

Melting Rates on Light, Dark Pavements

A common question this time of year involves the difference between melting rates on light-colored and dark-colored pavements.

There is no clear evidence that ice and snow control will melt better or faster on darker pavements (new asphalt or dark-colored concrete) than lighter surfaces.

Past reports have shown a possible 6 to 8°F temperature differential between concrete and asphalt surfaces exposed to sunlight in cold climates. However, this is primarily in high altitude locations where sunlight is present during cold weather. Many northern states and Canadian provinces receive relatively low amounts of direct sunlight during the winter, especially during snowfall, to the effects of solar radiation are reduced.

A snow or ice-covered roadway or runway has the same heat retention characteristics, regardless of pavement type ... at least until the snow and ice are melted by deicing chemicals. The pavement surface is then exposed and able to absorb or retain heat according to its makeup. If a darker colored pavement surface enhances snow melt, it could cause a hazardous situation by re-freezing overnight and forming black ice.

In general, other factors such as temperature, wind velocity and direction, sunlight, terrain, roadway grade, and deicing chemicals have a larger influence on snow control than pavement surface color.

In fact, the few studies (Montana 1967 and SHRP H-643, 1993) have shown that salt demand is slightly higher on asphalt surfaces than on concrete.