



Pool Heaters Summary Sheet

Pool heaters are appliances designed for heating non-potable water contained at atmospheric pressure for swimming pools, hot tubs, and similar applications. Standards apply to gas pool heaters, oil pool heaters, electric resistance pool heaters, and heat pump pool heaters.

California and Connecticut have efficiency standards for pool heaters. The efficiency standards are uniform across both states.

Excerpts from each state's standards are shown below; text in italics is directly excerpted from the state regulations.

The Multi-State Collaborative is providing these standard summaries as a courtesy; these materials are not intended to interpret state regulations. The user is responsible for reading and interpreting the regulations.

Which states have a standard?

Of the states participating in the Multi-State Appliance Collaborative, the following have a standard for commercial hot food holding cabinets; the date in parentheses shows the effective date of the standard:

- California (2006)
- Connecticut (2009)

California

Effective January 1, 2006

Pool Heaters Definitions

California Title 20 Section 1602(g)

"Coefficient of performance (COP)" of a heat pump pool heater means the ratio of heat output to the total power input in consistent units, as determined using the applicable test method in Section 1604(g).

"Heat pump pool heater" means an air-to-water heat pump pool heater, employing a compressor, water-cooled condenser, and outdoor air coil in a single package assembly.

"Low temperature rating" means the conditions described as "low temperature rating" in Table G of Section 1604(g).

"Pool heater" means an appliance designed for heating non-potable water contained at atmospheric pressure for swimming pools, spas, hot tubs and similar applications.

"Readily accessible on-off switch" of a pool heater means an on-off switch located in a place that can be easily used without the need for tools to remove any covering when the pool heater is on display in a store or when it is installed.

"Spa conditions rating" means the conditions described as "spa conditions rating" in Table G of Section 1604(g).

“Standard temperature rating” means the conditions described as “standard temperature rating” in Table G of Section 1604(g).

“Thermal efficiency” of a pool heater means a measure of the percentage of heat from the input that is transferred to the water, as determined using the applicable test method in Section 1604(g).

Standard

California Title 20 Section 1605.1 (g) 1

Energy Efficiency Standard for Gas-Fired Pool Heaters and Oil-Fired Pool Heaters. The thermal efficiency of gas-fired pool heaters and oil-fired pool heaters shall be not less than 78 percent.

California Title 20 Section 1605.3 (g)

(g) Pool Heaters, Residential Pool Pumps, and Portable Electric Spas.

(1) **Energy Design Standard for Natural Gas Pool Heaters.** Natural gas pool heaters shall not be equipped with constant burning pilots.

(2) **Energy Design Standard for All Pool Heaters.** All pool heaters shall have a readily accessible on-off switch that is mounted on the outside of the heater and that allows shutting off the heater without adjusting the thermostat setting.

(3) **Energy Efficiency Standard for Heat Pump Pool Heaters.** For heat pump pool heaters manufactured on or after March 1, 2003, the average of the coefficient of performance (COP) at Standard Temperature Rating and the coefficient of performance (COP) at Low Temperature Rating shall be not less than 3.5.

Test Method

California Title 20 Section 1604 (g)

The test methods for pool heaters are shown in Table G.

Table G. Pool Heater Test Methods

Appliance		Test Method	
Gas-fired and oil-fired pool heaters		ANSI Z21.56-1998	
Electric resistance pool heaters		ANSI/ASHRAE 146-1998	
Heat pump pool heaters		ANSI/ASHRAE 146-1998 as modified by Addendum Test Procedures published by Pool Heat Pump Manufacturers Association dated April 1999, Rev. 4: February 28, 2000.	
Reading	Standard Temperature Rating	Low Temperature Rating	Spa Conditions Rating
Air Temperature			
Dry-bulb	27° C (80.6° F)	10° C (50° F)	27° C (80.6° F)
Wet-bulb	21.7° C (71° F)	6.9° C (44.4° F)	21.7° C (71° F)

Relative Humidity	63%	63%	63%
Pool Water Temperature	23.7° C (80° F)	23.7° C (80°F)	40° C (104° F)

Labeling Requirements

California Title 20 Section 1607

All units must comply with section 1607, Marking of Appliances, which requires the following:

(a) Every unit of every appliance within the scope of Section 1601 shall comply with the applicable provisions of this Section. The effective dates of this section shall be the same as the effective dates shown in Section 1605.1, 1605.2 or 1605.3 for appliances for which there is an energy efficiency, energy consumption, energy design, water efficiency, water consumption, or water design standard in Section 1605.1, 1605.2, or 1605.3. For appliances with no energy efficiency, energy consumption, energy design, water efficiency, water consumption, or water design standard in Section 1605.1, 1605.2, or 1605.3, the effective date of this section shall be January 1, 2006.

(b) Name, Model Number, and Date.

Except as provided in Subsection (c), the following information shall be permanently, legibly, and conspicuously displayed on an accessible place on each unit:

(1) manufacturer's name or brand name or trademark (which shall be either the name, brand, or trademark of the listed manufacturer specified pursuant to Section 1606(a)(2)(A) or, if applicable, the designated manufacturer specified pursuant to Section 1606(f)(1)(F));

(2) model number; and

(3) date of manufacture, indicating (i) year and (ii) month or smaller (e.g. week) increment. If the date is in a code that is not readily understandable to the layperson, the manufacturer shall immediately, on request, provide the code to the Energy Commission.

Subsection (c) provides exceptions to subsection (b) requirements shown above. Pool heaters are not called out as exceptions.

Connecticut

Effective January 1, 2009

Definitions

The Connecticut General Statutes Sections 16a-48

"Pool heater" means an appliance designed for heating non-potable water contained at atmospheric pressure for swimming pools, spas, hot tubs and similar applications, including natural gas, heat pump, oil and electric resistance pool heaters.

Standard

Section 16a-48-4 (s)

Pool Heaters sold, offered for sale, or installed on or after January 1, 2009 shall meet or exceed the following criteria:

- (1) Thermal efficiencies of gas-fired and oil-fired pool heaters shall not be less than 78%;
- (2) Natural gas pool heaters shall not be equipped with a constantly burning pilot light;
- (3) All pool heaters shall have a readily accessible on-off switch that is mounted on the outside of the heater that allows shutting off the heater without adjusting the thermostat setting;
- (4) Heat pump pool heaters shall have a coefficient of performance (COP) of not less than 3.5 at standard temperature rating and at low temperature rating.

Test Method

Table from Section 16a-48-5 (r). Connecticut Pool Heater Test Methods

Appliance		Test Method		
Gas-fired and oil-fired pool heaters		ANSI Z21.56-1998		
Electric resistance pool heaters		ANSI/ASHRAE 146-1998		
Heat pump pool heaters		ANSI/ASHRAE 146-1998 as modified by Addendum Test Procedures published by Pool Heat Pump Manufacturers Association dated April 1999, Rev. 4: February 28, 2000.		
Reading	Standard Temperature Rating	Low Temperature Rating	Spa Conditions Rating	
Air Temperature				
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Wet-bulb	21.7° C (71° F)	6.9° C (44.4° F)	21.7° C (71° F)	
Relative Humidity	63%	63%	63%	
Pool Water Temperature	23.7° C (80° F)	23.7° C (80° F)	40° C (104° F)	