TRI-COUNTY
REGIONAL ENERGY NETWORK
SAN LUIS OBISPO • SANTA BARBARA • VENTURA

Navigating the Energy Code

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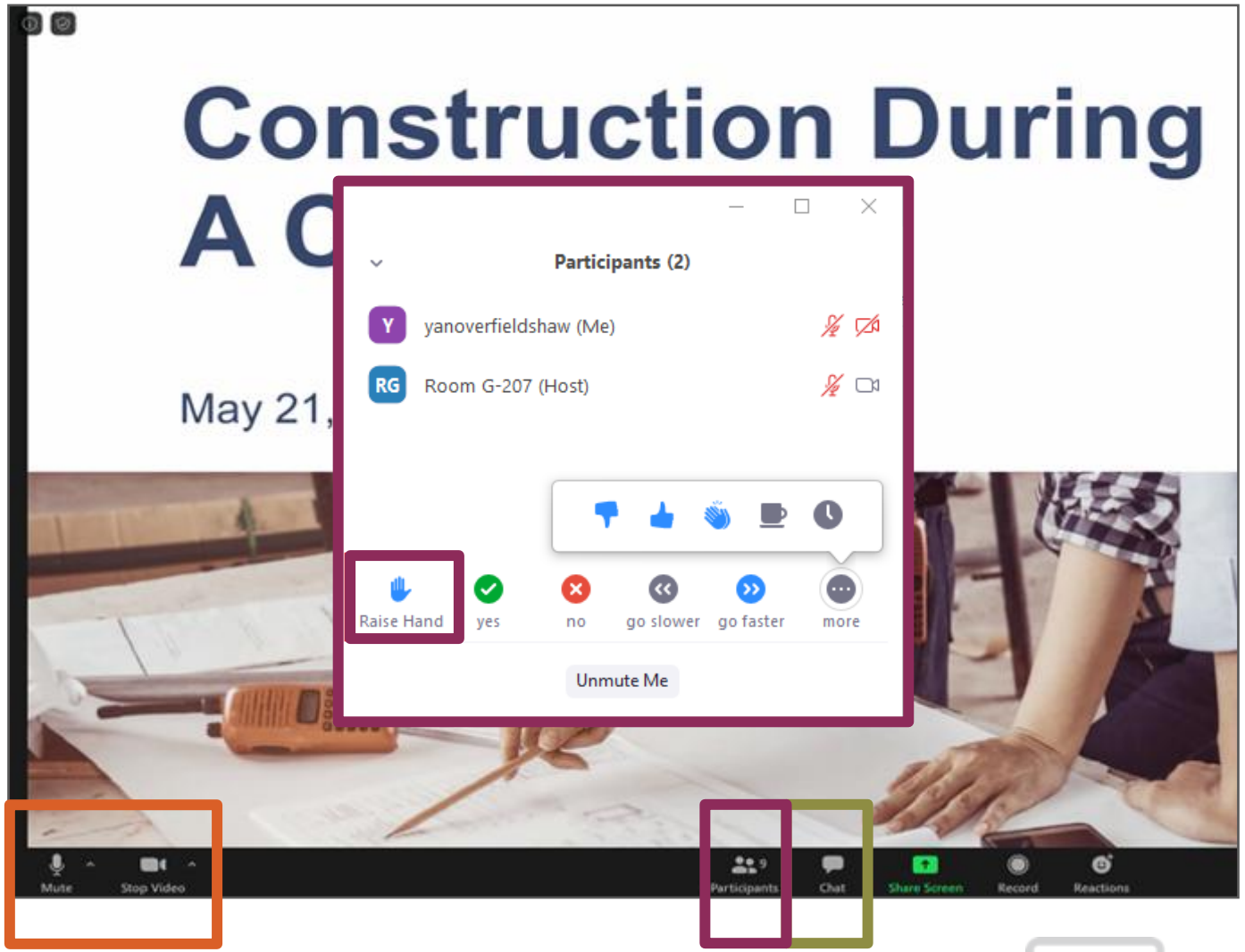
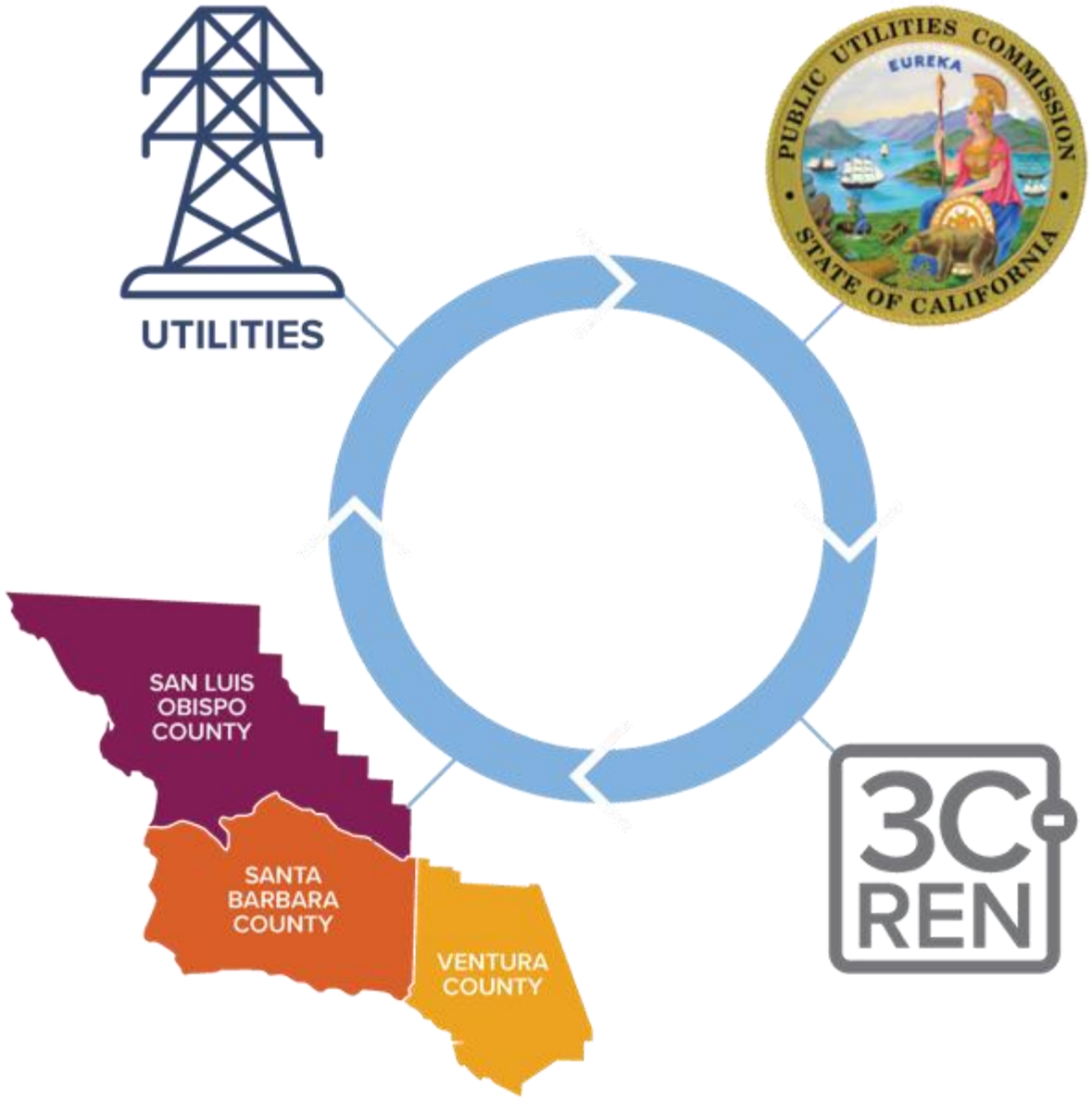
Before We Begin

Here are some quick reminders:

- Call in? Please **share** full name to confirm attendance
- To receive AIA LUs, you **must attend** at least 80% of the training. Attendance will be verified
- Use the "**Chat**" to share questions or comments
- Slides/recording are **shared** after most events and can be found on 3C-REN's on-demand page
- 3C-REN does **not** allow **AI notetakers**, unless used to accommodate a disability





Tri-County Regional Energy Network

3C-REN is a collaboration between the tri-counties

Our programs reduce energy use for a more sustainable, equitable and economically vibrant Central Coast

Our free services are funded via the CPUC, bringing ratepayer dollars back to the region

Our Services

Incentives

HOME ENERGY SAVINGS

3c-ren.org/for-residents
3c-ren.org/multifamily

COMMERCIAL ENERGY SAVINGS

3c-ren.org/commercial

Contractors can enroll at
3c-ren.org/contractors

Training

BUILDING PERFORMANCE TRAINING

3c-ren.org/events
3c-ren.org/building

ENERGY CODE CONNECT

3c-ren.org/code

View past trainings at
3c-ren.org/on-demand

Technical Assistance

AGRICULTURE ENERGY SOLUTIONS

3c-ren.org/agriculture

ENERGY ASSURANCE SERVICES

3c-ren.org/assurance

3C REN

Learning Objectives

If you're new to the energy code (Title 24 Part 6) and looking for a place to start, or just wanting a refresher, this is the class for you! We'll break down the scope and goals of the code, how it's organized, where to find key information for your project and what are some general best practices for successful implementation during design, permitting and construction.

- Understand what the Building Energy Efficiency Standards code is and why we have one in California
- Learn how the energy code is organized and where to find the information you need
- Recognize key energy requirements that can inform building design, plan review and construction decisions
- Learn strategies to communicate energy code requirements to promote successful implementation of energy efficiency and indoor air quality standards.

Learning Units

- 1.50 AIA LUs will apply for this course
- 0.15 ICC CEUs will apply for this course
- 1.50 CEA CEUs will apply for this course

Agenda

1. Historical Context
2. California's Energy Code
3. A Closer Look at Title 24 Part 6
4. Tips for Implementation
5. Resources

Historical Context

National Energy Crisis and the Oil Embargo

- Oil Embargo in 1973
  - US dependent on OPEC oil
  - Crisis from limited supply of gas
- The embargo helped to change attitude towards energy
  - Speed limit from 70 to 55 mph to save energy
  - Oregon turned off all hot water to state buildings
  - President Jimmy Carter asked everyone to put on a sweater and install solar panels on the roof of the White House (Ronald Reagan removed them at the start of his term)

Photos: theconversation.com, https://history.state.gov/milestones/1969-1976/oil-embargo

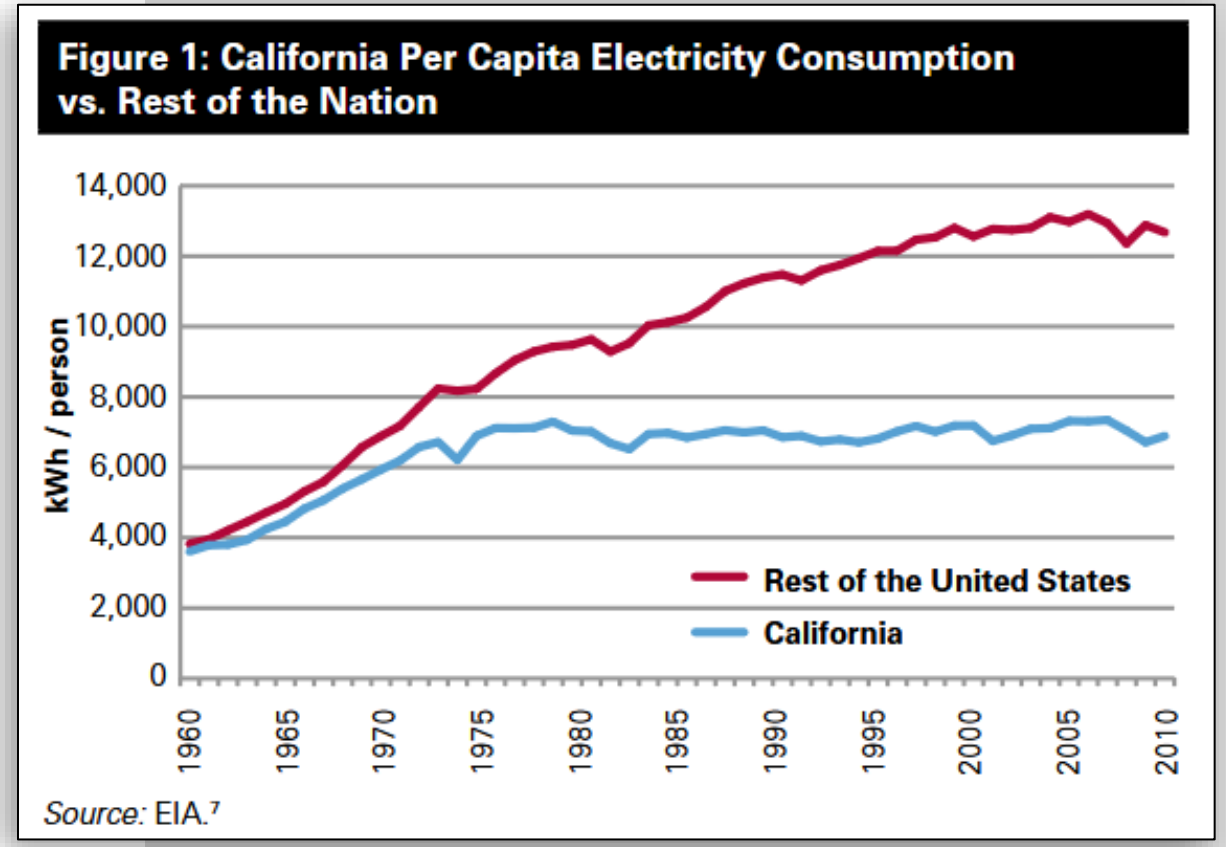
California Adopts Legislation Addressing its Energy Future

- California Buildings Standards Commission created the CA Energy Code in 1978
  - To reduce CA energy consumption
  - Development of California Energy Efficiency Standards
- California adopts the most stringent energy code in the US
- Energy consumption in California levels off at 1970 energy consumption while the state grows significantly in population.
  - 1978 pop. About 23 million
  - 2024 pop. About 40 million

NRDC FACT SHEET

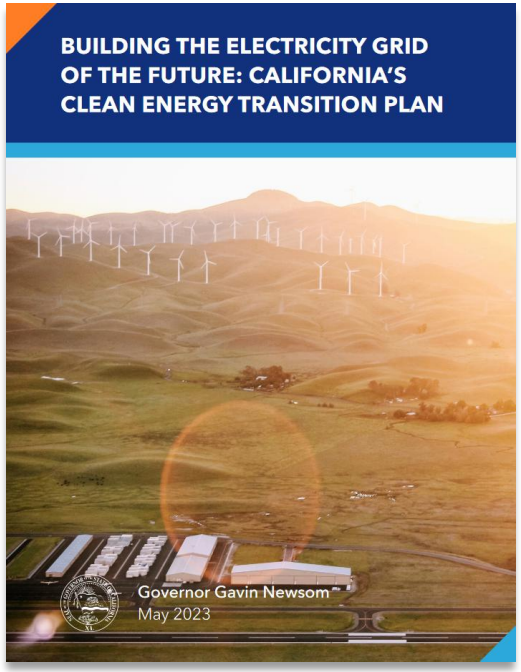
JULY 2013
FS:13-06-A

California's Energy Efficiency Success Story:
Saving Billions of Dollars and Curbing Tons of Pollution



https://www.nrdc.org/sites/default/files/ca-success-story-FS.pdf

California's Plan for Clean Energy Future



https://www.gov.ca.gov/wp-content/uploads/2023/05/CAEnergyTransitionPlan.pdf

A carbon-free electric grid where:

- **Buildings** are increasingly decarbonized.
- **The Industrial Sector** is powered by clean electricity, and by clean fuels, such as green hydrogen.
- **Transportation** choices are zero-emission and able to plug into the electric grid at places of convenience for all customers

California Air Resources Board (CARB) - Mary D. Nichols Campus

Big Picture Goals for the 2025 Code

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

25% amount of the state's total greenhouse gas (GHG) emissions that homes and businesses are responsible for

$4.8 BILLION
statewide energy cost savings expected from the standards for 2025

- Encourage heat pump technology for space and water heating
- Encourage electric-ready building, and updating the requirements
- Expand PV systems and battery storage standards
- Improve indoor air quality by strengthening ventilation standards

California's Energy Code

California Code of Regulations (CCR)

California has 28 ***Titles*** comprising the rules and regulations e.g. administrative laws, for roughly 200 regulatory agencies. The Office of Administrative Law (OAL) maintains and oversees all but Title 24 Building Standards Code, which falls under the California Building Standards Commission.

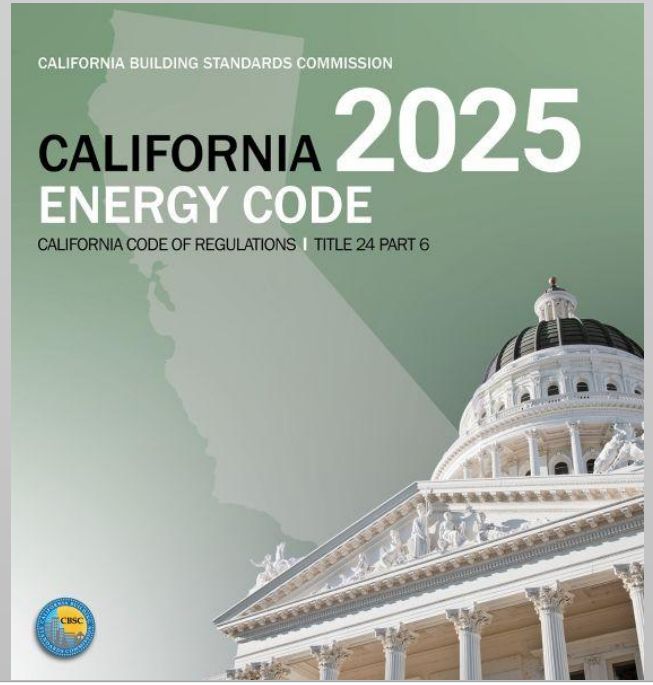
Title 1. General Provisions
Title 2. Administration
Title 3. Food and Agriculture
Title 4. Business Regulations
Title 5. Education
Title 6. Governor's Regulations (empty)
Title 7. Harbors and Navigation
Title 8. Industrial Relations
Title 9. Rehabilitative and Developmental Services
Title 10. Investment
Title 11. Law
Title 12. Military and Veterans Affairs
Title 13. Motor Vehicles
Title 14. Natural Resources
Title 15. Crime Prevention and Corrections
Title 16. Professional and Vocational Regulations
Title 17. Public Health
Title 18. Public Revenues
Title 19. Public Safety
Title 20. Public Utilities and Energy
Title 21. Public Works
Title 22. Social Security
Title 23. Waters
Title 24. Building Standards Code
Title 25. Housing and Community Development
Title 26. Toxics
Title 27. Environmental Protection
Title 28. Managed Health Care

Title 24 is comprised of thirteen Parts

Part 1 - CA Administrative Code
Part 2 - CA Building Code
Part 2.5 - CA Residential Code
Part 3 - CA Electrical Code
Part 4 - CA Mechanical Code
Part 5 - CA Plumbing Code
Part 6 - CA Energy Code
Part 7 - CA Wildland-Urban Interface Code
Part 8 - CA Historical Building Code
Part 9 - CA Fire Code
Part 10 - CA Existing Building Code
Part 11 - CA Green Building Standards Code
Part 12 - CA Referenced Standards Code

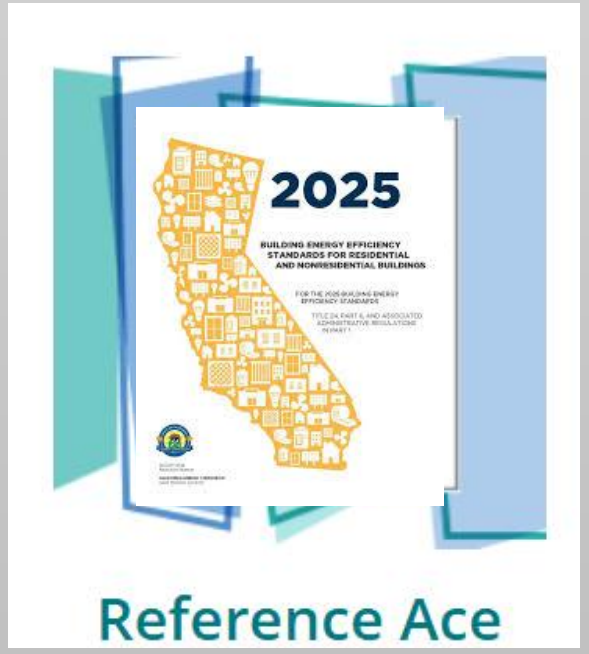
Available in Print on Online

ICC



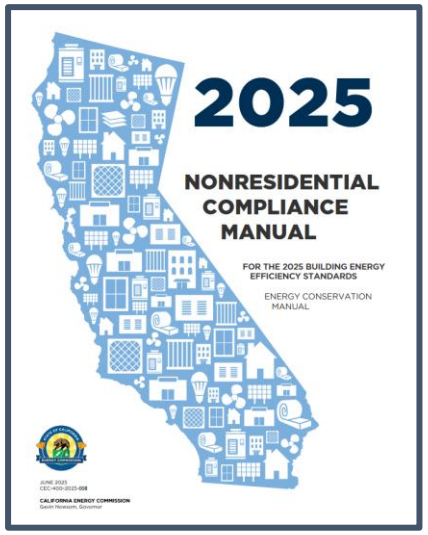
CA Energy Commission

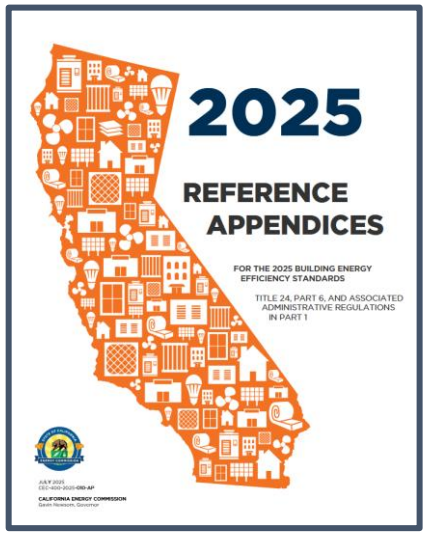
Energy Code Ace

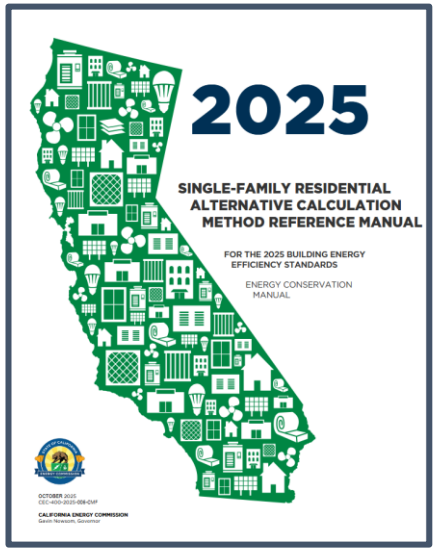


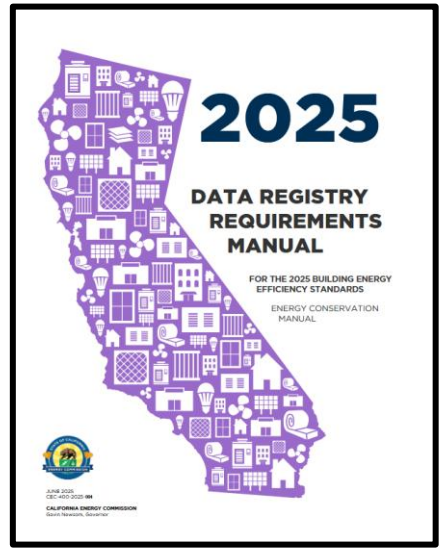
Full set of links and resources at the end!

Title 24 Part 6, 2025 Standards and Manuals









Full set of links and resources at the end!

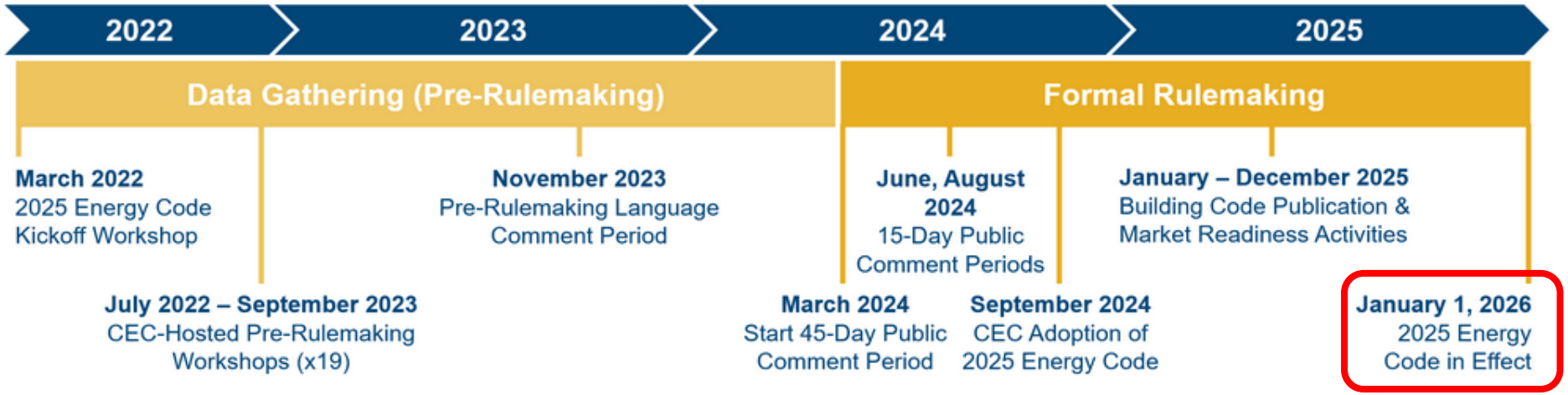
What's Covered in the Energy Code?

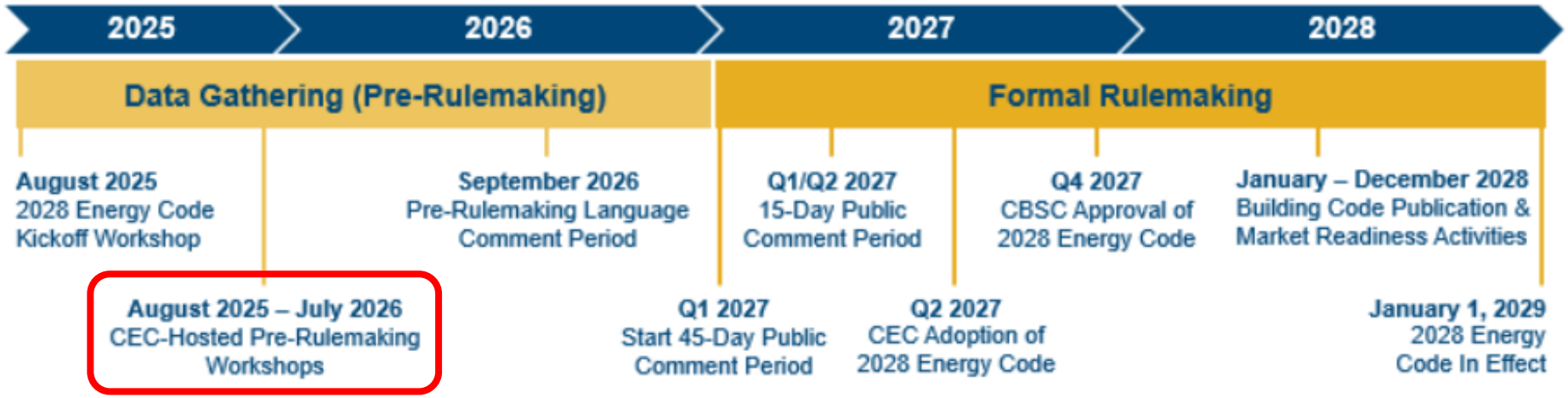
- Building Envelope: i.e. Floors, Walls, Windows, and Roof
- Domestic Hot Water
- Heating, Cooling and Ventilation Systems
- Lighting
- Building-Scale Solar Energy and Battery Systems
- Field Verification and Diagnostic Testing
- Covered Process Loads
  - Refrigerated Warehouses
  - Controlled Environment Horticulture
  - Elevators, etc.

What is *not* covered in the energy code

- Household Appliances (Title 20)
- Small Residential-Scale Heating and Cooling Systems (Title 20)
- Walk-in Coolers and Freezers / Stand-alone Systems (Title 20)
- Refrigerated Warehouses under 3,000 sf
- Agricultural Barns / Warehouses (other than covered process or human occupied)
- Temporary Structures

Multi-year Adoption Cycle





For more information visit energy.ca.gov

Except…
AB 130: Pause on parts of the 2028 Code Cycle

Residential Standards	**2025 Code** Effective 1/1/2026 (No 2028 Residential Code)		**2031 Code** Effective 1/1/2032
Nonresidential Standards	**2025 Code** Effective 1/1/2026	**2028 Code** Effective 1/1/2029	**2031 Code** Effective 1/1/2032

**2028 Code…? May depend on substance and breadth of allowed changes*

Notes and Exceptions

- Includes all R occupancies, including multi-family, SF, townhomes, etc.*
- No substantive changes for CA for 6 years; administrative clarifications are acceptable
- No local reach codes
  - Exceptions for carry-over of existing reach codes, in place by 9/30/2025
  - Local amendment should “…incentivize all-electric construction and comply with federal law in permitting mixed-fuel residential construction.”*
- Exceptions for State Fire Marshal Amendments
- Exceptions for alignment with national model codes

*BSC guidance memo

Closer Look into Title 24 Part 6

The Energy Code –Three Compliance Terms

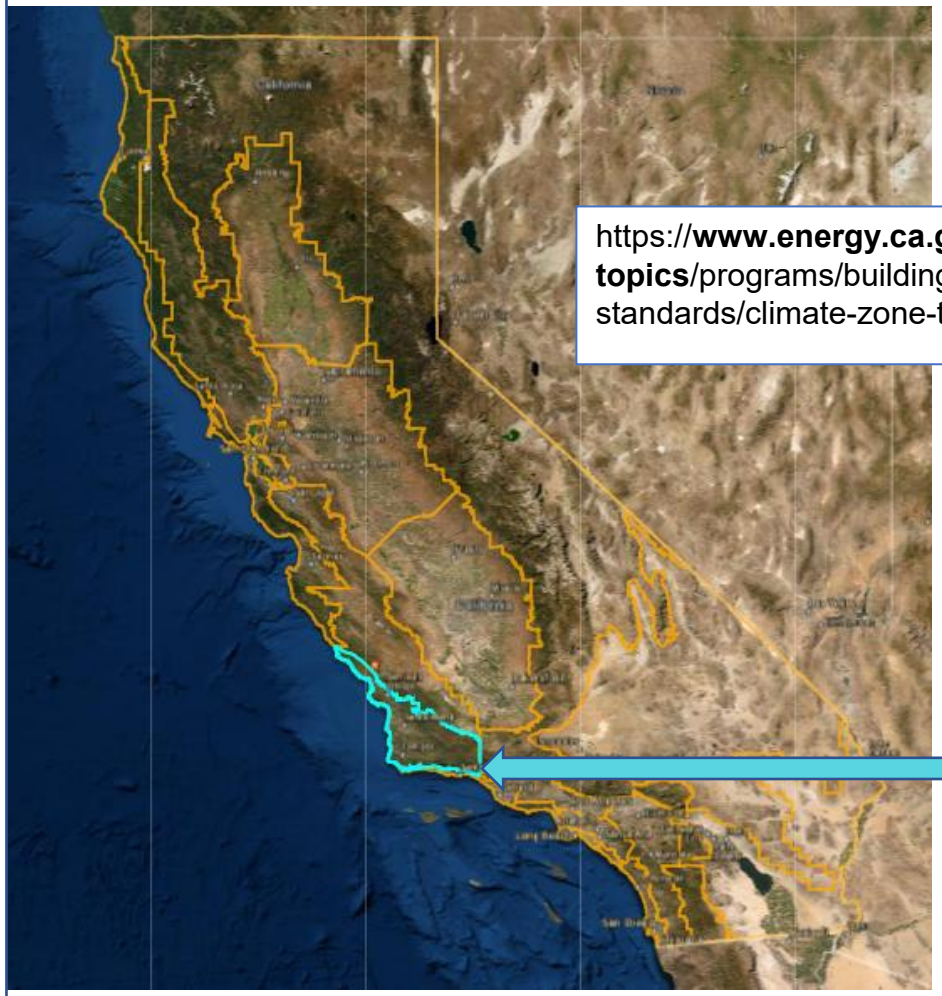
Mandatory Requirements

Energy efficiency measures that are applicable to all projects.

Prescriptive Component Package	**Performance Method**
Mandatory Requirements are applicable	Mandatory Requirements are applicable
Follow all the parts of the prescriptive package	Other components or measures can be traded-off as long as the Proposed Design Building can be shown to be more energy efficiency than a similar sized Standard Design Building (baseline building)
Note: used to determine the Standard Design Building	
Essentially a **checklist** approach	**Energy modeling** approach

Energy Code is based on Climate Zones (CZ) and Typical Meteorological Year Data (TMY)

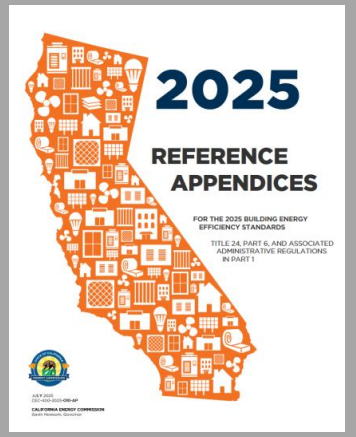
The California Energy Commission has an on-line tool:
EZ Building Climate Zone Finder

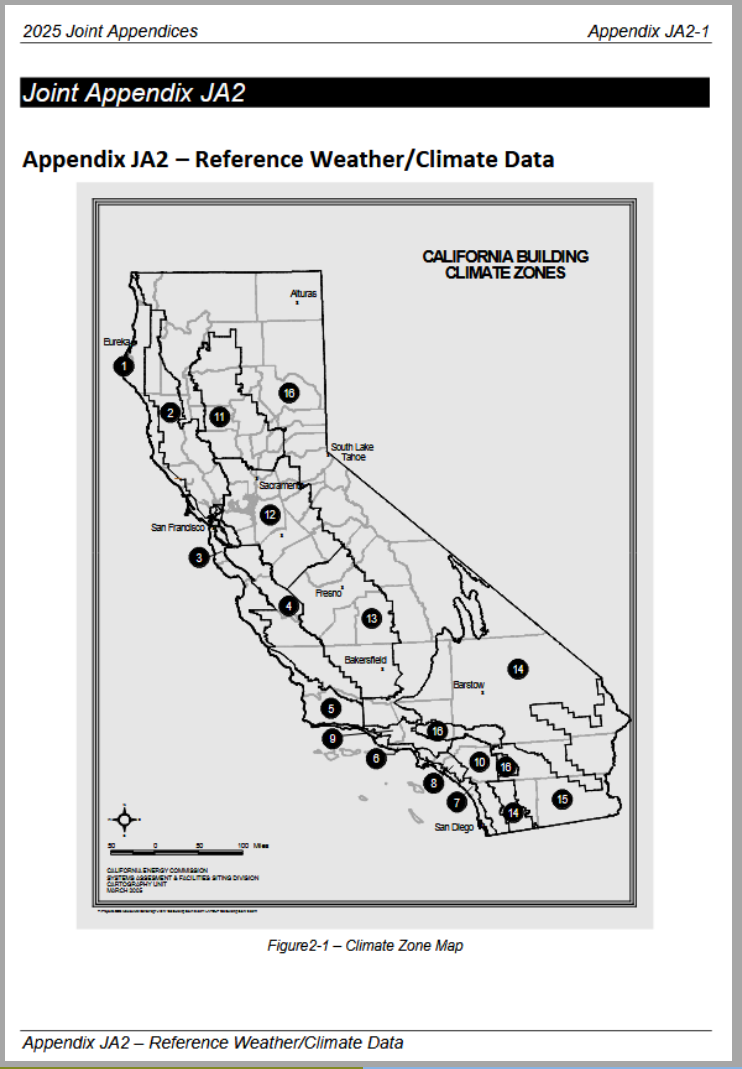


https://**www.energy.ca.gov/programs-and-topics**/programs/building-energy-efficiency-standards/climate-zone-tool-maps-and

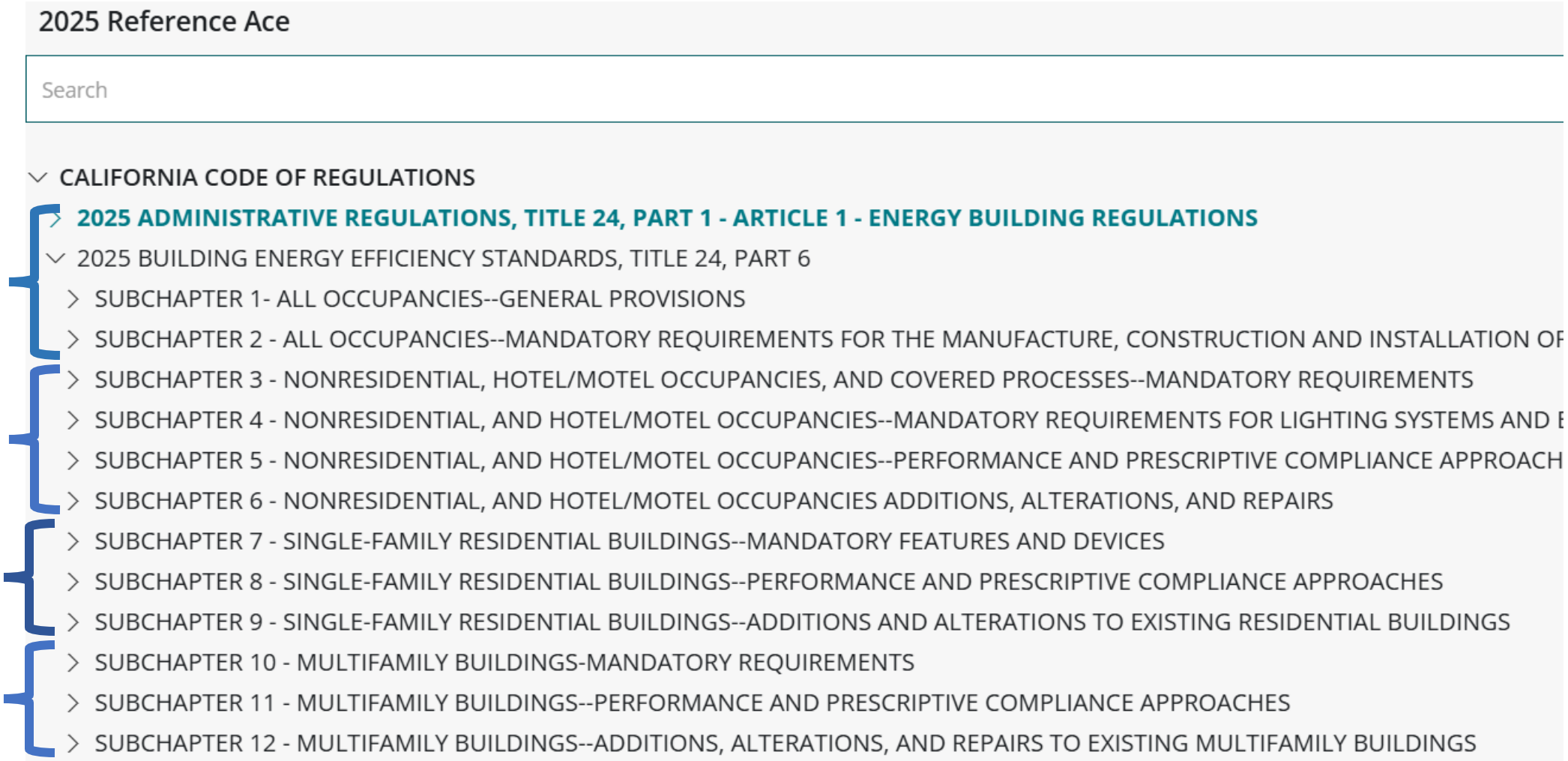
Example of CZ 5

16 Climate Zones (CZ) in California

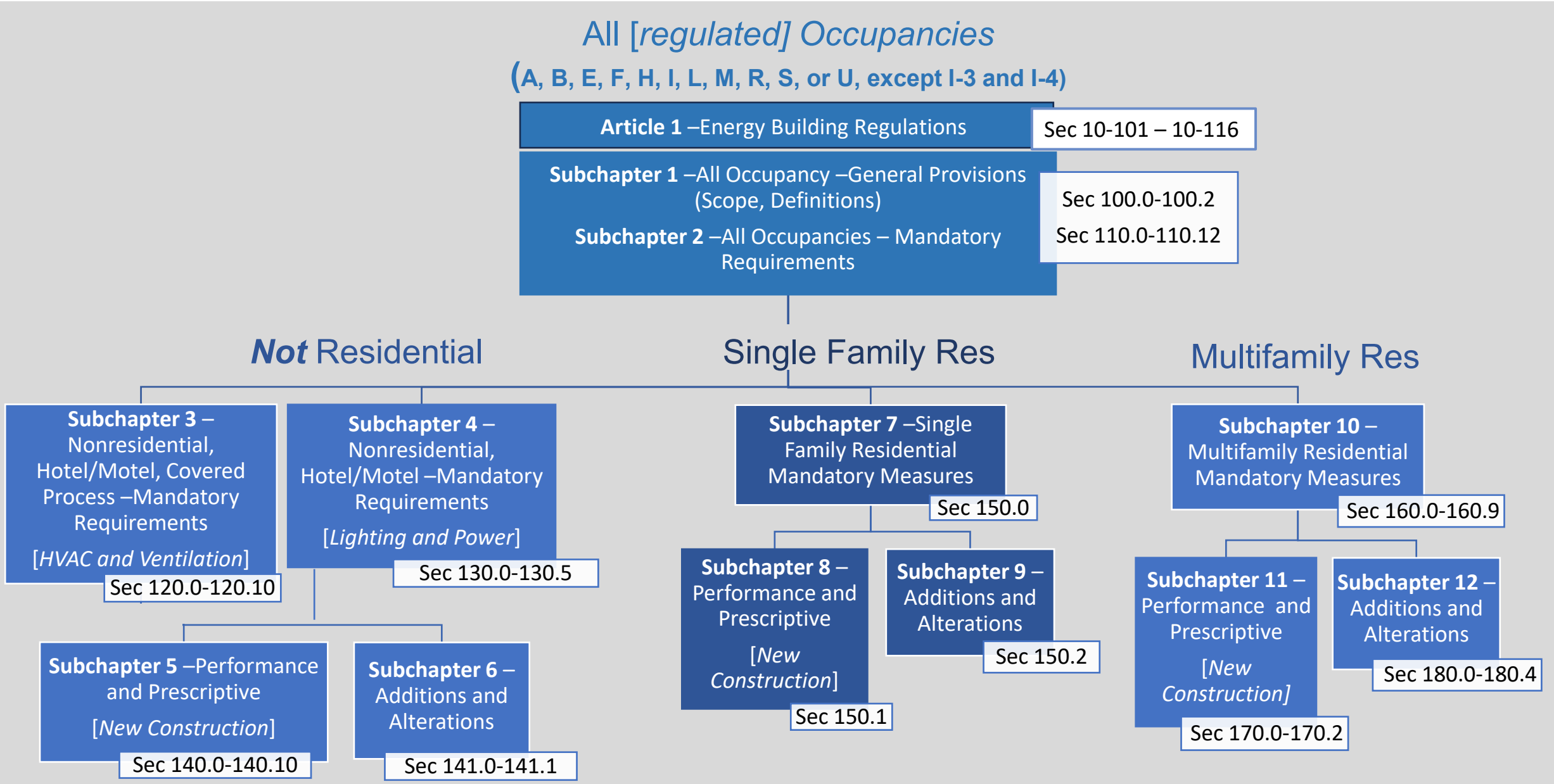




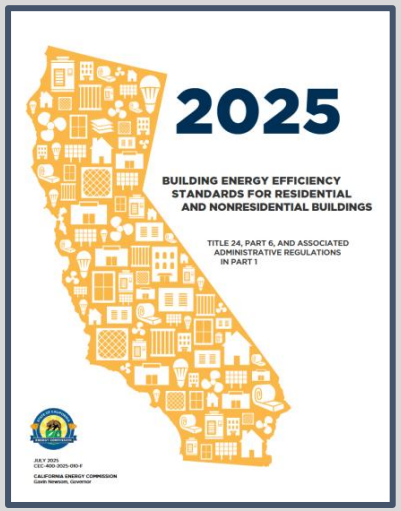
How the Energy Code is Organized



Or More Like this…



Subchapter 1 –Application of the Standards



Subchapter 1
Table 100.0-A

Useful way of looking at how the Energy Code Sections apply to particular applications

TABLE 100.0-A APPLICATION OF STANDARDS

Occupancies	Application	Mandatory	Prescriptive	Performance	Additions Alterations
All Buildings	General	100.0, 100.1, 100.2, 110.0	100.0, 100.1, 100.2, 110.0	100.0, 100.1, 100.2, 110.0	100.0, 100.1, 100.2, 110.0
Nonresidential, And Hotels/Motels	General	120.0	140.0, 140.2	140.0, 140.1	141.0
Nonresidential, And Hotels/Motels	Envelope (conditioned)	110.6, 110.7, 110.8,120.7	140.3	140.0, 140.1	141.0
Nonresidential, And Hotels/Motels	Envelope (unconditioned process spaces)	N.A.	140.3(c)	140.0, 140.1	141.0
Nonresidential, And Hotels/Motels	HVAC (conditioned)	110.2, 110.5, 120.1, 120.2, 120.3, 120.4, 120.5, 120.8, 120.10	140.4	140.0, 140.1	141.0
Nonresidential, And Hotels/Motels	Water Heating	110.3, 120.3, 120.8, 120.9	140.5	140.0, 140.1	141.0
Nonresidential, And Hotels/Motels	Indoor Lighting (conditioned, process spaces)	110.9, 120.8, 130.0, 130.1, 130.4	140.3(c), 140.6	140.0, 140.1	141.0
Nonresidential, And Hotels/Motels	Indoor Lighting (unconditioned and parking garages)	110.9, 120.8, 130.0, 130.1, 130.4	140.3(c), 140.6	N.A.	141.0
Nonresidential, And	Outdoor Lighting	110.9, 130.0, 130.2, 130.4	140.7	N.A.	141.0

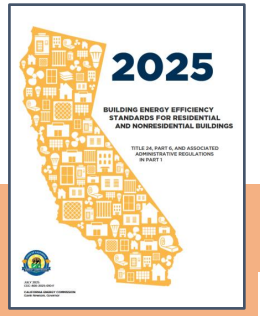
Subchapter 1 –Application of the Standards

Example:

- Single-family,
- Envelope (walls, floor, roof, windows, etc),
- Mandatory Measures, and
- Prescriptive Requirements

Occupancies	Application	Mandatory	Prescriptive	Performance	Additions Alterations
Single-Family	General	150.0	150.1(a, c)	150.1(a), 150.1(b)	150.2(a), 150.2(b)
Single-Family	Envelope (conditioned)	110.6, 110.7, 110.8, 150(a), 150.0(b), 150.0(c), 150.0(d), 150.0(e), 150.0(g), 150.0(q)	150.1(a, c)	150.1(a), 150.1(b)	150.2(a), 150.2(b)
Single-Family	*HVAC (conditioned)*	*110.2, 110.5, 150.0(h), 150.0(i), 150.0(j), 150.0(m), 150.0(o)*	*150.1(a, c)*	*150.1(a), 150.1(b)*	*150.2(a), 150.2(b)*
Single-Family	*Water Heating*	*110.3, 150.0(j, n)*	*150.1(a, c)*	*150.1(a), 150.1(b)*	*150.2(a), 150.2(b)*
Single-Family	*Indoor Lighting (conditioned, unconditioned and parking garages)*	*110.9, 130.0, 150.0(k)*	*150.1(a, c)*	*150.1(a), 150.1(b)*	*150.2(a), 150.2(b)*
Single-Family	*Outdoor Lighting*	*110.9, 130.0,150.0(k)*	*150.1(a, c)*	*150.1(a), 150.1(b)*	*150.2(a), 150.2(b)*
Single-Family	*Pool and Spa Systems*	*110.4, 150.0(p)*	*N. A.*	*N.A.*	*150.2(a), 150.2(b)*
Single-Family	*Solar Ready Buildings*	*110.10*	*N. A.*	*N.A.*	*N.A.*
Single-Family	*Electric Ready*	*150.0(s), 150.0(t), 150.0(u), 150.0(v)*	*N.A.*	*N.A.*	*N.A.*
Single-Family	*Solar PV Systems*	*N.A.*	*150.1(c)14*	*150.1(a), 150.1(b)*	*N.A.*

Low Rise Residential –Prescriptive Example



Single Family (Townhomes and Duplexes)

Subchapter 7

150.0 Mandatory Measures

Applies to all :

(a) Ceiling and Roof Insulation
(b) Loose-fill Insulation
(c) Wall Insulation
(d) Raised-floor Insulation
(e) Fireplaces
(f) Slab Edge Insulation
(g) Vapor Retarder
(h) Space Conditioning Equip
(i) Thermostats
(j) Insulation for Piping and Tanks
(k) Residential Lighting
(l) not used
(m) Air Distribution...System...Fans
(n) Water Heating System
(o) Ventilation and Indoor Air Quality
(p) Pool Equip
(q) Fenestration [windows/skylights]
(r) Solar Ready Buildings

Subchapter 8

150.1 Performance and Prescriptive [*New Construction*]

Climate Zone dependent

Applies to

- Hot water heating System
- Mechanical space conditioning system
- Indoor Air Quality Ventilation
- Building Envelope

Show Compliance

- Prescriptive (akin to following a checklist) or
- Performance Method, i.e. detailed computer modeling analysis

Subchapter 9

150.2 Additions and Alterations

Climate Zone dependent

Applies to

- Hot water heating System
- Mechanical space conditioning system
- Indoor Air Quality Ventilation
- Building Envelope

Show Compliance

- Prescriptive (akin to following a checklist) or
- Performance Method, i.e. detailed computer modeling analysis

Prescriptive Wall Example

Example 1: Single-family New Construction, **Thousand Oaks area (CZ9)**, wood framed walls

TABLE 150.1-A COMPONENT PACKAGE – Single-Family Standard Building Design (continued)

Building Component Walls, Floors, Doors, Fenestrations, and Oll	CZ 1	CZ 2	CZ 3	CZ 4	CZ 5	CZ 6	CZ 7	CZ 8	CZ 9	CZ 10	CZ 11	CZ 12	CZ 13	CZ 14	CZ 15	CZ 16
Above Grade Framed Walls[3]	U 0.048	U 0.048	U 0.048	U 0.048	U 0.048	U 0.065	U 0.065	U 0.048	U 0.048	U 0.048	U 0.048	U 0.048	U 0.048	U 0.048	U 0.048	U 0.048
Above Grade Masonry/ Mass Wall Interior[4,5,6]	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.059 R 17
Above Grade Masonry/ Mass Wall Exterior[4,5,6]	U 0.125 R 8.0	U 0.125 R 8.0	U 0.125 R 8.0	U 0.125 R 8.0	U 0.125 R 8.0	U 0.125 R 8.0	U 0.125 R 8.0	U 0.125 R 8.0	U 0.125 R 8.0	U 0.125 R 8.0	U 0.125 R 8.0	U 0.125 R 8.0	U 0.125 R 8.0	U 0.125 R 8.0	U 0.125 R 8.0	U 0.077 R 13
Below Grade Interior Walls[7]	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.067 R 15
Below Grade ExteriorWalls[7]	U 0.200 R 5.0	U 0.200 R 5.0	U 0.200 R 5.0	U 0.200 R 5.0	U 0.200 R 5.0	U 0.200 R 5.0	U 0.200 R 5.0	U 0.200 R 5.0	U 0.200 R 5.0	U 0.200 R 5.0	U 0.200 R 5.0	U 0.200 R 5.0	U 0.200 R 5.0	U 0.100 R 10	U 0.100 R 10	U 0.053 R 19

3. Assembly U-factors for exterior framed walls can be met with cavity insulation alone or with continuous insulation alone, or with both cavity and continuous insulation that results in an assembly U-factor equal to or less than the U-factor shown. Use Reference Joint Appendices JA4 Table 4.3.1, 4.3.1(a), or Table 4.3.4 to determine alternative insulation products to be less than or equal to the required maximum U-factor.

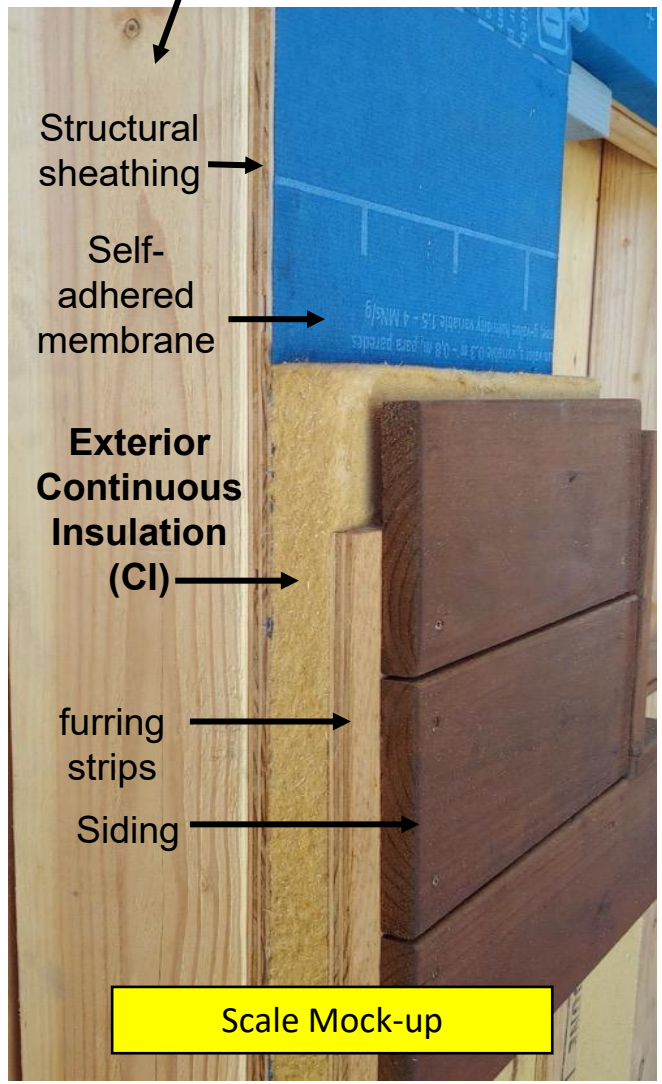
Translation...Walls Assemblies Meeting Prescriptive U-0.065 and U-0.048

Table 3-10: Examples of Wood-Framed Wall Assemblies and U-Factors, Assuming Gypsum Board Interior

Stud (16" oc)	Cavity Insulation	Cavity Insulation Type	Exterior Insulation	U-Factor
2x4	R15	High density batt	R4	0.065
2x4	R13	Open-cell spray foam (ocSPF)	R5	0.064
2x4	R15	High density batt	R8	0.050
2x6	R21	Loose-fill cellulose or high density batt	R4	0.051
2x6	R19	Low density batt	R5	0.051
2x6	R31	Closed-cell spray foam (ccSPF)	R2	0.049
2x6	R23	High density batt or mineral wool	R4	0.049
2x6	R21	Loose-fill cellulose or high density batt	R5	0.048
2x6	R19	Low density batt	R6	0.048
2x6	R23	High density bat or mineral wool	R5	0.047

CZ 9

Wood Stud Framing with Cavity Insulation

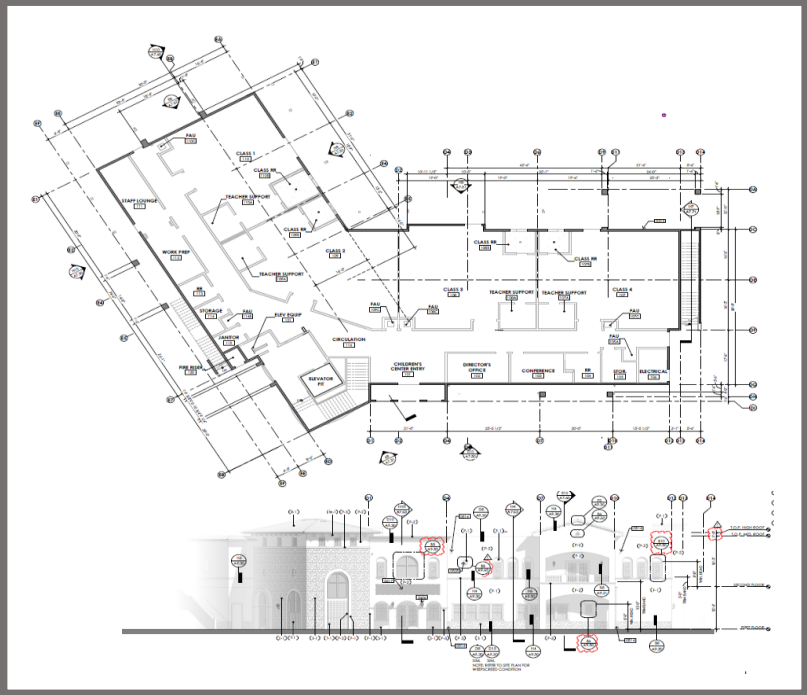


Prescriptive Nonresidential Example

Climate Zone (CZ) 5				Translation -Ref Joint Appendices
Opaque Envelope	Roofs/Ceilings	Wood Framed (U-factor)	0.028	24" o.c. 2x12 Rafter R-30 + R-2 CI
	Walls	Wood Framed (U-factor)	0.095	2x4 Stud w/ R-15
		Metal Framed (U-factors)	0.055	24" o.c. 2x6 mtl stud R-19 + R-12 CI
	Floors/Soffits	Wood Framed (U-factor)	0.071	2x6 Joist w/ R-11
Roofing Products	Low-sloped	Aged Solar Reflectance	0.63	Table 140.3 Insulation Trade-off
		Thermal Emittance	0.75	
Fenestration Products	Vertical	Windows Fixed	0.36	Thermally-Broken Dual-Glazed Typ
		Windows Operable	0.46	
		WWR	40%	Window to Wall Ratio

CZ 4, 9, or 16				Translation -Ref Joint Appendices
Opaque Envelope	Walls	Wood Framed (U-factor)	0.053	2x6 Stud w/ R-19 + R-5 CI

CZ 6 or 7				Translation -Ref Joint Appendices
Opaque Envelope	Walls	Wood Framed (U-factor)	0.102	2x4 Stud w/ R-13

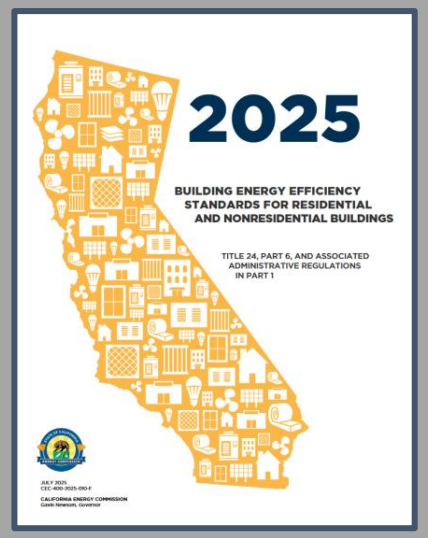


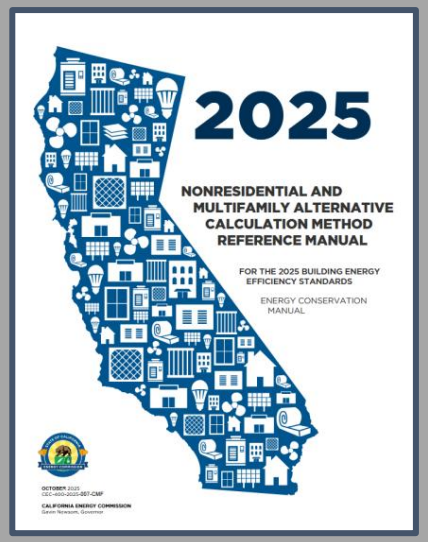
Envelope Example : Two story commercial building Santa Maria area (CZ5)

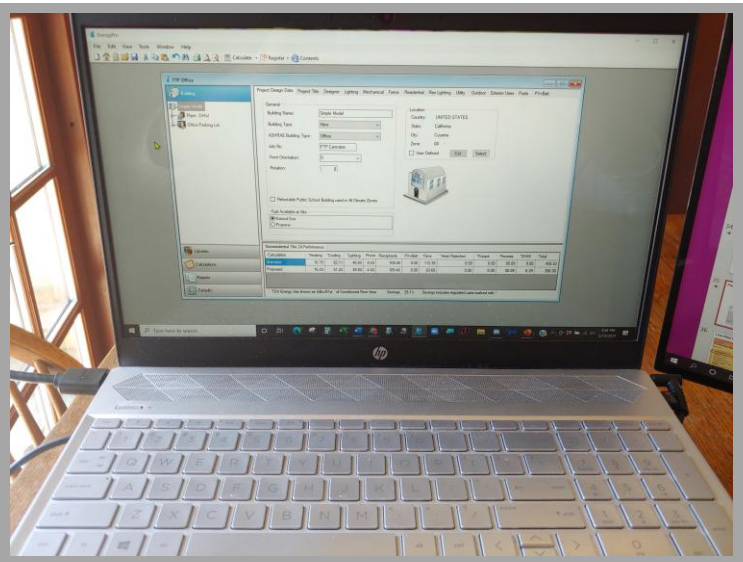
Walls: Design team is considering **metal** stud walls, but might use **wood** stud walls... What is the implication of this decision?

Side Note: Notice the difference location or a **climate zone (CZ)** could make for a wood stud wall assembly

Performance Method Results







Long-term System Cost (LSC) represents the annual 30-year present value cost to California's energy system as a result from the energy used in the operation of the building.

The calculation uses a typical meteorologically year (TMY) data.

Source Energy represents the annual impact on carbon emissions for the creation and delivery of the energy used.

C1. COMPLIANCE SUMMARY — *High-Rise Multifamily Example – Title 24 Report 2025*

COMPLIES*

	Long-term System Cost (LSC)[1]		Source Energy Use
	Efficiency[2] ($/ft²-yr)	Total[3] ($/ft²-yr)	Total[3] (kBtu/ft²-yr)
Standard Design	30.06	18.81	13.38
Proposed Design	27.76	18.25	13.28
Compliance Margins	**2.3**	**0.56**	**0.1**
	Pass	**Pass**	**Pass**

[1] *Long-term System Cost (LSC) is a 30-year present value cost to California's energy system. LSC is not a predicted utility bill.*
[2] *Efficiency measures include energy efficiency improvements such as better building envelope and more efficient mechanical equipment*
[3] *Compliance Totals include efficiency, photovoltaics and batteries*

Performance Method –Regulated Loads
Used for Compliance

"Regulated Loads" Can be traded-off with each other. LSC Efficiency

Minimum PV and Battery Requirement

C2. LSC ENERGY COMPLIANCE RESULTS FOR PERFORMANCE COMPONENTS (Annual LSC Energy Use, $/ft^2-yr)			
	COMPLIES		
Energy Component	Standard Design (LSC)	Proposed Design (LSC)	Compliance Margin (LSC)[1]
Space Heating	0.36	1.16	-0.8
Space Cooling	2.19	1.32	0.87
Indoor Fans	4.22	2.91	1.31
Heat Rejection	0	0	0
Pumps & Misc.	0.12	0.33	-0.21
Domestic Hot Water	14.19	14.04	0.15
Indoor Lighting	8.98	8	0.98
Flexibility	---	---	---
EFFICIENCY COMPLIANCE TOTAL	**30.06**	**27.76**	**2.3 (7.7%)**
Photovoltaics	-11.24	-9.51	-1.73
Batteries	-0.01	---	-0.01
TOTAL COMPLIANCE	**18.81**	**18.25**	**0.56 (3%)**

[1] *Notes: This number in parenthesis following the Compliance Margin in column 4, represents the Percent Better than Standard.*

Performance Method –Non-Regulated Loads
Informational Only

"Non-Regulated Loads" Cannot be traded-off. Used for informational purposes.

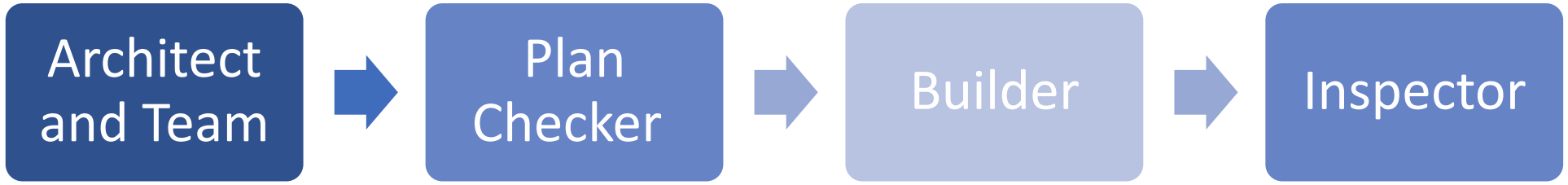
C3. LSC ENERGY RESULTS FOR NON-REGULATED COMPONENTS[1]			
Non-Regulated Energy Component	**Standard Design (LSC)**	**Proposed Design (LSC)**	**Compliance Margin (LSC)[2]**
Receptacle	15.3	15.3	---
Process	12.86	12.74	0.12
Other Ltg	2.01	2.01	---
Process Motors	5.93	5.93	---
TOTAL (TOTAL COMPLIANCE + NON-REGULATED COMPONENTS)	**54.91**	**54.23**	**0.68 (1.2%)**

[1] *Notes: This table is not used for Energy Code Compliance.*

[2] *Notes: This number in parenthesis following the Compliance Margin in column 4, represents the Percent Better than Standard.*

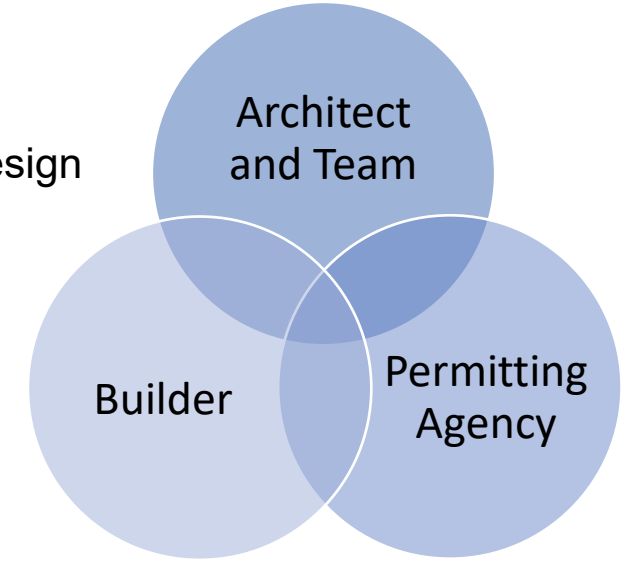
Tips for Implementation

Plan and Design for Energy Code Compliance



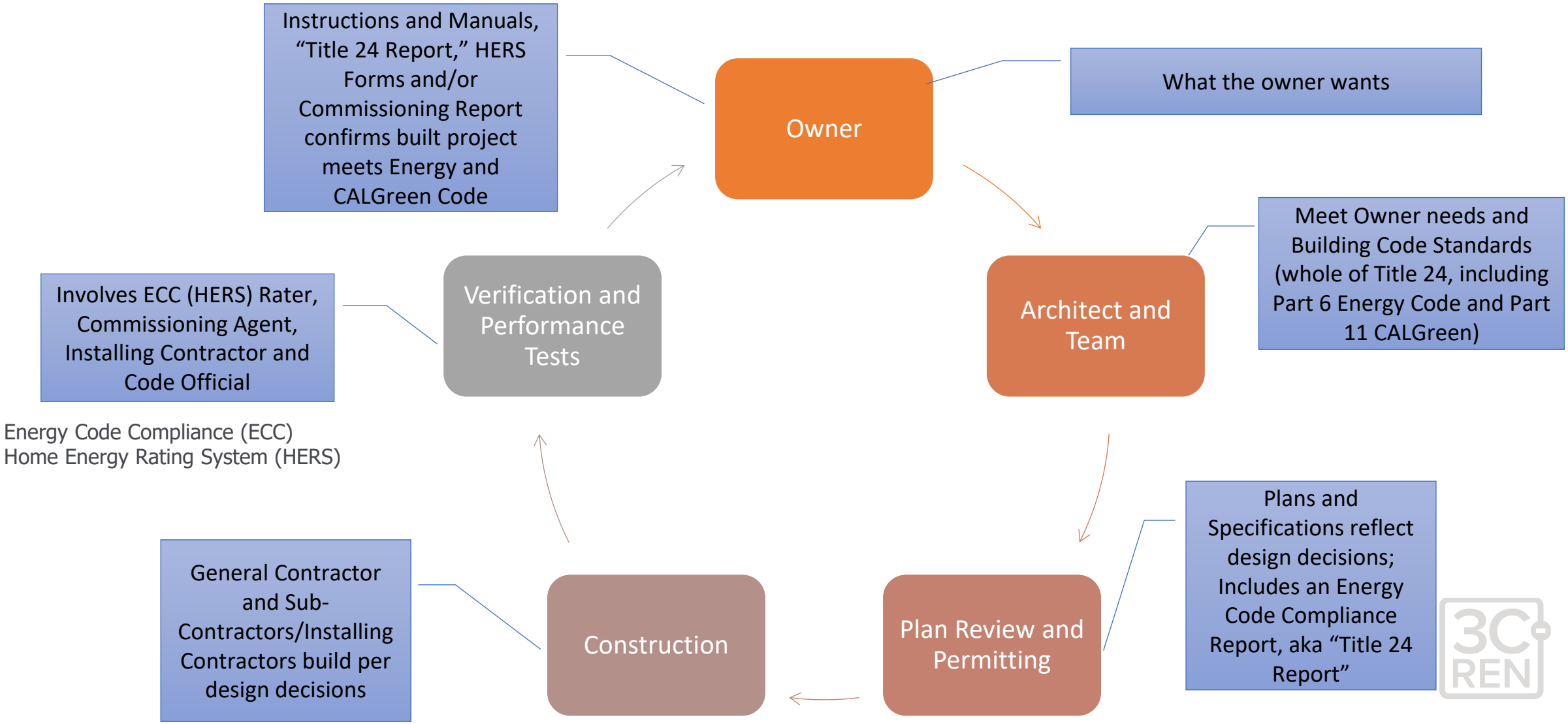
Linear Approach to Design

Integrated Approach to Design



Integrated approach identifies issues early and enables efficiencies

Design and Construction – When do the Energy Code (and Green Code) come into play?



Energy Code Compliance (ECC)
Home Energy Rating System (HERS)

Energy Code Process

- Three Non-Res sections for review - ENV, LTG, MECH/ DHW – make sure scope is covered
- Small projects – Prescriptive forms
- Certified Energy Analyst (CEA) for Performance Method
  - Background needed
  - Independent or part of mechanical engineering
- Building Permit submission
- On-Site Inspections and verifications
  - Acceptance Test Technician (ATT) – Non-Res
  - Energy Code Compliance (ECC) Rater – Res

Process for Energy Code Compliance

Non-Residential

Energy Report

Building inspector, acceptance testing, commissioning as needed

Occupancy

Residential - SFR

CF-1R Compliance created and uploaded to ECC Registry

CF-2R Installation completed and uploaded to ECC Registry

CF-3R Verification completed and uploaded to ECC Registry

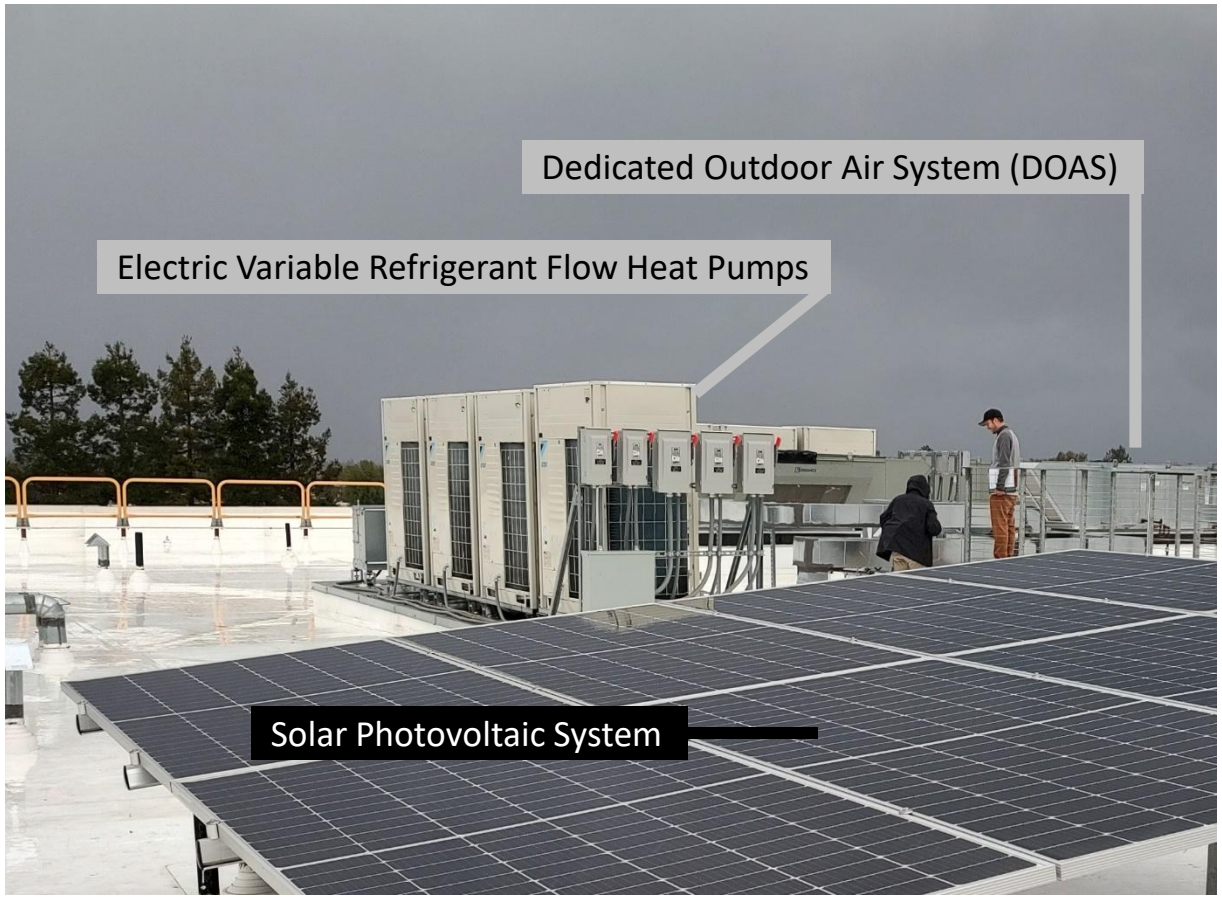
Building Official Confirms CF-2R's and CF-3R's are uploaded and signed (PSR)

Key Point: Target All-Electric (and *Nearly* All-Electric) Buildings

- **New Construction** All-Electric is relatively easy, with some exceptions for large scale buildings and industrial applications

- **Existing Buildings** – Incremental opportunities for
  - HVAC Replacement
  - Appliance Replacement
  - On-site Solar and Batteries
  - Envelope Improvements

- **Existing Communities** – Infrastructure Approach
  - Decarbonize the Grid
  - Reduce Natural Gas Carbon Footprint
  - Support Electric Transportation



Morning Star Senior Living, San Jose, CA

And Solar and Battery

Applicable Occupancy Types:

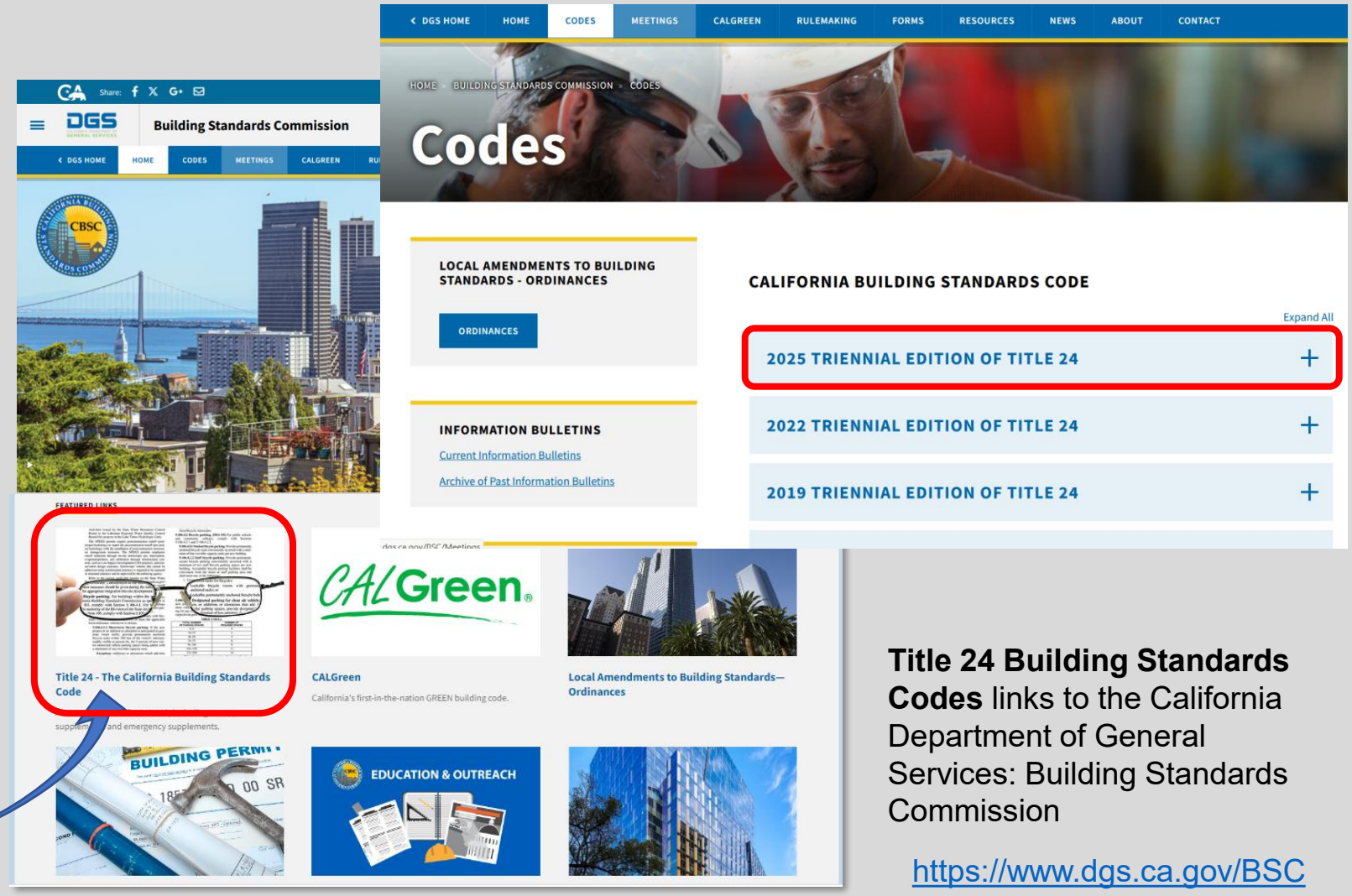
- High-Rise Residential
- Grocery, Retail
- Restaurants
- School
- Library
- Warehouse
- Religious Worship
- Sports and Recreation
- Events and Exhibits
- Hotel-Motel
- Office and Financial Institution
- Unleased Tenant Space
- Medical Office Building/Clinic

Under the 2025 Code some occupancies types were added and some have increased Solar PV and Battery requirements. Restaurants, for example, had a dramatic increase.

Resources

Calif. Code of Regulations and the Building Standards Commission

Through a contract with Westlaw, the CCR Titles can be found on line at https://govt.westlaw.com/calregs



Title 24 Building Standards Codes links to the California Department of General Services: Building Standards Commission

https://www.dgs.ca.gov/BSC

2025 TRIENNIAL EDITION OF TITLE 24

https://www.dgs.ca.gov/BSC/Codes

The 2025 California Building Standards Code (Cal. Code Regs., Title 24) will be published July 1, 2025, with an effective date of January 1, 2026. Summaries of the code changes in this edition and the supplements are available under the Resources tab of the CBSC website.

The active links below will take you to each publisher's website. Please contact CBSC at cbsc@dgs.ca.gov if you have difficulty accessing the codes.

PART 1 – CALIFORNIA ADMINISTRATIVE CODE

PART 2 – CALIFORNIA BUILDING CODE — Volumes 1 & 2

PART 2.5 – CALIFORNIA RESIDENTIAL CODE

PART 3 – CALIFORNIA ELECTRICAL CODE

***NOTE**: NFPA requires creation of a user login to view its free online resources.*

- California-specific amendments only
- Errata — Part 3 (non-substantive corrections) Effective January 1, 2026

PART 4 – CALIFORNIA MECHANICAL CODE

- Errata — Part 4 (non-substantive corrections) Effective January 1, 2026

PART 5 – CALIFORNIA PLUMBING CODE

- Errata — Part 5 (non-substantive corrections) Effective January 1, 2026

PART 6 – CALIFORNIA ENERGY CODE

PART 7 – CALIFORNIA WILDLAND-URBAN INTERFACE CODE

PART 8* – CALIFORNIA HISTORICAL BUILDING CODE

PART 9 – CALIFORNIA FIRE CODE

PART 10* – CALIFORNIA EXISTING BUILDING CODE

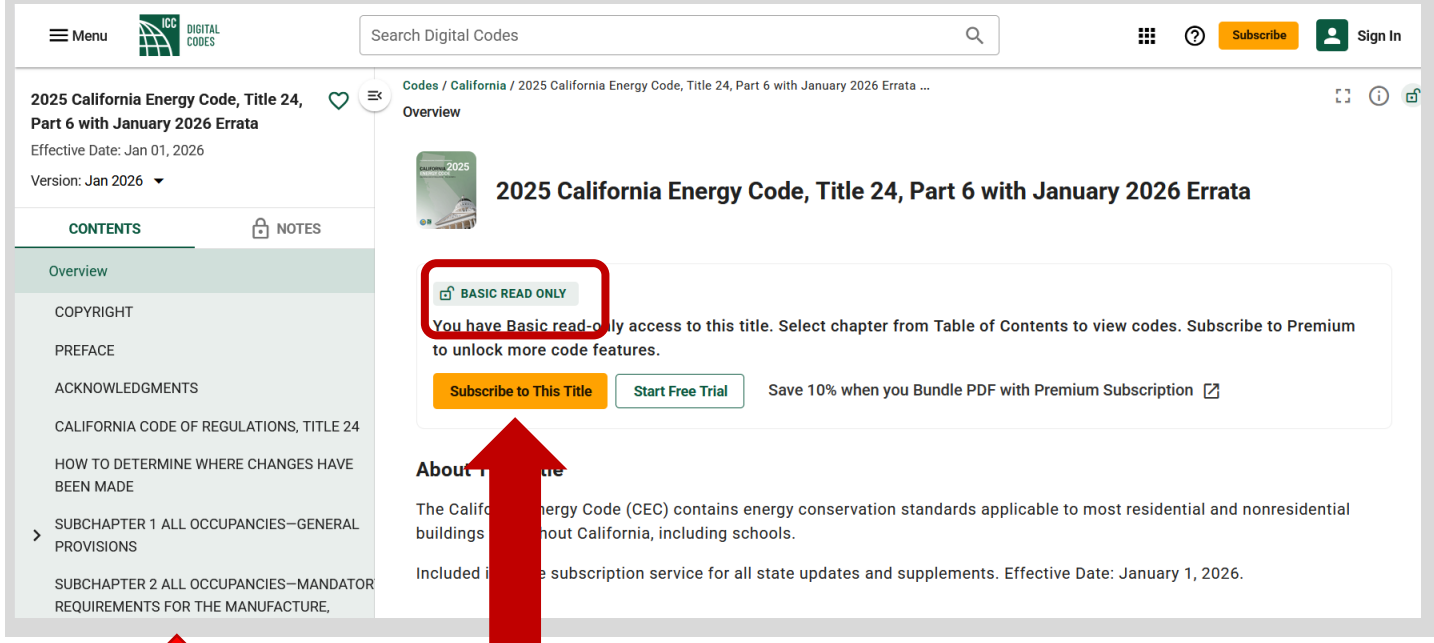
PART 11 – CALIFORNIA GREEN BUILDING STANDARDS CODE also referred to as ***CALGreen***

PART 12* – CALIFORNIA REFERENCED STANDARDS CODE

**The printed versions of Parts 8, 10, and 12 are located in a shared binder.*

Title 24, Part 6 California Energy Code

https://codes.iccsafe.org/content/CAEC2025P2



Read Only or Subscription

Contents and Navigation

Note: Red Text for 2025 Changes from 2022 Code

2025 Code

Codes / California / 2025 California Energy Code, Title 24, Part 6 with January 2026 Errata ...

SUBCHAPTER 1 ALL OCCUPANCIES—GENERAL PROVISIONS

SECTION 100.0—SCOPE

(a) **Buildings covered.** The provisions of Part 6 appl[illegible]all buildings:

1. That are of Occupancy Group A, B, E, F, H, I, L, M, R, S or U; and
2. For which an application for a building permit or renewal of an existing permit is filed (or is required by law to be filed) on or after the effective date of the provisions, or which are constructed by a governmental agency; and
3. That are:
   A. Unconditioned; or
   B. Indirectly or directly conditioned, or process spaces.

Exception 1 to Section 100.0(a)**:** Qualified historic buildings as regulated by the *California Historic Building Code* (Title 24, Part 8). Lighting in qualified historic buildings shall comply with the applicable requirements in Section 140.6(a)3Q.

Exception 2 to Section 100.0(a)**:** Building departments, at their discretion, may not require compliance for temporary buildings, temporary outdoor lighting or temporary lighting in an unconditioned building, or structures erected in response to a natural disaster. Temporary buildings or structures shall be completely removed upon the expiration of the time limit stated in the permit.

Exception 3 to Section 100.0(a)**:** Buildings in Occupancy Group I-3 and I-4.

2022 Code

Codes / California / 2022 California Energy Code, Title 24, Part 6 with July 2024 Supplement ...

Subchapter 1 All Occupancies—General Provisions

SECTION 100.0

SCOPE

(a) **Buildings covered.** The provisions of Part 6 apply to all buildings:

1. That are of Occupancy Group A, B, E, F, H, I, M, R, S or U; and
2. For which an application for a building permit or renewal of an existing permit is filed (or is required by law to be filed) on or after the effective date of the provisions, or which are constructed by a governmental agency; and
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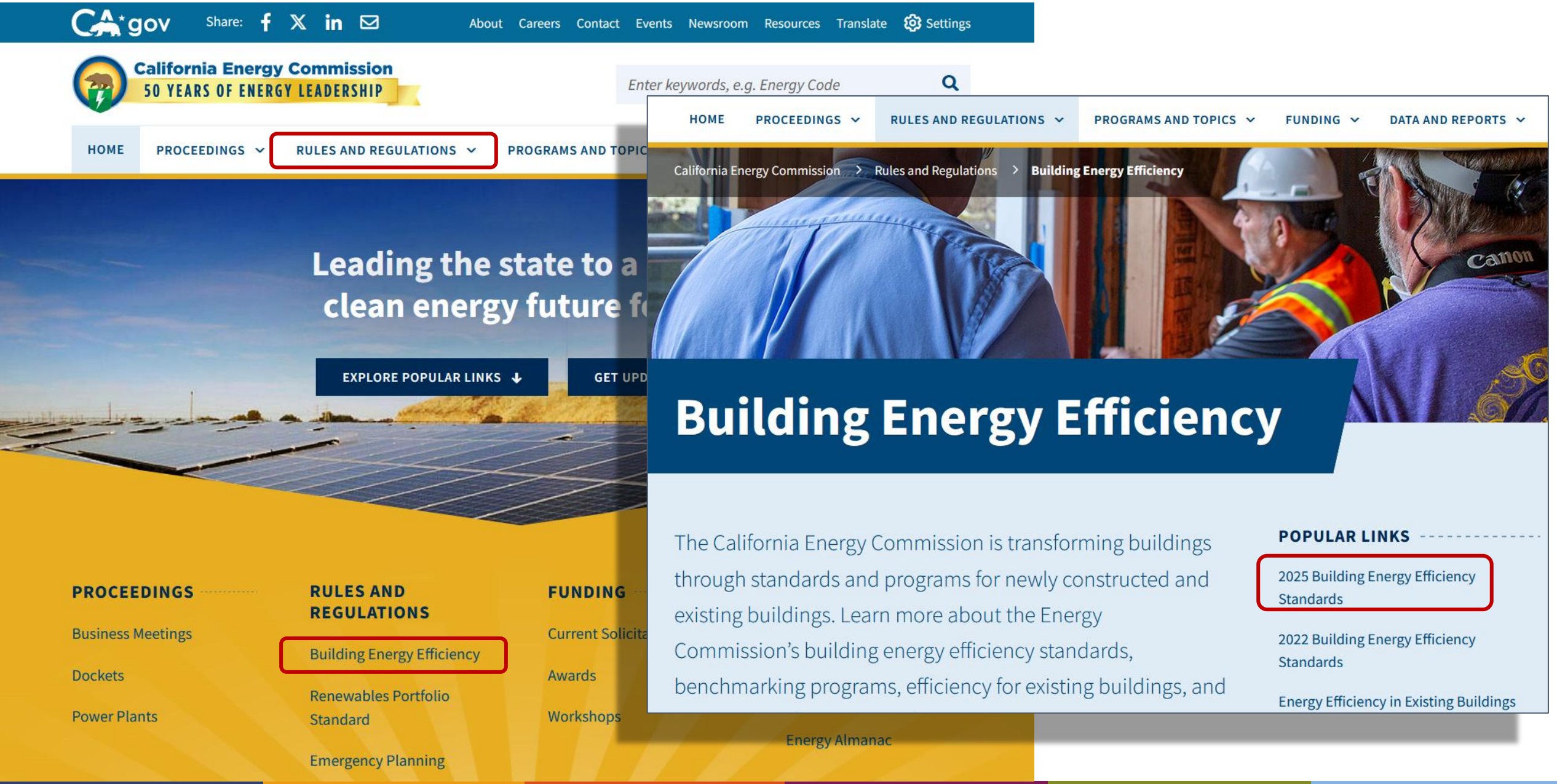
California Energy Commission (CEC) energy.ca.gov



California Energy Commission Energy.ca.gov

Additional Resources:

- Forms
- Trainings and Videos
- Newsletter
- Hot Line Submission
- Support Center –FAQ

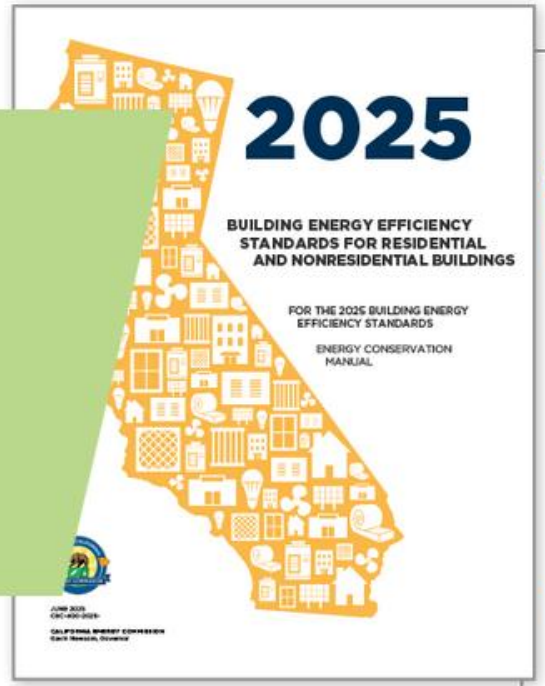
"Where do I find my climate zone?"

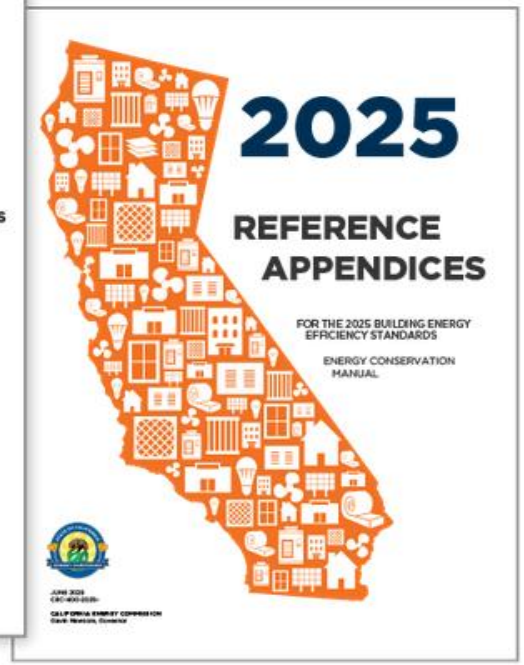
EZ Climate Zone Search Tool

Title 24 Part 6, 2025 Standards and Manuals

2025 Energy Code for Residential and Nonresidential Buildings

2025 ENERGY CODE >





- 2025 Multifamily Compliance Manual - Individual Chapters and Appendices
- 2025 Nonresidential Compliance Manual - Individual Chapters and Appendices
- 2025 Single-Family Residential Compliance Manual - Individual Chapters and Appendices

The main five manuals/books: Efficiency Standards, Reference Appendices, and three Compliance Manuals

https://www.energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards/2025-building-energy-efficiency

Restructured 2025 Energy Code – California Code of Regulations – Title 24, Part 6 (For Information Only)

California Green Building Standards Code – Title 24, Part 11 (CALGreen)

Link to alternative way to organize the Energy Code

Convenient link to CALGreen, since both Part 6 and Part 11 address systems that impact energy

Expand All

Supporting Documents +

Software – Compliance Software, Manuals and Forms +

Acceptance Testing, Field Verification and Diagnostic Testing +

Docket Logs +

Rulemaking +

Local Ordinances +

Expand for the Reference Appendices and the Compliance Manuals

Expand for compliance modeling software and three additional manuals…

Side Bar

Table of Contents Excerpt from Restructured 2025 Energy Code

Take Away:

- Subchapters organized by topic rather than occupancy type
- Section numbering is consistent with Subchapter numbering

SUBCHAPTER 1 GENERAL PROVISIONS 1

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SECTION 101: SYSTEMS AND EQUIPMENT 13

SECTION 102: COMPLIANCE APPROACHES 17

SUBCHAPTER 2 DEFINITIONS 30

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SUBCHAPTER 3 ENVELOPE 93

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SECTION 502: SINGLE-FAMILY RESIDENTIAL OCCUPANCIES 380

SECTION 503: MULTIFAMILY OCCUPANCIES 387

Software – Compliance Software, Manuals and Forms

Compliance Software

CEC approved software to demonstrate performance compliance with residential and nonresidential provisions of the 2025 Energy Code. Performance modeling allows a user to assess building system performance or different building components against the Energy Code baseline.

- 2025 Energy Code Compliance Software

Download the software

Alternative Calculation Method (ACM) Manuals

These manuals identify the modeling rules used within the compliance software.

- 2025 Single-Family ACM Reference Manual
- 2025 Nonresidential and Multifamily ACM Reference Manual

Deeper dive into the software engine and requirements

Data Registry Requirements Manual

This manual is intended to aid in designing and implementing software procedures and user interface features. As a resource for data registry providers, it includes information and explanations regarding the functional and technical aspects of the requirements given in Reference Joint Appendix JA7.

- 2025 Data Registry Requirements Manual

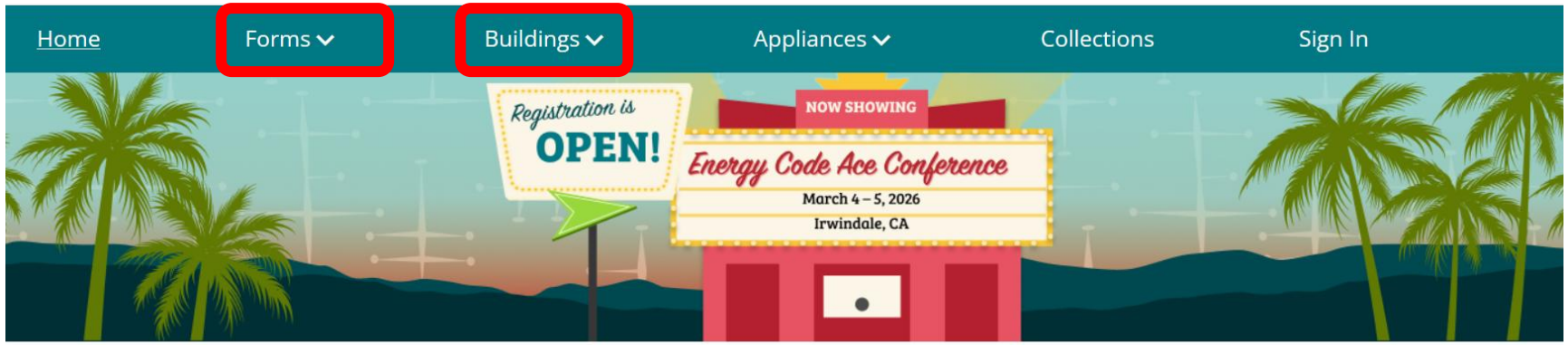
Additional detailed guidance for ECC-Providers (formerly HERS Providers) for JA7 requirements

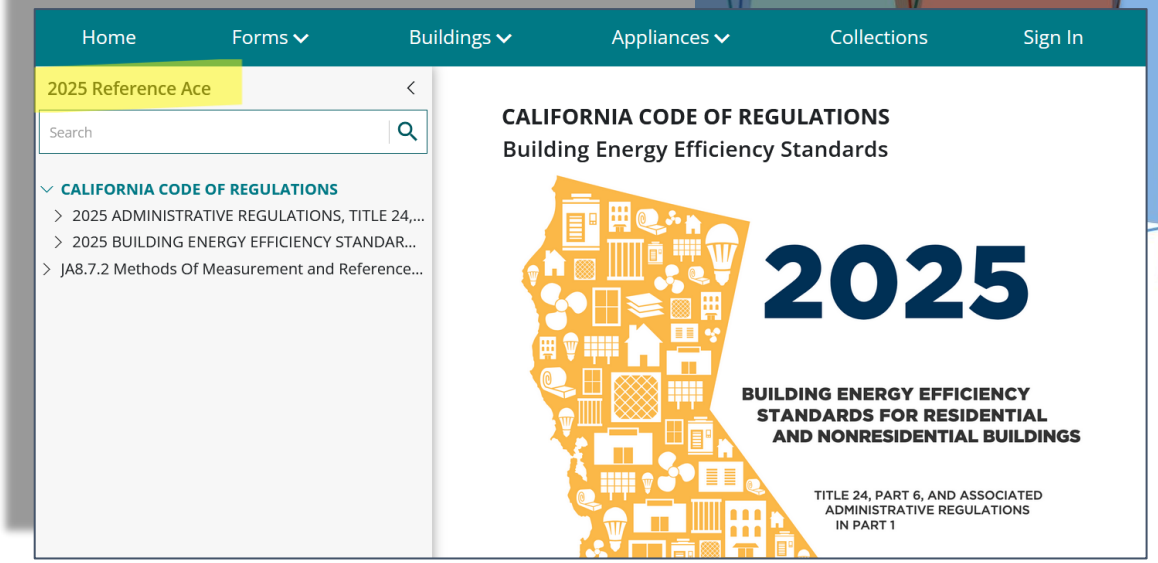
Compliance Documents - Forms

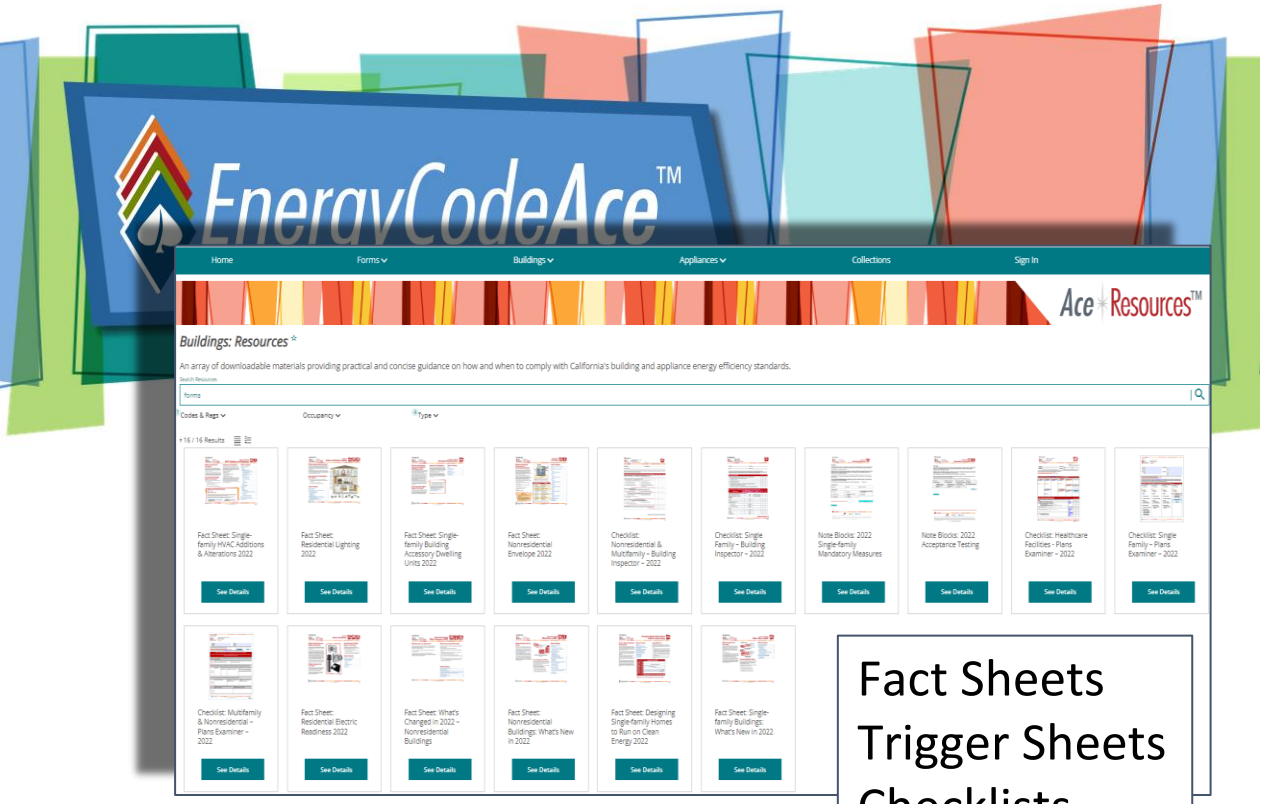
- 2025 Single-Family Forms
- 2025 Low-rise Multifamily Forms
- 2025 Nonresidential, Hotel/Motel, High-rise Multifamily Forms

Prescriptive *non*-ECC (formerly HERS) *non*-registered forms, and similar

Energy Code Ace
energycodeace.com







Title 24 Part 6 Energy Code
Title 20 Appliance Standards
Res and Non-Res Manuals

Fact Sheets
Trigger Sheets
Checklists
...and more

Energy Code Ace – Get Forms and Virtual Compliance Assistant

2025 Nonresidential Energy Code Forms

Official California Energy Commission compliance documents you can use to show compliance with 2025 California Building Energy Efficiency Standards (Title 24, Part 6 or Energy Code).

These forms are for nonresidential, high-rise multifamily (4 stories or greater) and high-rise mixed-use (4 stories or greater) projects.

- NRCC Forms (Nonresidential Certificates of Compliance)
- NRCI Forms (Nonresidential Certificates of Installation)
- NRCA Forms (Nonresidential Certificates of Acceptance)
- NRCV Forms (Nonresidential Certificates of Verification)

NRCC Forms (Nonresidential Certificates of Compliance)

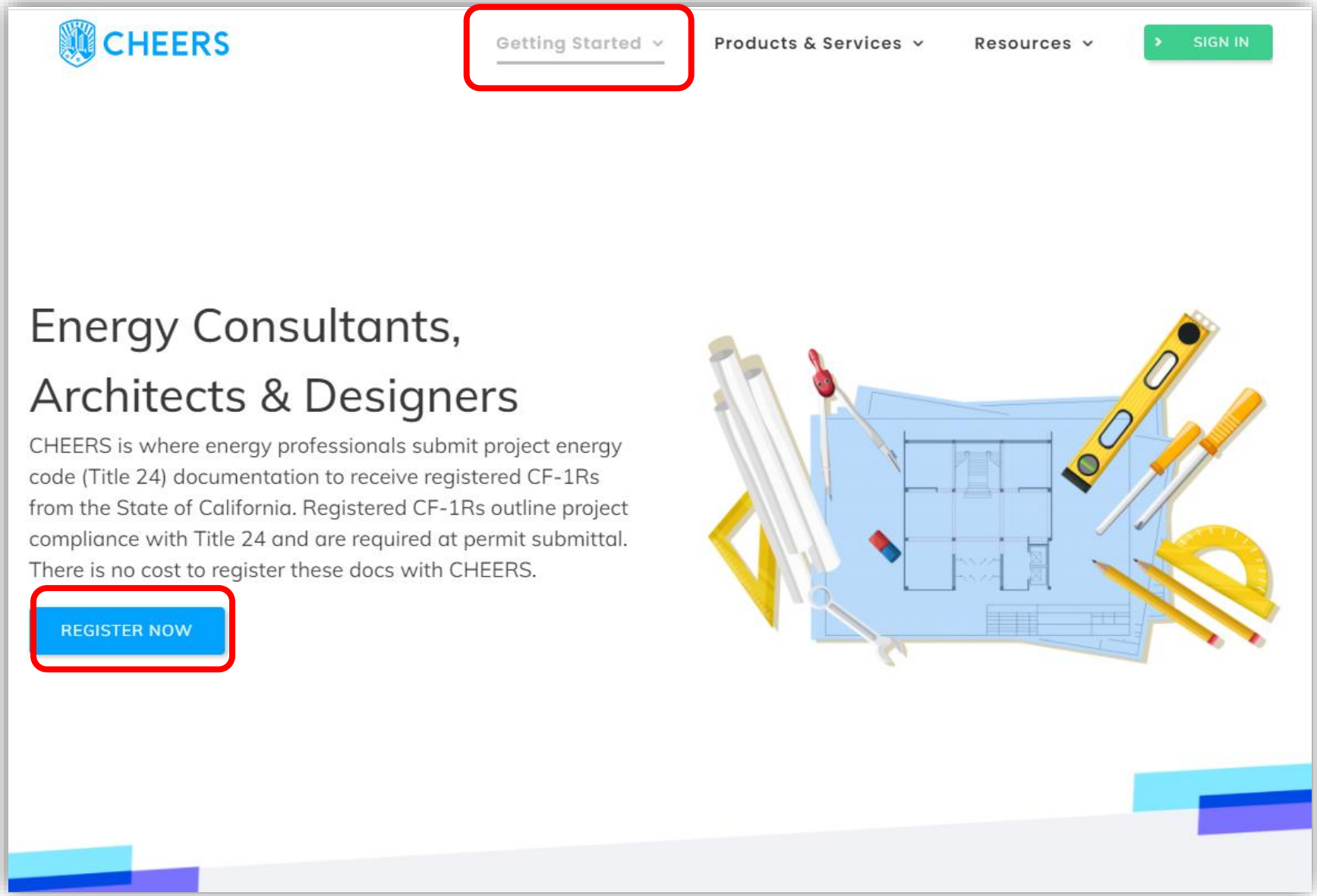
The Nonresidential Certificates of Compliance (NRCC) are to demonstrate the construction documents are compliant with the Energy Code at the time of permit application.

Paper and dynamic pdf forms are no longer available for the 2025 Energy Code.

Use the Virtual Compliance Assistant to walk you through form completion and produce the pdf you can take to the Authority Having Jurisdiction for construction permit application.

2025-NRCC-CXR-E: Commissioning	Fill in Online
2025-NRCC-ELC-E: Electric Power Distribution	Fill in Online
2025-NRCC-ENV-E: Envelope	Fill in Online
2025-NRCC-LTI-E: Lighting - Indoor	Fill in Online
2025-NRCC-LTO-E: Lighting - Outdoor	Fill in Online
2025-NRCC-LTS-E: Lighting - Sign	Fill in Online

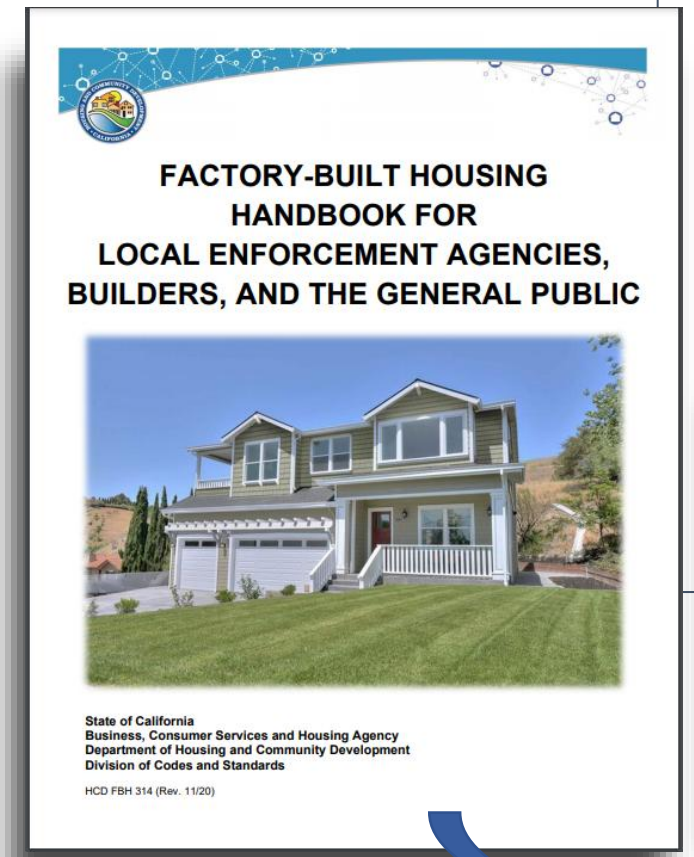
Low-Rise Residential –Title 24 Energy Documentation Registry

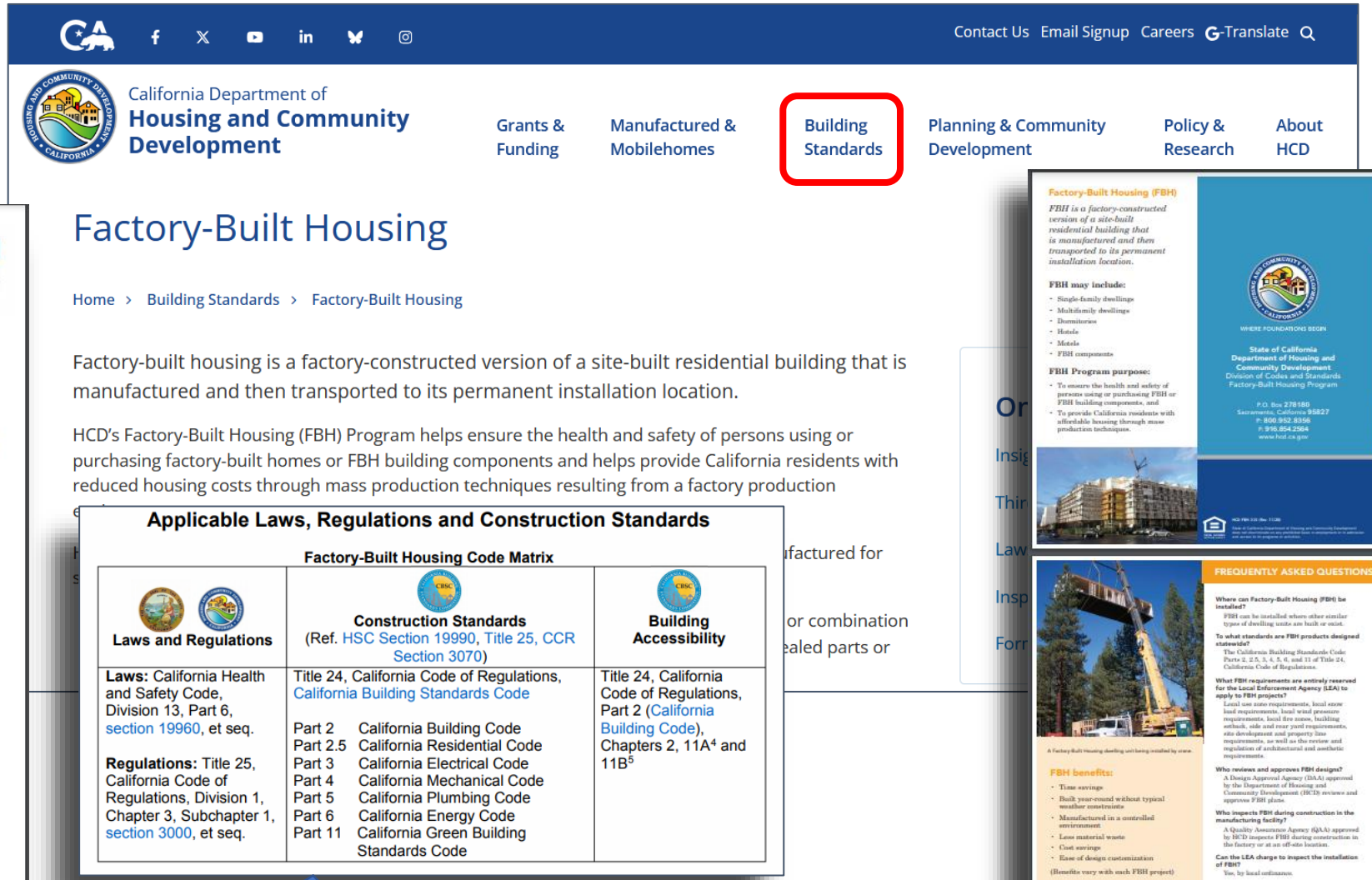


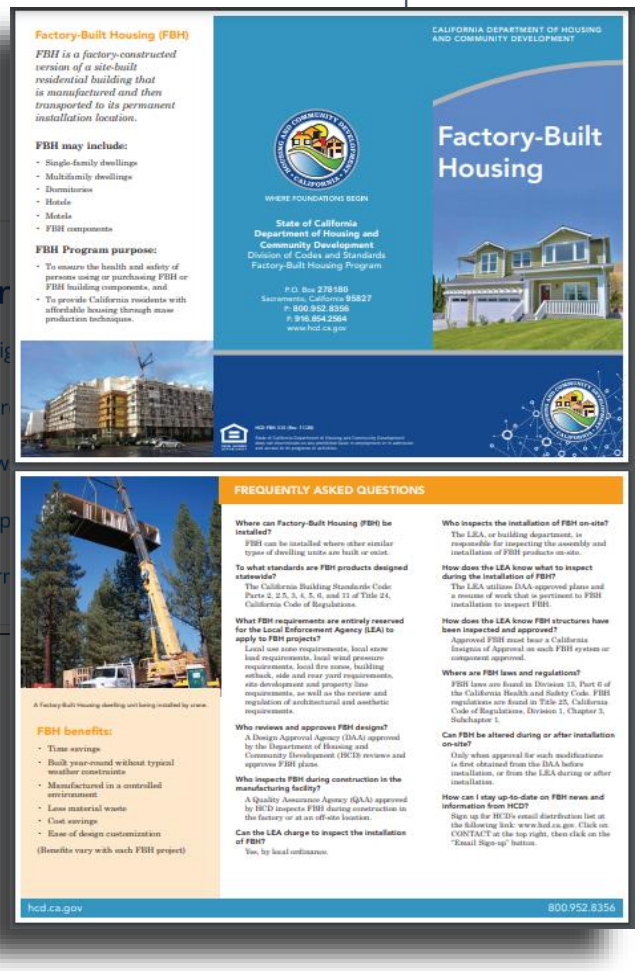
CHEERS
www.cheers.org

CHEERS is a **ECC (HERS) Provider** (training programs and certification) and **Registry** for single family residential Energy Compliance Documentation

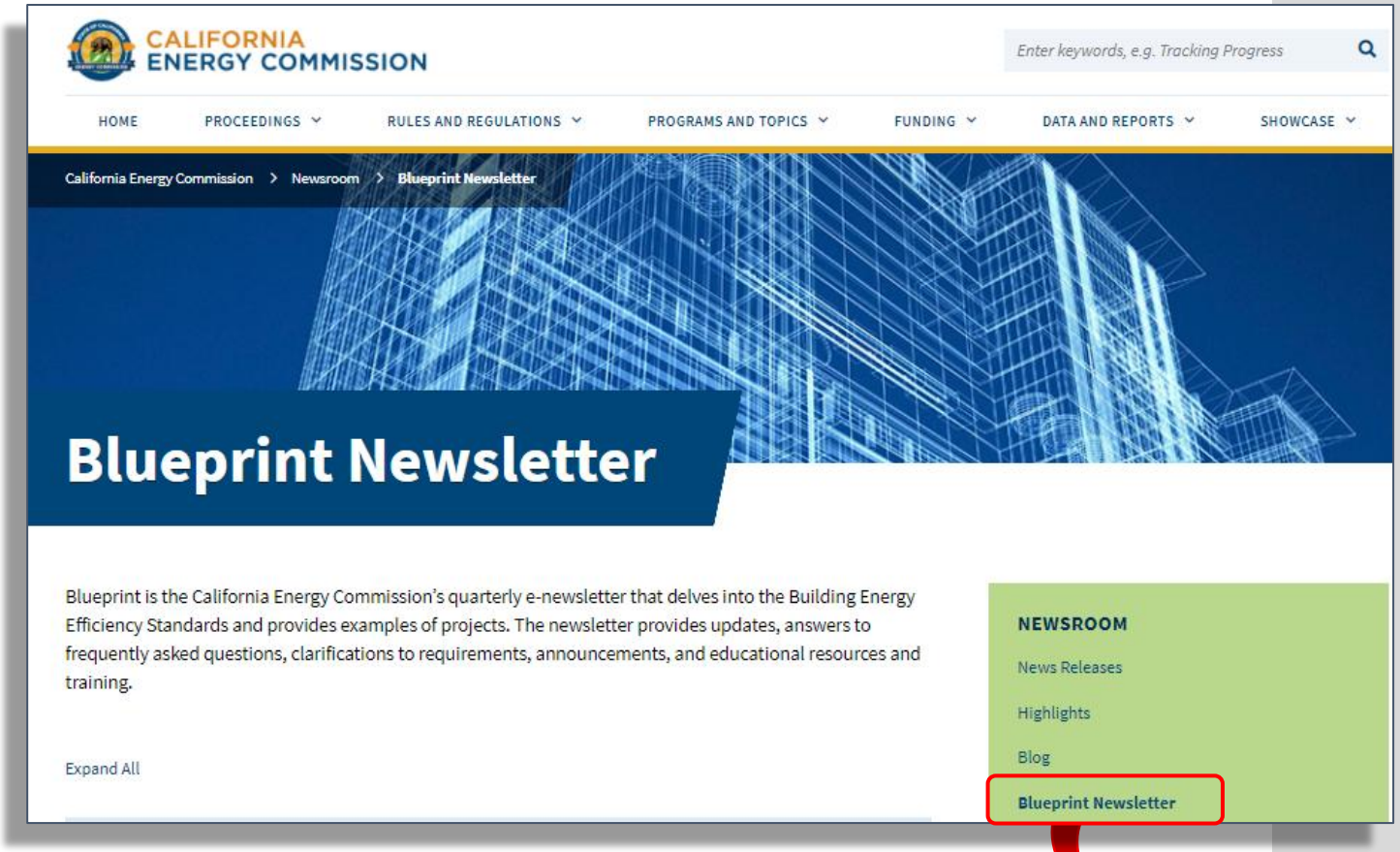
Housing and Community Development (Title 25)
www.hcd.ca.gov/building-standards/fbh







More from the CEC... Energy.ca.gov

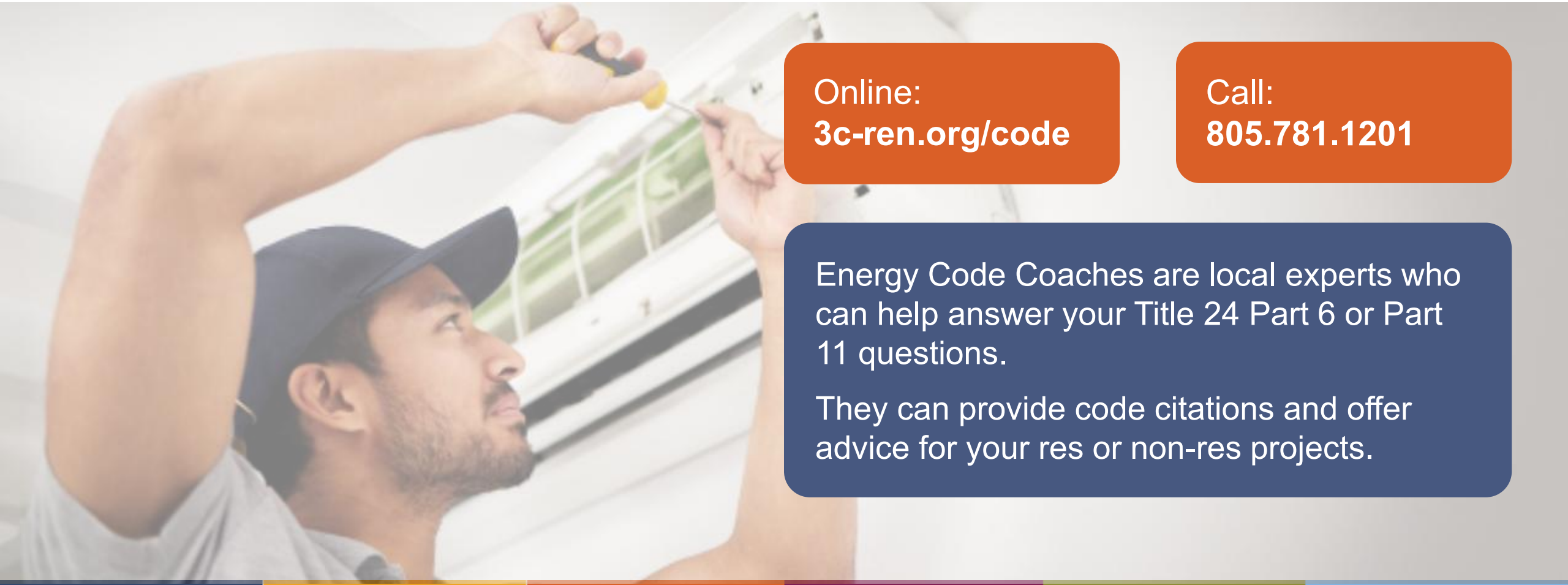


- Published quarterly
- Short –quick read with packed info
- Common Q and A for code enforcement /interpretations
- Offers clarifications on code issues
- Keeps readers up to date on latest code concerns

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

Questions about Title 24?

3C-REN offers a *free* Code Coach Service



Online:
3c-ren.org/code

Call:
805.781.1201

Energy Code Coaches are local experts who can help answer your Title 24 Part 6 or Part 11 questions.

They can provide code citations and offer advice for your res or non-res projects.

Closing

Continuing Education Units Available

- Contact dresurreccion@co.slo.ca.us for AIA and ICC LUs

Coming to Your Inbox Soon!

- Slides & Recording

Upcoming Courses:

- 02/04 2025 Energy Code in Practice: *Single Family Residential*
- 02/10 2025 California Energy Code & Passive House
- 02/18 Builders Perspective: Heat Pump Water Heaters
- 03/10 2025 Energy Code in Practice: *Single Family Add & Alt*

Any phone numbers who joined? Please share your name!

Thank you!

More info: **3c-ren.org**

Questions: **info@3c-ren.org**

Email updates: **3c-ren.org/newsletter**

3C REN

TRI-COUNTY REGIONAL ENERGY NETWORK

SAN LUIS OBISPO • SANTA BARBARA • VENTURA