SECTION 504
SERVICE WATER HEATING
(Mandatory)

504.1 General. This section covers the minimum efficiency of, and controls for, service water-heating equipment and insulation of service hot water piping.

504.2 Service water-heating equipment performance efficiency. Water-heating equipment and hot water storage tanks shall meet the requirements of Table 504.2. The efficiency shall be verified through data furnished by the manufacturer or through certification under an approved certification program.

504.3 Temperature controls. Service water-heating equipment shall be provided with controls to allow a setpoint of 110°F (43°C) for equipment serving dwelling units and 90°F (32°C) for equipment serving other occupancies. The outlet temperature of lavatories in public facility rest rooms shall be limited to 110°F (43°C).

504.4 Heat traps. Water-heating equipment not supplied with integral heat traps and serving noncirculating systems shall be provided with heat traps on the supply and discharge piping associated with the equipment.

504.5 Pipe insulation. For automatic-circulating hot water systems, piping shall be insulated with 1 inch (25 mm) of insulation having a conductivity not exceeding 0.27 Btu per inch/h × ft² × °F (1.53 W per 25 mm/m² × K). The first 8 feet (2438 mm) of piping in noncirculating systems served by equipment without integral heat traps shall be insulated with 0.5 inch (12.7 mm) of material having a conductivity not exceeding 0.27 Btu per inch/h × ft² × °F (1.53 W per 25 mm/m² × K).

504.6 Hot water system controls. Automatic-circulating hot water system pumps or heat trace shall be arranged to be conveniently turned off automatically or manually when the hot water system is not in operation.

504.7 Pools. Pools shall be provided with energy conserving measures in accordance with Sections 504.7.1 through 504.7.3.

504.7.1 Pool heaters. All pool heaters shall be equipped with a readily accessible on-off switch to allow shutting off the heater without adjusting the thermostat setting. Pool heaters fired by natural gas or LPG shall not have continuously burning pilot lights.

504.7.2 Time switches. Time switches that can automatically turn off and on heaters and pumps according to a preset schedule shall be installed on swimming pool heaters and pumps.

Exceptions:

1. Where public health standards require 24-hour pump operation.
2. Where pumps are required to operate solar-and waste-heat-recovery pool heating systems.

504.7.3 Pool covers. Heated pools shall be equipped with a vapor retardant pool cover on or at the water surface. Pools heated to more than 90°F (32°C) shall have a pool cover with a minimum insulation value of R-12.

Exception: Pools deriving over 60 percent of the energy for heating from site-recovered energy or solar energy source.

SECTION 505
ELECTRICAL POWER AND LIGHTING SYSTEMS
(Mandatory)

505.1 General (Mandatory). This section covers lighting system controls, the connection of ballasts, the maximum lighting power for interior applications and minimum acceptable lighting equipment for exterior applications.

Exception: Lighting within dwelling units where 50 percent or more of the permanently installed interior light fixtures are fitted with high-efficacy lamps.

505.2 Lighting controls (Mandatory). Lighting systems shall be provided with controls as required in Sections 505.2.1, 505.2.2, 505.2.3 and 505.2.4.

505.2.1 Interior lighting controls. Each area enclosed by walls or floor-to-ceiling partitions shall have at least one manual control for the lighting serving that area. The required controls shall be located within the area served by the controls or be a remote switch that identifies the lights served and indicates their status.

Exceptions:

1. Areas designated as security or emergency areas that must be continuously lighted.
2. Lighting in stairways or corridors that are elements of the means of egress.