The Changing Dynamics of Artificial Ice Operations

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Background

The parks and recreation sector has seen many changes over the years. Active living and a healthy environment has never been more important than it is now to facility users and decision makers. Recreation facility operations support this shift in lifestyle attitude.

These changing times brings about a new face and energy to today's facility user. What used to be a "traditional ice rental" is now multifaceted with ice rental time being in high demand. New programming opportunities have been added to facility schedules as a response to current trends and attitudes. Many of these new activities and events are of a more competitive and high caliber nature than what has been tradition.

While the artificial ice industry strives to evolve with this fluctuation, it is not without many challenges placed upon the facility operation. This can place an unexpected demand on facility staff as they strive to provide the expected level of service, regardless of the intended use of the facility or event.

The intent of this paper is to stimulate a discussion on the current demands of today's facility manager and to help coordinate a standard schedule of play for today's facility operations. The goal here is to offer suggested methods that will best meet the needs of today's facility user and further advance artificial ice operations. In reviewing these practices, operators will be better equipped to differentiate between "regular use" of ice rental times and those that are "significant events"

Changing with the Times

Although there is a science to making and maintaining a quality sheet of ice, there are still operators who fail to embrace these proven techniques. Advances in technology and innovations in product design along with more widely available training opportunities are very encouraging to the artificial ice industry. When taken advantage of, these improvements can help the icemaker to produce and maintain a superior sheet of ice, often more efficiently than before. Ice that is not created to be durable due to improper ice making techniques or operational challenges (e.g. poor water quality) will require more attention from the ice technician.

Traditional Operational Practices

Traditional hockey practices involve one team on the ice. At times younger age groups may combine ice allocation and split the ice. Nevertheless, given the skill level and size of these participants, operators should not expect any signs of deterioration due to stress. Starting in the mid-teens, the size of player, equipment and skill level are all factors that can lead to stress of the ice surface under some conditions. It is unacceptable to pass poor ice conditions that are the result of a "hard practice" or other significant event onto the next rental group.

Managing the Ice

Minimum ice thickness for normal operations is recommended as 1 - 1 ½ inches as an acceptable industry standard. However, ice technicians must be prepared to adjust ice depth to meet specific user activities during any given schedule.

Building and cutting ice is a normal part of an operator's responsibility. By reading the rental schedule, an operator can determine whether the ice should be built up as an extended safety buffer. This allows operators to safely-remove ice without breaching the minimum industry standards for ice depth.

Understanding the mechanical operational capabilities and limitations of the building is also an important operational obligation of today's ice technician. Facilities that set one temperature at the start of the season and make no adjustments throughout the year may encounter fluctuating ice conditions as heat and humidity impact the quality of the ice surface. Mechanical equipment adjustment is an important part of controlling ice conditions.

Tournament play, hockey tryouts, figure skating competitions, speed skating or sledge hockey are not "normal use". The nature of these rigorous activities classifies them to be "significant events". Since high caliber activities such as these radically deteriorate ice conditions, operators must be prepared for any damage that may result. This is accomplished by continuous monitoring of ice

surface conditions along with inspecting conditions between permits. Staff should be ready for additional maintenance as required during these rentals. This may include tasks to repair damages, remove ruts or to patch holes in the ice surface. It is essential to provide safe ice conditions at all times to participants.

- ✓ **Facility operators should be trained to identify and repair unsafe ice conditions**;
- ✓ **Facility operators should conduct ice depth readings any time that ice repairs are made, or when there are signs that ice deterioration has occurred. Follow these readings with the appropriate corrective actions**
- ✓ **Facility operators have complete authority to delay or cancel any ice rental due to unsafe conditions.**

Significant Ice Events

Significant ice event: "any activity that is known to stress or destroy ice beyond what might be deemed safe and serviceable for regular use. Examples of significant events include, but are not limited to: speed skating competitions; high caliber figure skating shows/competitions; hockey tryouts of persons over the age of 14-years; sledge hockey; hockey tournaments; high attendance open skating sessions; extended dry ice use trade shows that cover ice for extended periods."

***Regular ice: these sessions do not put any unusual stress on the ice that cannot be restored through regular ice maintenance, which is typically one resurfacing, by the ice resurfacer*.**

1-1.5inches is to be at the end of the session – not just the start! Operators should be prepared to build ice up prior to "significant events". By increasing the ice depth, operators can safely remove extra cuts from the ice while still maintaining a minimum ice depth of 1-1.5 inches*.
[* Maintaining 1 to 1 ½ inches of ice at any given time is an industry accepted best practice.]

- ➢ Increase operational ice maintenance scheduling during "significant play"
  - It is recommended that 30-minutes of ice maintenance be scheduled for every 6-hours of hockey tournament play;
  - It is recommended that 30-minutes of ice maintenance be scheduled for every 3-hours of hockey tryouts or sledge hockey;
  - It is recommended that 30-minutes of ice maintenance be scheduled for every 4-hours of figure skating or speed skating;
- ➢ Users should be responsible for required ice repair time when the scheduled significant event is known to stress ice conditions; this time should be deducted from the set rental schedule; the rental agreement should clearly reflect this arrangement;

Significant Event	30-Min Ice Mtc Recommendation	Maximum Skating Time
Hockey Tournament	•	**6-hours**
Sledge Hockey	•	**3-hours**
Figure Skating	•	**4-hours**
Speed Skating	•	**4-hours**

Establishing Controls

Poor ice conditions should not be shrugged off as a histrical part of operations. Ice technicians must take action as described in this document and create a written incident report to record the problem and confirm that action has been taken.

Facility managers should set user loads for significant events as required. *Rationale: to help ensure that a safe skating environment exists at all times and that the condition of ice surface is not compromised because of excessive user loads.*

A Standard community ice sheet is 185ft. x 85 ft.

185 x 85 = 15,725 sq. ft
15,725 sq. ft./40 participants = 393 sq. ft per skater[Note: larger ice surfaces may consider adjusting participant loads accordingly.]

ORFA recommends setting a maximum limit of *40 sporting participants (over the age of 12) be allowed on the ice surface for any significant event [with the exception of public skating]

All events that utilize the ice surface will require some degree of participant control. There is a growing concern amongst facility staff with the lack of "participation control" for some significant events. Crowding on the ice surface raises two primary concerns

1) space allotted to each skater for sessions that have some level of skill development [hockey schools, hockey tryouts, figure skating] at what point does overcrowding or safety become an issue?

2) ice deterioration caused by elevated skater load.

Further, some hockey organizations have expressed concern as to the ability of coaching staff to control large groups of skaters especially when an ice sheet holds a large number of participants.

Improved Operational Practices

Maintenance - The courts have recognized the need to provide and maintain adequate ice depth when offering skating activities. Industry best practice is to preserve 1 to 1 ½ inches of ice at any given time.

Measurements – It is industry best practice to conduct a series of ice depth readings on a regular basis. Ice depth readings should be conducted once per-week in 25 locations, as a minimum practice. **Ice depth readings should be conducted once for each day a significant event is scheduled; and re-tested anytime ice repairs are required:**

Ice Time Allocation - a standard hour of ice usually consists of 50-minutes, although there are some operations that provide full 60-minutes of ice for the set fee.

The ORFA recommends that to provide a safe high caliber skating event that 375-400 square feet per-skater be provided. Facility managers should calculate their specific square footage by multiplying length x width.

Example Calculations

Surface Size	Sq. Footage	Skater Load
185 x 85	***15,725/400***	***39-40***
190 x 90	***17,100/400***	***42-43***
200 x 100	***20,000/400***	***50***

Key Points to Remember

Although there are various industry accepted best practices, "not one set of operational procedures will work in all facilities". Each facility must treat any of the suggested best practices as a minimum standard and then create detailed in-house policies and procedures specific to their own operations.

Conclusion

Sporting competitions, high caliber events and new sports are all great ways to increase revenue and attract users to the facility. Facility management should be encouraged to make every effort to grow and develop these sports in their communities. However, staff must be adequately prepared to meet this growth through ongoing assessment of their environment and adequate training to understand the sciences involved with the task!

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