



LIFESAVING SOCIETY®  
SOCIÉTÉ DE SAUVETAGE

*The Lifeguarding Experts*  
*Les experts en surveillance aquatique*

Lifesaving Society Canada  
2420 Bank Street, M012, Ottawa, Ontario K1V 8S1  
Telephone: 613-746-5694  
E-mail: [experts@lifesaving.ca](mailto:experts@lifesaving.ca) Web: [www.lifesaving.ca](http://www.lifesaving.ca)

## Safety Standards for Canadian Swimming Pools and Waterfronts Swimming Pool Standard

### Swimming Pool Lighting Levels

#### Standard

Swimming pools must be illuminated such that lifeguards or other persons may clearly observe, without direct and reflected glare from the lighting sources, every part of the pool surface, pool basin, and the immediate vicinity of the pool including pool accessories (e.g. diving boards).

Lighting levels on the pool deck and surface of the water should be maintained at a minimum of 200 lux. The swimming pool and surrounding pool deck must stay illuminated through all periods of operation and maintenance.

In the event of a power failure, an emergency escape lighting system should immediately illuminate the pool surface and pool deck. Emergency lighting must provide a minimum of 10 lux to all paths of egress from the facility for not less than 30 minutes.

#### Definitions

**Lux:** a basic unit of illumination equal to one lumen per square metre (0.0929 foot-candles [fc] or one candela per square metre).

**Operator:** the trained individual designated by the owner to be responsible for the day-to-day operation of an aquatic facility.

**Owner:** the person or corporation who is the owner of an aquatic facility

**Swimming Pool:** an artificially constructed basin, whether indoor or outdoor, lined with concrete, fiberglass, vinyl or similar material in which a person can swim, wade, or dive.

#### Rationale

Bather supervision is critical to water safety. Good water clarity combined with appropriate lighting assists lifeguards to see bathers. If it is not possible to see the bottom of the pool at its deepest point, pool users and lifeguards may not be able to identify people in distress<sup>1</sup>.

In addition, a person entering the pool may not be able to see someone under the water or may not be able to judge the pool bottom configuration<sup>1</sup>. Appropriate lighting levels helps to ensure good visibility to all areas, including the pool bottom.

Within Canada, various swimming pool lighting guidelines and regulations have been established by regulatory agencies and government <sup>2,3,4,5,6,7,8,9,10, 11, 12, 13, 14, 15</sup>. International standards have also been developed and adopted<sup>16,17,18,19,20</sup>. These standards and guidelines recognize the direct correlation of good illumination to bather supervision and safety.

With the rapid evolution of lighting systems, this single standard captures industry best practice for illumination of public swimming pools. It should be noted that various facilities may require more lighting in order to maintain safe supervision or for specialized purposes<sup>21,22</sup>.

## Implementation

To ensure a swimming pool is illuminated to standard and compliant to all related applicable codes, a qualified lighting specialist should design the lighting system and any subsequent lighting retrofits. Following installation, the lighting system should be thoroughly tested under the variety of operating conditions expected at the facility. The as-built performance details such as luminous flux, luminous intensity, lux readings, and unified glare readings should be documented as benchmarks.

It is important to recognize that pool lighting changes over time. Daily and seasonal variations cause natural lighting levels to fluctuate. Dirty or damaged windows reduce light penetration. Window treatments also affect transmittance. Energized lighting systems and components deteriorate, including lamp intensity, and eventually fail leading to poor visibility and unsafe conditions.

Owners and operators have a responsibility to ensure that swimming pools always remain illuminated to standard. To keep the lighting system in good condition, a schedule of inspections along with a regular preventive maintenance program should be maintained to keep the lighting system to standard and to the manufacturer's specifications.

Following a Safe Operating Procedure (SOP), a lighting inspection program should ensure that all lighting system components are at a minimum<sup>17, 20</sup>:

- Inspected visually each day for safe and effective operation;
- Inspected monthly to ensure good physical condition;
- Inspected by a qualified lighting expert as soon as possible following any reported impact or performance problem;
- Inspected annually in detail by a qualified lighting expert to ensure:
  - Lens covers are secure;
  - Fixtures are clean;
  - Components are current to all applicable regulatory requirements;
  - Preventative maintenance is being completed;
  - Lighting levels (lux) are tested for conformity to the original lighting plan and the results documented in records kept on site;
  - Components are current within documented or stamped expiry dates.

In the event that the pool lighting system is noticeably damaged or not performing to standard, the lighting system should be de-energized and isolated through a Safe Operating Procedure (SOP). If lighting levels fall below standard or the lighting system presents a risk, the swimming pool should be closed immediately until repairs have been completed by a qualified technician and the lighting system restored to specification.

## References

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### Approval

- Approved by the Lifesaving Society Canada Board of Directors on 10 April 2012.
- Revised and approved by Lifesaving Society Canada's Board of Directors on 8 March 2021.

### Disclaimer

Lifesaving Society Canada's National Safety Standards are developed using Coroners' recommendations, the latest evidence-based research, and reflect the aquatics industry's best practices at the time the publication was approved.

The purpose of these standards is to encourage swimming pool, waterpark and waterfront owners, managers, operators and regulators to adopt these standards, in order to prevent drownings in aquatic environments.

Lifesaving Society Canada's National Safety Standards do not replace or supersede local, provincial/territorial or federal legislation or regulations, but they are considered the standard to which aquatic facility operators should work towards, in order to enhance safety within their operations and to prevent drowning.