

accumulation during normal operation or maintenance unless the equipment is rated and identified for submersion.

Informational Note: Chemicals such as chlorine cause severe corrosive and deteriorating effects on electrical connections, equipment, and enclosures when stored and kept in the same vicinity. Adequate ventilation of indoor spaces such as equipment and storage rooms is addressed by ANSI/APSP-11, *Standard for Water Quality in Public Pools and Spas*, and can reduce the likelihood of the accumulation of corrosive vapors.

- N (B) Receptacles.** At least one GFCI-protected 125-volt, 15- or 20-ampere receptacle supplied from a general purpose branch circuit shall be located within an equipment room. All other receptacles supplied by branch circuits rated 150 volts or less to ground within an equipment room and any receptacles supplied by a branch circuit rated 150 volts or less to ground in a vault or pit shall be GFCI protected.

680.13 Maintenance Disconnecting Means. One or more means to simultaneously disconnect all ungrounded conductors shall be provided for all utilization equipment other than lighting. Each means shall be readily accessible and within sight from its equipment and shall be located **not less than 1.5 m (5 ft)** horizontally from the inside walls of a pool, spa, fountain, or hot tub unless separated from the open water by a permanently installed barrier that provides a 1.5 m (5 ft) reach path or greater. This horizontal distance shall be measured from the water's edge along the shortest path required to reach the disconnect.

A readily accessible disconnecting means is required to be located within sight of pool, spa, fountain, and hot tub equipment. This provides service personnel with the ability to safely disconnect power for servicing equipment such as motors, heaters, and control panels. The intent of the 5-foot distance from the inside walls of the pool or separation by a permanent barrier is that the disconnecting means not be in reach of someone in the pool.

Δ **680.14 Corrosive Environments.**

- N (A) Wiring Methods.** Wiring methods shall be suitable for use in corrosive environments. Rigid metal conduit, intermediate metal conduit, rigid polyvinyl chloride conduit, reinforced thermosetting resin conduit, and liquidtight flexible nonmetallic conduit shall be considered suitable for use. Aluminum conduit and tubing shall not be permitted.

- N (B) Other Equipment.** Other equipment shall be suitable for use in corrosive environments or be installed in identified corrosion-resistant enclosures. Equipment listed for pool and spa use shall be considered suitable for use.

Part II. Permanently Installed Pools

680.20 General. Electrical installations at permanently installed pools shall comply with the provisions of Part I and Part II of this article.

680.21 Motors.

- Δ (A) Wiring Methods.** The wiring to a pool motor shall comply with 680.21(A)(1) or (A)(2).

(1) Flexible Connections. Where necessary to employ flexible connections at or adjacent to the motor, liquidtight flexible metal, liquidtight flexible nonmetallic conduit, or MC cable suitable for the use shall be permitted.

- Δ (2) Cord-and-Plug Connections.** Pool-associated motors shall be permitted to employ cord-and-plug connections. The flexible cord shall not exceed 900 mm (3 ft) in length.

(B) Double-Insulated Pool Pumps. A listed cord-and-plug-connected pool pump incorporating an approved system of double insulation that provides a means for grounding only the internal and nonaccessible, non-current-carrying metal parts of the pump shall be connected to any wiring method recognized in Chapter 3 that is suitable for the location. Where the equipment grounding conductor of the motor circuit is connected to the equipotential bonding means in accordance with the second sentence of 680.26(B)(6)(a), the branch-circuit wiring shall comply with 680.21(A).

The internal metal parts of a swimming pool pump incorporating a system of double insulation are grounded; however, they are not required to be incorporated into the bonding system required by 680.26(B), because bonding defeats the double insulation system.

(C) Ground-Fault Protection. Outlets serving pool motors shall have ground-fault protection complying with 680.5(B) or (C), as applicable.

Exception: Listed low-voltage motors not requiring grounding, with ratings not exceeding the low-voltage contact limit that are supplied by listed transformers or power supplies that comply with 680.23(A)(2), shall be permitted to be installed without ground-fault protection.

(D) Pool Pump Motor Replacement. Where a pool pump motor in 680.21(C) is replaced or repaired, the replacement or repaired pump motor shall be provided with ground-fault protection complying with 680.5(B) or (C), as applicable.

Even though the original installation might not have provided GFCI protection for the swimming pool pump motor, a new or rebuilt pump motor installed to replace a failed motor is required to have GFCI protection. This applies to all direct-connected (hard-wired) and cord-and-plug-connected swimming pool pump motors required to be provided with GFCI protection by 680.21(C).

680.22 Lighting, Receptacles, and Equipment.

(A) Receptacles.

The requirements of 680.22(A) apply to receptacles located near a permanently installed pool or near a fountain that has water