



# 2022 Energy Code

## Single-Family Lighting Requirements

California Energy Commission

March 2023



# Agenda

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- 2022 Energy Code basics
- Single-family requirements
  - Administrative and Light Source
  - Mandatory
  - Additions and alterations
- Resources



# 2022 Energy Code Basics



# Energy Code History

## Warren-Alquist Act established CEC in 1974

- Authority to develop and maintain Building Energy Efficiency Standards (Energy Code)
- Requires CEC to update periodically, usually every 3 years
- Requires Energy Code to be cost-effective over economic life of building

### WARREN-ALQUIST ACT

Warren-Alquist  
State Energy Resources  
Conservation and  
Development Act

Public Resources Code  
Section 25000 et seq.



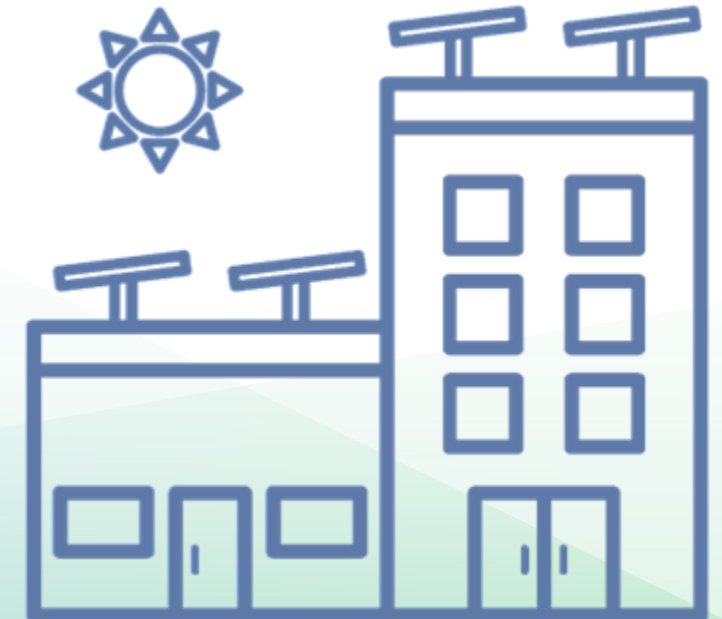
CALIFORNIA  
ENERGY COMMISSION  
Gavin Newsom, Governor

2022 EDITION  
JANUARY 2022  
CEC-140-2022-001



# 2022 Energy Code Goals

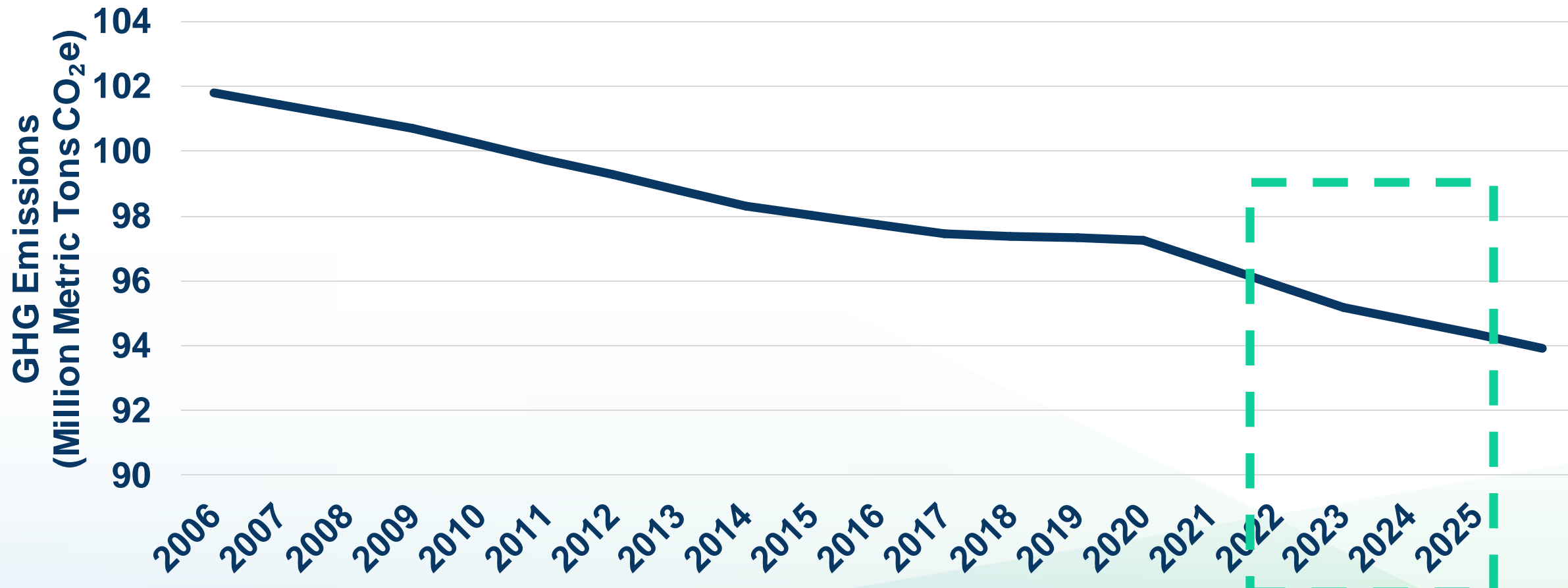
- Increase building energy efficiency cost-effectively
- Contribute to California's GHG reduction goals
- Enable pathways for all-electric buildings
- Reduce residential building impacts on the electricity grid
- Promote demand flexibility and self-utilization of PV
- Provide tools for local government reach codes





# Energy Code Environmental Benefit

## Reduced Statewide Emissions



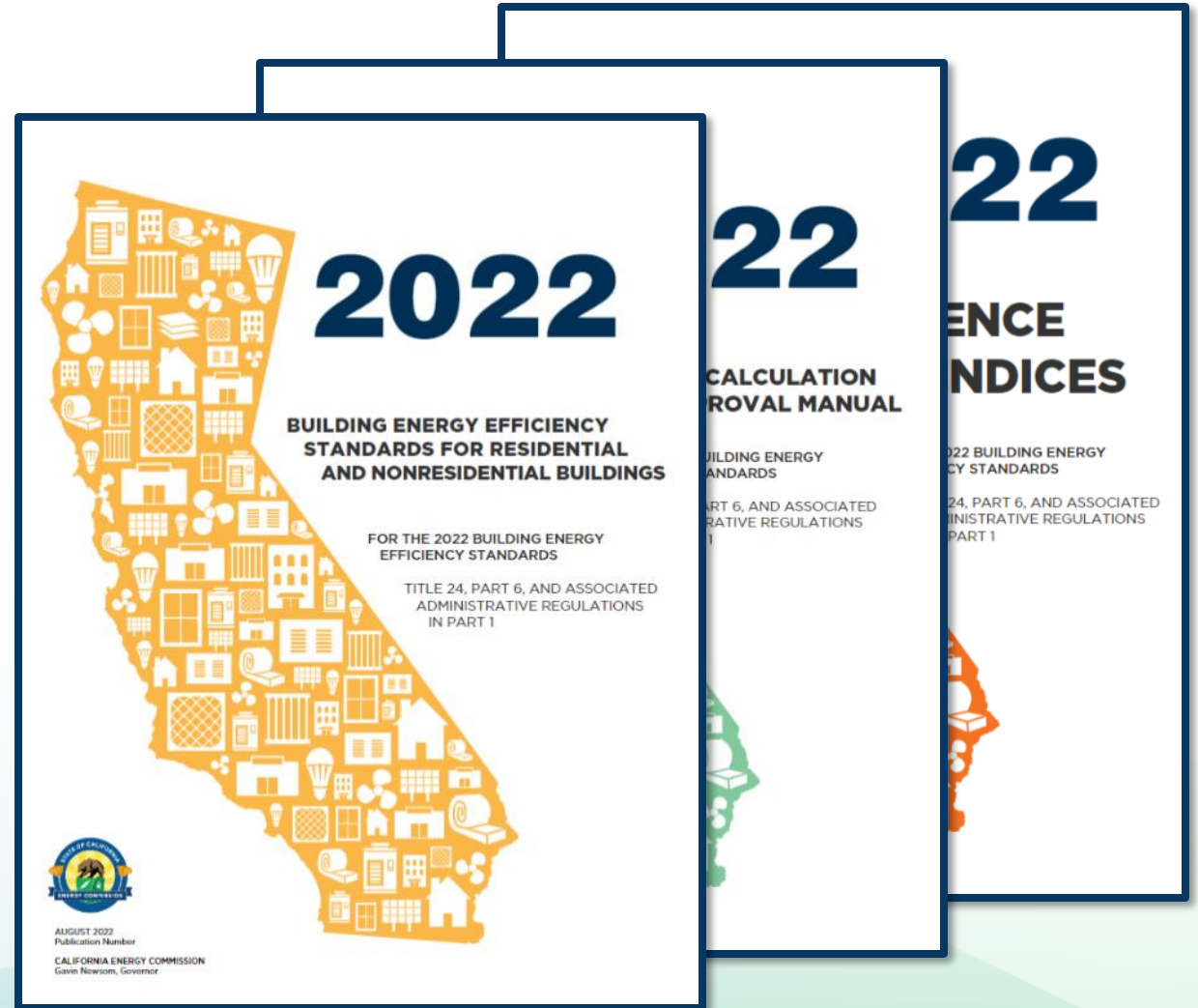
Source: CEC Impact Analysis 2005, 2008, 2013, 2016, 2019, 2022



# 2022 Energy Code

**Effective January 1, 2023**

- Building permit applications submitted on or after Jan 1, 2023
- Must use 2022 tools:
  - Software
  - Forms





# 2022 Documents Online

## 2022 Building Energy Efficiency Standards

The Building Energy Efficiency Standards (Energy Code) apply to newly constructed buildings, additions, and alterations. They are a vital pillar of California's climate action plan. The 2022 Energy Code will produce benefits to support the state's public health, climate, and clean energy goals.

The California Energy Commission (CEC) updates the Energy Code every three years. On August 11, 2021, the CEC adopted the 2022 Energy Code. In December, it was approved by the California Building Standards Commission for inclusion into the California Building Standards Code. The 2022 Energy Code encourages efficient electric heat pumps, establishes electric-ready requirements for new homes, expands solar photovoltaic and battery storage standards, strengthens ventilation standards, and more. Buildings whose permit applications are applied for on or after January 1, 2023, must comply with the 2022 Energy Code.

2022 Energy Code for Residential and Nonresidential Buildings

2022 ENERGY CODE >



Expand All

Supporting Documents – Appendices, Compliance Manuals, and Forms +

Software – Compliance Software, Manuals, and Tools +

### BUILDING ENERGY EFFICIENCY STANDARDS - TITLE 24

2025 Building Energy Efficiency Standards

2022 Building Energy Efficiency Standards ^

— Workshops, Notices, and Documents

2019 Building Energy Efficiency Standards

2016 Building Energy Efficiency Standards

Past Building Energy Efficiency Standards

Climate Zone tool, maps, and information supporting the California Energy Code

Online Resource Center

Solar Assessment Tools

### RELATED LINKS

Workshops, Notices, and Documents

### CONTACT

[Building Energy Efficiency Standards - Title 24](#)

Toll-free in California: 800-772-3300

Outside California: 916-654-5106

### SUBSCRIBE

Building Energy Efficiency Standards

Email \*

SUBSCRIBE

- Energy Code
- Reference Appendices
- Compliance Manuals
- Software
- Forms

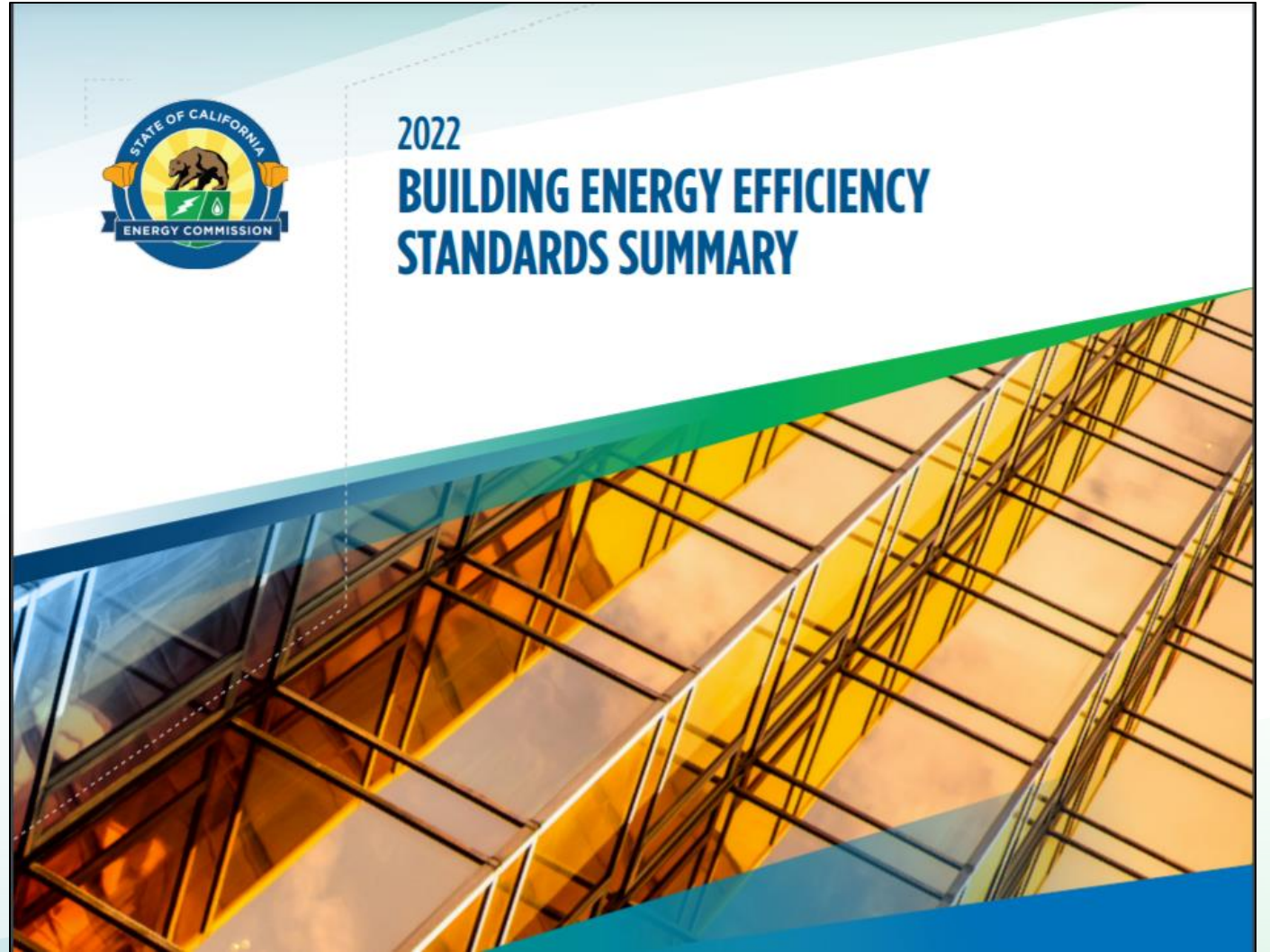






# 2022 Energy Code Highlights

- Heat pump baselines
- Solar and battery storage
- Ventilation requirements
- Lighting
- Multifamily restructuring





# Energy Code Requirements

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## Mandatory requirements

- Minimum efficiency requirements must always be met
- Can never trade-off

## Prescriptive requirements

- Predefined efficiency requirements
- May supersede mandatory requirements
- Different requirements for newly constructed buildings, additions, and alterations



# Compliance Approaches

## Prescriptive approach

- Simple approach, no trade-offs
- Defines the standard building design
- New 2022 heat pump baselines

## Performance approach

- Most flexible approach, allows for trade-offs
- Must meet all mandatory requirements
- Requires the use of CEC-approved energy modeling software
- Proposed building design meets or exceed standard building design





# 2022 Performance Metrics

New for 2022

## Energy performance calculations

- Single-family
  - EDR1: hourly source energy
  - EDR2: time dependent valuation (TDV)
    - Efficiency EDR2, PV + flexibility EDR = total EDR2



# Demonstrating Compliance

## Compliance forms confirm Energy Code is met

Updated for 2022

- Completed by responsible party
  - Designers, consultants, builders, contractors, technicians, HERS raters, etc.
- Submitted to enforcement agencies for verification

Type of form	Single-family	Multifamily 3 or less habitable stories	Nonresidential Multifamily 4 or more habitable stories
Certificate of compliance	CF1R	LMCC	NRCC
Certificate of installation	CF2R	LMCI	NRCI
Certificate of verification	CF3R	LMCV	NRCV
Certificate of acceptance	-	-	NRCA



# Forms Registration and Certification

All Buildings § 10-103

Updated for 2022

## **Multifamily buildings 3 or fewer habitable stories**

- When HERS verification is required all LMCC, LMCI, and LMCV forms must be registered with HERS provider data registry

## **Multifamily buildings 4 or more habitable stories**

- NRCV must be registered with HERS provider when required
- When lighting or mechanical acceptance test is required all NRCC, NRCI, and NRCA forms must be recorded with ATTCP



# 2022 Compliance Software

Performance approach must use approved compliance software versions

- Single-Family
  - CBECC-Res 2022.3.0
  - EnergyPro 9.2
  - Right-Energy 2022.2.0



# Single-family Defined

All Buildings § 100.1

Updated for 2022

## Single-family building

- Occupancy group R-3
  - Two or less dwelling units
  - Not multifamily, hotel, or motel
- Townhouse
- Occupancy group R-3.1
- Occupancy group U on residential site







# **Administrative and Light Source Requirements**



# Lighting Schedule §10-103

- Builder must provide interior lighting/lamp schedule
- Include with maintenance info provided to homeowner
- May be provided in paper or electronic format

Req. No.	Space Information			Existing Fixture		Benefit Description		Notes from Auditor, Etc.	
	Floor	Room Number	Room Description	Fixture Code	Fixture Type	QTY	Refit Description		QTY
1	1	110	Office	A	1x2 recessed troffer with 2 F1718s, 88 BP 5's ballast & specular reflector	6	DF1718L with GE UltraStart program start ballast	6	
2	1	100A	Entry/corridorway	A	1x2 recessed troffer with 2 F1718s, 88 BP 5's ballast & specular reflector	2	DF1718L with GE UltraStart program start ballast	2	Office currently vacant
3	1	100B	Waiting Area	A	1x2 recessed troffer with 2 F1718s, 88 BP 5's ballast & specular reflector	6	DF1718L with GE UltraStart program start ballast	6	Reception area, they will want occupancy sensors if a way to turn off lights during off hours
4	1	100C	Private office	A	1x2 recessed troffer with 2 F1718s, 88 BP 5's ballast & specular reflector	2	DF1718L with GE UltraStart program start ballast	2	
5	1	100D	Open office	A	1x2 recessed troffer with 2 F1718s, 88 BP 5's ballast & specular reflector	13	DF1718L with GE UltraStart program start ballast	13	
6	1	100E	Storage	V	1x2 troffer or surface mount with 2 F284712 lamps	2	DF1718L with GE UltraStart program start ballast & 2 cover white reflector	2	Both fixtures have U-bolts, only U-bolts in building
7	1	105A	Open office	A	1x2 recessed troffer with 2 F1718s, 88 BP 5's ballast & specular reflector	16	DF1718L with GE UltraStart program start ballast	16	
8	1	105B	Private office	A	1x2 recessed troffer with 2 F1718s, 88 BP 5's ballast & specular reflector	3	DF1718L with GE UltraStart program start ballast	3	
9	1	105C	Private office	A	1x2 recessed troffer with 2 F1718s, 88 BP 5's ballast & specular reflector	2	DF1718L with GE UltraStart program start ballast	2	
10	1	105A	Storage	A	1x2 recessed troffer with 2 F1718s, 88 BP 5's ballast & specular reflector	1	DF1718L with GE UltraStart program start ballast	1	
11	1	105B	Open Office with high partitions	A	1x2 recessed troffer with 2 F1718s, 88 BP 5's ballast & specular reflector	13	DF1718L with GE UltraStart program start ballast	13	
12	1	105A	Private office	A	1x2 recessed troffer with 2 F1718s, 88 BP 5's ballast & specular reflector	3	DF1718L with GE UltraStart program start ballast	3	
13	1	105B	Private office	A	1x2 recessed troffer with 2 F1718s, 88 BP 5's ballast & specular reflector	3	DF1718L with GE UltraStart program start ballast	3	
14	1	105C	Private office	A	1x2 recessed troffer with 2 F1718s, 88 BP 5's ballast & specular reflector	2	DF1718L with GE UltraStart program start ballast	2	
15	1	100D	Open office and reception area	A	1x2 recessed troffer with 2 F1718s, 88 BP 5's ballast & specular reflector	30	DF1718L with GE UltraStart program start ballast	30	Reception area, they will want occupancy sensors, unless some way to turn lights off during off hours
16	1	100E	Conference Room	A	1x2 recessed troffer with 2 F1718s, 88 BP 5's ballast & specular reflector	6	DF1718L with GE UltraStart program start ballast	6	
17	1	130F	Hallway	A	1x2 recessed troffer with 2 F1718s, 88 BP 5's ballast & specular reflector	3	DF1718L with GE UltraStart program start ballast	3	
18	1	130G	Open office	A	1x2 recessed troffer with 2 F1718s, 88 BP 5's ballast & specular reflector	30	DF1718L with GE UltraStart program start ballast	30	
19	1	130H	Storage	A	1x2 recessed troffer with 2 F1718s, 88 BP 5's ballast & specular reflector	6	DF1718L with GE UltraStart program start ballast	6	
20	1	130I	File Storage	A	1x2 recessed troffer with 2 F1718s, 88 BP 5's ballast & specular reflector	6	DF1718L with GE UltraStart program start ballast	6	
21	1	130J	Storage	A	1x2 recessed troffer with 2 F1718s, 88 BP 5's ballast & specular reflector	4	DF1718L with GE UltraStart program start ballast	4	
22	1	141	Lobby/Waiting Area with signs	A3M	1x2 recessed surface mount with 2 F1718s, 88 BP 5's ballast & specular reflector	11	DF1718L with GE UltraStart program start ballast	11	Area has no room number, arbitrarily assigned; room has occupancy sensor
23	1	142	Hallway	K	3 corridor strip w/ 2 F2078s & white lens	5	F1718L; custom centering kit & clear prismatic lens	5	Area has no room number, arbitrarily assigned; hallway has occupancy sensor
24	1	143	Break Room	M	4 wrap around with 2 F3278s	1	F3278C & centering kit	1	Area has no room number, arbitrarily assigned; room has local manual switch
25	1	143	Break Room	M8	4 wrap around with 4 F3278s	2	F3278C & centering kits	2	Area has no room number, arbitrarily assigned; room has local manual switch
26	1	144	Reception	B	1x4 troffer with 2 F3278s	2	F3278C & 1 cover white reflector	2	Area has no room number, arbitrarily assigned; reception has occupancy sensor
27	1	145	Storage	J	4 wrap around with 3 F3278s	2	F3278B in center lamp holders	2	Area has no room number, arbitrarily assigned; room has local manual switch
28	1	146A	Mail Room	J	4 wrap around with 3 F3278s	2	F3278B in center lamp holders	2	Area has no room number, arbitrarily assigned; room has local manual switch
29	1	146A	Mail Room	J8	4 wrap around with 8 F3278s	1	F3278B in center lamp holders	1	Area has no room number, arbitrarily assigned; room has local manual switch
30	1	146B	Storage	J8	4 wrap around with 8 F3278s	2	F3278B in center lamp holders	2	Area has no room number, arbitrarily assigned; room has local manual switch
31	1	146C	Private office	J	4 wrap around with 3 F3278s	2	F3278B in center lamp holders	2	Area has no room number, arbitrarily assigned; room has local manual switch
32	1	147A	Office/Workshop	GE	8 hooded industrial with 4 F3278s	2	F3278C in alternating sides	2	Area has no room number, arbitrarily assigned; room has local manual switch
33	1	147A	Office/Workshop	GETG	8 hooded industrial with 4 F3278s & tube gearfs	2	F3278C in alternating sides & tube guards	2	Area has no room number, arbitrarily assigned; room has local manual switch
34	1	147A	Office/Workshop	R	4 strip fixture with 1 F3278	1	F3278L	1	Area has no room number, arbitrarily assigned; light trim & aimed on
35	1	148A	Storage/OH California	A3M	1x2 recessed surface mount with 2 F1718s, 88 BP 5's ballast & specular reflector	8	DF1718L with GE UltraStart program start ballast	8	Area has no room number, arbitrarily assigned; room has local manual switch
36	1	148A	Storage/OH California	J	4 wrap around with 3 F3278s	3	F3278B in center lamp holders	3	Area has no room number, arbitrarily assigned; room has local manual switch
37	1	148B	Open Storage	GETG	8 hooded industrial with 2 F3278s & tube gearfs	2	F3278C in alternating sides & tube guards	2	Area has no room number, arbitrarily assigned; room has local manual switch
38	1	148B	Open Storage	GTG	8 hooded industrial with 2 F3278s & tube gearfs	2	F3278C in right or left lamp holders & tube guard	2	Area has no room number, arbitrarily assigned; room has local manual switch
39	1	148C	Storage Closet	J	4 wrap around with 3 F3278s	1	F3278B in center lamp holders	1	Area has no room number, arbitrarily assigned; room has local manual switch
40	1	148A	Trash Area	GETG	8 hooded industrial with 4 F3278s & tube gearfs	1	F3278C in alternating sides & tube guards	1	Area has no room number, arbitrarily assigned; room has local manual switch
41	1	148B	Electric Meter Room	GETG	8 hooded industrial with 4 F3278s & tube gearfs	2	F3278C in alternating sides & tube guards	2	Area has no room number, arbitrarily assigned; room has local manual switch
42	1	149C	Gas Meter Room	W	explosion proof fixture with assumed T50V A19 incandescent	1	No result	1	Area has no room number, arbitrarily assigned; room has local manual switch, light fixture is a single incandescent bulb in an explosion proof fixture
43	1	150	Elevator Room	M8	4 wrap around with 4 F3278s	2	F3278C & centering kits	2	Area has no room number, arbitrarily assigned; room has local manual switch
44	1	151	Elevator RI Access	R	4 strip fixture with 1 F3278	1	F3278L	1	Area has no room number, arbitrarily assigned
45	1	146	Atrium - S Stairwell Entrance	T	1x4 sign with 2 F8T5 lamps	1	non-universal mount green LED exit sign with battery backup	1	Area has no room number, arbitrarily assigned
46	1	146	Atrium - N Stairwell Entrance	T	1x4 sign with 2 F8T5 lamps	1	non-universal mount green LED exit sign with battery backup	1	Area has no room number, arbitrarily assigned
47	1	146	Atrium - Service Entrance	W	recessed can with 70W HPS (interior)	2	new 1x2 surface mount fixture with angled interior sides, clear prismatic lens & F1718C	2	Area has no room number, arbitrarily assigned
48	1	146	Atrium Area	B	1x4 parabolic troffer with 1 F3278	15	F3278L	15	Area has no room number, arbitrarily assigned
49	1	146	Atrium Area	B12	1x12 parabolic troffer with 3 F3278s	12	F3278L	12	Area has no room number, arbitrarily assigned
50	1	146	Atrium Area	B8	1x8 parabolic troffer with 2 F3278s	3	F3278L	3	Area has no room number, arbitrarily assigned; reception has occupancy sensor



# Luminaire Efficacy §150.0(k)1A

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All luminaires or light sources must be high efficacy

Luminaire efficacy is determined by TABLE 150.0-A;  
must meet one of the following:

- Column 1: Types that are automatically high efficacy
- Column 2: Certified as meeting Joint Appendix 8 requirements



# Luminaire Efficacy Cont.

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## Exceptions to 150.0(k)1A:

- Lighting integral to exhaust fans, kitchen range hoods, bath vanity mirrors, and garage door openers
- Night lights, step lights, and path lights less than 5 watts
- Lighting internal to drawers, cabinetry, and linen closets with efficacy  $\geq 45$  lumens per watt



# Luminaire Efficacy Continued:

## Table 150.0-A

Automatically High Efficacy	Must be JA8 Certified
LED light sources installed outdoors.	All light sources installed in ceiling recessed downlight luminaires (screw-based sockets not allowed).
Inseparable solid state lighting luminaires containing colored light sources installed for decorative lighting.	Any light source not listed in this table.
Pin-based linear fluorescent or compact fluorescent light sources using electronic ballasts.	
High intensity discharge light sources including pulse start metal halide and high pressure sodium.	
Luminaires with hard-wired high frequency generator and induction lamp.	
Ceiling fan light kits subject to federal appliance regulations.	



# Joint Appendix 8 Requirements

Category	Requirements
Color Rendering Index (CRI)	$\geq 90$
Luminous Efficacy	$\geq 45$ lumens per watt
Power Factor	$\geq 0.90$ at full output
Start Time	Turn on within 0.5s
Correlated Color Temperature (CCT)	Inseparable SSL light engines & GU24 LED lamps: $\leq 4000\text{K}$ Others: $\leq 3000\text{K}$



# Joint Appendix 8 Requirements Cont.

Category	Requirements
R9	$> 50$
Minimum Dimming Levels	$\leq 10\%$
Flicker	$< 30\%$ for frequencies of 200 Hz or below
Audible Noise	$< 24$ dBa at 1 meter from light source
Marking	JA8-2022 or JA8-2022-E



# §150.0(k)1B Screw Base Luminaires

Shall contain lamps that comply with JA8 and the lamp and light source is JA8 certified:

- Manufacturer marking
- Listing in the MAEDBS







# §150.0(k)1C Recessed Downlights

- Cannot have a screw base socket
- Must have a label certifying airtight
- Must be sealed with gasket or caulk, or be installed per manufacturer's instructions
- Must meet clearance and installation requirements of California Electrical Code 410.116



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# §150.0(k)1D Enclosed and Recessed Luminaires

Lamps and separable light sources

- Must comply with JA8 elevated temperature requirements
- Must be marked “JA8-XXXX-E”





# §150.0(k)1E Blank Electrical Boxes

Blank electrical boxes more than 5 feet above the floor

- Number may be no greater than total number of bedrooms
- Must be served by a dimmer, vacancy sensor, low voltage wiring, or fan speed control





# Indoor Lighting Controls



# Lighting Control Types

Lighting Control Type	What does it do?
<b>Dimmer</b>	<ul style="list-style-type: none"><li>• Varies brightness by changing power delivered to the system</li></ul>
<b>Occupant Sensor (indoor and outdoor)</b>	<ul style="list-style-type: none"><li>• Auto-off when area vacated</li><li>• Auto-on when area occupied</li></ul>
<b>Vacancy Sensor</b>	<ul style="list-style-type: none"><li>• Auto-off when area vacated</li><li>• Manual-on</li></ul>
<b>Photo Control</b>	<ul style="list-style-type: none"><li>• Auto-on/-off based on available daylight</li></ul>
<b>Astronomical Time-Switch Control (outdoor)</b>	<ul style="list-style-type: none"><li>• Controls light based on time of day</li><li>• Based on astronomical events like sunset, sunrise; accounts for geographic location &amp; calendar date</li></ul>



# §150.0(k)2 Indoor Lighting Controls

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- A. Must have readily accessible wall-mounted manual on/off controls (ceiling fans may provide control of integrated lighting via remote control)
- B. May not bypass dimmer, occupancy sensor, or vacancy sensor installed to comply with §150.0(k)
- C. Must comply with applicable requirements of §110.9
- D. Energy Management Control Systems or multi-scene programmable controls may be used to meet control requirements



# §150.0(k)2 Indoor Lighting Controls Cont.

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## E. Automatic Off Controls

- i. Bathrooms, garages, laundry rooms, utility rooms, and walk-in closets: At least one luminaire controlled by occupancy or vacancy sensor.
- ii. Lighting internal to drawers and cabinetry with opaque fronts or doors: Controls that turn light off when the drawer or door is closed shall be provided.



# §150.0(k)2 Indoor Lighting Controls Cont.

## F. Dimming Controls

- i. Lighting in habitable spaces must have readily accessible wall-mounted dimming controls.
- ii. Forward phase cut dimmers controlling LED light sources in these spaces must comply with NEMA SSL 7A.

## Exceptions to 150.0(k)2F:

1. Ceiling fan lighting may be controlled with remote control
2. Luminaires connected to circuit with lighting power < 20 watts or controlled by occupancy or vacancy sensor.
3. Navigation lighting < 5 watts
4. Lighting internal to drawers and cabinetry with opaque fronts or doors with automatic-off controls





# §150.0(k)2 Indoor Lighting Controls Cont.

## G. Independent Controls

- i. Lighting integrated in an exhaust fan must be controlled independently from the fan.
- ii. The following must be controlled separately from ceiling-installed lighting:
  - i. Under-cabinet lighting.
  - ii. Under-shelf lighting.
  - iii. Interior lighting of display cabinets.
  - iv. Switched outlets.



# Outdoor Lighting and Controls





# §150.0(k)3A Outdoor Lighting Attached to Building

- Must meet high efficacy requirements from §150.0(k)1A
- Must have manual on/off and one of the following:
  - Photocell and either motion sensor or automatic time switch control
  - Astronomical time clock control
- Controls that override to on must return to normal operation within 6 hours.





# §150.0(k)4 Internally Illuminated Address Signs

Internally illuminated address signs must meet either of the following:

- Comply with §140.8 (nonresidential sign lighting), or
- Consume no more than 5 watts





# §150.0(k)5 Garages for Eight or More Vehicles

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- Meet applicable requirements for nonresidential garages in §§ 110.9, 130.0, 130.1, 130.4, 141.0, and 140.6.



# **Additions and Alterations**





# §150.2(a) and (b) Additions and Alterations

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- Altered lighting systems must meet requirements in §150.0(k).
- Altered luminaires must meet luminaire efficacy requirements in §150.0(k) and Table 150.0-A.
- Existing screw based sockets in ceiling recessed luminaires can stay; need to install new JA8-compliant trim kits or lamps designed for use with recessed downlights or luminaires.



# Resources







# Online Resource Center

[www.energy.ca.gov/orc](http://www.energy.ca.gov/orc)



## Handouts

- Fact sheets
- Guides

## Tools

- Checklists
- Blueprint newsletter

## Training

- Presentations
- Videos

## Links

- Internal resources
- External resources



# New Resource Hub

## Homeowners and renters

- Information about water and space heating, cooking, EV charging, incentives

## Contractors

- Information about training, tools, incentives

## Local government representatives

- Information about model policies, permitting, training, incentives

Links on the [Building and Home Energy Resource Hub](#)





# HERS Program

## HERS Program information



- Newly constructed buildings
- Additions
- Alterations of residential and nonresidential buildings
- California whole-house home energy ratings
- HERS building performance contractors



- Newly constructed buildings
- Additions
- Alterations of residential and nonresidential buildings



# Blueprint Newsletter

## Energy Code quarterly newsletter

- Updates
- Clarifications
- Frequently asked questions



Issue 138
April - June 2022

# BLUEPRINT

CALIFORNIA ENERGY COMMISSION  
EFFICIENCY DIVISION

### IN THIS ISSUE

- 2022 Energy Code: Multifamily Summary
- 2022 Energy Code: Compliance Software
- 2019 Energy Code: HERS Verifications
- Q&A
  - Solar PV for Multifamily Buildings
  - Multifamily Water Heating
  - Multifamily Common Use Areas

For additional help with the Energy Code see Energy Code Ace's **online offerings** of trainings, tools, and resources.

### 2022 Energy Code: Multifamily Summary

The 2022 Building Energy Efficiency Standards (Energy Code) reorganizes low-rise (three or fewer habitable stories) and high-rise (four or more habitable stories) multifamily buildings into one building type, updates the multifamily buildings definition in § 100.1, and moves all requirements for multifamily buildings to §§ 160.0-180.4. This and other significant changes include:

*Mandatory Requirements*

- Updates minimum efficiencies for HVAC equipment; adds minimum efficiency requirements for dedicated outdoor air systems (DOAS), heat pump, and heat recovery chiller packages. § 110.2
- Changes demand responsive lighting controls trigger to 4,000 watts or more; adds requirements for controlled receptacles. §§ 110.12, 160.5(b)4E

- Unifies envelope insulation, vapor retarder, and fenestration requirements. § 160.1
- For dwelling units
  - Adds requirements for central fan integrated ventilation systems requiring a motorized controlled damper, damper controls, and variable ventilation. § 160.2(b)2Aii
  - Requires vented kitchen range hoods ventilation rates or capture efficiencies based on conditioned floor area and fuel type per Tables 160.2-E, F, G. § 160.2(b)2Avic2
  - Requires a HERS-verified maximum fan efficacy of 1.0 Watts per cfm for heat recovery ventilation (HRV) and energy recovery ventilation (ERV) systems. § 160.2(b)2Biii
  - Adds mechanical acceptance testing requirements. § 160.3(d)2
  - Adds electric-ready requirements when gas equipment is installed for space heating, cooking, and clothes dryers. § 160.9(a-c)

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  - Building Standards
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Monday through Friday

- 8:00 a.m. to 12:00 p.m.
- 1:00 p.m. to 4:30 p.m.

Call

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

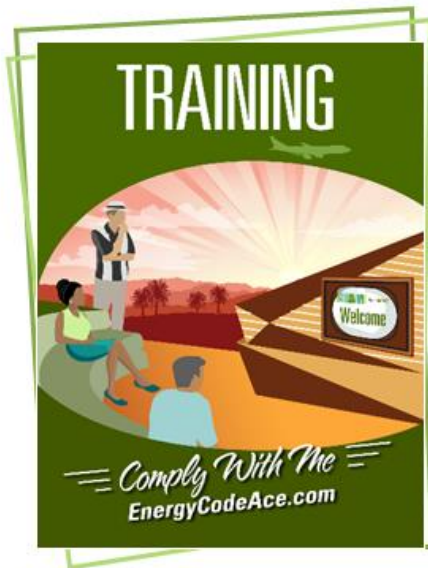
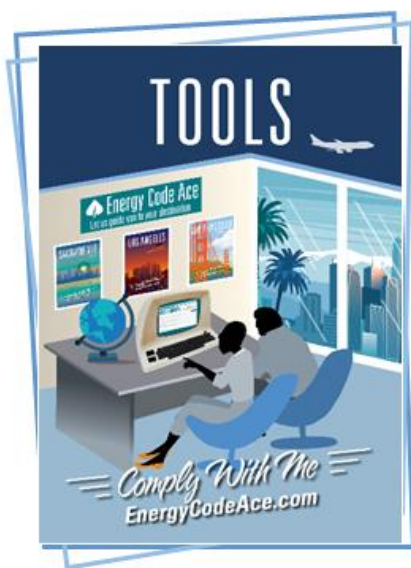


Email

- [Title24@energy.ca.gov](mailto:Title24@energy.ca.gov)



# Energy Code Ace



- Tools help automate tasks:**
- ✦ Energy Code Product Finder
  - ✦ Forms Ace
  - ✦ Image Ace
  - ✦ Navigator Ace
  - ✦ Nonres. Indoor Lighting Wheel
  - ✦ Q&Ace
  - ✦ Reference Ace
  - ✦ Timeline Ace
  - ✦ Virtual Compliance Assistant

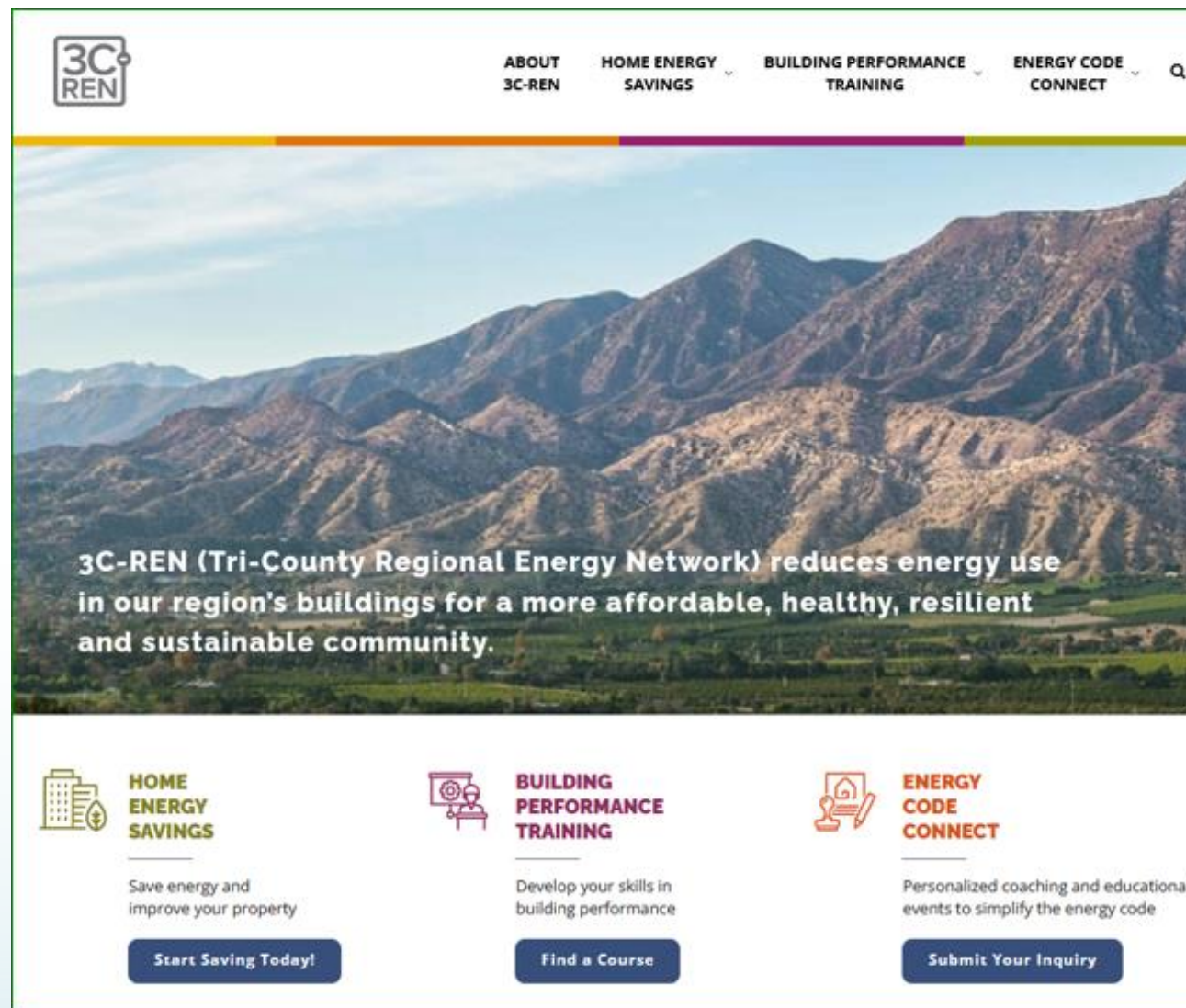
- Training is activity based and delivered in a variety of formats:**
- ✦ Live Online instructor-led
  - ✦ Recorded webinars
  - ✦ Online self-study
  - ✦ YouTube — live streaming & videos

- Resources provide quick, useful guidance:**
- ✦ Fact Sheets
  - ✦ Checklists
  - ✦ Application Guides
  - ✦ Submit a Question
  - ✦ Trigger Sheets
  - ✦ Useful Links

Join us at [EnergyCodeAce.com](http://EnergyCodeAce.com)



# 3C-REN



The screenshot shows the homepage of the 3C-REN website. At the top left is the 3C-REN logo. To its right is a navigation menu with four items: 'ABOUT 3C-REN', 'HOME ENERGY SAVINGS', 'BUILDING PERFORMANCE TRAINING', and 'ENERGY CODE CONNECT'. A search icon is located to the right of the menu. Below the navigation is a large banner image of a mountain range. Overlaid on the bottom of the banner is the text: '3C-REN (Tri-County Regional Energy Network) reduces energy use in our region's buildings for a more affordable, healthy, resilient and sustainable community.' Below the banner are three columns of content. The first column is titled 'HOME ENERGY SAVINGS' and includes the subtext 'Save energy and improve your property' and a 'Start Saving Today!' button. The second column is titled 'BUILDING PERFORMANCE TRAINING' and includes the subtext 'Develop your skills in building performance' and a 'Find a Course' button. The third column is titled 'ENERGY CODE CONNECT' and includes the subtext 'Personalized coaching and educational events to simplify the energy code' and a 'Submit Your Inquiry' button.

**3C-REN**

**ABOUT 3C-REN** | **HOME ENERGY SAVINGS** | **BUILDING PERFORMANCE TRAINING** | **ENERGY CODE CONNECT**

**3C-REN (Tri-County Regional Energy Network) reduces energy use in our region's buildings for a more affordable, healthy, resilient and sustainable community.**

**HOME ENERGY SAVINGS**  
Save energy and improve your property  
[Start Saving Today!](#)

**BUILDING PERFORMANCE TRAINING**  
Develop your skills in building performance  
[Find a Course](#)

**ENERGY CODE CONNECT**  
Personalized coaching and educational events to simplify the energy code  
[Submit Your Inquiry](#)





# BayREN

The screenshot displays the BayREN website interface. At the top left is the BayREN logo with the tagline "Local Governments Empowering Our Communities". A green navigation bar contains the following links: >> HOW TO GET STARTED >> FIND A CONTRACTOR >> FIND AN ASSESSOR >> PARTNER WITH US. A search bar is located in the top right corner. A vertical menu on the left side lists: REBATES & FINANCING, HOME LEARNING CENTER, EVENTS & TRAINING, LOCAL GOVERNMENT RESOURCES, and ABOUT. Below the menu are social media icons for Facebook, LinkedIn, Twitter, Instagram, and YouTube. The main content area features a large image of a park with a playground and people sitting at tables. Overlaid on the right side of this image is a dark purple circular call-to-action box. Inside the box, there is an icon of a stack of coins with a dollar sign. The text reads: "Score big with smart energy upgrades." followed by "Upgrade your multifamily building and earn cash back — starting at \$750/unit." and a yellow "Learn More" button. A small accessibility icon (A7) is visible in the top right corner of the website header.



# Inland Regional Energy Network (I-REN)



**iren.gov**  
**info@iren.gov**

## Codes and Standards

### Training and Education Program

- Free ICC-approved training sessions for 2022 Energy Code (Title 24, Part 6) requirements → [www.iren.gov/161/CS-Trainings](http://www.iren.gov/161/CS-Trainings)
- Requested training courses can also be scheduled

### C&S Technical Support Program

Request Free Technical Assistance from Local Code Experts—Reach Code Development, Permit Guides, Etc. → [www.iren.gov/162/CS-Technical-Support](http://www.iren.gov/162/CS-Technical-Support)

### Ask a Code Mentor an Energy Code Question

Submit queries online and receive a personalized response addressed by energy code experts within two business days! → [www.iren.gov/162/CS-Technical-Support](http://www.iren.gov/162/CS-Technical-Support)



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Coachella Valley Association of Governments (CVAG)  
San Bernardino Council of Governments (SBCOG)  
Western Riverside Council of Governments (WRCOG)

\* Not affiliated with, or endorsed by, the CEC



**Thank you**