Energy Code Updates



California Energy Commission Amie Brousseau CALBO ABM April 15, 2025



Energy Commission Contacts

Amie Brousseau

Supervisor, Outreach & Education Building Standards Branch Amie.Brousseau@energy.ca.gov Connect on LinkedIn

For questions on legislation Office of Governmental and International Affairs legunit@energy.ca.gov





Energy Code Hotline

Energy Code Hotline Submission Form Please submit your Energy Code questions through the Energy Code Inquiry Submission Form. **Contact and General Information** What is your name? * What is your email address? (2) * What is your question about? Select Value What is your role? Select Value **Building and Project Information** What is the building type? (1) * What is project type/scope of the building? (1) * Is the building conditioned (heating and/or cooling) or unconditioned (no heating or cooling)? (1) * Select Value Please list the climate zone of the project. Alternatively, please enter the address of the project. 🔞 *

Call

- 800-772-3300 in CA
- 916-654-5106 outside CA

Contact

Hotline Submission Form





2025 Energy Code



2025 Energy Code Goals



State goals

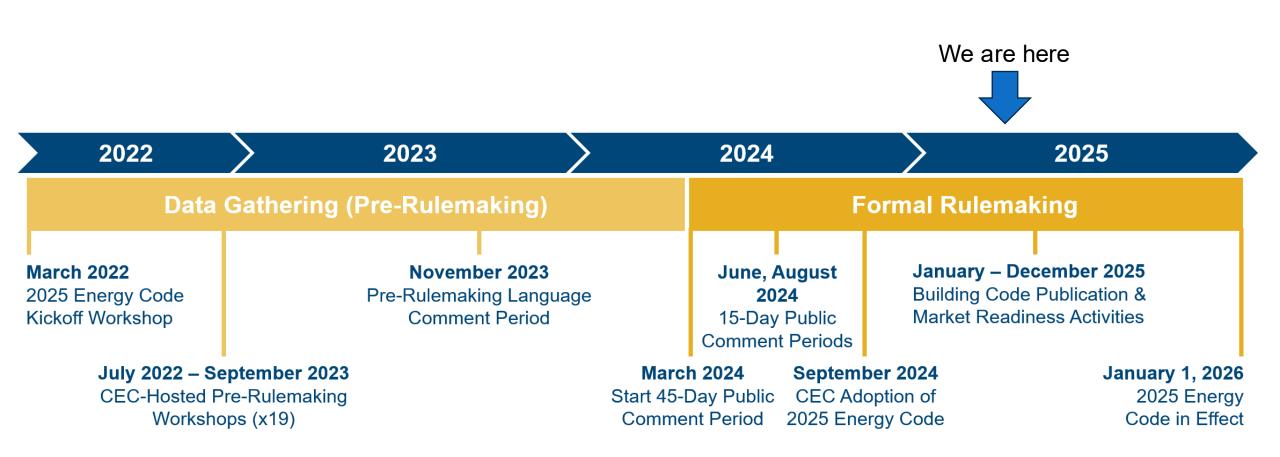
- Contribute to GHG reduction
- Increase building energy efficiency cost-effectively

2025 Energy Code goals

- Increase heat pump baselines
- Promote demand flexibility, solar PV, and battery energy storage systems
- Improve covered process load efficiencies
- Focus on existing buildings and ADUs



Where are we – 2025 Energy Code





2025 Energy Code Benefits by the Numbers

Energy cost savings: \$4.8B

Avoided GHG Emissions: 4.1M MT CO₂e

Benefit to Cost Ratio: 7

Electricity Savings: 392 GWh/yr

Natural Gas Savings: 23 MM Therms/yr

Water Savings: 68+ MM gallons/yr

Heat pumps:

Leads to installation of over 500k heat pumps over 3 years

PV/Battery:

Saves on average 300 GWh/year; reduces power demand on average 0.88MW/year. Minimizes grid exports.

Electric-ready:

Sets up owners of newly constructed commercial kitchens to use cleaner electric equipment when they are ready

Source: CEC



2025 Energy Code Webpage



- Final express terms
 - Part 1 and Part 6
 - Reference Appendices
- Final statement of reasons
- Responses to comments
- Hard copies available July 1
- Effective date January 1, 2026





2025 Energy Code Fact Sheet

CALIFORNIA ENERGY COMMISSION

2025 California **Energy Code**



The Energy Code Background

As California's primary energy policy and planning agency, the California (itself, known as Title 24 of the California Code of Regulations). The CEC's update and adopt building standards that reduce wasteful, uneconomic, Californians more than \$100 billion in avoided energy costs over the gas (GHG) emissions. That's because homes and businesses use nearly with the highest population and largest economy (almost \$3.9 trillion 25 percent of the state's GHG emissions. Every three years, the CEC updates the Energy Code, which is published by the California Building Standards Commission as part of the California Building Standards Code

Energy Commission (CEC) was mandated by the Warren-Alquist Act to efficiency standards for buildings and appliances together have saved inefficient, or unnecessary energy consumption and reduce greenhouse last 50 years. Thanks to efficiency measures, California — the U.S. state 70 percent of California's electricity! They are also responsible for about GDP in 2023) — has the second-lowest per capita energy use in both the residential and commercial sectors.

Meeting State Climate Goals Through Better Buildings for Californians

The Energy Code governs the energy-saving features of newly constructed buildings, building additions, and alterations to existing buildings. The proposed standards for 2025 are cost-effective and are estimated to provide over \$4 billion in statewide energy cost savings.

The 2025 updates strongly contribute to California's efforts to "decarbonize" its buildings; reducing their carbon emissions. The Energy Code reduces emissions by making buildings more energy efficient; encouraging the use of energy efficient heat pumps for space and water heating; using clean energy generated onsite by solar panels in combination with battery storage; and shifting times of energy use to avoid peak periods of the day when dirty and inefficient powerplants are supplying more power to the grid.

The 2025 Energy Code Update Focuses on:

- . Expanding the use of heat pumps for space conditioning and water heating in newly constructed single-family, multifamily, and select nonresidential buildings. The standards also allow for flexibility in taking alternative but equally efficient approaches.
- For homes, use heat pumps for both space heating and water heating, expanding on the single heat pump baselines in the 2022 update
- ♦ For nonresidential building types, expanding on the singlezone heat pump baselines in the 2022 update.
- O For low-rise multifamily buildings with individual water heaters in dwelling units, use heat pump water heater baselines, expanding on the space heating heat pump baselines in the 2022 update.

- . Encouraging electric-ready buildings to set up owners to use cleaner electric water heating and cooking when they are ready to invest in those technologies.
- Updating photovoltaic and battery energy storage system standards for low-rise and high-rise multifamily and nonresidential buildings to achieve cost effective installations in consideration of revised net billing and virtual net billing rules.
- Updating space conditioning system efficiency and control standards for homes and nonresidential buildings.
- . Updating ventilation requirements in multifamily buildings to improve indoor air quality.

Reminder: The CEC does not mandate specific fuel types. California's Energy Code is founded on the principle of enabling building designers to use a range of options for complying with energy requirements.

¹ US Energy Information Administration

Process and Timeline

The Energy Code measures are updated with extensive input from the public, many stakeholders, and experts who participate in the CEC's process. Over the course of each three-year cycle. CEC staff and technical consultants evaluate each measure. The standards must be technologically feasible and cost-effective over the life of the building. The measures are discussed in public workshops and in online comments before being revised. This year, the proposed standards are slated to go to a CEC business meeting for adoption in September of 2024. It will then go to the California Building Standards Commission for approval as part of California's Building Standards Code before the end of 2024.

After approval, there is a one-year period for the CEC to provide supporting information, training, and technical assistance that brings builders, code officials, and technicians up to speed on the updates before they take effect. Local building departments start enforcing the 2025 Energy Code on January 1, 2026. These measures not only save energy and reduce energy bills, but also help Californians breathe easier and be more comfortable where they live and work. They are a critically important tool for advancing the state's climate and energy goals.

BY THE NUMBERS

\$100 BILLION

avoided energy costs over the last 50 years from the CEC's efficiency standards for buildings and appliances

70% amount of California's electricity used by homes and businesses

amount of the state's total greenhouse gas (GHG) emissions that homes and businesses are responsible for

\$4 BILLION

statewide energy cost savings expected from the proposed standards for 2025

For more information on:

The current Energy Code updates, please go to www.energy.ca.gov/2025EnergyCode

Please direct media questions to mediaoffice@energy.ca.gov





Siva Gunda, Vice Chair



2025 Energy Code **What's New Summaries**





2025 Single-Family

NOTE Single-family residential buildings subject to the Ene Review the respective sections for more information.

§ 110.0-110.3:	Certification. Heating, ventilation, a certified by the manufacturer to the C
§ 110.2(a):	HVAC Efficiency. Equipment must
	Controls for Heat Pumps with Su
§ 110.2(b):	as specified in § 150.0(h)7 and § 150
	Thermostats. All heating or cooling
§ 110.2(c):	setback thermostat."
NI SOLITO DE LA CONTRACTORIO DE LA	Insulation, Unfired service water he
§ 110.3(c)3:	surface heat loss rating.
0.440.0430	Isolation Valves, Instantaneous wa
§ 110.3(c)6:	hose bibbs or other fittings on both of
0440.05-37-	Backup Heat and Ventilation. Air-
§110.3(c)7:	unconditioned, unless compressor of
	pump water heater installation space
	kBtu/h of compressor capacity.
§ 110.5:	Pilot Lights. Continuously burning p
81100	(except appliances without electrical
§ 150.0(h) 1:	Building Cooling and Heating Loa
8 100.0(11) 1.	Equipment Volume, Applications Vo Manual; or the ACCA Manual J usin
§ 150.0(h)3A:	Clearances, Air conditioner and hea
g ioo.ofiijore	vent.
§ 150.0(h)3B:	Liquid Line Drier, Air conditioners a
g iou.utiijob.	manufacturer's instructions.
0.450.04.)5	System Selection. Equipment sizin sized per ACCA Manual S-2023 with
§ 150.0(h)5:	heating capacity must meet minimu
§ 150.0(h)6:	Defrost. Installer-adjustable defrost
	Supplementary Heating Control C
§ 150.0(h)7:	heating above outside air temperatu
	Sizing of Electric Resistance Sup
§ 150.0(h)8:	heat must not exceed the heat pump rounded up to the closest kW.
	Capacity Variation with Third-part
§ 150 0(h)9:	must be capable of responding to he
	requirements of § 150.0(i)2. CF2R of
	Thermostat. All heating or cooling s
§ 150.0(i):	must have setback thermostat. Add thermostat must display outdoor air
-	must notify when supplemental heal
	Water Piping, Solar Water-heating
§ 150.0(j)1:	piping must be insulated as specifier
	Insulation Protection. Piping insula
	wind, as required by §120.3(b). Insu
§ 150.0(j)2:	Insulation covering chilled water pip
	by, a Class I or II vapor retarder. Pig
§ 150.0(n)1:	Gas or Propane Water Heating Sy designate a space at least 2.5' x 2.5
2 130 of 1) 1.	
	requirements, based on the distance
4 h-4-1000 com-1	2' higher than the base of the water Solar Water Heating Systems. So
§ 150.0(n)2:	Certification Corporation (SROC), th
C	

§110.8(d)3;	Ducts. Insulation installed on an ex a contractor installs the insulation, to	
§ 150.0(m)1:	CMC Compliance. All air-distribution. Duct Construction Standards Metal. R-6.0 or higher. Ducts located entire require insulation; in dwelling units.	primary sidelit daylit zones do not require daylight respons
		er core of flexible ducts must be mechanically fastened. Openings must be sealed with mastic, tape, leets applicable UL requirements; or aerosol sealant that meets UL 723. The combination of mastic

Ducts and Fans

California Energy Commission 2025 Building Energy Efficiency Standards What's New for Multifamily Buildings

Solar PV and Battery Energy Storage Systems

- Updates PV sizing using total solar access roof area (SARA), SARA multiplied by 18 for steep-sloped roofs, and by 14 for low-sloped roofs; Exception 2 increases minimum PV system size to 4kW for low-rise multifamily; increases PV capacity factors in Table 170.2-U for some buildings/climate; Exception 5 applies to areas with no PV compensation through virtual energy bill credits. Section 170.2(f-g)
- . Adds building types in Table 170.2-U and Table 170.2-V: events and exhibits, religious worship, sports and recreation. Section 170.2(g-h)
- Updates Equations 170.2-E, F, & G; revises Table 170.2-V BESS capacity factors for all building types and Climate Zones. Section 170.2(h)

- · Multifamily dwelling units must have balanced or supply ventilation system, with compartmentalization verified by ECC-Rater. Section 160.2(b)2Aivb
- · Adds mandatory requirements for balanced and supply-only ventilation to have accessible air filters, including HRV/ERVs for attached dwelling units. Section 160.2(b)2Axi
- Adds exception in Climate Zone 6 for central ventilation system duct sealing requirements for dwelling units.
- · Updates mandatory requirements for dwelling units: exception for block loads in determining system size for addition; outdoor design conditions may be selected using ASHRAE Handbook, Fundamental Volume, or ACCA Manual J; defrost requirements for heat pumps with defrost delay timer; thermostat requirements for variable or multi-speed systems, Section 160,3(b)
- · Adds mandatory acceptance testing requirements for DOAS and HRV/ERV systems, with some exceptions.
- Updates prescriptive requirements: balanced systems with HRV/ERV for dwelling units in Climate Zones 1, 2, 4, 11-14, 16; all HRVs and ERVs for dwelling units to have fault indicator display (FID) with ECC-rater verification.
- Updates prescriptive requirement for cooling tower to have minimum rated efficiency per Table 170.2-I. Section
- Revises prescriptive requirements for dedicated outdoor air systems (DOAS). Section 170.2(c)4N
- . Adds exception for dwelling unit air leakage test for additions. Section 180.1(a)2

and either mesh or lane must be used to seal openings greater than W if mastic or lane is used. Building cavities, air handler support

- . Updates mandatory requirements for dwelling units: all installed luminaires and light sources to meet JA8 criteria; removes Table 160.5-A and references; f. Section 160.5(a)1A
- . Updates lighting integral to kitchen range hoods and bathroom exhaust fans do not require dimming controls. Section 160 5(a)2F
- Updates mandatory common area lighting requirements:
- o Manual controls to be located such that controlled lighting or status can be seen when operating controls.
- o Multilevel controls must provide and enable continuous dimming from 100 to 10% or lower; removes Table 160.5-B; Exception 3 allows HID and induction luminaires to have one control step between 30-70%. Section
- o Occupant sensing controls must have no more than 20-minute time delay; Exception 4 only applies to emergency lighting intended to function only when normal power is absent. Section 160.5(b)4Ci
- Lighting in restaurants does not require automatic holiday shut-off feature with automatic time-switch
- o Occupancy sensing control zones for offices greater than 250 square feet must be shown on plans. Section
- o Automatic daylighting controls in skylit and sidelit daylit zones with 75 watts or greater of general lighting or greater; luminaires longer than 8 feet must be controlled in segments up to 8 feet; Exception 3 exempts secondary sidelit daylit zones with less than 85W of general lighting from daylight responsive controls, if primary sidelit daylit zones do not require daylight responsive controls. Section 160.5(b)4D

Energy Code Support Center Overview webpage

- 2025 What's new Single-Family
- 2025 What's New Multifamily
- 2025 What's New Nonresidential
- 2025 Single-family Mandatory Requirements Summary



2025 Energy Code Highlights Heat Pumps

Updates prescriptive requirements

- Single-family
 - Heat pumps for water heating and space heating
- Low-rise multifamily
 - Heat pump water heaters for individual dwelling units
- Existing commercial buildings
 - New or replacement rooftop packaged units < 65,000 Btu/hr
- Nonresidential controls
 - Medium-sized offices and schools
 - Multi-zone space-conditioning system types





2025 Energy Code Highlights Electric-Ready Requirements



- Adds mandatory requirements
 - Commercial kitchens
 - Central water heating systems for multifamily
- Updates requirements
 - Water heaters serving individual dwelling units



2025 Energy Code Highlights Solar Energy & Battery Storage

- Updates requirements
 - Multifamily
 - Nonresidential
- Adds requirements
 - Event and exhibit buildings
 - Religious worship buildings
 - Sports and recreation buildings





2025 Energy Code Highlights

- Updates requirements for pool and spa heating systems
- Streamlines lighting requirements
- Improves multifamily indoor air quality
- Improves nonresidential envelope





2025 Energy Code Highlights Field Verification & Diagnostic Testing

- Moves Home Energy Ratings System (HERS) program to Title 24
- Establishes "Energy Code Compliance" program
- Reestablishes focus on consumer protection
- Advances conflict of interest protections
- Strengthens quality assurance process
- Clarifies Field Verification and Diagnostic Testing community responsibilities



Restructure in Progress

CURRENT

Chapter	Section	Subsect.	Title
1	100.0-100.2		General Provisions All building types
2	110.0-110.12		Mandatory All building types
3	120.0-120.10	(a)(b)(c) 1.2.3. A.B.C. i.ii.iii a.b.c.	Mandatory Nonresidential, Covered Process
4	130.0-130.5		Mandatory Lighting & Electrical Nonresidential, Covered Process
5	140.0-140.10		Prescriptive and Performance Nonresidential, Covered Process
6	141.0-141.1		Additions, Alterations and Repairs Nonresidential, Covered Process
7	150.0		Mandatory Single-family
8	150.1		Prescriptive and Performance Single-family
9	150.2		Additions, Alterations and Repairs Single-family
10	160.0-160.9		Mandatory Multifamily
11	170.0-170.2		Prescriptive and Performance Multifamily
12	180.0-180.4		Additions, Alterations and Repairs Multifamily

Chapter	Section	Subsect.	Title
1	100-102		General Provisions All building types
2	200		Definitions All building types
3	300-303	1.2.3 1.2.3 1.2.3 1.2.3	Envelope All building types, Nonresidential, Single-family, Multifamily
4	400-403		HVAC and Ventilation All building types, Nonresidential, Single-family, Multifamily
5	500-503		Plumbing All building types, Nonresidential, Single-family, Multifamily
6	600-603		Electrical and Lighting All building types, Nonresidential, Single-family, Multifamily
7	700-703		Renewables and Storage All building types, Nonresidential, Single-family, Multifamily
8	800-803		Pool and Spa All building types, Nonresidential, Single-family, Multifamily
9	900-911		Process Systems and Equipment Covered Process
10	1000-10001		Design Review and Commissioning Nonresidential



Energy Code Compliance



2025 Compliance Software

- https://www.energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards/2025-energy-code-compliance-software
- Performance Modeling Software
 - Single-family
 - Research version CBECC-Res 2025.0.9b
 - Questions contact <u>cbecc-res@energy.ca.gov</u>
 - Nonresidential and multifamily
 - Research version CBECC 2025.0.4
 - Questions contact <u>cbecc@energy.ca.gov</u>



Energy Code Compliance Study

Summary - Join California's Energy Code Compliance Study to help California gain compliance intelligence and unlock missed opportunities

Why participate? Enhance consumer protection, increase cost savings, and provide compliance assistance opportunities

What are the benefits? Free data analysis on compliance rates and funding opportunities

How to participate

- Meet one-on-one with CEC staff
 - Advise on study approach (1-2 hours per quarter)
- Enroll in the email list to get the latest updates
- **Sign up** through https://forms.office.com/g/XtPD0SEdiP or email danielle.hughes@energy.ca.gov





Energy Code Support Program for Documentation, Certification, and Plan Check

Summary – The Energy Code Support Program aims to scale credentialed experts in the design and plan check phases through Associate Energy Analyst (AEA) or Certified Energy Analyst (CEA) training, code coaching, and third-party plan checks

Why participate? Improve compliance with the Energy Code, resulting in energy savings, energy cost savings, CO2 reduction, and customer satisfaction

What are the benefits? Reduce the burden of Energy Code enforcement and support workforce development by creating demand and market opportunity for credentialed professionals through vetted programs

How to participate

- Meet one-on-one with CEC staff
 - AEA/CEA training for AHJs starting June 2025
 - Code Coach Services
- **Sign up** through https://forms.office.com/g/XtPD0SEdiP or email danielle.hughes@energy.ca.gov



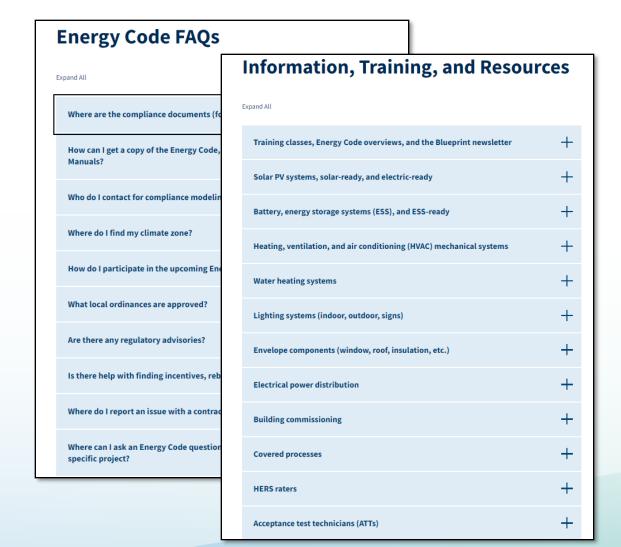


Resources



Energy Code Support Center

https://www.energy.ca.gov/energy-code-support-center



- FAQs
 - ADUs, solar PV, battery storage, electric-ready
- Handouts
 - o Fact sheets
 - o Guides
- Tools
 - Checklists
 - o Blueprint newsletter
- Training
 - Presentations
 - Videos
- Links
 - Internal resources
 - External resources





2022 ADU FAQs

Accessory Dwelling Units (ADUs)



2022 Energy Code Accessory Dwelling Units (ADU) FAQs

General Information on ADUs

Expand All

What is an accessory dwelling unit (ADU)?	+
What is a Junior ADU?	+
When is an ADU considered a newly constructed building?	+
When is an ADU considered an addition?	+
When is an ADU considered an alteration?	+
Can a factory-built house be an ADU?	+
Does unpermitted work in an ADU with new a permit need to comply with Energy Code requirements?	+

Solar Photovoltaic (PV) System Requirements for ADUs

Expand All

Can an existing solar PV system be used to meet the solar PV requirements for a newly constructed detached ADU?

Can new PV modules be added to an existing PV system to meet the PV requirement for a newly constructed, detached ADU?

Can a newly constructed, detached ADU add PV modules to the existing PV system on a separate meter?

Does a newly constructed, detached ADU need to meet the solarready requirements if PV is not required?

Energy Storage System (ESS) Ready Requirements for ADUs

Expand All

Does a newly constructed detached ADU need to comply with the ESS-ready requirements in Section 150.0(s)?

Could a 200 amp panel meet the mandatory ESS-ready requirements in Section 150.0(s)1B?



Blueprint Newsletter

Energy Code quarterly newsletter

- Updates
- Clarifications
- Frequently asked questions
- New webpage coming soon





In This Edition

- 2025 Energy Code: Single-Family Summary of Changes
- · Compliance Software Updates
- Energy Code Support Center Updates
- Q&A
- ° Single-Family Outdoor Lighting

2025 Energy Code: Single-Family Summary of Changes

One of the significant changes in the 2025 Energy Code for single-family buildings is the prescriptive requirement for both water heating and space heating to be heat pumps. The 2025 Energy Code updates increase the building envelope efficiency, refine solar photovoltaic calculations, clarify the requirements for lighting, and increase the efficiency of pool and spa heating equipment.

Solar PV and Battery Energy Storage System Ready

- Updates mandatory battery energy storage system (BESS) readiness for newly constructed, single-family, one or two dwelling units with electrical service over 125A. BESS-ready is not required if BESS is installed. Section 150.0(s)
- Updates PV sizing when using total solar access roof area (SARA): SARA multiplied by 18 for steep-sloped roofs and SARA multiplied by 14 for low-sloped roofs. Section 150.1(c)14

Envelope

- Updates mandatory wall insulation maximum U-factor of 0.095 for 2x4 wood framed (minimum R-15) and maximum U-factor of 0.069 for 2x6 or greater wood-framed (minimum R-21). Section 150.0(c)
- Updates prescriptive Table
 150.1-A Option C for ventilated attic minimum R-38 in climate zones 1, 8-16, minimum R-30 climates zones 2-7; adds cathedral ceilings minimum R-38 in all climate zones.
 Section 150.1(c)1/iiii
- Updates mandatory weighted average maximum U-factor of 0.40 for all fenestration, including skylights.
 Section 150.0(q)
- Updates prescriptive maximum U-factor of 0.27 for fenestration in Climate Zones 1-5, 11-14, 16, and maximum U-factor of 0.30 in Climate Zones 6-10, 15; some exceptions may apply. Section 150.1(c)3A

1

Stay Connected

Receive Energy Code updates

- Subscribe to Efficiency Division emails
 - Appliances
 - ○Blueprint
 - Building Standards
- Respond to confirmation email

Follow the California Energy Commission















Energy Code Ace



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





Local RENs







TRAINING

Develop your skills in

building performance

Find a Course

CONNECT

Personalized coaching and events

to simplify the energy code

See Title 24 Services

SAVINGS

Save energy and

improve your property





Thank you