the temperature of the paving is less than minus 20°F, nothing works.

Don't use an ice scraper

When it is too cold for chemicals or when the ice is too thick, out comes the ice scraper. Remember, sooner or later you will become frustrated and use the ice scraper as a digging bar. This action can chip the surfaces of pavers.

Rinse the paving each spring

After a season of snow and ice removal it is common to see efflorescence on paving. While clay and concrete pavers are not damaged by deicing salts, efflorescence is ugly. After the last freeze, rinse off the paving with water to dissolve and remove as much of the salt as possible. Pay particular attention to the intersections of paving and walls or piers.

How does salt melt ice?

When salt is added to water—the salt is dissolved in water—dissolved particles are added to the water. The presence of these dissolved particles lowers the freezing point of the water. This lessening of the freezing point continues until no more salt can be dissolved.

When a salt crystal comes into contact with ice, a small amount of the ice melts. If there are more salt crystals available, more and more ice melts.

As a reminder that the real world is a tough place, sodium chloride works down to about -6°F when tested in a laboratory. Out on a sidewalk, sodium chloride can melt ice only down to about +15°F.