Hazards	
Tools/Equipment	
Employee Group(s)	Facilities Management – Pool/Rink

Required PPE:


Safety Shoes


Ear Protection


Eye Protection


Gloves

SAFE WORK PRACTICES

- Do not perform the procedure or operate the equipment until you have been appropriately trained and authorized to do so by your supervisor.
- Inspect required personal protective equipment (PPE) and replace if required.

PROCEDURE

- The pool operator is responsible for repairing all equipment related to the mechanical operation of the aquatic facility. This includes the circulation system, sanitizing system, filtration system and the automated testing/chlorination system.
- The pumps, valves, sensors and chemical lines related to the operation must be visually inspected daily.
- Hands on inspections should occur weekly.
- Reading and interpreting the data from the AK2000 (automated chlorinator) is done hourly during work hours.
- Pump adjustment (chemical) is done manually and is a result of the chlorine readings taken during testing.
- Acid pump adjustments are made manually and also change due to the testing results.
- Valve settings for the recirculation path are set and maintained for optimum flow rates and filtration cycles.
- Gauges for on deck air temperature, on deck humidity, water temperature, flow rate and filter pump pressure are visually checked and recorded daily in the pool logbook.
- The pool filter room also houses air handling units, electrical panels, steam lines, hot water tank and related pumps and gauges. Any problems or malfunctions that cannot be easily repaired or reset must be reported to the department supervisor at 867-5032 and/or the stores clerk at 867-2149.

Hazards	spilling, splashing, mixing chemicals, corrosive fumes that can burn eyes and skin
Tools/Equipment	Pyrex measuring jugs, chemical resistant jug
Employee Group(s)	Facilities Management – Pool/Rink

Required PPE:

Safety Shoes | **Eye Protection** | **Chemical Resistant Gloves** | **Respirator** | **Protective Suit**

SAFE WORK PRACTICES

- Do not perform the procedure or operate the equipment until you have been appropriately trained and authorized to do so by your supervisor.
- Inspect required personal protective equipment (PPE) and replace if required.
- This job involves working with highly corrosive chemicals and proper protective clothing must be worn when working with these chemicals.
- Care must be taken to clean up any spills immediately and various jugs used must be rinsed out when job is complete. Personnel should know the location of nearest safety shower and chemicals must not be transported across boiler room in open containers. Closed chemical resistant jug must be used.
- Safety data sheets (SDS) are located in control room. Have knowledge of SDS for chemicals being handled in case of spill.
- Each chemical is added according to the results of the boiler water tests and as a result of the chemical suppliers' recommendations.
- **Chemicals Used:**
    - Optisperse 5050 – used to control boiler water alkalinity. Limits are 400-500 ppm
    - Steamate 2360 – used to eliminate acid corrosion in condensate. Limits are pH 8+
    - APFe103 – used to control iron and hardness on surfaces
    - CorTrol 3070 – controls preboiler and boiler O^2 corrosion. Limits are 30-50 ppm

PROCEDURE

1. Pump required amount of Optisperse 5050 into Pyrex measuring jar and transfer into acid resistant covered jug. Pour into appropriate boiler chemical tank.
2. Repeat for any boilers that are in service.
3. Pump required amount of Steamate 2360 into Pyrex measuring jar and transfer into acid resistant covered jug. Pour into appropriate boiler chemical tank.
4. Repeat for any boilers that are in service.
5. Pump required amount of APFe 103 into Pyrex measuring jar and transfer into acid resistant covered jug. Pour into appropriate boiler chemical tank.

6. Repeat for any boilers that are in service.
7. Fill boiler chemical tanks with water to within 1” of top.
8. Rinse acid resistant jug with water from sink.
9. Pump required amount of CorTrol 3070 into Pyrex measuring jar and transfer into acid resistant covered jug. Pour into DA chemical tank and fill with water.
10. Rinse all containers with fresh water and return to chemical room.
11. Pump chemicals into boiler and DA and refill tanks with water.

Hazards	oil spill
Tools/Equipment	adjustable wrench, oil, 5-gallon bucket
Employee Group(s)	Facilities Management – Pool/Rink

Required PPE:

Safety Shoes | **Eye Protection** | **Gloves** | **Face Shield**

SAFE WORK PRACTICES

- Do not perform the procedure or operate the equipment until you have been appropriately trained and authorized to do so by your supervisor.
- Inspect required personal protective equipment (PPE) and replace if required.

PROCEDURE

1. Remove oil pump from empty bucket and place in bucket to be used to fill compressor.
2. Using adjustable wrench, remove cover from oil fill valve.
3. Connect pump discharge hose to compressor but do not tighten.
4. Partially open compressor oil inlet valve and inject a small amount of oil into compressor. This will allow any air in line to escape through the loosened fitting.
5. Tighten oil pump discharge fitting and fully open oil inlet valve.
6. Inject oil into compressor until the level changes in the sight glass.
7. Close the oil inlet valve and disconnect oil pump discharge hose.
8. Using adjustable wrench, replace oil fill valve cover.
9. Place pump back in empty bucket.

Hazards	
Tools/Equipment	filter wrench
Employee Group(s)	Facilities Management – Pool/Rink

Required PPE:


Safety Shoes


Eye Protection


Gloves


Face Shield

SAFE WORK PRACTICES

- Do not perform the procedure or operate the equipment until you have been appropriately trained and authorized to do so by your supervisor.
- Inspect required personal protective equipment (PPE) and replace if required.

PROCEDURE

1. Close inlet and outlet valves to brine filter.
2. Using filter wrench, remove filter container.
3. Remove used filter from container and insert clean one.
4. Check “O” ring on top of filter container and make sure it is not damaged.
5. Thread filter container back in place, making sure not to cross thread.
6. Use filter wrench to tighten container, taking care not to over tighten.
7. Open filter inlet valve (left-hand side) and depress red button on top of filter to vent any air as filter fills.
8. Open filter outlet valve (right-hand side) to put filter fully in service.

Hazards	
Tools/Equipment	socket and ratchet, box end wrench
Employee Group(s)	Facilities Management – Pool/Rink

Required PPE:


Safety Shoes


Eye Protection


Gloves


Face Shield

SAFE WORK PRACTICES

- Do not perform the procedure or operate the equipment until you have been appropriately trained and authorized to do so by your supervisor.
- Inspect required personal protective equipment (PPE) and replace if required.

PROCEDURE

1. Shut off appropriate fan on electrical control panel in Keating compressor room.
2. Open switch on front of fan on Keating roof and lock in open position.
3. Using ratchet/socket, remove screen from front of fan.
4. Using ratchet and wrench, open door below fan, exposing bottom drive pulley.
5. Remove worn belt and install new one.
6. Close bottom door and reinstall screen on front of fan.
7. Remove lock from switch below fan and close switch.
8. Switch fan back on at compressor room electrical control pane.

Hazards	falls
Tools/Equipment	flat head or slotted screwdriver, replacement light bulbs
Employee Group(s)	Facilities Management – Pool/Rink

Required PPE:


Safety Shoes


Eye Protection


Gloves


Fall Arrest Harness

SAFE WORK PRACTICES

- Do not perform the procedure or operate the equipment until you have been appropriately trained and authorized to do so by your supervisor.
- Inspect required personal protective equipment (PPE) and replace if required.

PROCEDURE

1. Switch on emergency lighting for the rink being worked on.
2. Switch off lights to be changed and open the appropriate supply breakers (LOTO procedure?).
3. Follow Mobile Elevating Work Platform (MEWP) Program for scissor lift use.
4. Raise lift to level of light to be changed and ensure light can be reached with relative ease. Do not overextend yourself out from the work platform.
5. Using slotted screwdriver, remove the two screws in the light cover and allow it to fold open on its hinges.
6. Remove old bulb and insert new bulb.
7. Put old bulb in box which contained new bulb so it will not fall off lift.
8. Close up cover and replace the two screws.
9. Ensure area around scissor lift is clear and proceed to next light.
10. When finished, lower scissor lift to lowest level and proceed to storage area.

Hazards	respiratory, eye irritation
Tools/Equipment	new DE filter bags, ¾" open end wrench, step ladder, 2-4' planks
Employee Group(s)	Facilities Management – Pool/Rink

Required PPE:

Safety Shoes | Eye Protection | Gloves | Protective Suit | Respirator

SAFE WORK PRACTICES

- Do not perform the procedure or operate the equipment until you have been appropriately trained and authorized to do so by your supervisor.
- Inspect required personal protective equipment (PPE) and replace if required.
- The old filter bags may be covered in diatomaceous earth, which is a breathing hazard in its dry state, but causes no health issues in its wet state. Use of the required PPE will give adequate protection when changing the filter bags. Any product which gets on the skin will not be absorbed by the skin and can be washed off with soap and water.

PROCEDURE

1. A safe work permit must be installed on the filter pit prior to any entry and should include the following: pool water inlet to pit, make up water to pit and recirc pump breaker opened.
2. Place the two planks across the top of the metal filter braces which are bolted to the pit walls. This will provide a work platform for removing the 3/4" nuts on top of the braces – four in total.
3. Once the nuts are removed, use the step ladder to climb down into the pit.
4. The filters can now be removed from the plastic hangers by simply pulling down on the filters. This will pull them loose from the "U" shaped hangers. They are also connected to the large pipe at the bottom of the pit through a connection on bottom of each filter rack. Pulling up on the filter/rack will free them from the pipe. They can then be removed from the pit.
5. The old filter bags are removed by opening the Velcro fastenings along the top of the filter, removing the rubber gasket at the bottom opening in the bag and pulling them free from the plastic frame or rack.
6. The new bag is then pulled up over the frame, the Velcro fastening closed, and the new gasket placed around the opening on the bottom outlet of the filter.
7. When the required number of new bags have been replaced on the frames, they can be placed back in the filter pit.
8. Starting from the end closest to the pit inlet, fit the bottom of the filter frames back into the discharge pipe until they are all in place. Ensure they all fit tight.
9. Once that is complete, place the metal filter braces loosely in place and fit the tops of the filters into the "U" shaped hangers.
10. Using the 3/4 " wrench, tighten down the four bolts on the ends of the metal filter braces.
11. Ensure all planks, ladders and tools have been removed from pit.
12. Cancel safe work permit and refill filter pit.

Hazards	extremely sharp blades
Tools/Equipment	7/8” socket and ratchet, Hex key for blade bolts, blade angle tool, pallet jack
Employee Group(s)	Facilities Management – Pool/Rink

Required PPE:

Safety Shoes | **Eye Protection** | **Gloves**

SAFE WORK PRACTICES

- Do not perform the procedure or operate the equipment until you have been appropriately trained and authorized to do so by your supervisor.
- Inspect required personal protective equipment (PPE) and replace if required.
- Blades are extremely sharp and care should be taken when working around them.
- Always work from the back of the blade.

PROCEDURE

1. Move Zamboni to area where there is room to work on it.
2. Remove ignition key, condition skirt and three top panels.
3. Place 4” X 4” wooden block under end of conditioner in case it falls.
4. Place wooden guard for old blade on pallet jack and roll into position under conditioner.
5. Remove all 10 bolts holding old blade in place. Leave two outside bolts in place until all others are removed.
6. Make sure pallet jack is in place under the blade before removing last two bolts.
7. Once all bolts are removed, lower pallet jack and move from under conditioner.
8. Fit wooden blade guard on old blade with two bolts provided and ensure “DULL” is visible.
9. Blades come in two sizes – 3” and 4”. If using the 4” blades, utilize the outer bolt holes. If using the 3” blades, utilize the inner bolt holes. Store old blades on rack on wall.
10. Put new blade on pallet jack and remove wooden guard. Roll pallet jack into place under the conditioner.
11. Raise pallet jack and line up holes in new blade with holes in conditioner.
12. Insert two center bolts first and then the remaining bolts, working out to end of blade.
13. Once all bolts are in place, tighten bolts, moving from center out to end. Nut should go top with lock washer.
14. Using blade angle guide, ensure blade is parallel with bottom of conditioner.
15. Using blade angle guide and bolts on top of conditioner, adjust height of blade.

Hazards	
Tools/Equipment	
Employee Group(s)	Facilities Management – Pool/Rink

Required PPE:

Safety Shoes

SAFE WORK PRACTICES

- Do not perform the procedure or operate the equipment until you have been appropriately trained and authorized to do so by your supervisor.
- Inspect required personal protective equipment (PPE) and replace if required.

PROCEDURE

1. Clear the pool. If possible, remove the fouling.
2. Notify the operators at the KMC Rink. Tell them the situation (type of fouling). The operators should be able to give an approximate time of when they can get to the problem and when the pool can be reopened. If they cannot be reached by phone, one lifeguard should walk down to the office located behind the main ice surface.
3. If the KMC operators cannot be reached, the Facilities Management supervisor on call should be contacted (refer to schedule on bulletin board). If Facilities Management supervisor cannot be reached, phone *(Name),* Aquatics Supervisor at *(phone number)*.
4. Notify Aquatic Supervisor *(Name, Phone Number*) and Senior Lifeguard, *(Name, Phone Number).*
5. Notify the Welcome Desk of closure and estimated time the pool should be reopened. All closures will take a minimum of six hours (maybe more depending on the type of fouling) to clean and the time needed to balance the water.
6. Notify CJFX Radio (902-863-4000) and The HAWK (902-863-1015) saying “the Alumni Aquatic Centre will be closed until . . . (give estimated time)”.
7. Fill out incident report and make sure all information and steps taken are included in the report.
8. E-mail the following with the details of the closure:-
    - Aquatic Supervisor, *(Name, E-mail Address)*
    - Head Lifeguard, *(Name, E-mail Address)*
    - Senior Lifeguard, *(Name, E-mail Address)*
    - Gerry Balcom, Recreation Manager – gbalcom@stfx.ca
    - Leo MacPherson, Athletic Director – lmacpher@stfx.ca
    - William Landry, Chief Power Engineer – wlandry@stfx.ca

Hazards	
Tools/Equipment	
Employee Group(s)	Facilities Management – Pool/Rink

Required PPE:

Safety Shoes

SAFE WORK PRACTICES

- Do not perform the procedure or operate the equipment until you have been appropriately trained and authorized to do so by your supervisor.
- Inspect required personal protective equipment (PPE) and replace if required.

PROCEDURE

1. Check suction pressure for circulating pump and monitor closely if it shows -10 ins/water. Pump shuts off when gauge reaches -15 ins/water.
2. Check level in filter tank. Water should be a few inches above the dividing wall.
3. Check the temperature of pool water. It should be 82° F.
4. Check the circulating rate of the pool. It should be around 600 – 650 gpm.
5. Check the chemical tanks to make sure the pump has chemicals to pump. If pump is out of chemicals or about to run out, shift over to another tank. If needed, a new batch of chemicals will need to be mixed.
6. Check to make sure everything else look okay in the equipment room.
7. Check to see level of pool okay. Level should not be any lower than three tiles below skimmers. If level is low, add water.

Hazards	splashes in eyes and exposed skin, ammonia
Tools/Equipment	pail for drained oil
Employee Group(s)	Facilities Management – Pool/Rink

Required PPE:

Safety Shoes | **Eye Protection** | **Gloves** | **Respirator With Ammonia Filter** | **Protective Suit**

SAFE WORK PRACTICES

- Do not perform the procedure or operate the equipment until you have been appropriately trained and authorized to do so by your supervisor.
- Inspect required personal protective equipment (PPE) and replace if required.

PROCEDURE

1. Chiller should be drained at least every week and should be done on days when two operators are working.
2. Contact Central Heating Plant to let them know you are draining oil and an alarm may occur. Activate compressor room vent fan.
3. Plant to be drained should be shut down for at least one hour prior to draining. This allows oil to settle out.
4. Insure drain pail is not full and can accommodate oil to be drained.
5. “Disable” plant in question on computer to prevent anything from starting.
6. Open isolating valve on bottom of chiller two (2) turns.
7. Open spring return valve prior to drain hose one quarter (1/4) turn.
8. Change in sound will indicate no more oil is present and spring return valve should be shut to prevent discharge of ammonia.
9. Shut isolating valve on bottom of chiller.
10. Inform Central Heating Plan that job is complete and shut off vent fan.
11. “Enable” plant on computer.

Hazards	
Tools/Equipment	
Employee Group(s)	Facilities Management – Pool/Rink

Required PPE:

Other PPE needed for this task?

Safety Shoes

SAFE WORK PRACTICES

- Do not perform the procedure or operate the equipment until you have been appropriately trained and authorized to do so by your supervisor.
- Inspect required personal protective equipment (PPE) and replace if required.

PROCEDURE

1. Disable rink that does not have a high-level alarm.
2. Place compressors #2 and #3 offline.
3. Close ammonia inlet to evaporator with high level.
4. Remove glass cover over high-level alarm instrumentation.
5. Soft load compressor #1 (open valve to disable two pistons).
6. Lower ice temperature setting to turn on rink with high level.
7. Pinch off evaporator ammonia outlet to control suction pressure at approximately 14 psi.
8. Once evaporator level is back to normal, open ammonia inlet to evaporator.
9. Open evaporator ammonia outlet 100%.
10. Open valve on compressor #1 to enable two pistons.
11. Place compressors #2 and #3 back online.
12. Enable rink that did not have high level.

Hazards	loose screws projecting from boards which may hook the edger as it moves around the ice surface
Tools/Equipment	
Employee Group(s)	Facilities Management – Pool/Rink

Required PPE:


Safety Shoes


Ear Protection


Eye Protection


Gloves

SAFE WORK PRACTICES

- Do not perform the procedure or operate the equipment until you have been appropriately trained and authorized to do so by your supervisor.
- Inspect required personal protective equipment (PPE) and replace if required.
- Wear ice cleats when working on slippery ice surface.
- This job involves working on an icy surface and operating a machine with sharp rotating blades. Care should be taken with footing and when in the vicinity of the hand cutting side of the machine. The machine is also fueled with propane and leaks should be dealt with immediately.

PROCEDURE

1. Check edger for oil level and make sure all guards and caps are in place.
2. Move edger onto ice surface and close rink board doors.
3. Open propane supply, move choke to full choke position and move throttle to “fast” position.
4. Pull the engine shut down lever towards you and turn the key to the on/start position.
5. When motor starts, adjust choke to the run position.
6. Push edger against boards and adjust the blade cutting depth to desired height.
7. Using a steady forward motion, push the edger around the boards.
8. When job is complete, raise the cutting blade off the ice and move the throttle back to the idle position.
9. Release the engine shutdown lever to stop the engine and close the propane supply valve.

Hazards	
Tools/Equipment	
Employee Group(s)	Facilities Management – Pool/Rink

Required PPE:


Safety Shoes


Ear Protection


Eye Protection


Gloves

SAFE WORK PRACTICES

- Do not perform the procedure or operate the equipment until you have been appropriately trained and authorized to do so by your supervisor.
- Inspect required personal protective equipment (PPE) and replace if required.

PROCEDURE

Hazards	
Tools/Equipment	
Employee Group(s)	Facilities Management – Pool/Rink

Required PPE:


Safety Shoes


Ear Protection


Eye Protection


Gloves

SAFE WORK PRACTICES

- Do not perform the procedure or operate the equipment until you have been appropriately trained and authorized to do so by your supervisor.
- Inspect required personal protective equipment (PPE) and replace if required.

PROCEDURE

Hazards	CO, electrical shock, crushing/entanglement of upper limbs, danger of dragging, falling due to slipper floor, worm screw, acid exhalation from batteries, moving machine components, explosion
Tools/Equipment	
Employee Group(s)	Facilities Management – Pool/Rink

Required PPE:

Safety Shoes | **Ear Protection** | **Eye Protection** | **Gloves**

SAFE WORK PRACTICES

- Do not perform the procedure or operate the equipment until you have been appropriately trained and authorized to do so by your supervisor.
- Inspect required personal protective equipment (PPE) and replace if required.
- Avoid wearing clothing with loose ends that may get caught in parts of the machine. Avoid wearing neckties or other flapping clothing items. Avoid wearing cumbersome rings or bracelets which can aue hands to get stuck in machine components.
- Read and understand the manufacturer's manual prior to operating the machine.
- Contact the manufacturer for a replacement manual if you do not have a copy.
- Pay attention to all safety precautions and warnings before operating or performing lubrication and maintenance.
- Only trained and authorized competent personnel may operate an ice resurfacer.
- Improper machine operation and maintenance is dangerous and could result in injury or death.
- Never attempt any repairs or adjustments while the machine is moving or is running unless otherwise specified.
- Only use tools, procedures and work methods recommended by the manufacturer.
- Circle the ice resurfacer to check the machine prior to mounting.

PROCEDURE

1. Mount and dismount the ice resurfacer only where steps and/or handholds are provided.
2. Face the machine and use the three (3) point contact method when mounting and dismounting. Use extra care when wet or slippery conditions exist.
3. Never get on or off a moving ice resurfacer. Never jump off the machine.
4. Do not try to climb on or off the ice resurfacer when carrying tools or supplies.
5. Operate the machine only from the operator's station. Fill out inspection sheet.
6. Adjust the seat so that full pedal travel can be obtained with the operator's back against the seat back.
7. If the ice resurfacer is equipped with a lighting system, make sure all lights are working properly.
8. Make sure no one is working on, underneath or close to the ice resurfacer before turning on the key or beginning to move the machine. Make sure the area is free of personnel.

9. Do not move the machine or move any of the controls if there is a "Do Not Operate' or similar warning tag attached to the start switch or controls.
10. Move the all controls lever to neutral.
11. Clear all personnel from the machine and the area.
12. Clear all obstacles from the path of the ice resurfacer. Beware of hazards such as curbs, blocks, posts, wire, cans, etc.
13. Make sure the horn and all other warning devices are working properly.
14. Check for proper operation of all controls.
15. Always observe floor load limits and overhead clearances.
16. Start, turn and brake smoothly. Slow down for turns, slippery or uneven surfaces. Use extreme caution when turning or on inclines. Watch out for pedestrians and obstructions, check overhead clearances.
17. Do not allow anyone to stand or pass under the elevated portion of any machine.
18. Park the ice resurfacer in authorized area only.
19. Move the transmission control lever
20. Turn the key switch off and remove the key.
21. If possible, park the machine on a flat and level surface. If the machine is parked on any kind of grade, the wheels must be blocked with wheel chocks to prevent the vehicle from rolling away after it has been parked.
22. Store in well ventilated area.
23. Keep all guards in place and in good repair, never disable guards or other safety devices.
24. Never carry a passenger/rider.
25. Never operate in an unsafe manner.
26. Do not smoke while operating or fueling gas driven tools.
27. Obey all safety rules when refueling the machine.
28. Make sure you can read and understand all the safety signs. Clean or replace them if you cannot read the words or see the pictures.
29. Never cover, hide or remove any safety label.
30. Do not run the machine in automatic mode with its fixed and/or mobile protectors disassembled.
31. Do not inhibit the safety devices installed on the machine.
32. When carrying out operations with eh safety devices limited, comply with the guidelines provided in their relative sections.
33. After operation in reduced safety conditions, the machine must be restored with active protective devices as soon as possible.
34. All washing tasks must be carried out with the electric and pneumatic devices disconnected.
35. Do not change parts of the machine for any reason. If the machine malfunctions because machine parts have been modified, the manufacturer is not liable for their consequences. It is recommended that the manufacturer be contacted directly to make such changes.
36. Place and install the machine according to the diagrams provided by the manufacturer. If this is not done, the manufacturer is not liable for any inconveniences.

Checks and Inspections

The parts must be inspected by an expert person. The inspections must be visual and functional, with the aim of ensuring machine safety. The inspections should include:

- An inspection of all the load-bearing structures, which must not display any crack, breakage, damage, deformation, rust, wear or in a way be altered from their original characteristics.
- An inspection of all the mechanical components.

- An inspection of all the safety devices installed on the machine.
- An inspection of all the connections secured with pins and screws.
- A functional inspection of the machine.
- An inspection of the machine's overall condition.
- An inspection of the resistance and efficiency of the pneumatic and/or hydraulic system.

The outcomes of these inspections must be recorded on a specific report sheet. In the event the technician in charge of the inspection finds cracks or dangerous anomalies, he/she must do the following:

- Immediately inform the manufacturer of the machine.
- Put the machine out of service and see to the necessary checks and/or repairs.
- Make sure there are not objects stuck between machine parts.

If you uncover a malfunction, it must be solved before restarting the machine, and the expert in charge of the inspection must keep tract of the repair in the specific sheet thereby granting approval to resume machine use.

Check that no object remains stuck between moving parts after maintenance is carried out on the machine. If the worn or defective parts are not replace immediately the manufacture rejects any responsibility for damage caused the accidents that may ensue as consequence. To guarantee the utmost safety, the following is forbidden:

- To tamper with any part of the machine;
- To leave mobile elements unattended;
- To use the machine while it is operative but not fully efficient;
- To modify the machine in order to change its originally established use, without explicit authorization by the manufacturer;
- To manually handle mobile parts in case energy is missing.

Intended Use
This machine has been exclusively designed for ice resurfacing in ice areas (hockey and ice-skating arenas). It is forbidden to sue the machine for any other purpose.

Technical information:

a) To safely use the machine, read the instructions before you start to use it.
b) Use of the ice preparation machine is solely reserved for trained staff.
c) Pull out the key switch when the machine is not being used.
d) The machine has not been approved for use on paved roads and must as such be used only to resurface ice. Do not climb onto or off the machine while it is being used.
e) The machine is not designed to transport persons.
f) Before you start the machine, make sure that there are no persons or objects in its operating range. The operator is responsible for the safety of bystanders within the operating range of the machine. Lower the blade only when the machine is on an ice surface.
g) The operator must wear safety footwear when using the machine.
h) Check the horn and rotary flashing light before you use the machine.
i) The rotary flashing light must always be on when the machine is being used.
j) The safety bar must always be operational when repairing or inspecting the machine when the snow tank is opened.

k) All maintenance and cleaning of the ice preparation machine and the removal of its protective devices must be carried out when the machine is off.
l) Only qualified personnel are authorized to service the machine.
m) If the worm screw is obstructed, remove the snow using the screw washing system only.
n) When carrying out maintenance, follow the instructions displayed on the sign labels. Use of the ice preparation machine is restricted to employees or members of the ice arena. It is the employer's responsibility to guarantee that the local safety standards at work are upheld and applied when using the machine.
o) Before using the machine indoors, the owner must check that the law allows such use and that the certifications and authorizations required by national standards have been filed and obtained.

The use of products/materials other than those specified by the manufacturer which can cause damage to the machine and create dangerous situations for the operator and/or those close to the machine, is considered incorrect and improper.

CO2 MONITOR CALIBRATION????

Hazards	
Tools/Equipment	
Employee Group(s)	Facilities Management – Pool/Rink

Required PPE:


Safety Shoes


Eye Protection


Ear Protection


Gloves

SAFE WORK PRACTICES

- Do not perform the procedure or operate the equipment until you have been appropriately trained and authorized to do so by your supervisor.
- Inspect required personal protective equipment (PPE) and replace if required.

PROCEDURE

1. Ensure power supply breakers for pumps and compressors are open. Inspect entire unit and compressor for proper valve alignment, no loose belts, etc. Also, ensure that the chilled water pump and condenser pump shafts will turn.
2. Check cooling tower for proper oil level and no obvious defects, broken “honey combs” in tower or piping.
3. Close breaker on cutler hammer panel and breakers for chilled water and condenser pumps.
4. Contact Energy & Utilities Supervisor (-2342) to ensure compressor is configured to start (Siemens system).
5. Select chilled water pump (#5) and condenser pump (#6) to “Auto” and verify both pumps are operating properly – no excess noise or vibrations.
6. Select cooling tower fan variable speed drive to “Hand” on AC Tech panel. Proceed outside to fan and check for proper operation – no excess noise or vibration and no water leaks.
7. If fan is operating properly, select variable speed drive to “Auto”.
8. At trane control panel, select “Auto” push button. If building is at temperature where cooling is required, compressor will start to countdown and then will start.
9. Verify compressor is working properly – no excess noise or vibration and discharge pressure is between 70 – 100 psi.

Hazards	extremely sharp blades
Tools/Equipment	7/8" socket and ratchet, Hex key for blade bolts, blade angle tool, pallet jack
Employee Group(s)	Facilities Management – Pool/Rink

Required PPE:

Safety Shoes

Eye Protection

Gloves

SAFE WORK PRACTICES

- Do not perform the procedure or operate the equipment until you have been appropriately trained and authorized to do so by your supervisor.
- Inspect required personal protective equipment (PPE) and replace if required.

PROCEDURE

1. Move Zamboni to area where there is room to work on it.

Hazards	
Tools/Equipment	acid container
Employee Group(s)	Facilities Management – Pool/Rink

Required PPE:


Safety Shoes


Apron (Chemical Resistant)


Eye Protection


Gloves


Respirator (With Acid Filter)


Face Shield

SAFE WORK PRACTICES

- Do not perform the procedure or operate the equipment until you have been appropriately trained and authorized to do so by your supervisor.
- Inspect required personal protective equipment (PPE) and replace if required.

PROCEDURE

1. Unplug acid injection pump.
2. Start adding water to acid tank.
3. Fill acid jug to 4L fill line.
4. Shut off water to acid tank when level gets to approximately 160L.
5. Empty acid jug into acid tank.
6. Plug acid injection pump back in.

Hazards	spilling, splashing, corrosive fumes that can burn eyes and skin
Tools/Equipment	calcium hypochlorite, hose
Employee Group(s)	Facilities Management – Pool/Rink

Required PPE:

Safety Shoes | **Eye Protection** | **Chemical Resistant Gloves** | **Respirator** | **Protective Suit**

SAFE WORK PRACTICES

- Do not perform the procedure or operate the equipment until you have been appropriately trained and authorized to do so by your supervisor.
- Inspect required personal protective equipment (PPE) and replace if required.
- **This job involves working with highly corrosive chemicals and proper protective clothing must be worn when working with these chemicals.**
- **Strong oxidizer. Contact with other materials may cause a fire.**
- **Causes eye and skin burns. Harmful if swallowed.**
- **Contact with acids liberates toxic gas. May cause severe respiratory tract irritation with possible burns.**
- **May cause severe digestive tract irritation with possible burns.**
- **Air sensitive.**
- **Appearance is white crystalline powder.**

PROCEDURE

1. Hypochlorite tank level should be approximately 12” from bottom prior to refilling.
2. Unplug hypochlorite pump and move suction hoses to second tank.
3. Plug pump back in.
4. Using hose, fill tank to approximately 1/3 level prior to adding calcium hypochlorite.
5. Add approximately 25 pounds of calcium hypochlorite to tank.
6. Put water hose in top of tank and lead it around part way down the side to help agitate the chemical and provide better mixing.
7. Fill tank to top with water.
8. Enter information in Keating operator’s logbook as to whether this is a mix or a remix in the tank.

Hazards	pedestrian traffic, chemical spills, slipping, back strain, pinching fingers, bag breaking, splashes in eyes of exposed skin
Tools/Equipment	
Employee Group(s)	Facilities Management – Pool/Rink

Required PPE:

Safety Shoes | **Eye Protection** | **Gloves** | **Respirator** | **Protective Suit**

SAFE WORK PRACTICES

- Do not perform the procedure or operate the equipment until you have been appropriately trained and authorized to do so by your supervisor.
- Inspect required personal protective equipment (PPE) and replace if required.
- Have knowledge of chemical SDS being handled in case of spill.
- Know location of SDS located in pool filter room across from hot water tank above desk. SDS's are good for 3 years.,
- Do not overload yourself and take regular breaks.
- If working alone, make sure someone knows you are alone. Keep radio with you at all times.

PROCEDURE

1. Unload chemicals from truck at steps above Saputo's machine room steps. Use caution when backing up and using forklift.
2. Chemicals must be hand carried to machine room. Have lights on in machine room. Use caution on steps and ensure steps are clear.
3. Place chemicals on four-wheeled cart and proceed to chemical storage room. Place pallets in chemical room. Separate liquid chlorine and calcium hypochlorite. Tape bag or place in well-marked 6 mil. plastic bag and mark clearly. Use first when needed.
4. Lock all doors. Keep doors locked at all times.

Hazards	
Tools/Equipment	
Employee Group(s)	Facilities Management – Pool/Rink

Required PPE:


Safety Shoes


Eye Protection


Gloves


Respirator


Dust Mask

SAFE WORK PRACTICES

- Do not perform the procedure or operate the equipment until you have been appropriately trained and authorized to do so by your supervisor.
- Inspect required personal protective equipment (PPE) and replace if required.

NOTE

Fecal releases in a pool may contain organisms such as E. coli, Hepatitis A, Giardia, Cryptosporidium or Shigella. When people infected with these germs have a fecal release in a pool and there is insufficient disinfection, swimmers may ingest some of these organisms.

Fecal releases may take two forms, and each form is treated differently. Formed stools have less probability of containing the Giardia or Crypto germs and do not release germs as easily into the pool.

In either case, the pool needs to be closed to swimmers.

PROCEDURE

Formed Stool

1. As soon as a fecal event occurs, close the pool and direct all swimmers to leave the pool.
2. Ensure that the pool filter system remains in service.
3. Remove as much of the fecal matter as possible using a net or scoop and dispose of it in a sanitary manner. Leave the net or scoop immersed in the pool during the disinfection procedure to ensure it gets cleaned.
4. Do not use the pool vacuum system to remove stool from the pool.
5. Increase the free chlorine level to 20 ppm with a pH of 7.2 – 7.5 for at least 30 minutes before opening the pool again.

Diarrhea

1. As soon as a fecal event occurs, close the pool and direct all swimmers to leave the pool.
2. Ensure that the pool filter system remains in service.

3. Remove as much of the fecal matter as possible using a net or scoop and dispose of it in a sanitary manner. Leave the net or scoop immersed in the pool during the disinfection procedure to ensure it gets cleaned.
4. Increase the free chlorine level to 20 ppm using the formula below and maintain the pH at 7.2 – 7.5.
5. Maintain the chlorine level for at least 12.5 hours. This level of free chlorine and time period will ensure that the Crypto organism is inactivated.
6. Backwash the DE filters after the full disinfection time. The filter effluent should be directed to waste and not back into the pool.
7. Return the chlorine levels to normal operating levels using sodium thiosulfate in the amount based on the formula below.
8. The pool may then be opened to swimmers.

Raising Chlorine Level to 20 PPM

In order to raise the chlorine level in the pool to 20 ppm, it will take approximately 60 pounds of calcium hypochlorite. This is based on a formula stating that in order to raise the chlorine level of 10,000 gallons of water to 10 ppm, it will take 13 pounds of calcium hypochlorite. The Saputo Centre pool contains 238,000 gallons of water. Based on that amount of water and the need to raise the chlorine level to 20 ppm, it will take approximately 60 pounds of calcium hypochlorite.

It is probably not feasible, based on the time required, to mix and inject the calcium hypochlorite using the chlorine pump. The impact will be more immediate if the chemical is mixed in buckets and dumped directly into the pool at various locations. Throughout this process, water samples should be taken at regular intervals to ensure the 20 ppm level is achieved.

In order to decrease the pool chlorine level to 3 ppm using sodium thiosulfate, it will take approximately 35 pounds or 16 kilograms of sodium thiosulfate. One bag contains 18 kilograms. This product can be mixed in pails on the pool deck and poured into the pool at various locations. Again, regular testing of chlorine levels should be carried out to ensure the chlorine level is decreasing as required.

Hazards	eye irritation, respiratory
Tools/Equipment	
Employee Group(s)	Facilities Management – Pool/Rink

Required PPE:

Safety Shoes | Eye Protection | Gloves | Respirator

SAFE WORK PRACTICES

- Do not perform the procedure or operate the equipment until you have been appropriately trained and authorized to do so by your supervisor.
- Inspect required personal protective equipment (PPE) and replace if required.

PROCEDURE

1. Unplug chlorine and acid injection pumps at wall above chlorine tanks.
2. Close pool main valve and skimmer valve to filter tank.
3. Wait for pool supply pump to trip.
4. Immediately close the pump outlet valve.
5. Open sump drain on floor and allow tank to drain. Make sure not to pull up on sump valve – stem will pull loose from valve.
6. Use garden hose to wash sides of tank and filters.
7. Close sump drain, again making sure not to pull on the valve handle
8. Open vents on pool supply pump suction and discharge pressure gauges.
9. Open pool main valve and skimmer valve 50% each.
10. Close main valve and skimmer valve when tank is full.
11. Close vent valves on pool supply pump suction and discharge pressure gauges.
12. Open pump recirc valve (butterfly valve).
13. Reset pump by lifting the float level switch in tank and restart the pump. Switch is located on left-hand side of MCC.
14. Pour two bags of diatomaceous earth into tank and allow it to circulate and coat filters.
15. Continue to circulate until tank clears – approximately one hour.
16. Open pool main valve 50% and skimmer valve 100%.
17. Crack open pump discharge valve.
18. Slowly close pump recirc valve while opening discharge valve to set position.
19. Watch for tank to equalize and then plug in chlorine and acid pump.
20. Check SDS.

Hazards	skin irritation, eye irritation
Tools/Equipment	
Employee Group(s)	Facilities Management – Pool/Rink

Required PPE:


Safety Shoes


Eye Protection


Gloves


Respirator

SAFE WORK PRACTICES

- Do not perform the procedure or operate the equipment until you have been appropriately trained and authorized to do so by your supervisor.
- Inspect required personal protective equipment (PPE) and replace if required.
- Sodium bicarbonate is water sensitive.

PROCEDURE

1. The addition of sodium bicarbonate should be done in the evening after everyone has left the pool.
2. The addition of sodium bicarbonate is based on maintaining a total alkalinity level of 80 – 120 ppm in the pool. Try to maintain a total alkalinity at the lower end of the scale (80 ppm).
3. Take two buckets up to pool deck – one bucket will contain 10 – 15 pounds of sodium bicarbonate and the second to be used when mixing the chemical.
4. Fill empty bucket with pool water and add about 1/3 of sodium bicarbonate – stir with paddle to mix thoroughly.
5. Empty mixture into pool at deep end in vicinity of one of the pool jets to aid with dispersal.
6. Add remainder of sodium bicarbonate, repeating steps 3 and 4.

Hazards	
Tools/Equipment	pool vacuum, pool wrench
Employee Group(s)	Facilities Management – Pool/Rink

Required PPE:

Safety Shoes

SAFE WORK PRACTICES

- Do not perform the procedure or operate the equipment until you have been appropriately trained and authorized to do so by your supervisor.
- Inspect required personal protective equipment (PPE) and replace if required.

PROCEDURE

1. Connect the vacuum pump poles together using bolt and wing nut.
2. Unwind the orange vacuum hose and connect it to the vacuum head.
3. In the deep end, remove the cap from the vacuum inlet using the pool wrench.
4. Place the vacuum in the pool and allow the hose to float free.
5. Keep the free end of the hose on the deck near the inlet connection.
6. At one of the pool water return jets, fill the hose with water and allow it to settle.
7. Attach the free end of the hose to the vacuum inlet.
8. In the pool mechanical room, open valves VP-1 (pump suction valve) and VP-2 (pump discharge valve).
9. Start the pump from the Stop/Start station on electrical panel P-13.
10. Return to the pool deck and commence vacuuming the pool.
11. Each time the hose is moved to a new inlet, the vacuum pump must be shut down and valve VP-1 closed. There are four inlets situated around the pool to give easy access to all areas.
12. When the entire pool has been vacuumed, shut the vacuum pump off and close valves VP-1 and VP-2. Clean pump strainer.

Insert diagram????

Hazards	
Tools/Equipment	water sampling pipette, chemical test vials, Hanna benchtop meter
Employee Group(s)	Facilities Management – Pool/Rink

Required PPE:

Safety Shoes

Eye Protection

SAFE WORK PRACTICES

- Do not perform the procedure or operate the equipment until you have been appropriately trained and authorized to do so by your supervisor.
- Inspect required personal protective equipment (PPE) and replace if required.

PROCEDURE

1. Retrieve sample from pool recirc pump discharge using proper sample bottle. Let sample run for a few seconds and rinse the sample bottle thoroughly before taking final sample.
2. Take sample bottle to office and retrieve the following test vials:- iron, copper, total alkalinity, calcium hardness, total chlorine and free chlorine.
3. Fill the Hanna bench meter sample up with pool sample water, insert the pH and temperature probe, let it soak and come up to temperature.
4. Insert test vials mentioned above in proper rack as indicated on the place mat.
5. Fill blank vial with sample water and insert in WaterLink meter. Press ”chlorine” button to turn meter on.
6. Use end of pipette to break foil seal on top of each test vial.
7. Fill pipette with sample from bottle and in turn, starting from the right, inject 3 ml of sample in each test vial.
8. Press ”chlorine” button to advance meter to free chlorine test.
9. Hold finger over foil and invert free chlorine vial three (3) times to mix. Insert vial in meter and read result. Press ”chlorine” button to advance to total chlorine before removing vial.
10. Hold finger over foil and invert total chlorine vial three (3) times to mix. Insert vial in meter and read result. Press “chlorine” button to advance to calcium hardness before removing vial.
11. Hold finger over foil and invert calcium hardness vial three (3) times to mix. Insert vial in meter and read result. Press “chlorine” button to advance to alkalinity before removing vial.
12. Hold finger over foil and invert alkalinity vial three (3) times to mix. Insert vial in meter and read result. Press “chlorine” button to advance to copper before removing vial.
13. Hold finger over foil and invert copper vial three (3) times to mix. Insert vial in meter and read result. Press “chlorine” button to advance to iron before removing vial.
14. Hold finger over foil and invert copper vial three (3) times to mix. Insert vial in meter and read result. Hold "chlorine” button to shut off meter and remove vial.

15. Empty Hanna bench meter sample cup and refill with fresh sample water. Depress "range" button to bring to pH indication and stir probes around in cup. Reading will gradually fall. Take reading at lowest stable level. Remove probes.
16. Insert TDS probe in sample cup and depress "range" button to bring up TDS indication. Take reading.
17. Rinse probe in tap water before putting probe back in rack.

Additional Information

Chlorine - used to disinfect pool. Free chlorine is the amount of chlorine in the pool which has not reacted with substances in the water. Total or combined chlorine is the amount of chlorine which has reacted with a substance and is no longer available in its free state.

Free Chlorine Range	2.0 – 4.0 ppm
Combined Chlorine Range	Below .2 ppm

PH – is the measure of the acidity or basicity of the pool water. It is measured on a scale of 0-14.

pH Range	7.4 – 7.6

Calcium Hardness – is a measure of the dissolved calcium salts in the pool water. Low calcium may cause pitting of the pool surfaces and high calcium may cause scale formation and clouding of the water.

Calcium Hardness Range	200 – 400 ppm

Total Alkalinity – is a measure of the pool water's resistance to a change in pH and is desirable because it helps prevent wide variations in pH whenever small amounts of acid or alkali are added to the pool.

Total Alkalinity Range	80 – 100 ppm

Total Dissolved Solids – are unfilterable solids such as body waste, suntan lotion, dirt, pollen, chlorines, etc. and accumulate over time.

TDS Range	Max = 1500 ppm over start up value

Hazards	splashes in eyes and exposed skin, ammonia
Tools/Equipment	various wrenches, drain buckets, Varsol, rags, hand pump, vent hose
Employee Group(s)	Facilities Management – Pool/Rink

Required PPE:

Safety Shoes

Eye Protection

Gloves

Respirator With Ammonia Filter

SAFE WORK PRACTICES

- Do not perform the procedure or operate the equipment until you have been appropriately trained and authorized to do so by your supervisor.
- Inspect required personal protective equipment (PPE) and replace if required.

PROCEDURE

1. Open power breaker on panel and have electrician remove fuses for applicable compressor.
2. Close compressor suction and discharge valves. Open discharge oil separator drain and allow oil to drain and then close drain valve.
3. If compressor will be off for an extended period of time, use motor anchor and adjusting bolts to slack off tension on belts.
4. Using vent hose and buckets of cold water, drain any ammonia from compressor. Ensure discharge end of hose is kept in bucket to prevent ammonia from venting to atmosphere. “Crackling” noise and bubbling in water will be an indication of ammonia venting from compressor.
5. When compressor is empty of ammonia, place bucket under compressor crankcase drain and remove plug, allowing oil to flow into bucket.
6. When oil stops flowing, use rachet to remove bolts in crankcase cover and use two jacking bolts to remove cover. Ammonia trapped in crankcase may vent into area at this time.
7. Using small plastic hand pump, remove remaining oil from crankcase and then wipe out with rags.
8. Remove crankcase filter from inside crankcase and clean with Varsol and brush. Replace when completed.
9. Remove compressor strainer from outside base, clean with Varsol, replace gasket and re-insert in compressor base. Ensure bolts are tight.
10. Install new gasket and replace compressor crankcase cover, tighten bolts and torque to 90 psi.
11. Obtain bucket of new compressor oil and using oil pump, fill compressor to normal operating level - approximately ½ glass.
12. Using motor anchor and adjusting bolts, re-tighten compressor belts, insuring motor and compressor are aligned.

Hazards	
Tools/Equipment	
Employee Group(s)	Facilities Management – Pool/Rink

Required PPE:

Safety Shoes

SAFE WORK PRACTICES

- Do not perform the procedure or operate the equipment until you have been appropriately trained and authorized to do so by your supervisor.
- Inspect required personal protective equipment (PPE) and replace if required.

PROCEDURE

1. Upon entering work site, do a physical walk about of the pool deck. Turn on lights. Check bather load numbers and water level. Determine what type of work should be done (i.e., deck cleaning, equipment repairs, pool vacuuming and any adjustments to temperature and air flow).
2. Go to pool operations office, enter load and level numbers into the pool logbook. Begin walk around of the filter room and record the values for air temp, humidity, filter pump pressure and flow rates.
3. Check chlorine tanks and assess whether chemicals must be mixed. Determine if a backwash of the filters is required and if the acid drum has enough mixture. Are all other pumps relating to the mechanical/electrical operations of the facility operating? Make report if necessary.
4. Take water sample bottle to pool deck, retrieve sample at least an arm's length under the water and fill to the top. Return to the office for testing of sample.
5. Testing schedule:-
   - Daily for:
     - Chlorine (free, total, combined)
     - pH
     - ORP (value from AK2000)
   - Weekly for:
     - Total Alkalinity (TA)
     - Total Hardness (TH)
     - Saturation Index
   - Saturation Index Formula:
     - TA Factor + TH Factor + Water Temp Factor +pH – 12.1
       (these values are found on a chart over testing area)

Hazards	dust powder in eyes, fumes, chemical spill, slipping, falling
Tools/Equipment	
Employee Group(s)	Facilities Management – Pool/Rink

Required PPE:

Safety Shoes | **Eye Protection** | **Gloves** | **Respirator** | **Protective Suit**

SAFE WORK PRACTICES

- Do not perform the procedure or operate the equipment until you have been appropriately trained and authorized to do so by your supervisor.
- Inspect required personal protective equipment (PPE) and replace if required.
- Always use covered pales to transport chemicals.
- Let someone know when you are in pool when working alone and keep in radio contact.
-

PROCEDURE

1. Measure 30+ pounds chlorine (Tabex). Spread in three to four locations. Use a dry 20 litre pale.
2. Ensure pool is clear of swimmers. Check pool schedule for swimmers and wait until no one is in the pool. Tell Welcome Desk that swimmers must avoid the pool for six hours and explain that it is for their safety.
3. Carry Tabex in covered pale to pool area.
4. Spread Tabex around deep end of pool.
5. Test water every four hours.

When we have Combined Active Chlorine CC = Tc-Fc, if answer is above “0”, it means Chlorine combining with organic compounds, perspiration, urine, saliva and body oils. Filtering and super chlorination can remove CAC from the water. Rule of thumb, raising the Chlorine ppm to 10 times above the CAC will destroy it. When Chlorine ppm drops below 4, bathers can return to the pool. Example - iF CAC of .3 ppm for our pool, then adding 17 lbs. of dry Chlorine should raise the Chlorine to 3-5 ppm, therefore burning off CAC. This is called break point.

Hazards	cross contamination, spilling, splashing, overfilled barrels, mixing chemicals, wrong chemical tank, corrosive fumes that can burn eyes and skin
Tools/Equipment	
Employee Group(s)	Facilities Management – Pool/Rink

Required PPE:

Safety Shoes | **Eye Protection** | **Gloves** | **Respirator** | **Protective Suit**

SAFE WORK PRACTICES

- Do not perform the procedure or operate the equipment until you have been appropriately trained and authorized to do so by your supervisor.
- Inspect required personal protective equipment (PPE) and replace if required.
- Have knowledge of MSDS for chemicals being handled in case of spill.
- If working alone, make sure someone knows you are alone. Keep radio with you at all times.

PROCEDURE

1. Take pool water sample. Ensure sample line and sample bottle are flushed well.
2. Take sample back to testing room and follow instructions on the desk.
3. Adding liquid chemicals, powder chlorine and hypochlorite acid:- Use caution and plan your next steps to avoid spilling. Stay with barrel when topping up with water.
4. Topping up pool treatment chemicals in barrels:- Plan your next step to avoid splashing chemicals on yourself or on the floor. Add chemicals when barrel is approximately one-half full to reduce splashing risk Stay with barrel when topping up with water.
5. Use a dry pale when weighting and adding chlorine. Ensure chemical tank is correct. Add 25 lbs. of chloride, set pump stroke to 60 S/min. Switch pump suction hoses to full tank before barrel runs dry.
6. Use 4 litre jug to measure hypochlorite acid. Use funnel when pouring into jug. Fill jug over floor drain. Avoid fumes. Ensure chemical tank is correct. Add chemicals when barrel is approximately one-half full to reduce splashing risk. Finish topping up with water. Adjust pump if necessary to 30 S/Min.

Chemicals are added to pool water to kill disease-causing germs, maximize the efficacy of the disinfection process (for example, pH control), improve water quality, stop corrosion and scaling of equipment, and protect against algal growth. However, pool chemicals can also lead to injury when mixed together or when appropriate personal protective equipment is not used during handling.

Hazards	burns
Tools/Equipment	
Employee Group(s)	Facilities Management – Pool/Rink

Required PPE:


Safety Shoes


Ear Protection


Eye Protection


Gloves

SAFE WORK PRACTICES

- Do not perform the procedure or operate the equipment until you have been appropriately trained and authorized to do so by your supervisor.
- Inspect required personal protective equipment (PPE) and replace if required.
- This job involves working on one of the two Zamboni ice conditioners at the Keating Centre. Extreme care must be exercised when operating these machines, not only for the operator's safety, but for the public at large. Operation of the Zambonis involve working with rotating equipment, propane gas, hot water and ice surfaces. The operator must be aware of any rink patrons in the vicinity of the machine when travelling between rinks and should not go onto the ice surface until everyone has left the ice.
- Care should be taken that the propane cylinders are properly connected and not leaking. When finished with the machine, be sure that the propane cylinders are shut off.

PROCEDURE

Pre-Checks (*prior to first use of the day*)

1. Check motor oil level.
2. Check tires visually for any that may be low in pressure.
3. Ensure auger covers are in place.
4. Check propane cylinders for pressure and open supply valves.
5. Place water hose in wash water tank, ensure wash water valve is closed and proceed to fill tank. Tank is full when water can be seen through screen. Shut off water when full. Caution should be taken when filling machine with water. Water temperature is approximately 160° F.

Start

1. Start Zamboni and warm up for a few minutes prior to moving.
2. Ensure snow collection box is empty, remove jack post and lower box into position. Make sure that latch hooks are in place.
3. Ensure conditioner is in raised position before proceeding onto ice surface.
4. Proceed onto ice surface and do a visual check of the ice for any objects (i.e., pucks, sticks, etc.).
5. Increase throttle speed to 2500 RPM, make a loop out towards the blue line and then turn back in the direction of the gates.
6. As you approach the boards, extend the board brush, lower the conditioner to the ice surface, start both augers and turn on the wash water and pump.

7. When lined up along the boards, turn on the flood water.
8. As you proceed along the boards in a clockwise direction, check behind to make sure the conditioner is scrapping ice. You should be able to see snow coming up the augers. Adjust depth of cut as necessary.
9. Do two full turns around the ice surface, clearing the augers on a regular basis as you proceed. Disengage the board brush when you start the second turn.
10. On completion of the second turn, start up the middle of the ice surface. On each successive lap, line up the Zamboni with each previous lap or reference on front of Zamboni with previous lap.
11. Shut off the flood water each time you make a turn over the crease area and turn it back on when lined up to go back down the ice. This prevents excess water from gathering around the net area.
12. On the last lap, turn off the wash water at the far blue line. At the next blue line, shut off the wash water pump and the flood water and proceed to the gate.
13. Stop the Zamboni once the front wheels are off the ice. Shut off the augers and lift the conditioner off the ice. This prevents damage to the conditioner.
14. Close the gates and proceed to the ice melt pit.
15. Raise the ice bucket to dump the snow, place the safety jack post in place and lower the bucket onto the post to take weight.
16. Shut off the Zamboni and close the propane cylinder valves.
17. Remove the auger covers and clear the snow from this area using the hot water hose.
18. If this is the last flood of the day, open the drain valves on both Zamboni tanks and drain all water from the machine.
19. Close the manual valve on the ice melt pit heating system, turn off the lights and close the roll up door on the Zamboni storage room.

Hazards	
Tools/Equipment	11/16” wrench, 5-gallon bucket, 5 litres %W30 motor oil, filter wrench, FL 400S oil filter
Employee Group(s)	Facilities Management – Pool/Rink

Required PPE:

Safety Shoes | **Eye Protection** | **Gloves**

SAFE WORK PRACTICES

- Do not perform the procedure or operate the equipment until you have been appropriately trained and authorized to do so by your supervisor.
- Inspect required personal protective equipment (PPE) and replace if required.

PROCEDURE

1. Raise snow bucket on Zamboni and place post under bucket to hold it up.
2. Shut engine off and remove key.
3. Place oil drain pan under engine to catch any spills that may occur
4. Place empty 5-gallon bucket under engine oil drain at front of Zamboni.
5. Using 11/16” wrench, remove cap from end of oil drain and allow oil to drain into empty bucket. Remove engine oil filter cap to allow oil to drain faster.
6. When oil has stopped draining, replace cap on end of drain line.
7. Remove oil filter and wipe any dirt from around filter base plate.
8. Lubricate base of new filter with oil and screw into place. Tighten hand tight.
9. Place funnel in “add oil” spout on top of engine and add 4 - 5 litres of 5W30 engine oil.
10. Check level on oil dip stick – should be between the ”Add” and “Full” marks.
11. Replace engine oil cap and start Zamboni engine. This will allow oil filter to fill.
12. Let engine run for a couple of minutes, shut off and check oil level again.
13. Add oil if level is below the “Add” mark.
14. Discard oil in used oil barrel under stairs at rear of Keating Centre.