

## **Bulletin 68-7-16**

### **Swimming pool, hot tub, and spa installations**

**Rules 12-012, 12-902, 12-930, 22-200, 22-302, 26-704, 26-708, 68-000, 68-056, 68-064, 68-068, 68-302, 68-306, and 68-404**

**Issued May 2025**

Supersedes Bulletin 64-7-15

### **Scope**

- 1) Background
- 2) Swimming pools - general
- 3) Wiring methods
- 4) Ground fault circuit interrupter (GFCI)
- 5) Emergency shut-off switch for a public pool, spa or hot tub
- 6) Cord connected hydromassage bathtubs
- 7) Arc-fault circuit interrupter protection (AFCI)

#### **1) Background**

Questions have been asked on applying Section 68 of the Ontario Electrical Safety Code (OESC). The intent of this bulletin is to provide answers for the most frequently asked questions to ensure the consistent application of the OESC.

#### **2) Swimming pools - general**

Rule 68-000 2) lists the types of pools included in the scope of Section 68; this includes above-ground and in-ground pools. Therefore, all requirements of Section 68 apply to both above-ground and in-ground pools.

#### **Question 1**

Does the OESC permit the installation of extra low voltage landscape lighting systems within 3 m of the edge of a swimming pool, spa or hot tub?

#### **Answer 1**

Yes, provided that the power supply is GFCI protected, as required by Rule 68-068, and does not bear the marking "DO NOT MOUNT POWER SUPPLY OR LUMINAIRES WITHIN 3 m OF A SWIMMING POOL OR SPA." (Rule 2-034)

#### **Rationale 1**

C22.2 No. 250.7, Extra-low-voltage landscape lighting systems, states power supply marking and instructions states "A power supply shall be marked in accordance with Table 20.101.1 and shall be provided with installation instructions in accordance with Table 20.102.1, Items 2.1 to 2.11, as applicable." Item 2.8 in Table 20.102.1 states "DO NOT MOUNT POWER SUPPLY OR LUMINAIRES WITHIN 3 m OF A SWIMMING POOL OR SPA".

### **3) Wiring methods**

#### **Question 2**

Is it acceptable to install an NMD90 cable in a PVC conduit installed underground?

#### **Answer 2**

No, Rule 12-930 states raceways installed underground or in concrete slabs, in direct contact with moist earth, shall comply with Section 22 Rules for Category 1 locations.

Rule 22-200 requires individual conductors and non-metallic sheathed cables in Category 1 areas to be suitable for use in wet locations. Non-metallic sheathed cables shall be of the NMWU\* type.

NMD90 non-metallic sheathed cable is suitable for use in dry or damp locations only.

#### **Note**

Additional jumpers or alternate wiring methods may be required when using NMWU cable as it has a 60°C temperature rating and may be lower than the requirements for termination in most panelboards or pool equipment.

Notwithstanding Rule 12-902 and Table 19, NMWU cable is permitted in a raceway.

#### **Question 3**

Is it acceptable to install an NMD90 cable in a surface mounted PVC conduit above grade, such as along the brick wall of a house?

#### **Answer 3**

Yes, PVC raceway installed above grade is considered a dry or damp location.

#### **Note**

Where a PVC raceway passes through a wall, from a warm area to a cold area (interior to exterior of a house), it shall be sealed to prevent condensation in the raceway, as per Rule 22-302.

Notwithstanding Rule 12-902 and Table 19, NMD90 cable is permitted in a raceway.

#### **Question 4**

Is a gas pipe permitted to be installed in the same trench as electrical wiring supplying pool equipment?

#### **Answer 4**

Yes, provided that the electrical wiring and the gas piping are separated by at least 300 mm (12") horizontally within the trench (Rule 12-012 and CSA Standard C22.3 No. 7 for Underground Systems). Where the electrical wiring and gas cross each other, they shall be separated vertically by a minimum of 300 mm at right angles or close to at the point of crossing. Where it is not possible to achieve this clearance, mechanical protection is required such as using a sand bag.

### **Question 5**

With an above-ground pool, what is a minimum distance between an underground PVC conduit or direct buried cable and the pool?

### **Answer 5**

If the PVC raceway or direct buried cable is supplying equipment directly related to the pool (pump, lighting, etc.) and the circuit is GFCI protected, there is no minimum separation required.

If a PVC raceway or direct buried cable is supplying non-pool related equipment, it must maintain a distance from the inside walls of the pool by the distances specified in Table 61.

## **4) Ground fault circuit interrupter (GFCI)**

### **Question 6**

If a pool, spa or hot tub is installed within 3 m of electrical equipment, as shown in Photo B6, does the equipment require GFCI protection? Examples are pool pumps, lighting, central air conditioning unit, electrical revenue meter, etc.

**Photo B6 – Electrical equipment within 3 m**



### **Answer 6**

Yes, Rule 68-068 requires electrical equipment that is located 3 m of the inside walls of the pool to be GFCI protected unless the electrical equipment is suitably separated from the pool area by a fence, wall, or other permanent barrier.

**Note**

- If the pump is cord connected to a receptacle of 5-15R or 5-20R configuration, Rule 26-704 2) requires that receptacles of 5-15R or 5-20R configuration installed outdoors, be protected by a GFCI of the Class A Type. In this case, it would not matter if the pump were located further than 3 m.
- If the pump is cord connected to a receptacle other than 5-15R or 5-20R configuration and the pool pump is within 3 m of the pool, the OESC requires a GFCI of Class A type protection for the branch circuit supplying this receptacle.
- If the pump is cord connected to a receptacle other than 5-15R or 5-20R configuration and the pool pump is not within 3 m of the pool, GFCI protection is not required by the OESC.

Rule 26-708 requires receptacles exposed to the weather and of configurations 5-15R, 5-20R, 5-20RA, 6-15R, 6-20R, and 6-20RA to be provided with cover plates suitable for wet locations, whether or not a plug is inserted into the receptacle, and marked “Extra Duty.”

**Question 7**

Does the OESC set any specifications on this wall or barrier?

**Answer 7**

No. As long as the fence, wall or permanent barrier does not have openings or gaps, and prevents a person contacting the electrical equipment and the pool water simultaneously.

**Question 8**

How close are receptacles (Photo B7) permitted to be located to swimming pools/hot tubs?

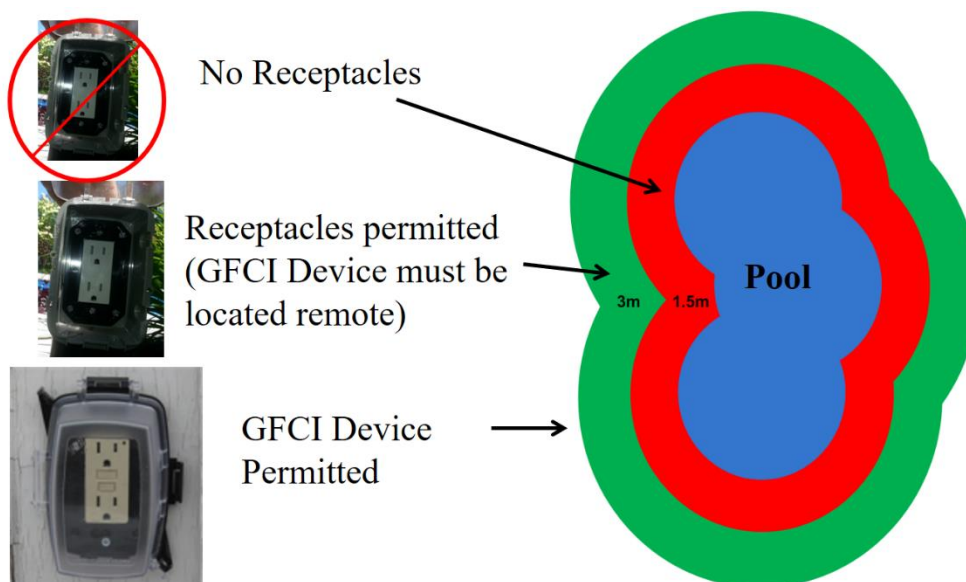
**Answer 8**

Rule 68-064 does not permit a receptacle to be located closer than 1.5 m to the pool (measured using a string to simulate a length of an electrical cord). In addition, Rule 68-068 does not permit the GFCI devices (Receptacles, Dead-fronts, or breakers) to be closer than 3 m to the pool unless guarded as per Answer 15. Diagram B4 provides additional information where receptacles are permitted.

**Photo B7 – Receptacles near pools**



**Diagram B4 – Receptacles near pools**



**Question 9**

Is a receptacle for a cord connected pump permitted to be located within 1.5 m of a pool or hot tub?

**Answer 9**

No. Rule 68-064 requires a receptacle to be located not closer than 1.5 m to the pool. See Diagram B4.

**Question 10**

Does a heater or pool pump located more than 3 m away, or isolated by suitable barrier, supplying a hot tub or spa that shares common water circulation with a pool, as per Photo B8, require ground fault circuit interruption?

**Photo B8 – Hot tub as part of the pool**



**Answer 10**

No, not unless required by the manufacturer. The hot tub is part of the pool and shall be inspected as part of the pool.

**Question 11**

Does the OESC require Class A ground fault protection for electrical equipment such as salt water chlorine generators located at more than 3 m from the inside wall of a pool?

**Answer 11**

No, unless required by the electrical equipment manufacturer.

**Rationale 11**

Where the equipment is located further than 3 m from the pool, spa or a hot tub or behind a suitable barrier, as per Rule 68-068, GFCI protection is not mandated specifically by the Part 1 Code. Also, recent amendments to the CSA standard C22.2 No. 218.1 “Spas, Hot Tubs, and Associated Equipment” now includes certification requirements for electrolytic chlorine and bromine generators and does not provide requirements for ground fault protection for chlorinators. Although not mandated in Section 68 for all installations and part 2 standard for chlorinators, many manufacturers of associated pool equipment require Class A GFCI protection of their product, as per nameplate or installation instructions.

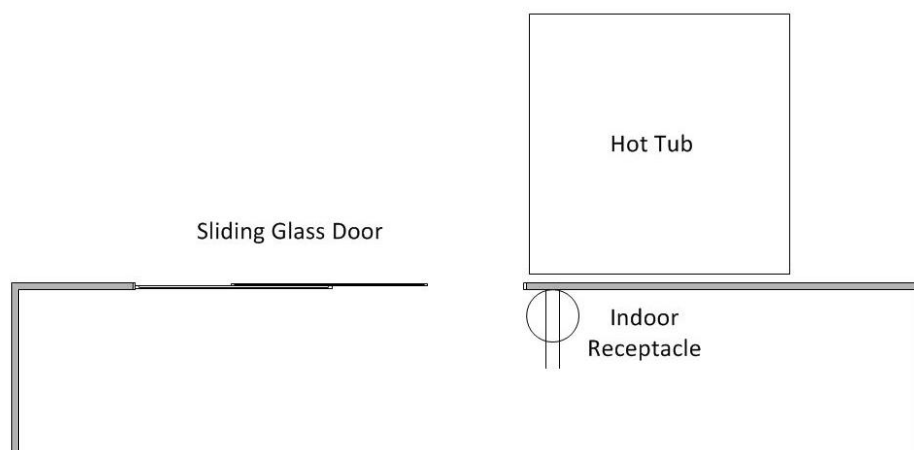
**Question 12**

When a swimming pool or hot tub is located adjacent to a building such as a shed or house that has various types of electrical equipment located on the interior side of the doorway as shown in Diagram B5 below, does the following minimum distances apply:

- 1.5 m for receptacles not containing an integral device remotely GFCI protected/ 3m for receptacles with integral GFCI (Rule 68-064);
- 3m for electrical equipment without GFCI protection (Rule 68-068 7) d));
- 3m for GFCI devices (Rule 68-068 6) b)); or

- 3m for luminaires without GFCI (Rule 68-066 6))?

**Diagram B5 – Interior receptacles near pools or hot tubs**



**Answer 12**

No

**Rationale 12**

These devices are considered suitably separated as the prescribed distances are not intended to pierce openings through doorways or windows.

**5) Emergency shut-off switch for a public pool spa or hot tub**

The emergency shut-off switch (stop button) shall be installed for each spa or hot tub, except for a spa or hot tub installed at a dwelling unit. The emergency shut-off switch is required by Rule 68-404 for a public spa. Public spa is defined under the Ontario Building Code (OBC) and Article 3.12.5 (Emergency Provisions for All Public Spas) provides further requirements for the installation and connection of emergency shut-off switches.

The emergency shut-off switch shall be independent of the controls for a spa or a hot tub.

The emergency shut-off switch shall comply with Rule 68-404 4).

This would be accompanied by an emergency sign posted adjacent to the emergency stop button containing the words “IN THE EVENT OF AN EMERGENCY PUSH EMERGENCY STOP BUTTON AND USE EMERGENCY PHONE, AUDIBLE AND VISUAL SIGNAL WILL ACTIVATE.”

**Note**

Rule 68-404 requires controls for a spa or hot tub to be located behind a barrier or not less than 1 m horizontally from the spa or hot tub unless they are an integral part of an approved factory built unit.



**Question 13**

Is GFCI protection required if the emergency shut-off switch is extra low voltage e.g. 24 V?

**Answer 13**

Yes, Rule 68-068 7) requires GFCI protection for the emergency shut-off switch, located within 3 m of a pool or hot tub irrespective of voltage.

**Note**

Where the emergency shut off switch is GFCI protected, the emergency shut off circuit shall be connected such that tripping of the GFCI protector shall also cause the pump motor to stop.

**Question 14**

Is an emergency shut-off switch (stop button) for an existing public pool in a supervised location, permitted to be located inside the life guard control room or must it be located on the pool deck?

**Answer 14**

The OBC defines a "public pool" and classifies it to Class A and Class B pools. The OBC provides the requirements for emergency stop button location depending on classification of the pool. Refer to Article 3.11.10.1 (12) of the OBC for more information.

ESA recommends seeking advice from building officials for this question as it is an OBC direction.

**6) Cord connected hydromassage bathtubs**

Rule 68-302 requires electrical equipment forming an integral part of a hydromassage bathtub to be protected by a ground fault circuit interrupter of the Class A type. This Rule applies to permanently and cord connected hydromassage bathtubs.

Where a cord-connected hydromassage bathtub, spa or hot tub is intended to be installed, the requirements of Rule 68-306 shall be met.

**7) Arc-fault protection (AFCI)**

AFCI protection is required for an outdoor receptacle feeding pool/outdoor equipment, if:

- 1) The receptacle is located on the exterior of the dwelling unit; and
- 2) The receptacle is fed from a panel board located inside the dwelling unit.

Refer to Bulletin 26-18-\* for more information.