

## SWIMMING POOLS

**E4106.9 Underwater audio equipment.** Underwater audio equipment shall be identified for the purpose.

**E4106.9.1 Speakers.** Each speaker shall be mounted in an approved metal forming shell, the front of which is enclosed by a captive metal screen, or equivalent, that is bonded to and secured to the forming shell by a positive locking device that ensures a low-resistance contact and requires a tool to open for installation or servicing of the speaker. The forming shell shall be installed in a recess in the wall or floor of the pool.

**E4106.9.2 Wiring methods.** Rigid metal conduit or intermediate metal conduit of brass or other identified corrosion-resistant metal, rigid nonmetallic conduit, or liquid-tight flexible nonmetallic conduit (LFNC-B) shall extend from the forming shell to a suitable junction box or other enclosure as provided in Section E4106.8. Where rigid nonmetallic conduit or liquidtight flexible nonmetallic conduit is used, a 8 AWG solid or stranded insulated copper equipment grounding conductor shall be installed in this conduit with provisions for terminating in the forming shell and the junction box. The termination of the 8 AWG conductor in the forming shell shall be covered with, or encapsulated in, a suitable potting compound to protect such connection from the possible deteriorating effect of pool water.

**E4106.9.3 Forming shell and metal screen.** The forming shell and metal screen shall be of brass or other approved corrosion-resistant metal. All forming shells shall include provisions for terminating an 8 AWG copper conductor.

**E4106.10 Electrically operated pool covers.** The electric motors, controllers, and wiring for pool covers shall be located not less than 5 feet (1524 mm) from the inside wall of the pool except where separated from the pool by a wall, cover, or other permanent barrier. Electric motors installed below grade level shall be of the totally enclosed type. The electric motor and controller shall be connected to a circuit protected by a ground-fault circuit-interrupter. The device that controls the operation of the motor for an electrically operated pool cover shall be located so that the operator has full view of the pool.

**E4106.11 Electric pool water heaters.** All electric pool water heaters shall have the heating elements subdivided into loads not exceeding 48 amperes and protected at not more than 60 amperes. The ampacity of the branch-circuit conductors and the rating or setting of overcurrent protective devices shall be not less than 125 percent of the total nameplate load rating.

**E4106.12 Pool area heating.** The provisions of Sections E4106.12.1 through E4106.12.3 shall apply to all pool deck areas, including a covered pool, where electrically operated comfort heating units are installed within 20 feet (6096 mm) of the inside wall of the pool.

**E4106.12.1 Unit heaters.** Unit heaters shall be rigidly mounted to the structure and shall be of the totally enclosed or guarded types. Unit heaters shall not be mounted over the

pool or within the area extending 5 feet (1524 mm) horizontally from the inside walls of a pool.

**E4106.12.2 Permanently wired radiant heaters.** Electric radiant heaters shall be suitably guarded and securely fastened to their mounting devices. Heaters shall not be installed over a pool or within the area extending 5 feet (1524 mm) horizontally from the inside walls of the pool and shall be mounted not less than 12 feet (3658 mm) vertically above the pool deck.

**E4106.12.3 Radiant heating cables prohibited.** Radiant heating cables embedded in or below the deck shall be prohibited.

**E4106.13 Double insulated pool pumps.** A permanently installed pool shall be permitted to be provided with listed cord- and plug-connected pool pumps incorporating an approved system of double insulation that provides a means for grounding only the internal and nonaccessible, noncurrent-carrying metal parts of the pump.

## SECTION E4107 STORABLE SWIMMING POOLS

**E4107.1 Pumps.** A cord-connected pool filter pump for use with storable pools shall incorporate an approved system of double insulation or its equivalent and shall be provided with means for grounding only the internal and nonaccessible non-current-carrying metal parts of the appliance.

The means for grounding shall be an equipment grounding conductor run with the power-supply conductors in a flexible cord that is properly terminated in a grounding-type attachment plug having a fixed grounding contact.

**E4107.2 Ground-fault circuit-interrupters required.** Electrical equipment, including power-supply cords, used with storable pools shall be protected by ground-fault circuit-interrupters.

**E4107.3 Luminaires.** Luminaires for storable pools shall not have exposed metal parts and shall be listed for the purpose as an assembly. In addition, luminaires for storable pools shall comply with the requirements of Section E4107.3.1 or E4107.3.2.

**E4107.3.1 Fifteen (15) volts or less.** A luminaire installed in or on the wall of a storable pool shall be part of a cord- and plug-connected lighting assembly. The assembly shall:

1. Have a luminaire lamp that operates at 15 volts or less; and
2. Have an impact-resistant polymeric lens, luminaire body, and transformer enclosure; and
3. Have a transformer meeting the requirements of section E4106.1 with a primary rating not over 150 volts.

**E4107.3.2 Not over 150 volts.** A lighting assembly without a transformer, and with the luminaire lamp(s) operating at not over 150 volts, shall be permitted to be cord- and plug-connected where the assembly is listed as an assembly for the purpose and complies with all of the following: