

2025

CODE BREAKER



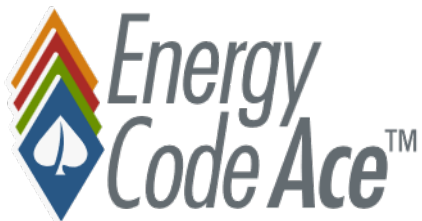
Pools & Spas — 2025 Energy Code & Appliance Standard Requirements

Solving the Energy Code Puzzle One Piece at a Time



Participant Handout

February 2025



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LEGAL NOTICE

This program is funded by California utility customers and administered by Pacific Gas and Electric Company (PG&E), San Diego Gas & Electric Company (SDG&E®), and Southern California Edison Company (SCE) under the auspices of the California Public Utilities Commission.

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ABOUT THE STATEWIDE CODES AND STANDARDS PROGRAM

The Statewide Codes and Standards Program (C&S Program) is jointly managed by the Pacific Gas and Electric Company, Southern California Edison, and San Diego Gas and Electric Company. The C&S Program saves energy on behalf of ratepayers by directly influencing standards and code-setting bodies to strengthen energy efficiency regulations, by improving compliance with existing codes and standards, and working with local governments to develop ordinances that exceed statewide minimum requirements.

This class is one of many free courses, tools, and resources that the C&S Program offers.
Please visit <http://energycodeace.com/> or contact info@energycodeace.com to find out more about all program offerings.



AIA Information

**Code Breaker: Pools & Spas
— 2025 Energy Code and
Appliance Standards
Requirements**

Learning Units: 1 AIA LU | HSW

Energy Code Ace
Provider Number: 404109083

**AIA
Continuing
Education
Provider**

Course Description

We will review the 2025 Energy Code Mandatory and Prescriptive requirements for Multifamily envelope, mechanical, photovoltaic and battery storage systems, in addition to the new electric-ready and performance compliance metrics introduced in the 2025 Energy Code.

Course Objectives

- Identify how the latest changes of the California Energy Code and Appliance Efficiency Regulations for pool and spa systems fit together
- Compare the pool and spa heating system options of the 2025 Energy Code including equipment options such as heat pump or gas systems
- Summarize the benefits of heat pump and solar pool heater systems versus the more traditional pool heaters
- Discuss the California Appliance Efficiency Standards for pool equipment and what it means for your customers
- Identify online resources for more guidance on these topics

AIA
Continuing
Education
Provider

Credit(s) earned on completion of this course will be reported to **AIA CES** for AIA members. Certificates of Completion for both AIA members and non-AIA members are available upon request.

This course is registered with **AIA CES** for continuing professional education. As such, it does not include content that may be deemed or construed to be an approval or endorsement by the AIA of any material of construction or any method or manner of handling, using, distributing, or dealing in any material or product.

Questions related to specific materials, methods, and services will be addressed at the conclusion of this presentation.

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Welcome



2025 **CODE BREAKER** * **Pools & Spas — 2025 Energy Code & Appliance Standard Requirements**

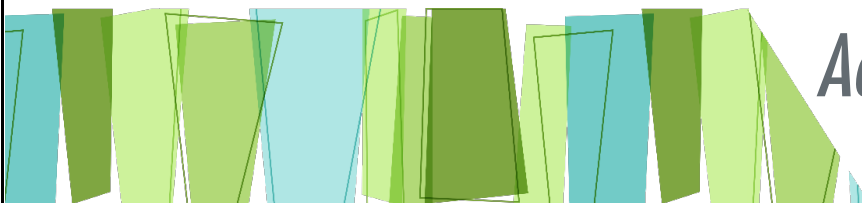
Solving the Energy Code Puzzle One Piece at a Time

Nick Brown
Energy Code Ace Instructor
Build Smart Group

Continuing Education Information	
AIA Provider ID: 40410982	AIA Course Number: 25 CB Pool Spa
ICC Provider ID: 1534	ICC Course Number: 44097

Documenting Continuing Education Units (CEUs)

- ✦ Attendees who meet the completion criteria receive “standard” certificates of completion:
 - ✧ Typically sent within two weeks of course delivery
 - ✧ Certificate includes:
 - ◆ Course IDs (AIA & ICC)
 - ◆ Energy Code Ace Provider info (AIA & ICC)
- ✦ You may use this certificate to “self-certify” with several organizations in addition to AIA & ICC
 - ✧ If you entered your AIA member number when you registered, we will submit your course-completion information to AIA for you



Ace Training™

Training Objectives

- ✦ Identify how the latest changes to the California Energy Code and Appliance Regulations for pool and spa systems fit together
- ✦ Compare the pool and spa heating system options of the 2025 Energy Code including equipment options such as heat pump or gas systems
- ✦ Summarize the benefits of heat pump and solar pool heater systems versus traditional pool heaters
- ✦ Discuss the California Appliance Standards for pool equipment and what it means for your customers
- ✦ Identify online resources for more guidance on these topics











Your one-stop shop for no-cost tools, training and resources to help you comply with California's Title 24, Part 6 building energy code and Title 20 appliance standards.

We're powered by the California Statewide Codes & Standards Program and vetted by the California Energy Commission.










A suite of interactive tools to help you understand the compliance process, required forms, installation techniques and energy efficiency regulations applicable to building projects and appliances in California

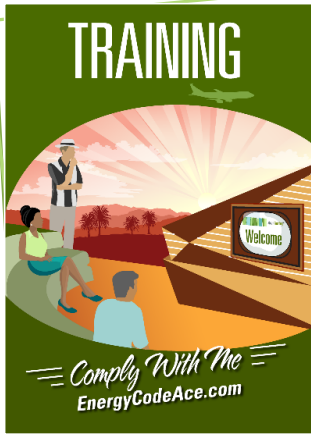
Our Tools include:

- ✦ Energy Code Product Finder
- ✦ Forms Ace
- ✦ Image Ace
- ✦ Navigator Ace
- ✦ Nonres. Indoor Lighting Wheel
- ✦ Q&Ace
- ✦ Reference Ace
- ✦ Timeline Ace
- ✦ Virtual Compliance Assistant



Ace*Tools™

TRAINING



Comply With Me

EnergyCodeAce.com

Ace*Resources™

A portfolio of on-demand and live online and in-person training alternatives on California's Energy Code and Title 20 regulations, tailored to a variety of industry professionals and addressing key measures

Our Training includes a variety of formats:

- ✦ In-person instructor-led
- ✦ Online instructor-led
- ✦ Online self-study
- ✦ Recorded webinars
- ✦ YouTube — live streaming & videos



Ace*Tools™

Ace*Training™

RESOURCES



Comply With Me

EnergyCodeAce.com

An array of downloadable materials providing practical and concise guidance on how and when to comply with California's building and appliance energy efficiency standards

Our Resources include:

- ✦ Application Guides
- ✦ Checklists
- ✦ Fact Sheets
- ✦ Submit a Question
- ✦ Trigger Sheets
- ✦ Useful Links



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Code and Standard Basics

2025 Code Breaker: Pools & Spas

1. Code and Standard Basics

2. Pool & Spa Heating Requirements
3. Other Requirements for Pool & Spa Systems
4. Next Steps

★ Who Regulates What

- ✧ **California Energy Commission**
 - ◆ 2025 Energy Code
 - ◆ Appliance Standards
- ✧ **U.S. Department of Energy**
 - ◆ Title 10 - Energy

★ Why Regulate Pools and Spas?

- ✧ California's Climate Goals

★ Compliance Process

- ✧ Manufacturers, Distributors, Retailers, Contractors/Installers



Who Regulates What

California Energy Commission (CEC)



- ✦ Develops and regulates the **Appliance Efficiency Regulations** (Title 20), which applies to new products sold or offered for sale in California
- ✦ Develops and regulates the **Flexible Demand Appliance Standards** (FDAS), which applies to products sold, offered for sale, rented, imported, distributed, or leased for use in California regardless of the physical location of the seller
- ✦ Develops the **Building Energy Efficiency Standard** (Title 24, Part 6), which applies to projects subject to a building permit
 - ✧ Enforced by the local Authority Having Jurisdiction (typically the local building department)

U.S. Department of Energy (U.S. DOE)



- ✦ Develops and regulates the **Appliance and Equipment Standards Program** (Title 10 – Energy)
- ✦ Applies to more than 60 categories of appliances and equipment that are sold or offered for sale in the U.S.
- ✦ These standards apply to different products than what is regulated in the California Appliance Efficiency Regulations



2025 Energy Code (Title 24, Part 6)



2025 California Energy Code Requirements

✦ Implementation Date

✧ **January 1, 2026**

Any projects that apply for a permit on or after this date will be subject to the 2025 Energy Code requirements

- ✦ Information and documents are available on the CEC website at:
 - ✧ <https://www.energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards/2025-building-energy-efficiency>



Appliance Standards (Title 20)



- ✦ Information and documents are available on the CEC website at:

- ✦ <https://www.energy.ca.gov/rules-and-regulations/appliance-efficiency-regulations-title-20>

California Appliance Standard Requirements

✦ Effective Dates

- ✦ **Replacement pool pump motors:** 7/19/2021
- ✦ **Oil-fired pool heaters:** 1/1/1990
- ✦ **Gas-fired pool heaters:** 4/16/2013
- ✦ **Heat pump pool heaters:** 3/1/2003

✦ Upcoming Effective Dates

- ✦ **Pool controls (FDAS):** 9/29/2025

Any in-scope products manufactured on or after these dates must comply with the respective requirements



Appliance Standards (U.S. DOE)



- ✦ Information and documents are available on the U.S. DOE website at:

- ✦ <https://www.energy.gov/eere/buildings/appliance-and-equipment-standards-program>

U.S. DOE Appliance and Equipment Standard Requirements

✦ Past Effective Dates

- ✦ **Pool pumps:** 7/19/2021

✦ Upcoming Effective Dates

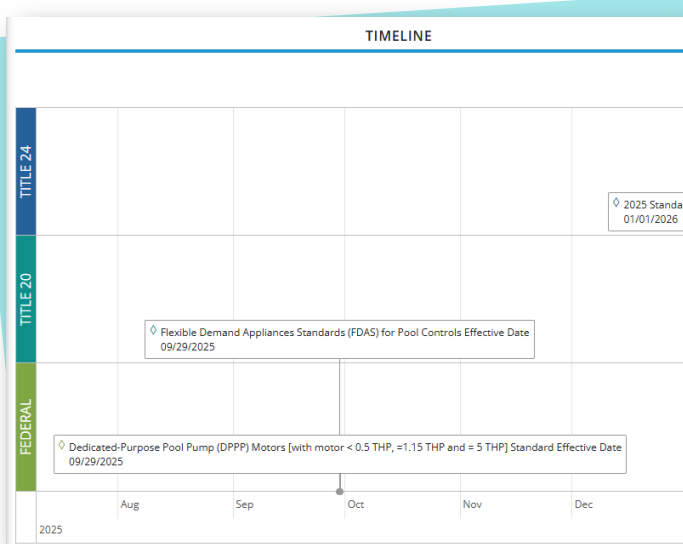
- ✦ **Pool pump motors:** 9/29/2025 and 9/28/2027
- ✦ **Electric pool heaters:** 5/30/2028
- ✦ When these upcoming regulations become effective, the CEC Title 20 requirements will be retired

Any in-scope products manufactured on or after these dates must comply with the respective requirements



Timeline Ace

- ★ See the **Timeline Ace** to view the schedule of upcoming code and standard changes:
<https://energycodeace.com/timeline/>



Why is California Doing This?

Purpose

Reduce wasteful, uneconomic, inefficient, or unnecessary consumption of energy

- ✦ **California appliance regulations**, combined with federal standards, set minimum efficiency levels for energy and water consumption in products
- ✦ The **Energy Code** requirements are to support a more resilient, affordable, equitable, and environmentally sustainable energy system
 - ◆ While the **Energy Code** mandates energy-efficient heaters for certain applications, appliance standards ensure efficiency of the products themselves

Cadence of Updates

- ✦ **Appliance Standards (CA Title 20)**: Developed on a periodic basis via a public process
- ✦ **Appliance Standards (U.S. DOE)**: Updated every 6 – 8 years via a public process
- ✦ **Energy Code (CA Title 24, Part 6)**: Updated every 3 years, via a public process, to support new Building Code measures that are found to be cost-effective



Why Regulate Pool & Spas?



- ✦ Pool/spa systems use a lot of energy while:
 - ✧ Moving and filtering water
 - ✧ Raising and maintaining water temperature
- ✦ More efficient options exist to support pools and spas, such as:
 - ✧ Minimizing use of gas/electricity by utilizing **solar thermal systems** to heat pools and spas
 - ✧ Reducing electricity to heat pools and spas by using **heat pump technology**
 - ✧ Using **controls** for circulation system
 - ✧ Installing **energy efficient** pool pumps and motors



Appliance Standards Compliance Process



Regulated appliances can only be sold or offered for sale in California if they are compliant

Manufacturer

For **manufacturers**, compliance entails the following:

- ✦ Meeting the applicable design or performance standards
- ✦ Testing regulated products by using the required test method
- ✦ Marking the regulated product
- ✦ Certifying the product to the [CEC's Modernized Appliance Efficiency Database System \(MAEDbS\)](#)

Distributor/Retailer

For **distributors/retailers**, compliance entails selling products that are listed in the [CEC's Modernized Appliance Efficiency Database System \(MAEDbS\)](#)

Installer/Contractor

For **installer/contractors**, compliance entails selling and installing products that are listed in the [CEC's Modernized Appliance Efficiency Database System \(MAEDbS\)](#)



Appliance Standards Compliance Process



For **retailers, distributors, installers, and contractors**, compliance entails:

- ✦ Verifying the product is on the [MAEDbS](#), even if it is federally regulated!

Everyone in the sales chain is responsible for ensuring regulated products are listed in the MAEDbS

The screenshot shows the 'Advanced Search' interface of the California Energy Commission's MAEDbS. The page header includes the 'CA.GOV' logo and 'CALIFORNIA ENERGY COMMISSION'. A 'SEARCH' button is visible. The main content area is titled 'Advanced Search' and contains instructions: 'The Advanced Search allows you to create a narrower search by selecting unique model criteria. You will be guided to select the category, type, then narrow your search results with additional filters. In this search you can select the fields displayed in the results by checking the "Select All" box. There are also additional filters that can be applied to look up specific model information.' Below this, it states: 'To search historical models, please set the appliance status to archived.' A note at the bottom of the instructions says: 'Questions can be directed to Appliances@energy.ca.gov or to the Appliances Hotline, toll free at (888) 838-1467 or outside California (916) 651-7100. [Search Instructions](#) are also available.' The 'Select Appliance Type' section has three dropdown menus: 'Select Category' (set to 'Pool Products'), 'Select Appliance' (set to 'Please Select'), and 'Select Appliance Status' (set to 'Approved'). At the bottom of the page, there are links for 'Accessibility', 'Conditions of Use', and 'Privacy Policy', and a copyright notice: 'Copyright © 2016 State of California'.



Pool & Spa Heating

2025 Code Breaker: Pools & Spas

1. Energy Code Basics

2. Pool & Spa Heating

3. Other Requirements
for Pool & Spa
Systems

4. Next Steps

★ 2025 Energy Code – Heating Systems

- ✧ **Triggers** to the Pool and Spa Requirements
- ✧ The 5 Options for Pool and Spa **Heating Systems**
- ✧ **Pool Covers** for heated pools
- ✧ **Exceptions** to the Requirements
- ✧ **Documentation** Requirements (Forms)

★ Appliance Standards



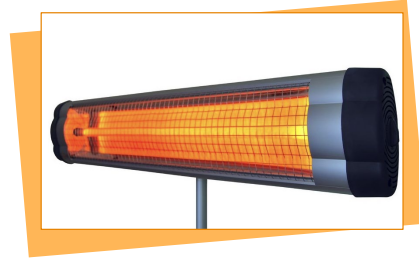
2022 Energy Code Heating Systems

Heating Options

✦ No electric resistance heating

- ✦ **Exception 1:** Listed package units with fully insulated enclosures, and with tight-fitting covers that are insulated to at least R-6
- ✦ **Exception 2:** Pools or spas deriving at least 60 percent of the annual heating energy from site solar energy or recovered energy

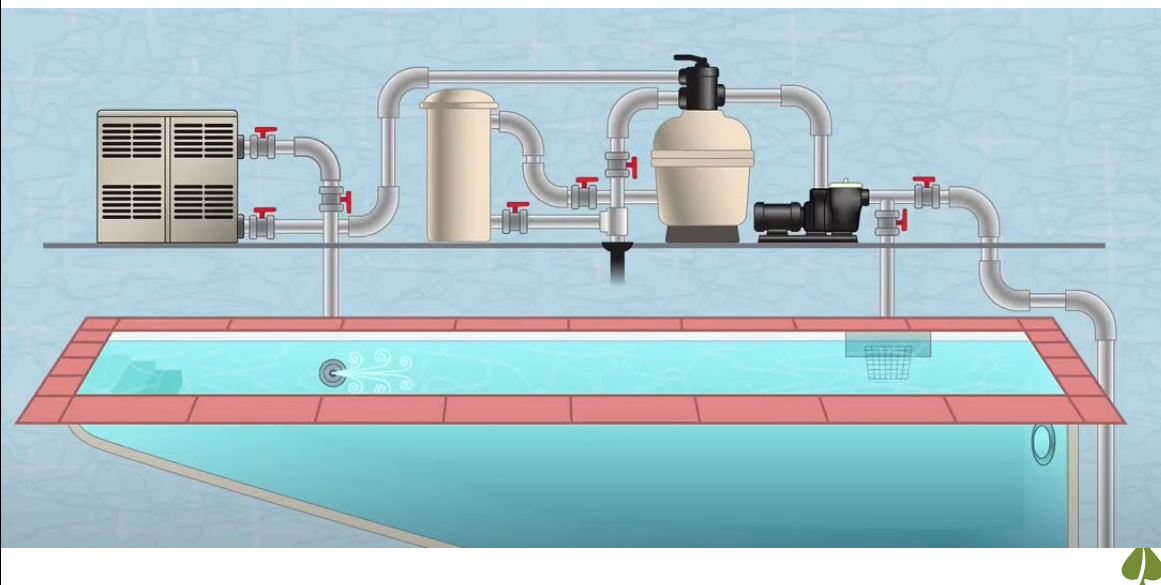
The screenshot shows the 'Advanced Search' interface on the CA.gov website. It includes a search bar, a 'Select Appliance Type' dropdown menu set to 'Pool Products', and a list of appliance categories such as 'Dedicated-Purpose Pool Pumps', 'Heat Pump Pool Heaters', and 'Gas / Oil Pool Heaters'. The interface also provides instructions on how to narrow search results and contact information for further assistance.



2025 Energy Code Heating Systems

Heating Triggers

- ✦ New **heated** pool and spas
- ✦ Existing pools and spas **adding heating systems**
- ✦ All pool and spa requirements are **Mandatory**



2025 Energy Code Heating Systems

Heating Triggers

- ✦ New **heated** pool and spas
- ✦ Existing pools and spas **adding** heating systems
- ✦ All pool and spa requirements are **Mandatory**

Mandatory



- ✦ Always required regardless of compliance approach used

Prescriptive



- ✦ Required when using the Prescriptive compliance approach

Performance



- ✦ Optional feature accounted for when doing Performance-based computer modeling



2025 Energy Code Heating Systems

Heating Options

Key Terms

Pool, Public is a pool other than a residential pool, that is intended to be used for swimming or bathing and is operated by an owner, lessee, operator, licensee, or concessionaire, regardless of whether a fee is charged for use. Public pools include pools installed in private settings such as multifamily residential buildings or hotels that are available exclusively for use by tenants or guests.

Pools, Residential is a pool intended for use that is accessory to a residential setting and available only to the household and its guests, and with specifications as defined within the scope of either ANSI/APSP/ICC-4, 2012 (R2022) or ANSI/APSP/ICC-5, 2011 (R2022).

- ✦ **Option 1: Solar Pool Heating System** and supplemental heating of any type (gas, electric resistance, etc.)
 - ✦ **Nonresidential and multifamily public pools and spas** with solar collector surface area of at least **65%** of the pool and spa surface area
 - ✦ **Single-family or multifamily residential*** pools and spas with solar collector surface area of at least **60%** of the pool and spa surface area

**Multifamily pool that is only accessible to one dwelling unit*



Solar Pool Heating System is an assembly of components designed to heat water for swimming pools, spas or swimming pool and spa combinations **by solar thermal means**, excluding pool recirculation components.



2025 Energy Code Heating Systems

Heating Options



★ **Option 2: Heat Pump Heater** as the primary heating source, and supplemental heating of any type (gas, electric resistance, etc.)

- ✦ **Sized to manufacturer recommendations**, or the sizing guidelines in Joint Appendix (JA) 16.3 if manufacturer provides no guidance on sizing
- ✦ **Controls for Heat Pump Pool Heaters with Supplemental Heating** §110.4(d)
 - ◆ When supplemental heating is used, the supplementary heater shall not operate when the heating load can be met by the Heat Pump Pool Heater (HPPH) alone

Key Terms

Joint Appendices is a supporting document for the Building Energy Efficiency Standards adopted by the Energy Commission.

2025 Joint Appendix Coming Soon!

45-day version can be found here:

<https://efiling.energy.ca.gov/GetDocument.aspx?tn=255315-3>



2025 Energy Code Heating Systems

Heating Options

Key Terms

Onsite Renewable Systems can include solar panels (solar thermal or photovoltaic), small-scale wind turbines, geothermal systems, and biomass systems installed on the same property serving the heated pool and/or spa.

★ **Option 3:** 60% of annual heating provided by **On-site Renewable System** and supplemental heating of any type

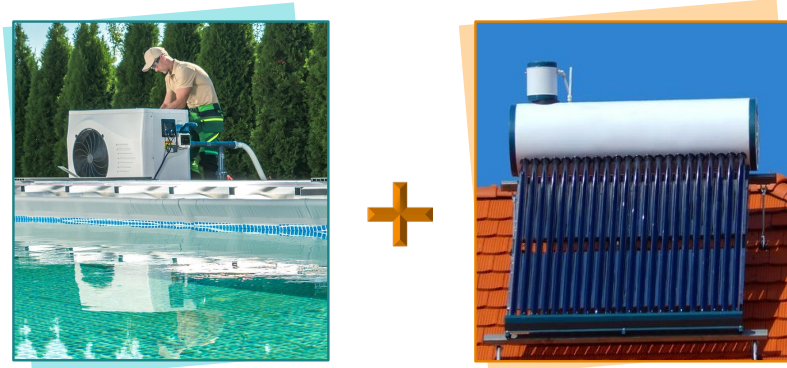
- ✦ **Licensed Mechanical Engineer** to use process supported in JA16.4 to document the heating system meets the 60% threshold



2025 Energy Code Heating Systems

Heating Options

- ★ **Option 4: Heat Pump and Solar Pool Heating** system with no supplemental heating source



2025 Energy Code Heating Systems

Heating Options

- ★ **Option 5: Other CEC-approved System(s)** that might be approved during this Energy Code cycle

CEC Blueprint

This is a quarterly newsletter where the CEC informs the public about additional options throughout a code cycle. Sign up today!

<https://www.energy.ca.gov/newsroom/blueprint-newsletter>

- ✧ This was added to allow the CEC to include additional pool and spa heating system options during a Building Code cycle (otherwise it would be included in the next code cycle, which is the 2028 Energy Code cycle)

SUBSCRIBE

Blueprint Newsletters

Email *



2025 Energy Code Heating Systems

Exceptions

CEC Approved Solar Assessment Tools

None of these are free, and whichever tool is used will have to be purchased by the vendor. There will be a learning curve to using your tool of choice.

<https://www.energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards/solar-assessment-tools>

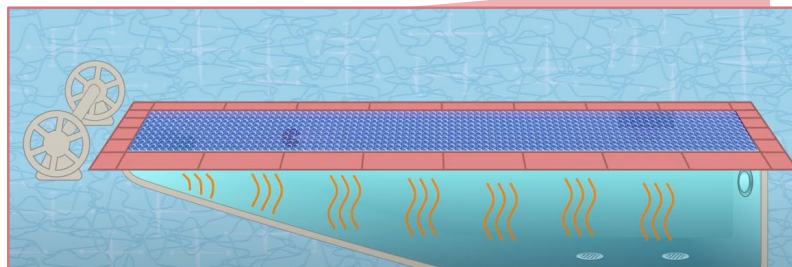
- ✦ Alterations to **existing heated** pools or spas
- ✦ **Spas**
 - ✦ Permanent spas being added to **existing buildings** in which natural gas is available.
 - ✦ **Portable electric spas** (subject to Title 20).
 - ✦ New **spas** when there is **inadequate Solar Access Roof Area (SARA)** to fit solar thermal collectors. Must be supported with a solar assessment report using a CEC-approved solar assessment tool.



2025 Energy Code Heating Systems

Pool Covers

- ✦ **Pool Covers** required for pools with gas, electric, or heat pump pool heaters to retain heat



2025 Energy Code Heating Systems

Documentation

CEC 2025 Forms

These are not available yet, but will be in the next 6 months. You will find them here: <https://www.energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards/2025-building-energy-efficiency#accordion-10831>

✦ The **Installing Contractor** needs to provide a Certificate of Installation supporting the installed system is meeting the 2025 Energy Code requirements

✦ If **Option 3: 60% of annual heating provided On-site Renewable System** is used, a Licensed Mechanical Engineer will be required to support how the 60% annual heating is being supported by the renewable system of choice

Occupancy or Building Type	Certificates of Installation	• Certificates of Compliance • Certificates of Verification • Certificates of Acceptance
	<i>These forms must be completed and signed by the Installing Contractor and made available for the AHJ's final inspection.</i>	
• Single-family Buildings	CF2R-PLB-03-E	Not Applicable
• Multifamily Buildings: • ≤ 3 Habitable Stories	LMCI-PLB-03-E	
• Multifamily Buildings: • > 3 Habitable Stories • Nonresidential, Hotel and Motel Buildings	NRCI-PRC-E <i>Pool and spas are incorporated in the Covered Process Certificate of Installation</i>	



Appliance Standards (Title 20) Pool Heater Equipment

Appliance Standards: Certified Heaters

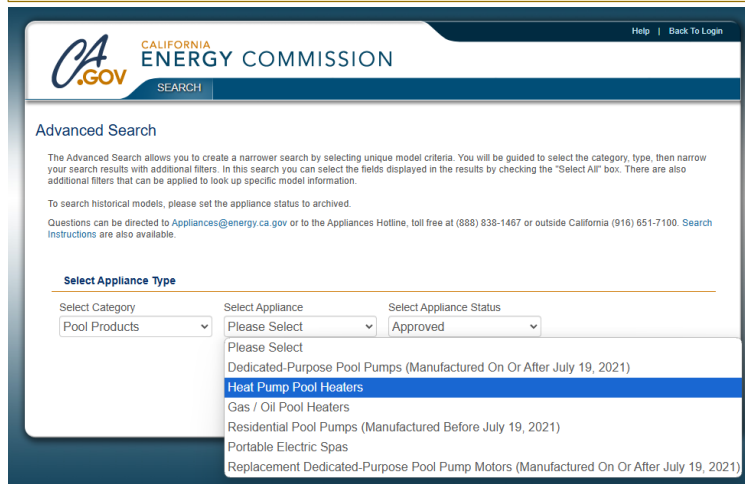
Pool heaters must be tested, marked, and certified by manufacturer.

✦ Pool professionals *selling* pool heaters must confirm they are certified in the **Modernized Appliance Efficiency Database System (MAEDbs)** before selling or offering for sale

MAEDbs

Select "Pool Products" and select the applicable appliance category.

<https://cacertappliances.energy.ca.gov/Pages/Search/AdvancedSearch.aspx>



CA .GOV CALIFORNIA ENERGY COMMISSION

Help | Back To Login

SEARCH

Advanced Search

The Advanced Search allows you to create a narrower search by selecting unique model criteria. You will be guided to select the category, type, then narrow your search results with additional filters. In this search you can select the fields displayed in the results by checking the "Select All" box. There are also additional filters that can be applied to look up specific model information.

To search historical models, please set the appliance status to archived.

Questions can be directed to Appliances@energy.ca.gov or to the Appliances Hotline, toll free at (888) 838-1467 or outside California (916) 651-7100. Search Instructions are also available.

Select Appliance Type

Select Category: Pool Products

Select Appliance: Please Select

Select Appliance Status: Approved

Please Select

Dedicated-Purpose Pool Pumps (Manufactured On Or After July 19, 2021)

Heat Pump Pool Heaters

Gas / Oil Pool Heaters

Residential Pool Pumps (Manufactured Before July 19, 2021)

Portable Electric Spas

Replacement Dedicated-Purpose Pool Pump Motors (Manufactured On Or After July 19, 2021)





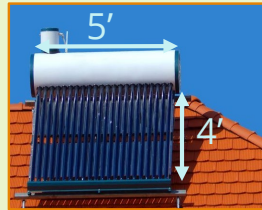
Check Your Understanding #1

What do you think?

Does this solar thermal pool heating system meet the mandatory requirements of §110.4(c)?

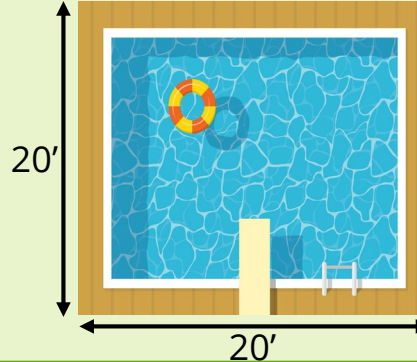
- a) **Yes**, the solar thermal collector area is 25% of the pool surface area
- b) **No**, the solar thermal collector area must be at least 60% of the residential pool surface area

Solar thermal area = 100 sqft



There are (5) 20' sqft solar thermal panels supporting this heated pool

Pool surface area = 400 sqft



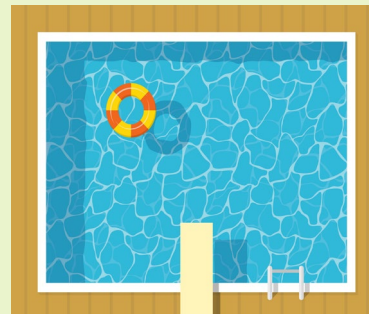
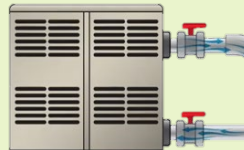
Check Your Understanding #2

What do you think?

If the residential pool uses a gas pool heater, what options allow for the gas pool heater (select all that apply)?

- a) Heat Pump primary with gas back-up
- b) 60% renewable energy system with gas back-up
- c) 60% solar thermal system with gas back-up

Gas heater

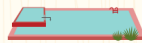


2025 Energy Code Factsheet

2025 Title 24, Part 6 Fact Sheet

Nonresidential, Single-family, and Multifamily Pool and Spa Heating

Ace Resources™



What's Included:

This fact sheet covers swimming pool and spa requirements from California's 2025 Building Energy Efficiency Standards (Title 24, Part 6 or Energy Code) and applicable Appliance Efficiency Regulations (Title 20).

How Does this Fact Sheet Apply to Your Project?

Use this fact sheet to answer the following questions about single-family, multifamily, hotel, motel, or nonresidential requirements for pool or spa installations, Alterations, and Repairs. These requirements are mandatory and set the minimum requirements that must be met (when applicable). The Performance Approach cannot be used to gain flexibility.

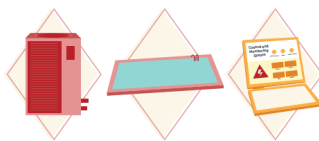
1. What requirements does your project need to meet to comply with the Energy Code?
2. What are the certification requirements for pool and spa equipment?
3. How should you document your project's compliance?

What's New:

New heating source, sizing, and controls requirements for newly installed pool and spa heating systems.

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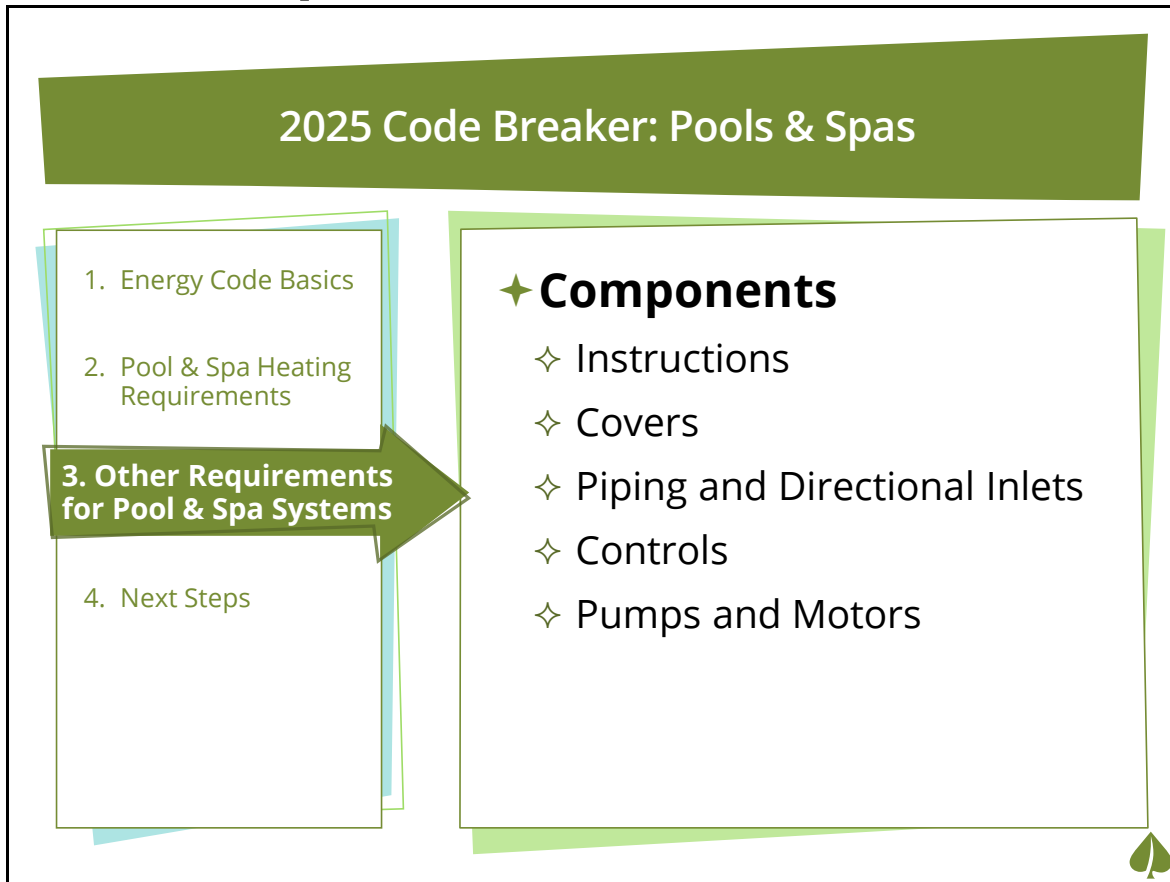


2025 Title 24, Part 6 | Nonresidential, Single-family, and Multifamily: Pool and Spa Heating
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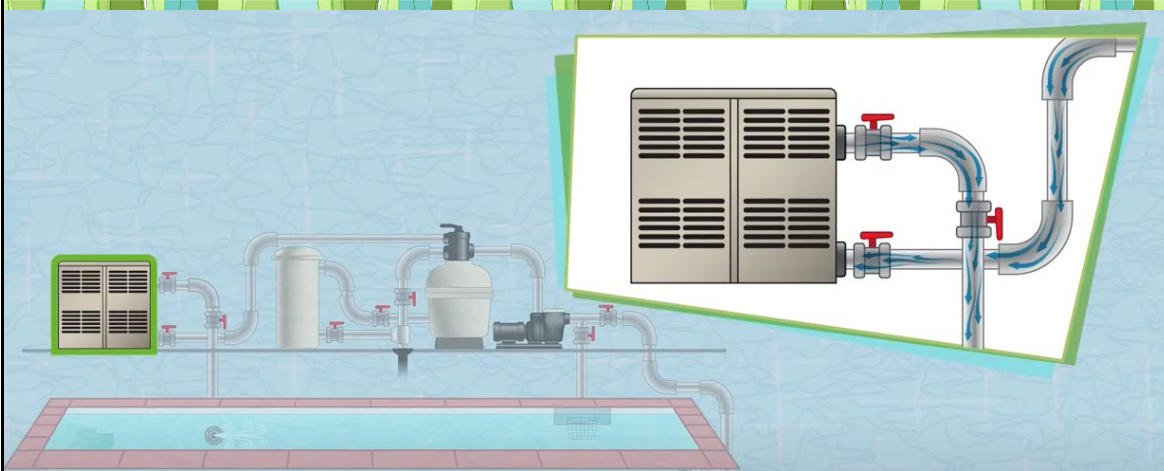
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Other Requirements



2025 Energy Code Pool Heater - Instructions

§110.4(a) and §110.4(b)
CALIFORNIA
ENERGY COMMISSION

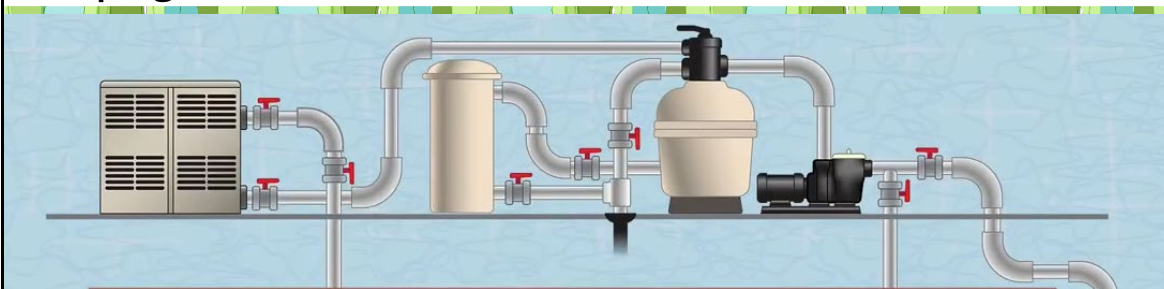


Heating equipment must have **permanent, easily readable instructions** that are waterproof, include the energy efficiency rating, and have instructions for the energy-efficient operation of the pool or spa heater.



2025 Energy Code Piping and Directional Inlets

§110.4(b)
CALIFORNIA
ENERGY COMMISSION



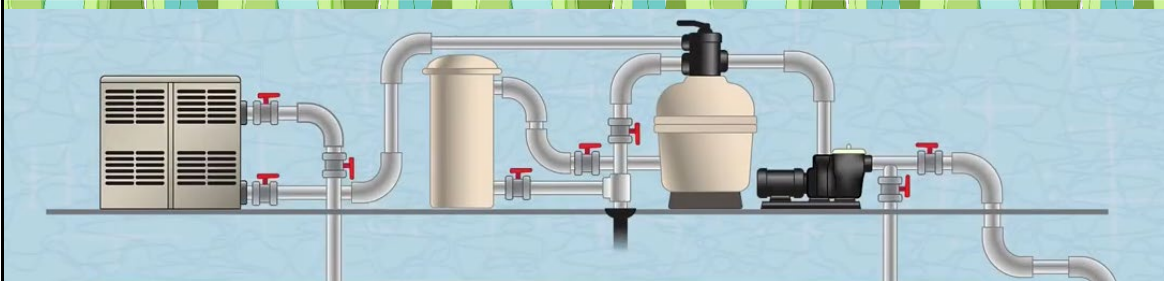
✦ **Piping** must include one of the following to allow for future addition of solar heating equipment (**if solar system is not being installed**):

- ✧ 18" horizontal or vertical pipe between the filter and heater, or
- ✧ Provide dedicated suction and return lines, or
- ✧ Built-in or built-up connections

✦ Pools must have **directional inlets** to adequately mix the pool water



2025 Energy Code Residential Pool - Piping



- ✦ **Before the pump**, a straight pipe must be installed with length four times the pipe diameter
- ✦ **Pool piping** sized so that the velocity of the water at maximum flow for auxiliary pool loads does not exceed:
 - ✧ Return Line 8 feet per second
 - ✧ Suction Line 6 feet per second
- ✦ **Elbows** must be sweep elbows, or an elbow-type that has a pressure drop of less than the pressure drop of straight pipe with a length of 30 pipe diameters
- ✦ **Backwash valves** must be 2" or the diameter of the return pipe, whichever is greater



2025 Energy Code Controls





A black rectangular control switch for a pool heater. It has a silver-colored knob with a gear-like texture. The knob is currently in the "ON" position, which is indicated by a white arrow pointing upwards. The word "OFF" is printed in white below the knob.

- ✦ **Pool heaters switches:**
 - ✧ Heating equipment must have **readily accessible on/off** switch mounted to the outside of the heater that allows the heater to be turned off without adjusting thermostat settings



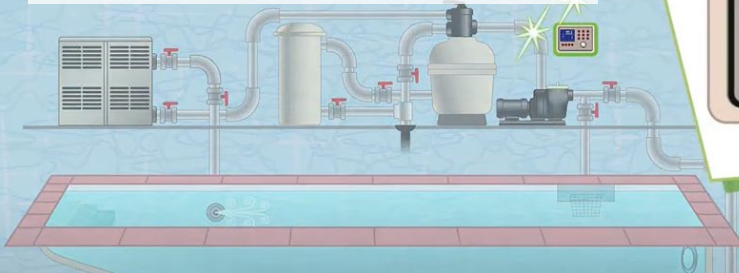
A black rectangular time switch for a pool recirculation pump. It has a silver-colored knob with a gear-like texture. The knob is currently in the "11:12" position, which is indicated by a white arrow pointing upwards. The word "OFF" is printed in white below the knob.

- ✦ **Pool recirculation pumps** to be equipped with **Time Switches** that:
 - ✧ Run only during electric off-peak demand periods (not 4 - 9 pm)
 - ✧ Run for the minimum time necessary to maintain water quality



Appliance Standards Controls – FDAS

Pool Controls: A pool control coordinates activities of pool equipment such as a pool filter pump, electric pool heater, pressure cleaner booster pump, and chlorinator.



Flexible Demand: The ability to adjust when and how much energy is used based on the availability of electricity.

- ✦ Different from appliance efficiency
- ✦ Helps manage the supply of electricity more effectively, particularly during times of high demand or stress on the electric system
- ✦ **The Flexible Demand Appliance Standards (FDAS)** play an important role in achieving California's decarbonization goals, supporting consumer savings, improved air quality, and grid reliability



Appliance Standards Controls – FDAS (continued)

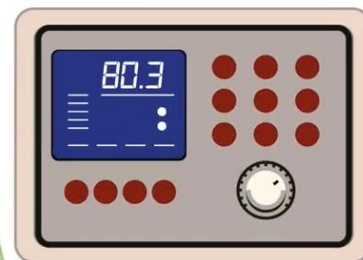
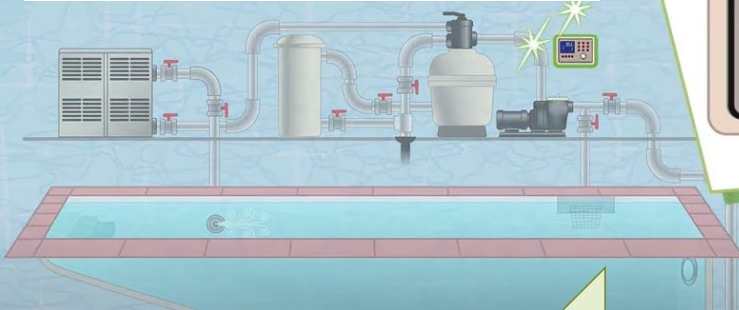
Regulator: CEC FDAS

Effective Date: 9/29/25

FDAS Reference Ace:

<https://energycodeace.com/site/custom/public/reference-ace-t20/Documents/section1690scope.htm>

Coming soon!



Pool control requirements include:

- ✦ Communication
- ✦ Clock
- ✦ Default operating schedule

Does **not** require pool controls to subscribe to utility demand response programs

Pool professionals should understand these requirements and how to ensure compliance as it is critical to optimize energy use and **help pool owners save on utility bills**



Detailed requirements

Communication requirements:

Pool controls are required to be connected devices (i.e., capable of wirelessly connecting to the internet) that have two-way communication capabilities, meaning they can both send and receive information. They connect the consumer with the grid, utility, or aggregator using secure and open standards.

These communication requirements allow for remote management of pool controls, enabling pool owners or authorized third parties (e.g., aggregators or utility systems) to, at a minimum, start or stop operations and adjust schedules, all with the customer's consent.

These devices are designed to replace traditional mechanical time clocks, optimize pool operations, and support the use of more renewable energy.

Clock Requirements:

Pool controls must retain system settings, operating schedules, and the local clock time for at least 72 hours after a power outage. This ensures that the pool control continues to function correctly even if power is interrupted. The system must also automatically synchronize its clock to the local time, so users don't need to adjust it manually. Additionally, the pool control system must allow users to manually start or stop the pool filter pump, as well

as any electric pool heaters or pressure cleaner booster pumps that depend on the filter pump for operation. The systems must also have a user-friendly interface for setting up, selecting, and updating the operating schedule. This interface can be on a separate device that communicates wirelessly with the pool control unit, offering flexibility and ease of use.

Default Operating Schedule

Pool controls are to be preprogrammed with a default operating schedule that will:

Schedule any default operation of the pool filter pump (when operating at more than 50% of its maximum speed), the pressure cleaner booster pump, and electric pool heater between 9 a.m. and 3 p.m.

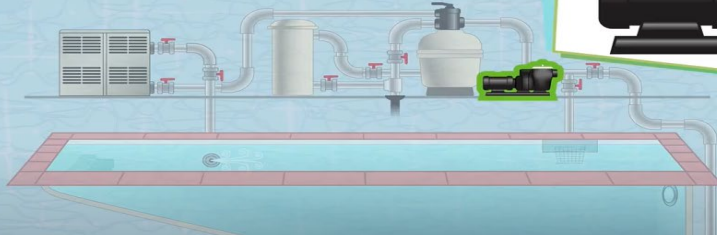
Avoid automatic operation of these features between 4 p.m. and 9 p.m. to reduce energy use during peak times

Appliance Standards Pool Pump Motors



★ **Regulator:** CEC Title 20

★ **Effective date:** 7/19/21



Scope includes:

- ★ **Replacement dedicated-purpose pool pump motors (RDPPPM)** with a motor total horsepower (THP) less than or equal to 5 THP
- ★ Must be **variable speed** if the THP is 0.5 hp or more



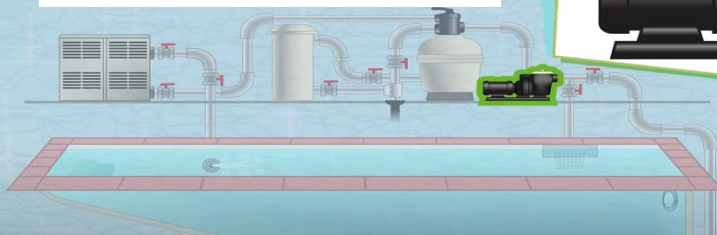
Appliance Standards Pool Pump Motors



★ **Regulator:** U.S. DOE

★ **Effective date:** 9/29/25,
9/28/27

Coming
soon!



Scope includes:

- ★ **Phase 1 (Effective September 2025):** All motors that are less than 0.5 THP or 1.15 to 5 THP
- ★ **Phase 2 (Effective September 2027):** All motors with 0.5 to 1.15 THP

The U.S. DOE **pool pump motor** standard will preempt CEC requirements over the next couple of years.



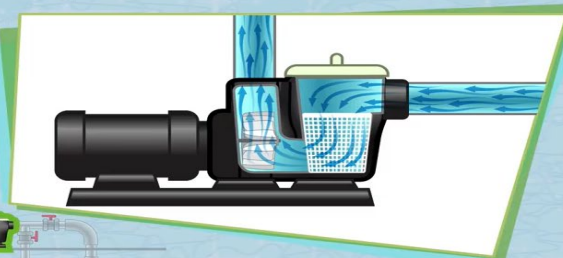
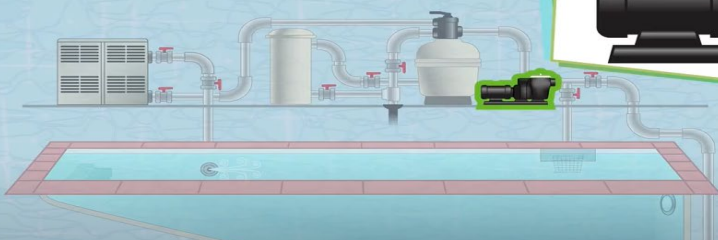
Appliance Standards

Pool Pumps



★ **Regulator:** DOE

★ **Effective date:** 7/19/21



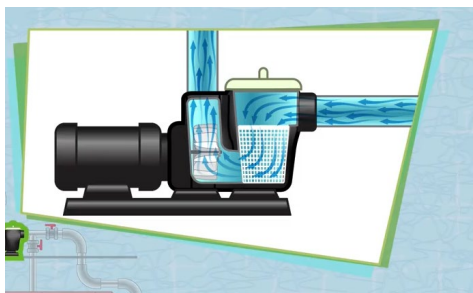
Scope includes:

- ★ Single-phase pool filtration pumps < 2.5 hydraulic hp (~5 THP) for **residential/commercial** use
- ★ Self-priming and non-self-priming pool filter pumps, waterfall pumps, pressure cleaner **booster pumps**
- ★ **Integral filter pumps** (non-bypassable filters)



2025 Energy Code

Residential Pool - Pumps



Dedicated-purpose pool pump controls with more than one speed must be:

- ✧ Programmed to default to minimum filtration flow rate when no auxiliary pool loads are operating
- ✧ Programmed to default to minimum filtration flow rate within 24 hours of operation, supporting an override control to allow for pool servicing

Pool pump flow rates shall be calculated using the formula below to support the pump size designed and installed:

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

- ✧ H = Total system head in feet of water
- ✧ C = Coefficient based on volume of pool
- ✧ F² = Flow rate in gallons per minute (gpm)

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. **Filters** sized per NSF/ANSI 50.



Checklist Supporting Energy Code and Appliance Standard Requirements for Pools & Spas

Does the Project Include a Public or Residential New Heated Pool or Spa, or Adding Heating to an Existing Unheated Pool or Spa? If "Yes," all applicable requirements listed below will be required.

Heaters installed are:

- ☐ **Certified** via [MAEDbS](#) per [§110.4\(a\)](#) and
Select **Heat Source** used per 2025* [§110.4\(c\)](#)
- ☐ **Solar collector** system meeting sizing requirements with any type of supplemental heating system
- ☐ **Heat pump as primary heating source** combined with any supplemental heating type
- ☐ Heating system with **60% annual heating energy from on-site renewable system** (such as photovoltaics (PV) system) combined with any supplemental heating type
- ☐ Or combination of **solar and heat pump heating system** with NO supplemental heating source

If using supplemental gas heating system for any of the options above, continuous pilot light not allowed per [§110.5\(c\)\(d\)](#).

If using Heat Pump Pool Heaters with Supplemental Heating 2025 [§110.4\(d\)](#), controls required so that supplementary heater shall not operate when the heating load can be met by the Heat Pump Pool Heater (HPPH) alone*

- ☐ **Cover** provided when using electric or gas heating system per 2025* [§110.4\(b\)3](#) (2022 [§110.4\(b\)2](#))

Piping installed include:

- ☐ $\geq 18"$ of **horizontal or vertical pipe** shall be installed between the filter and the heater or dedicated suction and return lines per 2025* [§110.4\(b\)2](#) ($\geq 36"$ per 2022 [§110.4\(b\)1](#))
- ☐ **Directional inlets** that mix the heated pool water per 2025* [§110.4\(b\)4](#) (2022 [§110.4\(b\)3](#))

Controls installed include:

- ☐ **On-off switch** per [§110.4\(a\)](#)
- ☐ **Time switches** pool per 2025* [§110.4\(b\)4](#) (2022 [§110.4\(b\)3](#))
- ☐ **FDAS** (starting 9/29/25) certified controls are installed (certified via [MAEDbS](#))

Pumps certified via [MAEDbS](#) per [§110.4\(a\)](#) per:

- ☐ New pools and spas: Dedicated-purpose pool pump
- ☐ Replacement pumps: Replacement dedicated-purpose pool pump

Residential - Additional Requirements ([§150.0\(p\)](#))

- ☐ Pump sizing and flow rate per [§150.0\(p\)1](#)
- ☐ System piping per [§150.0\(p\)2](#)
- ☐ Filter sized per NSF/ASNSI 50 per [§150.0\(p\)3](#)
- ☐ Backwash valves the greater of diameter $\geq 2"$, or diameter of return pipe, per [§150.0\(p\)4](#)

* Footnote: For 2025 Energy Code for projects permitted as of 1/1/2026

Exceptions:

1. **Spas:** Portable electric spas compliant with Title 20; Alterations to existing spas; Spas solely heated by solar heating systems without any backup heater; Permanent spas being added to existing buildings when gas is available; New spas in which there is inadequate Solar Access Roof Area (SARA)
2. **Pools:** Alterations to existing heated pools; Pools solely heated by solar heating systems without any backup heater



Check Your Understanding #3

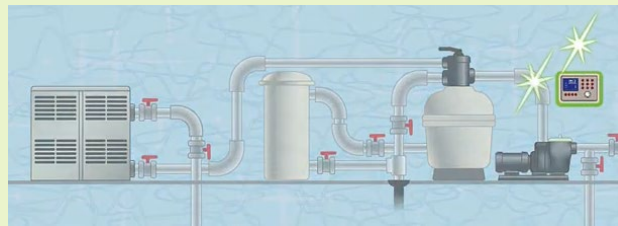
What do you think?

When will the FDAS pool controls standards go into effect?

- a. 1/1/26
- b. 9/29/25

The FDAS pool control regulations require connection to a utility demand response program that dictates when pool equipment can operate.

- a. True
- b. False





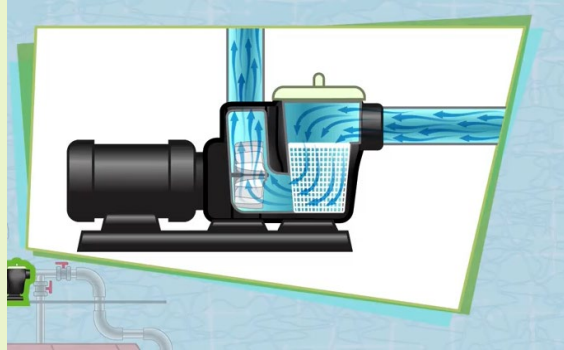
Check Your Understanding #4

What do you think?

A **distributor** is selling a new 1.5 HP pool pump. You want to buy and sell them to your customers.

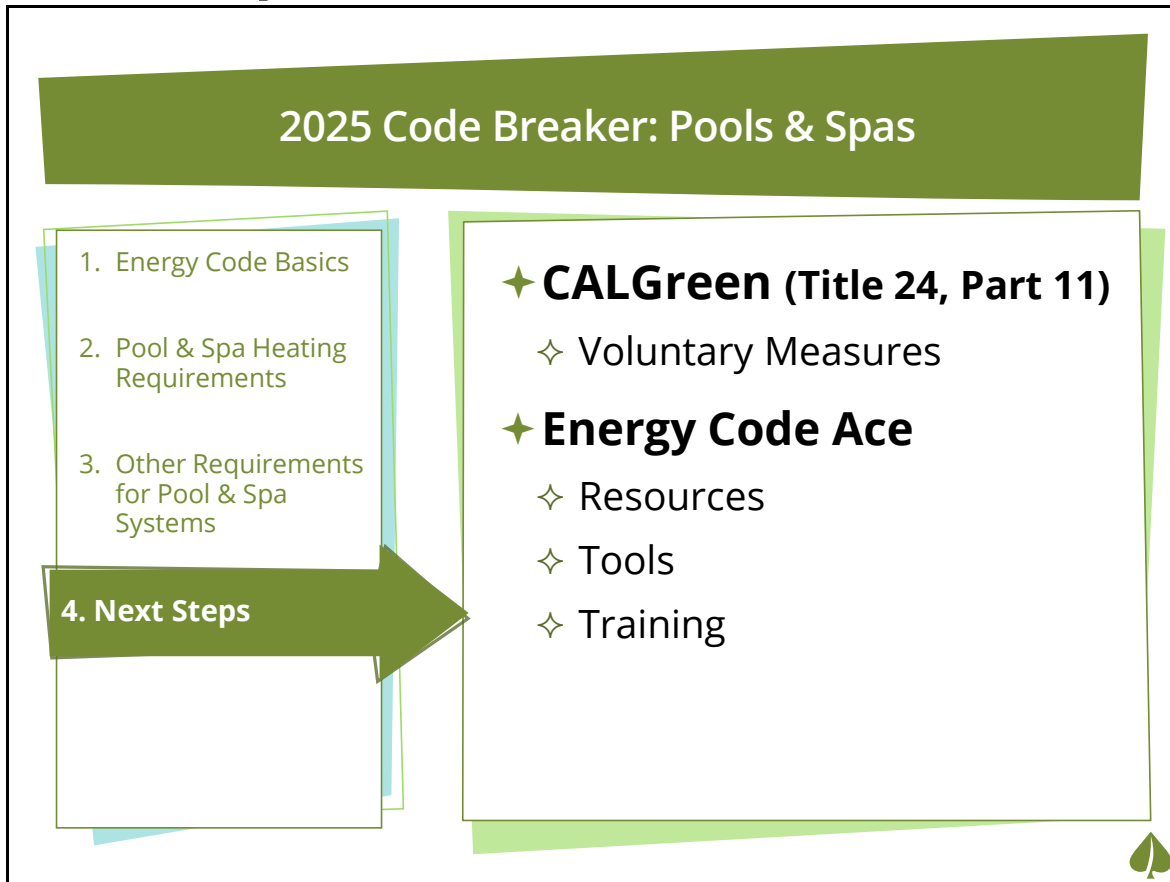
What do you have to do (select all that apply)?

- a. Check the manufacture date on the product
- b. Check the products' model number on the MAEDbS
- c. Confirm with the distributor that the product is compliant
- d. Nothing



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Next Steps



REACHING BEYOND

Local Energy Codes is a website that supports which additional measures are being adopted in which jurisdictions. Check here before you start a project to confirm what code requirements will dictate in a pool or spa alteration project.

www.localenergy.com

CALGreen supports “voluntary” measures for meeting the pool heater requirements of the 2025 Energy Code

- ✦ Alterations to existing heated pools would meet the requirements of the 2025 Energy Code (Appendices A4 and A5).
- ✦ Alterations in which a heater is added to a pool or spa would trigger the 2025 Energy Code requirements.
- ✦ Jurisdiction can elect, through a public process, to adopt the “voluntary” measures of CALGreen, making them required in that jurisdiction.



2025 Energy Code Factsheet

2025 Title 24, Part 6 Fact Sheet

Nonresidential, Single-family, and Multifamily Pool and Spa Heating

What's Included:

This fact sheet covers swimming pool and spa requirements from California's 2025 Building Energy Efficiency Standards (Title 24, Part 6 or Energy Code) and applicable Appliance Efficiency Regulations (Title 20).

How Does this Fact Sheet Apply to Your Project?

Use this fact sheet to answer the following questions about single-family, multifamily, hotel, motel, or nonresidential requirements for pool or spa installations, Alterations, and Repairs. These requirements are mandatory and set the minimum requirements that must be met (when applicable). The Performance Approach cannot be used to gain flexibility.

1. What requirements does your project need to meet to comply with the Energy Code?
2. What are the certification requirements for pool and spa equipment?
3. How should you document your project's compliance?

What's New:

New heating source, sizing, and controls requirements for newly installed pool and spa heating systems.

Table of Contents

- Why Does the Energy Code Have Requirements for These Systems? 2
- Project Scope Triggers 3
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- Pool and Spa Heating Sources and Sizing 7
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Title 20 Fact Sheets

Title 20 Fact Sheet
California Appliance Efficiency Regulations
Dedicated-Purpose Pool Pumps

Regulatory Changes for Dedicated-Purpose Pool Pumps

Title 20 Fact Sheet
California Appliance Efficiency Regulations
Replacement Dedicated-Purpose Pool Pump Motors

Replacement Dedicated-Purpose Pool Pump Motors: New Requirements

Appliance Standards Fact Sheet

Title 20 Flexible Demand Appliance Standards for Pool Controls — Pool Professionals

What is a Pool Control?

What is Flexible Demand?

RESOURCES

Comply With The EnergyCodeAce.com

U.S. DOE Resources

Swimming Pool Heating and Maintenance

Check out the U.S. DOE's resources for solar and heat pump pool heaters to learn:

- Why you should use these systems for water heating
- How these systems work
- How to properly select, evaluate, and size a system
- How to locate a solar collector
- How to determine the efficiency of a system
- How to compare system costs
- How to install and maintain these systems

Helpful Links

- [Solar Swimming Pool Heaters](#)
- [Heat Pump Swimming Pool Heaters](#)

Helpful Links:

- Solar Swimming Pool Heaters: <https://www.energy.gov/energysaver/solar-swimming-pool-heaters>
- Heat Pump Swimming Pool Heater: <https://www.energy.gov/energysaver/heat-pump-swimming-pool-heaters>

Virtual Classes

2025 Introduction to 2025 Energy Code Pool and Spa Requirements

You Tube
<https://youtu.be/Jgq0xWk6w2o?si=GE1erbjKSlw-vuwn>



Title 20 Essentials On Demand Residential Pool Pumps

On Demand Event
<https://energycodeace.com/training/?courseId=166298>

California Appliance Efficiency Standards Training

On Demand Event
<https://energycodeace.com/training/?courseId=168018>



Timeline Ace, Q&Ace, and Helpdesk

The image displays a screenshot of the EnergyCodeAce website, which is a one-stop shop for no-cost tools, training, and resources to help users comply with California's Title 24, Part 6 building energy code and Title 20 appliance standards. The website features a navigation bar with links to Get Forms, Tools Ace, Training Ace, and Resources Ace. The main content area is divided into three sections: Timeline Ace, Q&Ace, and Helpdesk. The Timeline Ace section shows a list of documents, including Title 24, Title 20, and Federal. The Q&Ace section features a large banner with the EnergyCodeAce logo and the text "Comply With Me". The Helpdesk section includes a search bar and a list of questions. An orange arrow points from the Q&Ace section to the Helpdesk section. The website is powered by the California Statewide Codes & Standards Program and vetted by the California Energy Commission.

Timeline Ace

Q&Ace

Helpdesk

EnergyCodeAce™

Comply With Me

Your one-stop shop for no-cost tools, training and resources to help you comply with California's [Title 24, Part 6 building energy code](#) and [Title 20 appliance standards](#). We're powered by the California Statewide Codes & Standards Program and vetted by the California Energy Commission.

TOOLS

Energy Code Ace

Comply With Me

[EnergyCodeAce.com](#)

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Contacts and Course Evaluation



Thank you

Please feel free to reach out to us with your questions and comments!

Contact	Role	Email	Phone
Nick Brown	Instructor	nick@buildsmartgroup.com	(714) 984-3397
Dave Intner	Senior Advisor Building Electrification & Codes and Standards	Dave.Intner@sce.com	(626) 995-7431
Jill Marver	Energy Code Ace Program Manager	jill.Marver@PGE.com	(925) 415-6844
Energy Code Ace	Multiple	http://energycodeace.com/content/contact	

Please complete the Course Evaluation
Our Survey Monkey wants to hear from you!
<https://www.surveymonkey.com/r/cb-2025-pools-spas>



Energy Code Ace HelpDesk: <http://energycodeace.com/content/contact>

Please take our course evaluation:



<https://www.surveymonkey.com/r/cb-2025-pools-spas>



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SDGE


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**Pacific Gas and
Electric Company**

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