# Snow & ice removal: *are you up to the challenge?*

**The removal of snow and ice during winter months in** North America can be some of the most difficult and stressful work many of you will manage throughout the year. Challenges to this work include managing a crew or number of crews, large storms with significant snow and/or ice, fatigue from long hours, and hazardous conditions for both employees and patrons/visitors to the location. Finally, you may be asked to tackle these problems all while staying within or below budgeted constraints. Even with budget considerations, snow and ice management at your facility must be examined with the overall goal in mind; maintaining a safe environment for pedestrians and vehicles, allowing people to go about their daily lives and limiting risk for your employer.

Before going head on with a storm, a number of items should be evaluated to ensure you are making informed decisions that will work with your budget and with the desired outcomes specified above.

## IN-HOUSE VS. CONTRACTED WORK

You may have already made the decision to do all the work in-house, not subbing work out to professional snow and ice management companies. Either way, there are some pros and cons by each method, and some things you should take into account:

**In-House**

Pros:

- More control over crews/timing of removal
- Possible cost savings, but only if your crews are properly trained
- No outsourcing of risk to a third party
- No contracts to sign with a third party
- No bidding procedures

Cons:

- You must have proper equipment, and more importantly back-up equipment in case of equipment failure
- Purchasing of de-icing or anti-icing materials must be made in advance for at least portions of the season, ensuring you do not run out mid-storm
- Implementation; you must coordinate one or more crews, ensuring you are adhering to all state and federal laws governing this type of work
- Training; you are responsible for proper training and planning for snow and ice events
- Potential of property damage that your employer will be responsible for repairing
- You will be responsible for monitoring the weather and determining the needed staff/equipment is prepared
- Added risk if safe conditions are not provided for patrons of the grounds (exposure to slip and fall claims)

**Working with a contractor**

Pros:

- You are hiring a specialist to do the work, so you don't need to be the expert. Questions to ask include; is the contractor a Certified Snow Professional? Are they a member of the Snow & Ice Management Association?

■ Long term may result in possible cost savings for the organization if you form a strong relationship with a solid, dependable contractor. Locking in a good contractor for a 2- or 3-year contract with defined costs will make budgeting for snow & ice much easier.

■ Risk management; if you hire and sign a contract that defines the relationship between you and the contractor, it will outline specific guidelines of who is responsible for what, meaning a certain degree of risk will be passed to the contractor. This could be a key factor in cases of slip and fall claims or property damage claims.

Cons:

■ Loss of some control

■ Hiring/bidding process can be time consuming

■ Costs can be high depending on pricing structures, amount of winter weather, etc.

■ If or when you decide to outsource all or portions of your snow removal operations to a contractor, you should always require a formal bid, a defined contract agreeable/amended by both you and the contractor, and proof of all insurances including general liability insurance.

Working through a winter storm will be one of the most difficult events you'll manage throughout the year. A large winter storm bringing significant snow or ice will result in long hours, fatigue, equipment breakdowns, and potentially hazardous situations for the people on your grounds. Add to that the desired level of service that most individuals are accustomed to in our culture, and you are faced with removing snow and ice in the most efficient and cleanly method possible in order to perform and meet your defined goals.

## EQUIPMENT

Matching equipment to the work load is critical. First and foremost, you always need to be prepared for equipment failure; there is nothing worse than being stuck in the middle of a large storm and losing one or more of the tools you need to get the job done. Generally, the equipment used for snow and ice removal includes: Pick-up trucks; skid steers/compact equipment; ATV's; and front end loaders/large equipment.

The snow plow manufacturing industry has made significant advances in construction and design of plows, and now in general the following plows, along with proper techniques, can help you make your operation more efficient:

**Straight Plows**. When you have a straight plow, angle the blade away from the building as you make your first pass. Subsequent passes should be made away from the building and toward the outer perimeter. The general rule is to never angle your blade towards a building. The goal is to get the snow as far away from the buildings as possible.

**V-Plows**. Use a V-position to make an initial break through. This position is also effective for hard packed snow, ice and deep drifts. Set the blade in the straight position or angled position for general, wide path plowing or stacking. Use the scoop position for clean-up and carrying snow with minimum spillage.

**Pushers/Box/Containment Plows**. When using a snow pusher, be sure it's attached according to the manufacturer's specifications. These specs are designed to provide the best performance, wear tolerance and safety. A snow pusher on a loader, backhoe, skid-steer or compact utility tractor can quickly and efficiently move large volumes of snow. Snow pushers contain snow and don't create as much of a windrow, which eliminates the need for repeated plowing of the same area to clean up spillage. By using the loader's lifting capabilities, snow pushers can be used to stack huge piles of snow. And, by removing the snow pusher attachment you're left with a loader capable of loading trucks in case the snow must be hauled away.

## DE-ICING AND ANTI-ICING

Historically, snow and ice removal has been achieved with over-use of chemicals and the use of shovels, plows, and other equipment. In recent times, granular materials have become a popular and effective method for maintaining safe conditions during and after a storm. A quick review of current terminology provides a simple breakdown of the options that are currently available on the market:

De-icing is the reactive application of ice control products to driving or walking surfaces, to melt existing snow and ice. De-icing is performed after snow removal operations to melt any remaining snow and ice.

Anti-icing is the pro-active application of ice and snow melting products to driving or walking surfaces prior to a snow or ice storm. Anti-icing helps prevent snow and ice from bonding to the pavement, allowing snow and ice to be cleared more easily. When used effectively, anti-icing can create some of the safest conditions in the winter, and be a cost-effective alternative to de-icing.

Understanding the difference between anti-icing and de-icing can yield insight into the different approaches used by professional snow removal services. In general, materials used in de-icing and/or anti-icing include:

Sand: Although sand can provide some amount of traction, it technically is not a de-icing material, since sand in no way melts snow or ice. A common misperception is that sand is the best alternative for snow and ice control due to its low cost and common use. Sand may also have environmental impacts related to drainage that must be considered.

Salt: Sodium Chloride, or rock salt, is the most common de-icer in use today. Generally this product is effective, though not at all conditions. In very cold conditions (typically less than 23 degrees F), salt begins to lose its effectiveness and is either not used or is overused in an attempt to make up for reduced performance.

Sand/Salt Mix: Another common practice is to mix sand and salt together for de-icing. This method is effective in maintaining some traction, due to the sand, but it will reduce the amount of salt that can be applied to an area, so less de-icing occurs while environmental concerns and clean-up costs associated with sand rise.

There are many other products in use in today's market, and each of these differs in effectiveness, cost, availability, and environmental impact. These products include: calcium chloride; magnesium chloride; potassium chloride; urea; calcium magnesium acetate; and potassium acetate. ■

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