

Electricity and the Ice Arena: A Hostile Environment for a Dangerous Necessity

EDGE - Sep/Oct 2004

by Albert Tyldesley

Ice arenas would have a difficult time operating without electricity. We depend on this expensive and potentially dangerous power source. Unfortunately, we also tend to take it for granted. Turn on a switch, place a plug in a wall socket and we expect everything to work. Our electricity is usually reliable, and when used properly, it's usually safe. But all too often, age, abuse, and mismanagement allow our electrical power equipment to deteriorate to a point of being dangerous to both life and building.

Water hazards

We learn at an early age that water and electricity do not mix. Water is an excellent conductor of an electrical charge. Ice arenas use water like they use electricity. Large volumes of water pass through the bathrooms, showers, snack bar and drinking fountains. Tens of thousands of gallons of water are used to maintain the ice. Water is used to cool the equipment in your compressor room. All of these sources are potential problems if not carefully regulated and maintained. Moisture and condensation are normal byproducts in ice arenas. Any kind of moisture mixed with electricity spells trouble.

Most arena managers have seen the damage done by moisture. Overhead lights and beams show signs of rust. Screwheads are hard to remove from equipment that has become damp. We may even have felt a tingle as we worked on electrical equipment inside the arena. Electrical lines are extremely susceptible to damage from moisture. The simple act of changing an overhead light can result in death if the fixture has been damaged by water. Many arenas place aftermarket lighting and sound equipment on the rink beams. This equipment is often installed by under-qualified individuals. Time, moisture and rust may expose live wires that can lie undiscovered for several years. This type of electrical problem has been responsible for many fires. Water leaks in your roof can cause serious electrical problems in the ceiling area that may go undetected until disaster strikes.

Aftermarket cautions

Aftermarket equipment is a problem in many areas. Light fixtures are made for specific use. Most fixtures require that a bulb not exceed a certain watt rating. The extra heat from a larger bulb can ignite not only the fixture, but also any nearby combustible material.

The use of extension cords with decorative lighting is a dangerous misuse of electrical equipment. Extension cords must never be used as a permanent installation, and should be carefully monitored when used as a temporary source of power. Never, never allow an extension cord to pass across an area open to skaters. Should you need to pass a cord through an area where people are wearing skates, elevate the cord high overhead. Using an extension cord that is rated for the equipment you are connecting is a basic safety rule that is frequently violated.

Many ice arenas have electrical lines that extend out to the dashboards. Goal judge lights and sound systems require underground power. The conduit and trenches that carry these lines deteriorate with age. Water passes through rubber flooring and enters these trenches. You will never see this problem unless you inspect these trenches and conduit on a regular basis.

The snack bar, pro shop and skate-sharpening room are all areas highly susceptible to the misuse of electricity. Zip cords or extension cords are commonly used in such areas. The National Fire Protection Agency reported 28 fires in ice arenas in a recent year. Eleven percent of these fires were

caused by electrical equipment including cooking appliances. Over a four-year period, NFPA records showed 34 percent of fires in ice arenas were caused by electrical problems. Well-meaning employees and outside lease groups can get you into serious trouble in these areas. It is not unusual to find large appliances with power plugs hidden out of sight. Pushing, pulling and dropping items can lead to damaged electrical lines inside walls, which will not be visible day to day. These areas require a thorough inspection by the manager on a regular basis.

Wall plugs in your public area take a beating. Video games and vending machines get pushed and banged into these plugs. Damage can go undetected until a child reaches to retrieve something and is electrocuted. All plugs in the public area should have spring-loaded safety covers that keep little fingers out. Bathrooms, locker rooms and shower rooms should not have electrical wall plugs.

Authorized personnel only

Compressor or mechanical rooms are filled with equipment using large amounts of electricity. The door to this room should be closed, locked and available to only those employees who have business in there. We often see control-panel access doors left open. Safety guards that have been removed for a repair are not put back on. Uncovered wires hang from equipment and puddles of water appear on the floor. An already dangerous room can become deadly through sloppy maintenance habits and an unprofessional attitude. You can be sure that Murphy's Law will be in effect when you have a problem in this room: The wrong employee is on duty when an electrical failure occurs. He touches switches, toggles, fuses and anything he thinks might help. Then he touches the wrong thing and dies on the spot. This room must be treated with great respect. Do-it-yourself repair jobs are usually out of order in this room. Let the experts maintain this complicated equipment.

Breaker, breaker!

Breaker boxes can be a source of irritation if not marked. Every electrical distribution box should have every breaker marked inside. Identify the source of every electrical line in the arena. This will not only save you time solving a problem; it might save a life or prevent a fire if you can shut a breaker down quickly. This distribution equipment comes in many different quality grades. When it comes to electrical equipment, the old saying "You get what you pay for" is true. If your arena was built with a low-bid process, you might want to check on the quality of this important equipment. Do you have any aluminum wiring in your arena? Aluminum was used for years before trouble with fire prompted replacement of most of it. Aluminum wiring is still present in many buildings. If you have it, consider replacing it.

Knowing how to shut off all electricity to your facility is important. Any person left alone and in charge of your facility should know how to do this. In case of an electrocution or fire, this simple act could save a life or save your building. It is also a good idea to manually throw every breaker switch once a year. This prevents rust or dirt from incapacitating the breaker. Having extra breakers on hand can be helpful as equipment gets older. Breaker failure in older or low-quality equipment is common.

Electricity is potentially dangerous, yet it is a power source that we cannot live without. Treat it with respect and it remains a friend. Fail to do your homework and electricity can hurt or kill patrons and employees, and burn your facility. Preventive maintenance of electrical equipment should be high on the manager's daily and weekly safety checklist.

Albert Tyldesley chairs the ISI Safety Committee as well as the iAIM Board of Regents.

Electrical Safety Checklist

- Be sure all electrical equipment, including aftermarket lighting and sound equipment, is installed and repaired by qualified individuals.
- Regularly inspect for roof leaks.

- Do not use light bulbs that exceed the recommended wattage for your fixtures.
- Never use extension cords as a permanent installation, and carefully monitor them when used as a temporary source of power.
- Never allow an extension cord to pass across an area open to skaters.
- Use only extension cords that are rated for the equipment you are connecting.
- Regularly inspect trenches and conduits that carry power underground.
- Regularly inspect snack bars, pro shops and skate-sharpening rooms for damaged electrical wires inside walls and other hazards.
- All plugs in the public area should have spring-loaded safety covers that keep little fingers out.
- Bathrooms, locker rooms and shower rooms should not have electrical wall plugs.
- The door to compressor or mechanical rooms should be closed, locked and available only to authorized employees.
- Every electrical distribution box should have every breaker marked, identifying the source of every electrical line in the arena.
- If you have aluminum wiring, consider replacing it.
- Any person left alone and in charge of your facility should know how to shut off all electricity.
- Manually throw every breaker switch once a year to prevent rust or dirt from gathering.
- Keep extra breakers on hand.