



Risk Management Considerations for Outdoor Skating Rinks

A 35 year old woman was skating at a local outdoor skating rink when she fell because her skate got caught in a crack in the ice surface. She broke her leg in three places and required surgery in order to repair one of the breaks. The City was held responsible, as it had been negligent in inspecting and maintaining the ice rink.

Background Information

Outdoor skating rinks are a popular fixture in most municipalities during the Canadian winter. However, the presence of outdoor skating rinks can lead to an increase in liability if they are not properly designed and maintained. Your organization has a duty, as an occupier, to keep the property in a safe condition to accommodate its intended purpose.

Managing the Risk

A) Building the Outdoor Rink

Surface conditions:

- Outdoor ice rinks should be constructed on surfaces that are flat and free from mounds, heaves, or other irregularities.
- The surface must also be free of stones and other debris and grass should be cut as short as possible.
- With hard surfaces, such as pavement or concrete, a pre-flooding inspection should take place to identify and repair any cracks or holes and to remove any debris.

- With surfaces such as grass, an inspection should take place to remove any sticks or other debris and a plastic sheet should be placed down prior to flooding, both to hold the water and protect the grass.
- Shovel snow off the rink after every snowfall to ensure safe, even surface conditions.

Equipment:

- Lighting - there should be ample lighting around the rink and it should also be ensured that rink lighting is in working order for night skates.
- Benches must be provided for users to rest and to put on/take off their skates.
- Waste receptacles also should be available so that garbage isn't left on the ice.
- Flooding equipment – ensure that proper flooding equipment is readily available and safely stored on site. This would include hoses, shovels and an ice blade for scraping edges and bumps.
- Ice Resurfacing Machines – if you choose to use an ice resurfer, you need to ensure that there is enough ice to support its weight. Its dry weight is 7,000 pounds and its weight filled with water is 8,700 pounds. If the ice resurfer is driven over gravel, bits of gravel may be transferred to the outside ice surface, as well as arena ice surfaces.

Flooding:

- Flood as often as necessary in order to maintain a smooth, safe ice surface.
- Don't flood the ice surface if it is snowing or if there is snow on the ice surface, as it can result in an uneven and potentially harmful surface when it freezes.
- Always perform a pre-flooding inspection of the ice any remove and debris or snow prior to flooding.
- Apply light sprays of water, pre-flush water supply systems to release any build-up and ensure adequate pressure.
- Don't flood on extremely cold days (minus 20 degrees Celsius and below). Flooding in colder temperatures causes ice to crack and boil, resulting in unsafe skating conditions.

Ice Thickness and Conditions:

- Outdoor ice rink thickness is recommended at 2 to 2.5 inches.
- Any thickness less than this has the potential to thaw more quickly.

Rink Boards:

- Rink boards serve to outline the skating surface and in the case of hockey, keep the players and the puck in and the spectators out.
- They can also be used to divide the ice into hockey areas and public skate areas.
- Board all rinks intended for hockey – this helps to ensure the puck stays on the ice, reducing the risk of it hitting a bystander or public skater.
- Rink boards should be installed properly without protruding stakes or other materials.
- If boards have fallen down, repair them immediately or remove them.

B) Hazards of Outdoor Rinks:

- All hazards found during inspection should be repaired immediately.
- Rinks should be closed as soon as the hazard is found and remain closed until repairs are completed.
- Common hazards consist of:
 - Cracks
 - Frost boils
 - Exposed ground

- Chopped up ice surface
- Ice shavings

C) Maintenance and Inspections of Outdoor Rinks:

- It is recommended that inspections of outdoor ice rinks be made twice a day to ensure the ice remains safe for use.
- Inspections should be documented, including any repairs or maintenance done or maintenance that should be completed.
- Hazards such as cracked ice, frost boils, exposed ground, or chopped up surface should be repaired immediately and the rink should be posted as closed until the repairs are completed.
- Ice shavings pose a risk to children as they can be tempted to eat them or play in them. Shavings can contain bodily fluids and so it should be posted at the rink that they may be unsafe. Rink workers and maintenance staff should remove shavings as soon as possible and should also be informed of this danger.
- Trucks should not be used in the maintenance of the rink or for plowing snow. Vehicles bring debris onto the ice surface such as sand or salt, which can cause melting of sections of ice. Vehicles can also drip oil, gas, anti-freeze, etc. on the surface, creating hazards. Also, having a large vehicle on the ice surface near children is very dangerous, as the truck can't stop quickly or safely if a child were to go on the ice while it was plowing.

D) Conflicting Uses – Hockey vs. Public Skating:

- Hockey playing and public skating should not be allowed to take place at the same time at one rink.
- Designating certain rinks as hockey rinks or designating certain times as public skates can reduce this risk.
- Providing supervision at public skates can also help ensure that hockey games or other dangerous behaviour does not take place.

E) Volunteers:

- Volunteers can help to ensure that rink conditions remain safe by supervising skates or conducting inspections and maintenance operations.

- Volunteers should be trained by municipal staff in the correct ways to perform their duties.
- The same municipal documents should be used for inspections performed, or incident reports.
- All documentation should be filed with the municipality.

F) Signage:

- Signs should be posted around the rink including information such as:
 - Hours of operation.
 - Rules of conduct.
 - Open or closed for skating.
 - Alcohol prohibited.
 - Helmets are strongly recommended.
 - Children should be supervised.
 - Location of nearest telephone – 911 is a FREE call.
 - Municipal contact number – be sure to acknowledge all calls so that people continue to call in and report problems.
 - Any other warnings.

Skating on Natural Bodies of Water:

Skating on natural bodies of water requires an additional set of guidelines in order to ensure safety.

A) Ice Thickness:

- 3 inches – stay off.
- 4 inches – ice fishing, walking, x-country skiing.
- 5 inches – 1 snowmobile or ATV.
- 8-12 inches – 1 car or small pick-up.
- 12-15 inches – medium truck pick up or van.

B) Testing the Ice:

- The colour of the ice can tell you about its thickness:
 - Blue ice is the strongest.
 - White/opaque ice contains a high air content, which weakens the ice.
 - Grey ice is the least safe. It may contain water from thawing and is not good load bearing.

- Persons testing the ice should be roped together.
- Test holes should be made with an auger.
- If there is water between the layers of ice, only the top level of ice should be measured.
- Have an ice rescue plan in place.

C) Inspections:

- Regular inspections need to be made of the ice thickness.
- Inspections need to take place whenever there is a significant rise in the temperature and should be inspected for thickness daily when the temperature is above minus 5 degrees Celsius.
- Document all inspections and tests that are conducted and file them.

D) Signage:

- Signs should indicate the condition of the ice, such as “Thin Ice! DO NOT skate!”.
- Do NOT use the phrase “Skate at your own risk” – this implies that skating may still take place.

E) Worker Safety:

- Worker safety is of the greatest importance when testing the ice.
- Workers should wear floatation devices or floatation suits when testing the ice.
- Have in place an ice rescue plan in the event that a worker falls through the ice.
- Ensure that any stormwater management ponds in your municipality are NOT used for ice skating.
- Place barriers around the ponds to prevent public access – use fencing or “unfriendly” vegetation as a natural barrier.
- Post signs that read “RESTRICTED AREA – DO NOT ENTER” or “UNSAFE CONDITIONS – WATER CONTAINS TOXINS”.