



**Saskatchewan
Ministry of
Health**

WHIRLPOOL DESIGN AND OPERATIONAL STANDARDS

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SWIMMING POOL DESIGN AND OPERATIONAL STANDARDS

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PREAMBLE

These standards should be read in conjunction with *The Swimming Pool Regulations, 1999*.

The Saskatchewan Ministry of Health, with the assistance of the regional health authorities, has developed design/operational standards to assist operator/owners of aquatic facilities in meeting the requirements of *The Swimming Pool Regulations, 1999*. While the design/operational standards in themselves should not be considered law, provisions of the standards become legally binding when they are attached as a condition or term of a licence to operate. Consequently, it is expected that all aquatic facilities will be constructed and operated in accordance with the design/operational standards.

The format of the standards is such that all pools covered by the regulations are expected to comply with the applicable pool design/operational standards (Pool Standards, or Whirlpool Standards). Existing swimming pools, water theme facilities and whirlpools which do not meet the design/operational standards may continue to operate provided that the pool is operated in compliance with *The Swimming Pool Regulations, 1999* and that a health hazard does not exist. Alterations to existing pools and equipment are to be carried out in accordance with the standards.

Judicious use of these standards should result in the provision of bacteriologically and physically safe swimming pools, water theme facilities and whirlpools in this province.

It should be noted that residential type whirlpools or hot tubs might not comply with the requirements of this standard. If such a whirlpool is to be installed in situations where the regulations apply, the proponent must consult with the Health Region prior to installation in order to determine whether the proposed whirlpool will be sufficient.

Obligations found in *The Swimming Pool Regulations, 1999* are not reproduced in the standard. Therefore, the regulations should be read in conjunction with the standards so that all requirements are met (such as the need for an emergency shut-off switch).

There are several appendixes contained in this standard that are either normative or informative. Normative appendices form part of the standard, while informative appendixes are only for information. Normative appendices provide additional detail that explains requirements in the standards. An informative appendix is intended to provide examples and additional explanation of specific requirements but the details contained are not specifically required.

Note: Anyone considering establishing or renovating a public swimming pool or public whirlpool should be aware that in addition to the requirements of *The Swimming Pool Regulations, 1999* and accompanying standards, approvals from other ministries, agencies and/or local municipalities may also be required. These approvals may include, but are not limited to building, fire, accessibility, plumbing and sewage disposal.

DEFINITIONS

“Dressing room” means a dressing area that may include washroom facilities and shower facilities.

“Multiple drain” means a minimum of two hydraulically balanced outlets per pump that are inserted into the system so that no outlet can be cut out of the suction line by a valve or other means and with the outermost outlet centers at least 920 cm apart or on different planes.

“Operational time” means the time that the pool is open to the public.

“Public health officer” means an person who is:

- (a) certified by the minister pursuant to section 9 of *The Public Health Act, 1994*; or,
- (b) a member of a class of persons prescribed as public health officers.

“Unblockable drain” includes a suction outlet defined as all components, including the sump and/or body, cover/grate, and hardware such that its perforated (open) area cannot be shadowed by the area of the 18” x 23” Body Blocking Element of ASME/ANSI A112.19.8-2007 and that the rated flow the remaining open area (beyond the shadowed portion) cannot create a suction force in excess of the removal force values in Table 1 of that Standard.

Further definitions can be found in *The Swimming Pool Regulations, 1999*.

SECTION 1 – GENERAL

1.1 Introduction

1. In addition to *The Swimming Pool Regulations, 1999*, this design/operational standard applies to any whirlpool governed by the regulations.
2. The standards specify minimum prescriptive standards to be followed when establishing, constructing, extending, renovating, or altering a public whirlpool. However, where supported by sufficient evidence submitted by the proponent, a public health officer may deem an alternative solution as equivalent to the prescriptive requirements provided that:
 - (a) the alternative solution is capable of performing at least as well as the prescribed standard; and,
 - (b) the proponent clearly demonstrates and supports how their proposed alternative will achieve the same outcome(s) as the prescribed standard. An appropriate level of evidence, which may include verification of performance by a qualified professional, is required.

1.2 Plan Approval

1. An application for a licence shall include a site plan and structural, mechanical, and electrical drawings showing complete construction details and, where applicable, shall include the following:
 - (a) the street location, the name of the whirlpool facility and the name and address of the owner;
 - (b) the whirlpool deck elevation relative to the surrounding area;
 - (c) the location of outlets, drains, overflows, inlets, steps and ladders, diving boards, walk areas, lighting fixtures, equipment, dressing room areas and utilities service lines;
 - (d) the source of water supply and the method of waste water disposal;
 - (e) a statement of:
 - i. pool volumes;
 - ii. turnover rate;
 - iii. filtration rate; and,
 - iv. maximum design load.
 - (f) the complete detailed specifications and drawing for the construction of the whirlpool, dressing/shower areas, recirculation system, filtration facilities, disinfection equipment and all appurtenances; and
 - (g) the type of backflow prevention used on the make up water to avoid cross connection with the public water supply.
2. All plans and specifications for a proposed whirlpool shall be prepared by a professional engineer or architect registered to practice and each drawing is to be duly signed and sealed.

3. The owner shall ensure that the pool and all appurtenances are built in accordance with the plans that were submitted, reviewed by and approved by the public health officer. Any deviation from the approved drawings requires the approval of the public health officer.

1.3 Operating Information

1. Any person who constructs or alters a pool, or dressing room or building used in conjunction with a pool, or who installs any equipment in a pool, dressing room or building shall:
 - (a) furnish the operator with complete operating instructions and drawings; and,
 - (b) in the case of the pool equipment, attach a tag to every drain, valve or other fitting to indicate its function.

1.4 Licence Required

1. A pool is subject to inspection prior to the issuance of a licence and at any other time that a public health officer considers necessary or desirable.

1.5 Chemical Handler Certification

1. No person shall handle, store or use pool chemicals;
 - (a) without successfully completing a swimming pool operator's course that is recognized by the public health officer; or,
 - (b) unless they are acting under the direct supervision of a person who has successfully completing a swimming pool operator's course that is recognized by the public health officer.

1.6 Lifeguard Certification

1. Where lifeguards or supervisors are required in the safety plan, pool operators shall maintain proof of certification of all lifeguard and supervisory staff employed at the pool and make these records available to a public health officer upon request.

SECTION 2 - DESIGN STANDARDS

2.1 Construction

2.1.1 Materials

1. Components which come into contact with the water intended for use in whirlpools shall be of a material type that is non-toxic to humans, impervious and enduring.

2. The materials used in and around a whirlpool shall be of a type that the operational strength of the entire assembly and each of its components are not adversely affected by exposure to rain, snow, ice, sunlight, local normal temperature extremes, local wind pressures, expected local air pollution products and the mechanical, electrical and chemical environment in and around the water theme facility.
3. Materials selected for components and accessories used in and around the facilities shall be of a type that all parts with external surfaces and edges, that may come in contact with the user, are assembled, arranged, and finished so that they will not constitute a cutting, pinching, puncturing, or abrasion hazard in casual contact and intended use.

2.1.2 Basin Design

1. The whirlpool basin shall be a watertight structure that has a smooth and easily cleaned surface (excluding structural joints).
2. The sides and bottom of the whirlpool basin shall be light in colour.
3. All side and end walls shall be vertical.
4. The floor of the whirlpool basin shall have a slope towards the main drain.
5. The slope of the bottom of the pool where the water is less than 1.5 metres deep shall not be greater than 1:15. This slope must be uniform.

2.1.3 Handrail

1. Where the whirlpool edge is adjacent to areas of concentrated traffic flow, or where the whirlpool is raised above the surrounding deck area, a handrail or similar barrier shall be installed.

2.1.4 Steps

1. Step treads shall have a minimum unobstructed horizontal tread depth of 250 millimetres for a minimum continuous width of 300 millimetres.
2. Riser heights shall not be less than 180 millimetres, or greater than 300 millimetres. When the bottom tread serves as a bench or seat, the bottom riser may be a maximum of 355 millimetres.
3. Step treads shall have slip-resistant tread surfaces.
4. Each set of steps shall be provided with at least one handrail to fully serve all treads and risers.
5. Handrails shall be so secured that the removal requires the use of a tool.

6. Seats or benches may be considered as part of the steps.

2.1.5 Shower Facilities

1. The number of showers provided in both male and female dressing rooms shall be one for each 40 users or part thereof calculated on the maximum swimmer load, except that the minimum number of showers in each dressing room shall be two.
2. Each shower facility shall be equipped with a thermostatic mixing valve that is capable of providing a sufficient supply of hot water to each shower head at a temperature of not more than 40°C.
3. Floor drains shall be so designed that wastewater from shower heads will not pass over the floor area of another shower.

Recommendation

One drain per shower head is recommended.

4. Soap dispensers with either liquid or powdered soap shall be provided between each pair of shower heads. Dispensers must be all-metal or plastic type and contain no glass.
5. All showers shall be located in such a manner that the swimmer must pass by or through the shower area before entering the whirlpool areas.
6. Except for the purpose of lighting, no person is to install or bring any glass into the portion of the dressing room which contains shower heads.

2.1.6 Whirlpool Area

1. Except where grassed areas are provided, the whirlpool area is not considered to form part of the deck shall be finished with a hard, impervious, non-slip material.

Recommendation

Facilities with grassed areas should be provided with deck showers for proper cleansing of swimmers before returning to the whirlpool from these areas.

2. Garbage receptacles shall be provided in the pool area.

2.1.7 Food Concessions

1. Food and/or beverages shall only be consumed in an area set aside for that purpose.

2. No glass containers or any other materials, which may constitute a hazard to swimmers, shall be used.

2.1.8 Ventilation

1. All indoor whirlpool facilities shall be provided with an adequate ventilation system.

2.1.9 Fencing/Walls

1. The whirlpool shall be completely surrounded by a fence or wall that:
 - (a) is at least 1.8 metres in height;
 - (b) is designed and constructed to discourage unauthorized entry; and
 - (c) has a gate or door equipped with panic hardware, for use in the event of an emergency, that is located away from both the chlorine room, if present, and the deep end of the pool.

SECTION 3 –RECIRCULATION SYSTEM

3.1 Continuous Operation

1. Except for stoppage for maintenance, repairs or backwashing of filters or as authorized by the regulations, the recirculation systems and chemical feeders shall operate continuously, regardless of the duration of actual use of the whirlpool each day.

3.2 Piping System

1. The piping system shall be designed to:
 - (a) circulate the pool water through the treatment equipment;
 - (b) allow each filter to be individually backwashed;
 - (c) drain backwashed water to waste;
 - (d) empty the pool;
 - (e) drain or blow out the entire system;
 - (f) permit circulation of water in a closed system between a diatomaceous earth filter and pump during the precoat operation to avoid diatomaceous earth entering the pool;
 - (g) allow for adequate, accessible and easily serviceable valves that permit flexible operation of the filtration equipment;
 - (h) allow for the determination and isolation of leaks in buried lines; and,
 - (i) provide for chemical treatment and heating of the water.
2. The recirculation piping and fittings shall be of a non-toxic material, resistant to corrosion, and able to withstand operating pressures.

3.3 Main Drains

1. Water outlets shall be designed so that each pumping system in the whirlpool (filter system(s) or jet system(s) if so equipped) complies with section 9.4 Anti Entrapment.
2. The drain covers shall present no sharp edges to the adjacent surfaces. Each drain cover should be so secured that the removal requires the use of a tool.
3. All suction drain covers shall conform to ASME A112.19.8.
4. The main drain piping shall be sized to accommodate 100% of the recirculated water.

3.4 Anti Entrapment

1. New whirlpools shall be designed to include one of the following in order to prevent the entrapment of patrons in the drains and recirculation equipment:
 - (a) a minimum of two hydraulically balanced outlets per pump that are inserted into the system so that no outlet can be cut out of the suction line by a valve or other means and with the outermost outlet centers at least 920 cm apart;
 - (b) one or more unblockable drain;
 - (c) no main drain; or,
 - (d) another solution acceptable to the public health officer.

Recommendation: Additional Barriers recommended such as an unblockable drain, a suction limiting vent system, a gravity drainage system that utilizes a vented collector tank or an automatic pump shut-off are recommended.

Existing pools, when renovated, should consider upgrading to mitigate the risks associated with a single main drain.

2. If a drain cover or grate is cracked, broken or missing, the pumps shall be immediately shut down and the pool closed until the grate or cover replaced.
3. For the purposes of accessing the effectiveness of an anti-entrapment device, the public health officer may require an engineer's report.
4. The owner/operator shall ensure that all anti-entrapment devices are properly installed and in good working order and be able to demonstrate that no entrapment or entanglement risk is present.

3.5 Overflow Structures

1. Overflow structures may be either perimeter overflow channels or skimmers or both.

3.6 Skimmers

1. Where skimmers are provided, the skimmers shall be:
 - (a) installed for every 9 square metres of pool surface area or part thereof;
 - (b) constructed of corrosion resistant materials and be fully recessed behind the face of the pool wall;
 - (c) accessible through the deck;
 - (d) conform to NSF 50 Equipment for Swimming Pools, Spas, Hot Tubs and Other Recreational Water Facilities;
 - (e) equipped with an easily removable and cleanable basket or screen through which all the overflow water must pass and which is capable of trapping solids larger than 3 millimetres in dimension;
 - (f) equipped with a valve or other device for regulating flow so that uniform skimming action can be achieved; and,
 - (g) designed to handle a minimum flow of 2.3 litres per second.

3.7 Overflow Channels

1. Where overflow channels are provided, the channel shall:
 - (a) extend completely around the pool;
 - (b) be adequately sized to prevent water entering the channel from washing back into the pool;
 - (c) be designed so that the dimensions minimize the danger of swimmer entrapment;
 - (d) be adequately sized and sloped to provide rapid drainage to drains which are not less than 50 millimetres in diameter and spaced not more than 4.5 metres apart; and,
 - (e) be of a capacity sufficient to carry 125% of the designed recirculation rate.

3.8 Overflow Fittings

1. In order to compensate for the displacement of water caused by swimmers entering the whirlpool, each whirlpool shall be equipped with either:
 - (a) an overflow fitting that is set slightly above the normal operating level of the pool, and discharging directly to waste via an appropriate air gap; or,
 - (b) adequate floor drains in the immediate area surrounding the whirlpool.
2. In lieu of an overflow fitting, an adequately sized surge tank may be used. The surge tank shall have a capacity related to the capacity of the whirlpool.

3.9 Strainer

1. The circulation system, when receiving water directly from the pool, shall include a strainer to prevent hair, lint and other materials from reaching the pump and/or filters.

Recommendation

Two corrosion-resistant strainer baskets should be provided.

3.10 Gauges

1. Gauges shall be installed in all piping systems to measure the pressure drop across pressure type filter systems, suction pressure on vacuum filter systems and on both sides of circulation pumps for checking their operational performance.

3.11 Filtration

1. Unless otherwise approved by a public health officer, a filter system shall be of a sand, anthracite, diatomaceous earth or cartridge type.
2. A filter system shall operate continuously at the designed rate of flow for that filter system.

3.12 Circulation

1. Each whirlpool with a water volume of 3800 litres or less shall be equipped with a filtration system capable of turning the water over once every 20 minutes or less.
2. Each whirlpool with a water volume greater than 3800 litres shall be equipped with a filtration system that:
 - (a) has a filter rate of not less than 3 litres per second; and,
 - (b) is capable of turning the water over once every 30 minutes or less.
3. Each filter system shall contain a device to permit the regulation of the filter rate to meet the filter manufacturer's recommended flow rate.
4. The filter shall be of a type that will permit thorough cleaning of the internal components and internal surfaces.

3.13 Pool Heat

1. A rate of flow indicator shall be provided in the piping system to indicate the rate of pool water circulation.
2. Where a single treatment plant serves two or more separate pools, provision shall be made for measuring the flow into or from each pool.

3.14 Temperature Control

1. Each whirlpool shall be equipped with a high limit cut-off switch limiting the maximum temperature to 40°C. This should be a tamper proof device and independent of the normal pool water temperature thermostat.
2. Valved piping shall be provided for regulating flow through the heater and for bypassing or isolating the heater.
3. One or more approved thermometer(s) shall be in use for determining water temperature.

3.15 Chemical Feeding Equipment

1. Whirlpools shall be equipped with:
 - (a) a mechanical device with an adjustable feed rate to dispense the appropriate chemical required to maintain the disinfectant residual and pH of the water within the recommended range; and,
 - (b) a mechanical device which will continuously monitor the disinfectant residual and pH of the water, and automatically control each of the feeding devices.
2. Adjustable output rate chemical feeding equipment shall conform to the Joint National Swimming Pool Institute - National Sanitation Foundation Standard relating to adjustable output rate disinfecting equipment for pools, or as required by a public health officer.

3.16 Disinfection Equipment

1. All pools shall be equipped with equipment to provide continuous disinfection when in use, at a dosage necessary to meet minimum residual requirements outlined in *The Swimming Pool Regulations, 1999* and to maintain the pool water in a bacteriologically safe condition at all times.
2. The disinfection equipment shall be maintained in satisfactory working order, and spare parts essential to immediate safety should be on hand for immediate use.
3. The disinfection equipment shall include some positive feature to prevent siphoning when installed above the pool.
4. Where gaseous chlorine equipment is used, requirements are outlined in the Occupational Health and Safety Regulations. Contact the Ministry of Labour Relations and Workplace Safety for details.

3.17 Cross-Connections

1. No piping arrangement under any condition shall permit sewage or waste water to enter the recirculation system, or permit water from the recirculation system or pool to enter a potable water supply.

3.18 Inlets

1. Inlets shall be constructed of non-corrosive material, and sized to prevent an entrapment hazard.
2. Inlets shall be installed at a minimum of:
 - (a) one wall inlet per 3 metres of wall length in water less than 1 metre deep;
 - (b) one wall inlet per 4.5 metres of wall length in water between 1 metre and 1.5 metres deep; and,
 - (c) one wall inlet per 6.0 metres of wall length in water greater than 1.5 metres deep.

Recommendation

When placing inlets, consideration should be given to directing water flow to poor circulation areas (e.g., recessed ladders, steps, nooks, etc.).

SECTION 4 – OPERATIONAL STANDARDS

4.1 Water Quality Control

4.1.1 Application of Standard

1. This section (4.1) applies to a whirlpool during its operational time.

4.1.2 Turnover Rates

1. The entire volume of water used at a whirlpool shall be circulated through the filter and disinfecting equipment;
 - (a) Every 20 minutes for a whirlpool with a water volume of 3800 litres or less; or,
 - (b) Every 30 minutes for all other whirlpools.

4.1.3 Bacteriological Water Quality

1. Where bacteriological analyses indicate the presence of coliforms or other organisms, as may be determined by a public health officer, resampling, investigation of disinfection procedures, and remedial action shall be carried out by the operator as required by a public health officer.

4.1.4 Combined Chlorine Residual

1. The combined chlorine residual shall not be more than 50% of the total chlorine residual.

Recommendation:

It is recommended that that combined chlorine residual not exceed 1 milligram per litre.

4.1.5 pH Concentration

1. The operator shall control the pH within a range of 7.2 and 7.8.

4.1.6 Alkalinity

1. Alkalinity should be maintained within the range of 80-120 mg/L.

4.1.7 Calcium Hardness

1. Calcium hardness should be maintained within the range of 125-275 mg/L.

4.1.8 Cyanuric Acid

1. Cyanuric acid should be maintained within the range of 25-50 mg/L.
2. Cyanuric acid shall not be used for indoor whirlpools.

4.1.9 Total Dissolved Solids

Recommendation

With the exception of whirlpools that make use of salt water disinfection methods, it is recommended that the operator not allow the total dissolved solids level to exceed 2500 mg/L.

4.1.10 Testing and Records

1. Testing and recording for levels of alkalinity, hardness, total dissolved solids, cyanuric acid if used and any other parameter a public health officer considers to be appropriate shall be conducted and recorded as directed by a public health officer.

2. Each operator shall test and record the disinfection and pH levels as well as the oxidation reduction potential level if in use:
 - (a) prior to swimmers being admitted to the pool, and,
 - (b) at two hour maximum time intervals during the hours of operation of the pool or as directed by a public health officer.

SECTION 5 – SAFETY

5.2 Maintenance

1. The pool, walkways, dressing rooms and all facilities, furnishing and equipment shall be maintained in good repair and in a sanitary condition.

5.3 Emergency Procedures

1. A written plan for emergencies shall be carefully devised and kept up-to-date in the safety plan.

Recommendation

The safety plan should contain procedures to deal with crowd control and safe evacuation, drownings, electrical shock, heat prostration, fractures, poisonings, cuts and burns, neck and back or spinal injuries, and exposure to chlorine gas.

All employees should be trained and drilled periodically in the execution of the plan.

5.4 Emergency Telephone and Sign

1. An emergency telephone shall be provided and identified as such.
2. At or near an emergency telephone, a sign shall be posted that lists the names and telephone numbers of persons available to render emergency aid, including: ambulance, fire, police, chlorine/ emergency maintenance and pool manager.

5.5 First Aid Kit

1. The whirlpool facility shall be equipped with a first aid kit of a type as described in *the safety plan*.

5.6 Maximum Swimmer Load

1. Swimmer load shall be based on the following formula:
 - (a) Swimmer load = 1 person for each square metre of whirlpool surface area.

5.7 Incident Report Forms

1. The pool operator shall have incident report forms similar to that of Appendix A available at all times.
2. Incident report forms shall be properly completed when injuries occur.
3. All incident report forms are subject to review by a public health officer.
4. In the event that a fatality occurs as a result of use of the facility, the pool operator shall:
 - a. immediately notify the public health officer and;
 - b. within 48 hours submit a completed incident report form.

5.8 Safety Rules & Signage

1. Rules and information for swimmers that are described in the safety plan shall be posted.

**APPENDIX A
NORMATIVE INCIDENT REPORT FORM**

NAME: (Surname) _____ FIRST: _____
ADDRESS: _____
PHONE: _____ AGE: _____ SEX: _____
DATE AND TIME OF INCIDENT: _____

LOCATION OF INCIDENT:	DESCRIBE WHERE AND WHAT OCCURRED
1) Outside Pool Grounds	_____
2) Dressing Rooms	_____
3) Pool Deck/Walkways	_____
4) Open Lawn	_____
5) Among Trees	_____
6) Fence	_____
7) Pool	_____
8) Shallow End	_____
9) Deep End	_____
10) Diving Boards	_____
11) Paddling Pool	_____
12) Whirlpool	_____
13) Water Slide	_____

NOTE ENVIRONMENTAL FACTORS:
(weather, structural, etc.)

ACTION IMMEDIATELY TAKEN: (Include equipment used)

SITE AND NATURE OF INJURY: (Include condition of subject and first aid used)

FOLLOW-UP ACTION:

NAMES & ADDRESSES OF WITNESSES:

OTHER STAFF ON DUTY FOR THAT ACTIVITY OR TIME PERIOD:

NAME AND POSITION OF PERSON MAKING REPORT:

The owner or operator of a swimming pool or spa pool shall report any death, near drowning or serious injury to the public health officer within 48 hours of the incident. An investigation will be completed for each incident.

APPENDIX B

INFORMATIVE INFORMATION REGARDING SWIMMING POOL SAFETY PLANS

Swimming pool operators are required to submit to the local health regions details on:

- (a) procedures to be followed in the event of a serious injury, emergency or incident;
- (b) the qualifications of a lifeguard;
- (c) the qualifications of a supervisor;
- (d) the qualifications of an aquatic exercise instructor;
- (e) the type of lifesaving, lifeguarding and first aid equipment to be kept within the immediate vicinity of the swimming pool;
- (f) a description of the space provided for the administration of first aid;
- (g) the number of lifeguards and other employees who are to be on duty while the swimming pool is in use in order to ensure adequate supervision of swimmers;
- (h) operating procedures for the swimming pool including rules, pool water chemistry testing, filter operation, chemical handling, equipment lockout, play equipment inspection, and other pool system operating procedures; and
- (i) the program of cleaning and maintenance of the swimming pool, including the nature and frequency of the cleaning and maintenance.

A written pool safety plan is required in order to ensure the health and safety of pool patrons and must be reviewed and updated at least once each year. Each pool employee must be trained in the procedures and in the use of the equipment described in the plan, and must have the plan readily available to them.

Information on the following topics is provided to assist pool operators in developing a pool safety plan.

Topic: Safety and Supervision

The safety plan shall outline, where applicable, at a minimum:

- a pool admission standard including young swimmer supervision requirements,
- the rules for use and supervision of pool mats, inflatable toys and life jackets,
- the facility-appropriate lifesaving equipment that will be provided on-site,
- the required emergency equipment and procedures including crowd control and safe evacuation, telephone access and emergency telephone numbers,
- a facility safety check process,
- supervision protocols including the number and positioning of lifeguards and supervisors including scanning and supervision,
 - This should involve an assessment of sightlines, swimmer loads, tanks, layout, and play equipment to ensure appropriate lifeguarding and lifesaving equipment.
- monitoring of users of special areas such as the steam room and sauna room,
- procedures to respond to medical emergencies such as:

- entrapped swimmers, electrical shock, heat prostration, fractures, poisonings, cuts and burns, neck and back or spinal injuries, and, where applicable, exposure to chlorine gas, and
- supervision of special uses. The *Swimming Pool Regulations* allow for the instructor of swimming and aquatic exercise classes to supervise swimmers, if they possess lifeguarding qualifications. Whereas, non-traditional pool uses such as S.C.U.B.A. or diving classes require a separate lifeguard.

Topic: Lifeguards

The qualifications of lifeguards are no longer referenced in *The Swimming Pool Regulations, 1999*. Lifeguard qualifications and requirements must be matched to the risks and hazards at a specific pool. For example, the hazards for designated mineral spas may be less than a typical pool due to the nature of the water. Owners/operators of public swimming pools and spas should ensure that the number of lifeguards is adequate for their facility and that individuals performing lifeguarding for their facility should be adequately trained in order to ensure swimmer safety. Guidance on the type of skills required by a lifeguard is given below. However, additional training may be necessary to address swimmer safety due to pool specific hazards.

- Resuscitation techniques;
- Lifeguarding techniques (i.e. effective supervision of an aquatic facility);
- Lifeguarding skills (e.g. management of a distressed non-swimmer, submerged victim, spinal-injured victim, missing person and/or a public relations situation);
- First aid skills (i.e. assessment and treatment of an injured victim);
- Physical fitness appropriate to a type of facility (e.g. satisfactory level of fitness);
- Use of equipment (i.e. competence with all lifeguarding and first aid equipment);
- Lifeguarding situations (e.g. responding to emergency situations);
- Pool analysis (e.g. impacts of pool features on lifeguarding, pool systems, etc);
- Pool entries and removals;
- Specialized rescues (e.g. rescue techniques based on pool features);
- Skin diving;
- Deep water rescue of a non-breathing victim;
- Water park analysis, supervision and patrol;
- Waterslide rescue; and,
- Water park search.

Operator's of licenced pools are responsible to ensure that the numbers and training of lifeguards is adequate for their particular pool and that lifeguards are of an age that enables them to fully understand the responsibilities associated with the position of lifeguard and are capable of supervising swimmer safety.

Topic: Lifeguard Towers

The use of lifeguard towers should be considered in the safety plan. It is recommended that:

1. At least one lifeguard tower should be provided for every 150 swimmers up to the maximum swimmer load.
2. Lifeguard towers should be elevated between 1.2 metres and 2 metres above the deck and should be sufficiently anchored and stable enough to permit the lifeguard to ascend or descend from the tower quickly and easily.
3. Portable lifeguard towers are acceptable.

Topic: Suggested Signage

The whirlpool safety plan should include the following signage and public notifications.

1. The following is a suggested list of safety rules that are to be posted at the facility entrance:
 - (a) Swimmers shall take a cleansing shower before and after using this pool;
 - (b) No swimmer infected with a communicable disease or having open sores shall enter this pool;
 - (c) Do not use this pool in place of toilet facilities;
 - (d) No glass containers, food or drink is allowed near this pool;
 - (e) No running;
 - (f) No boisterous play;
 - (g) No pushing or horseplay;
 - (h) This pool is supervised/ unsupervised;
 - (i) Lifeguard on duty/no lifeguard on duty;
 - (j) Maximum swimmer load is _____;
 - (k) First aid kit available at _____; and
 - (l) Emergency telephone _____.
2. At the general entrance to the whirlpool a sign should be posted advising swimmers that no food or beverages shall be brought into or consumed in the designated whirlpool areas.
3. A caution sign should be mounted adjacent to the entrance to the whirlpool. It should contain the following warnings:
 - (a) Pregnant women; elderly persons; and persons suffering from heart disease, diabetes, or high or low blood pressure should not enter the whirlpool tub without prior medical consultation and permission from their doctor;
 - (b) Do not use the whirlpool tub while under the influence of alcohol, or drugs that cause drowsiness or that raise or lower blood pressure;
 - (c) Do not use at water temperatures greater than 40°;
 - (d) Do not use alone;
 - (e) Unsupervised use by children is prohibited;
 - (f) Enter and exit slowly;
 - (g) Observe reasonable time limits (10-15 minutes), then leave the water and cool down before returning for another brief stay; and
 - (h) Long exposure may result in nausea, dizziness, or fainting.

Topic: First-Aid Kits & Safety Equipment

A first aid kit containing the following items should be supplied at all swimming pools.

- splinter tweezers;
- bandage scissors;
- sterile gauze compresses;
- sterile bandage compresses;
- sterile adhesive dressings;
- sterile pads;
- adhesive bandage strip and hypoallergenic adhesive tape;
- a triangular bandage and safety pins;
- gauze roller, various sizes;
- sterile and wrapped gauze pads and compresses, various sizes, including an abdominal pad size;
- self-adherent roller for dressing (various sizes);
- pad with shield or tape for eye;
- disposable latex or vinyl gloves;
- pocket mask with disposable one-way rebreathe valves;
- one or more electrically insulated or non-conducting reaching poles; and,
- two or more buoyant throwing aids, each having a suitable rope that is at least one-half the width of the pool plus 1.5 metres wide.

In addition to the above items, the following items should be supplied at swimming pools where lifeguards or supervisors are required.

- a current edition of the first-aid manual;
- a first aid record book and pencil;
- a small flashlight;
- pairs of splints (various lengths);
- cold packs;
- tensor bandages;
- rolls adhesive tape;
- elastic crepe;
- a card of assorted safety pins;
- plastic bags; and,
- a spine board equipped with a device capable of preventing movement of the head and having adjustable fastening straps at shoulder, waist and feet areas.