

Swimming Pool and Spa Efficiency Standards

ALL OCCUPANCIES

SECTION 110.4

MANDATORY REQUIREMENTS FOR POOL AND SPA SYSTEMS AND EQUIPMENT

(a) **Certification by manufacturers.** Any pool or spa heating system or equipment may be installed only if the manufacturer has certified that the system or equipment has all of the following:

1. **Efficiency.** For equipment subject to State or federal appliance efficiency standards, listings in the Commission's directory of certified equipment showing compliance with applicable standards; and
2. **On-off switch.** A readily accessible on-off switch, mounted on the outside of the heater that allows shutting off the heater without adjusting the thermostat setting; and
3. **Instructions.** A permanent, easily readable and weatherproof plate or card that gives instruction for the energy efficient operation of the pool or spa heater and for the proper care of pool or spa water when a cover is used; and
4. **Electric resistance heating.** No electric resistance heating.

Exception 1 to Section 110.4(a)4: Listed package units with fully insulated enclosures, and with tightfitting covers that are insulated to at least R-6.

Exception 2 to Section 110.4(a)4: Pools or spas deriving at least 60 percent of the annual heating energy from site solar energy or recovered energy.

(b) **Installation.** Any pool or spa system or equipment shall be installed with all of the following:



1. **Piping.** At least 36 inches of pipe shall be installed between the filter and the heater or dedicated suction and return lines, or built-in or built-up connections shall be installed to allow for the future addition of solar heating equipment;
2. **Covers.** A cover for outdoor pools or outdoor spas that have a heat pump or gas heater; and
3. **Directional inlets and time switches for pools.** If the system or equipment is for a pool:
 - i. The pool shall have directional inlets that adequately mix the pool water; and
 - ii. A time switch or similar control mechanism shall be installed as part of a pool water circulation control system that will allow all pumps to be set or programmed to run only during off-peak electric demand period, and for the minimum time necessary to maintain the water in the condition required by applicable public health standards.

SECTION 110.5

PILOT LIGHTS PROHIBITED

Gas pool or spa equipment may be installed only if it does not have a continuously burning pilot light

SINGLE FAMILY, NONRESIDENTIAL AND HOTELS/MOTELS

SECTION 150.0

(p) **Pool systems and equipment installation.** Any residential pool system or equipment installed shall comply with the applicable requirements of Section 114, as well as the requirements listed in this section.

1. Pump sizing and flow rate.



A. All installed pumps and pump motors subject to State or federal appliance standards shall be listed in the Commission's directory of certified equipment and shall comply with the Appliance Efficiency Regulations.

B. All pump flow rates shall be calculated using the following system equation:

$$H = C \times F^2$$

where:

H is the total system head in feet of water.

F is the flow rate in gallons per minute (gpm).

C is a coefficient based on the volume of the pool: 0.0167 for pools less than or equal to 17,000 gallons. (0.0082 for pools greater than 17,000 gallons.)

C. Filtration pumps shall be sized, or if programmable shall be programmed, so that the filtration flow rate is not greater than the rate needed to turn over the pool water volume in 6 hours or 36 gpm, whichever is greater; and

D. Pump motors used for filtration shall meet the applicable federal standard in 10 CFR 431.465; and

E. Each auxiliary pool load shall be served by either separate pumps, or the system shall be served by a multispeed pump; and

Exception to Section 150.0(p)1.E: Pumps if less than 1 hp may be single speed.

F. Multispeed pumps shall have controls which default to the filtration flow rate when no auxiliary pool loads are operating; and

G. For multispeed pumps, the controls shall default to the filtration flow rate setting within 24 hours and shall have an override capability for servicing.

2. System piping.

A. A length of straight pipe that is greater than or equal to at least 4 pipe diameters shall be installed before the pump; and



B. Pool piping shall be sized so that the velocity of the water at maximum flow for auxiliary pool loads does not exceed 8 feet per second in the return line and 6 feet per second in the suction line; and

C. All elbows shall be sweep elbows or of an elbow-type that has a pressure drop of less than the pressure drop of straight pipe with a length of 30 pipe diameters.

3. **Filters.** Filters shall be at least the size specified in NSF/ANSI 50 for public pool intended applications.

4. **Valves.** Minimum diameter of backwash valves shall be 2 inches or the diameter of the return pipe, whichever is greater.

MULTIFAMILY

SECTION 160.7

(b) **Pool and spa systems.** Pool and spa systems available to multiple tenants or to the public shall comply with the applicable requirements of 110.4 & 110.5. Pool and spa systems installed for exclusive use by a single tenant shall comply with the applicable requirements of 150.0(p)