

Chapter E 680

SWIMMING POOLS

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E 680.01 Scope. The provisions of this chapter apply to the construction and installation of electric wiring for equipment in or adjacent to swimming pools, to metallic appurtenances in or within 5 feet of the pool, and to the auxiliary equipment such as pumps, filters, and similar equipment. No electric appliances or wiring shall be installed in the water or in the enclosing walls of a swimming pool, except as provided for in this chapter.

History: Cr. Register, April, 1964, No. 100, eff. 5-1-64.

E 680.02 Approval of equipment. All equipment shall be approved for the purpose.

History: Cr. Register, April, 1964, No. 100, eff. 5-1-64.

E 680.03 Application of other chapters. Except as modified by this chapter, wiring and equipment in or adjacent to swimming pools shall comply with the applicable requirements of chapters E 100 to E 400, inclusive, of this code.

History: Cr. Register, April, 1964, No. 100, eff. 5-1-64.

E 680.04 Wiring method and lighting. (1) All wiring supplying pool lighting boxes shall be in threaded rigid metal conduit and all boxes, fittings and joints shall be threaded for connection to the conduit. The provisions of the following subsections apply to lighting fixtures installed below the pool surface.

(2) There shall be a grounded metal flange around the face of the fixtures. The fixtures shall be approved for the purpose and installed in accordance with one of the following methods:

(a) *Dry niche:* Not to exceed 150 volts to ground, and located outside the walls of the pool in closed recesses which are adequately drained and accessible for maintenance.

(b) *Wet niche:* Not to exceed 150 volts, and located in contact with water in the walls of the pool, providing the fixture circuit is isolated from the power supply and ungrounded. An approved fall-safe ground detector which automatically and instantaneously de-energizes the circuit shall be provided when the fixture circuit voltage exceeds 30 volts.

1. The isolating transformer and its enclosure shall be approved for the purpose. It shall have a grounded metal barrier between the primary and secondary windings.

(3) All noncurrent carrying metal parts of lighting fixtures shall be grounded whether exposed or enclosed in nonconducting materials.

(4) Approved metal fixture housings (forming shells) shall be installed for the mounting of all underwater fixtures and shall be equipped with provisions for conduit entries. Metal parts of the fixture, fixture housing, and the supply conduit below deck level shall be of brass or other suitable copper alloy. The conduit shall extend from the fixture housing (forming shell) to a suitable junction box located as provided in section E 680.05 of this chapter.

History: Cr. Register, April, 1964, No. 100, eff. 5-1-64.

E 680.05 Junction boxes and transformer enclosures. (1) Junction boxes installed on the supply side of conduits extending to underwater pool lights shall be constructed of brass or suitable copper alloy unless located:

- (a) Not less than 4 feet from the pool perimeter, and
- (b) Not less than 12 inches above the ground or concrete surface,

(2) Transformer enclosures shall be approved for use in wet locations, or shall be located:

- (a) Not less than 4 feet from the pool perimeter, and
- (b) Not less than 12 inches above the ground or concrete surface, and
- (c) In no case less than 12 inches above the maximum water level.

(3) Boxes shall be provided with means for independently terminating not less than two grounding conductors.

History: Cr. Register, April, 1964, No. 100, eff. 5-1-64.

E 680.06 Attachment plug receptacles. No attachment plug receptacles shall be installed within 10 feet of the inside walls of the swimming pool.

(1) **EXCEPTION.** Attachment plug receptacles of other than the standard 15 ampere parallel slot type may be installed where an integral part of the lighting fixture assembly and where used for the installation, maintenance, or servicing of the fixture.

Note: In making the 10-foot determination, the distance to be measured is the shortest path which the supply cord of an appliance connected to a receptacle would follow without piercing a building wall, floor, or ceiling.

History: Cr. Register, April, 1964, No. 100, eff. 5-1-64.

E 680.07 Grounding. (1) All metallic conduit, piping systems, pool reinforcing steel, and the like shall be bonded together with a No. 6 stranded copper conductor and grounded to a common ground. The metal parts of ladders, diving boards, and their supports, shall be similarly grounded.

(2) No pool equipment, such as a deck box or transformer enclosure, shall be grounded to an external grounding electrode that is not common to the pool ground.

(3) A No. 14 AWG, or larger, insulated copper wire shall be provided for a grounding conductor from the deck box to the service equipment where it shall be attached to the service grounding conductor.

(4) Metallic raceways shall not be depended upon for grounding. Where exposed to pool water and in other corrosive areas such as in pump houses or adjacent to water treating and other equipment, the grounding of the noncurrent-carrying parts shall be by means of an insulated copper conductor sized in accordance with section E 250.095.

History: Cr. Register, April, 1964, No. 100, eff. 5-1-64.

E 680.08 Methods of grounding and bonding. (1) Metal wiring enclosures shall be grounded in accordance with chapter E 250, in addition to other requirements of this chapter.

(2) In addition to other requirements of this chapter, lighting fixtures that are supplied by flexible cord or cable shall have all metal parts grounded by means of an insulated grounding conductor that is an integral part of the cord. This conductor shall be No. 14 AWG, or larger.

(3) Non-electrical equipment required to be grounded to a common ground in accordance with section E 680.07 shall be grounded in accordance with chapter E 250.

Note: Structural reinforcing steel may be used as a common bonding conductor for non-electrical parts where connections can be reliably made in accordance with the provisions of chapter E 250.

History: Cr. Register, April, 1964, No. 100, eff. 5-1-64.

E 680.09 Clearances. Service drop conductors shall not be installed above the swimming pool or surrounding area extending 10 feet horizontally from the pool edge, or diving structure, observation stands, towers or platforms.

History: Cr. Register, April, 1964, No. 100, eff. 5-1-64.

E 680.10 Overhead wiring. No open overhead wiring shall be installed in the pool area as described in section E 680.09.

History: Cr. Register, April, 1964, No. 100, eff. 5-1-64.