2025 Energy Code
Single-family Accessory Dwelling Units (ADU)

California Energy Commission

Agenda

- Energy Code basics
- ADU definitions and clarification
- ADU additions
- Plan check and inspection – ADU additions
- ADUs new construction
- Plan check and inspection – ADUs new construction
- Resources

2025 Energy Code Basics

2025 Energy Code

Effective January 1, 2026

- Building permit applications submitted on or after effective date
- Must use 2025 software and compliance documents

2025 Energy Code Webpage

- Energy Code
- Reference Appendices
- Compliance Manuals
- Compliance Software
- Compliance Documents
- Restructured Code

Energy Code Requirements

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
- 2025 heat pump baselines

Performance approach

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

Demonstrating Compliance

Compliance documents confirm Energy Code is met

- Completed by designers, consultants, builders, contractors, technicians, ECC raters, etc.
- Submitted to enforcement agencies for verification

Type of form	Single-family
Certificate of compliance	CF1R
Certificate of installation	CF2R
Certificate of verification	CF3R

2025 Compliance Software

Performance approach must use approved compliance software versions

- Nonresidential, multifamily and single-family
  - CBECC 2025-2.1
  - EnergyPro 10.1
- Single-family (new construction only)
  - Right-Energy Title 24 2025.2.0
- Questions contact:
  - Residential: cbecc.res@energy.ca.gov

2025 Energy Code

ADU Definitions and Clarifications

Single-family Defined

All buildings § 100.1

Single-family building

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

Energy Code Definitions

All buildings § 100.1

Newly constructed building

- Building that has never been used or occupied for any purpose

Addition

- Any change to existing building that increases conditioned floor area (CFA) and conditioned volume
- **Newly conditioned space**
  - Any space being converted from unconditioned space to directly or indirectly conditioned space

Alteration

- Any change to a building component with requirements in the Energy Code that is not an addition

Energy Code Definitions for Attached dwelling unit and Junior accessory dwelling unit (JADU)

All buildings § 100.1

Attached dwelling unit

- Shares a common wall or floor/ceiling with another dwelling unit

Junior accessory dwelling unit (JADU)

- No more than 500 ft2 and contained entirely within a newly constructed or existing single-family building

ADU Defined

California Building Code Part 2

Accessory dwelling unit (ADU)

- Additional dwelling unit on residential lot
- Occupancy group R residential
- Attached, detached, converted
- Independent living space

Tiny house
Garage apartment
In-law suite
Granny flat
Carriage house
Garden cottage
Secondary house

ACCESSORY DWELLING UNIT. [HCD 1 & HCD 2] *An attached or detached residential dwelling unit that provides complete independent living facilities for one or more persons and is located on a lot with a proposed or existing primary residence. Accessory dwelling units shall include permanent provisions for living, sleeping, eating, cooking and sanitation on the same parcel as the single-family or multifamily dwelling is or will be situated. (See Government Code Section 65852.2)*

Energy Code Compliance

- **Must meet Energy Code and building codes**
  - ADUs
  - Junior ADUs
- **Must meet Energy Code and HCD requirements**
  - *Factory-built homes*
- **Meet HUD and HCD requirements**
  - Manufactured housing
  - Mobile homes
- **Meet ANSI and NFPA standards**
  - RVs
  - Park trailers

ADU Scenarios

Attached ADU

- Connected to the existing dwelling
  - Common wall, ceiling, or floor
- Addition – newly constructed or newly conditioned space
- Alteration – previously conditioned space
- Building that was not subject to the Energy Code

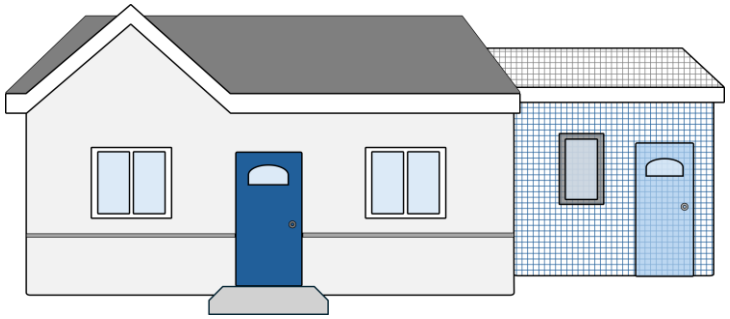
Detached ADU

- Separate from the existing dwelling
  - No shared walls, ceilings, or floors
- Newly constructed – built from the ground up
- Addition – newly conditioned space
- Alteration – previously conditioned space

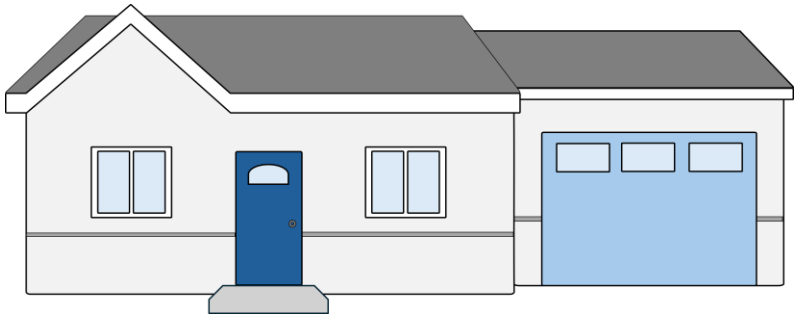
ADU Scenarios – Attached

Addition

1. **Building a new ADU that shares a common wall with an existing home**
   - Addition
   - Shares common wall
   - Increases CFA and volume



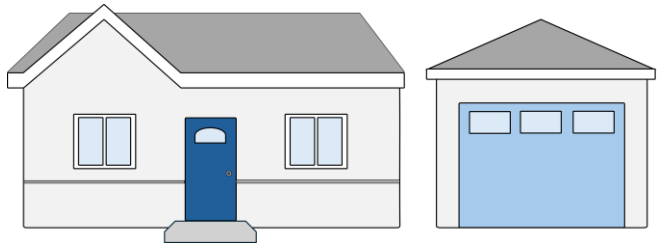
2. **Converting an existing attached unconditioned garage to an ADU**
   - Addition
   - Shares common wall
   - Increases CFA and volume in existing garage



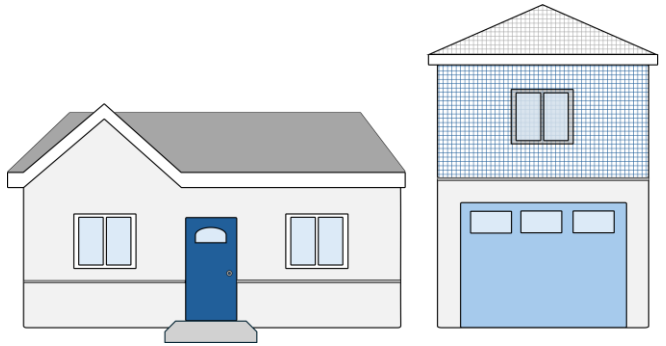
ADU Scenarios - Detached

Addition

3. **Converting existing detached unconditioned structure to ADU**
   - Addition
   - Increases CFA and volume in existing garage



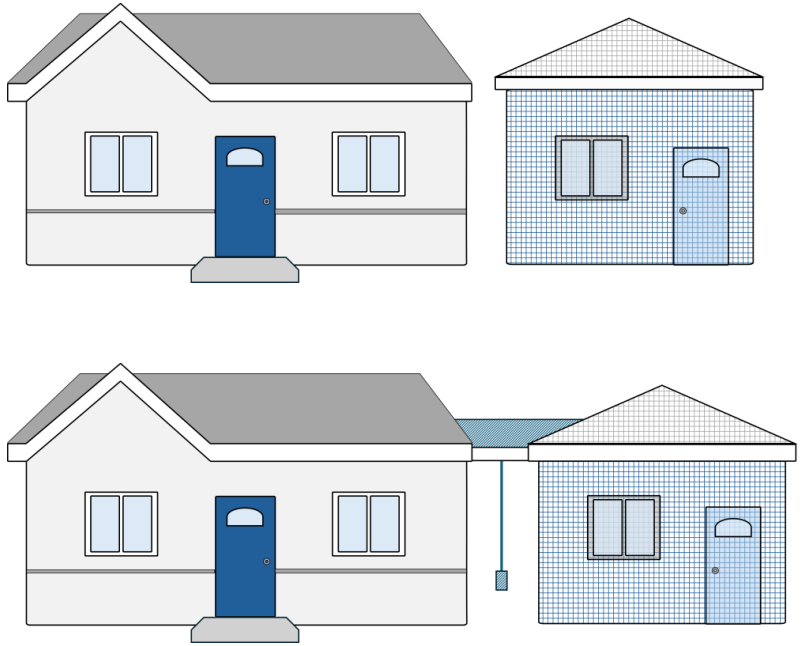
4. **Building ADU on top of detached garage**
   - Addition
   - Shares common ceiling/floor
   - Increases CFA and volume in existing garage



ADU Scenarios – Detached

New Construction

1. **ADU built new, detached from the existing home**
   - Newly constructed building
2. **ADU built new, attached to existing home by breezeway or covered walkway**
   - Newly constructed building
   - No shared common wall or adjacent ceiling/floor



ADU Scenario

Alteration

1. **Converting existing conditioned space, like conditioned basement, into ADU or junior ADU**
   - Alteration
   - May trigger additional requirements if altering components
     - Ventilation, HVAC system, lighting, envelope, water heater, etc.

Note: See California Mechanical Code for ventilation requirements for altered components

2025 Energy Code ADU Additions

§150.2(a)

Additions Mandatory Requirements

Single-family § 150.2(a)

Additions to existing single-family buildings

Updated for 2025

- Meet mandatory Section 110.0-110.9 and 150.0(a-n, p, q)
- Meet California Mechanical Code requirements for ventilation
- Meet either Section 150.2(a)1 or 2
- Exception 3: Space conditioning system
  - When heating or cooling is extended to serve the addition from existing system(s), existing system not required to meet Part 6. Heating system capacity must meet the minimum requirements of CRC 303.10
- Exception 4: Space conditioning systems ducts
  - Any length of ducts extended to serve the addition - both existing duct and extended duct meet duct sealing and duct insulation requirements per Section 150.2(b)1Di and 150.2(b)1Dii
- Exception 5: Additions 1,000 square feet or less are not required to meet ventilation requirements per Section 150.1(c)12
- Exception 7 removed: New or replacement space heating systems serving additions must be heat pump

Additions Mandatory Lighting Requirements

Single-family §§ 150.2(a), 150.0(k)

Updated for 2025

Lighting

- Newly installed and replaced hardwired lighting must meet JA8
- Recessed downlights
  - No screw base
  - Luminaire airtight and air sealed
  - California Electrical Code Art. 410.116
- Dimmers in habitable spaces (e.g., living, dining, kitchen, bedroom)
  - Exception: lighting integral to kitchen range hoods and bathroom exhaust fans
- At least one luminaire with auto-off occupancy or vacancy sensor
  - Bathrooms, garage, laundry, utility, walk-in closets

Additions Prescriptive Requirements

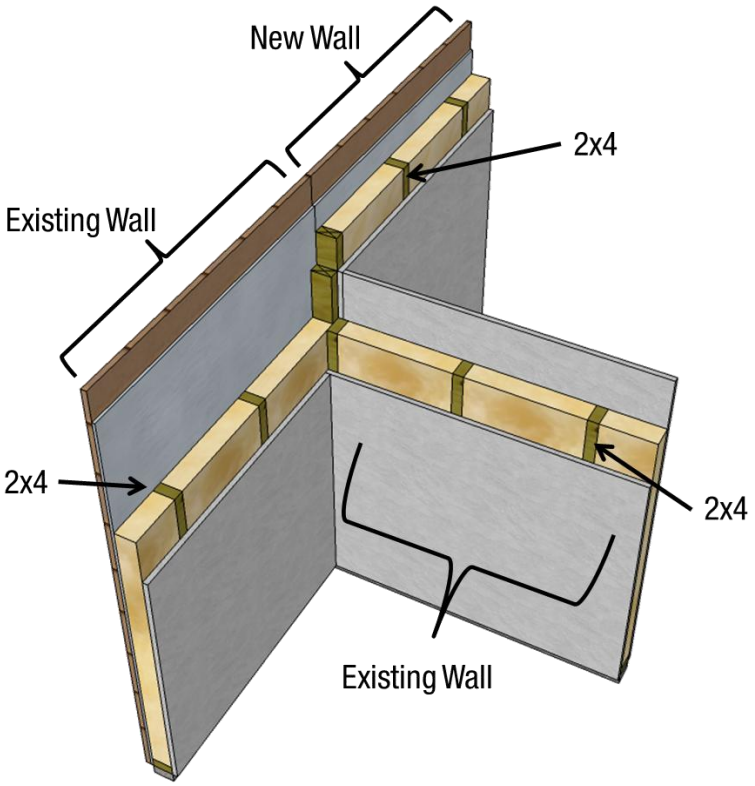
Single-family §§ 150.2(a), 150.1(c)11

Additions more than 300 ft^2 - roofing

- New portion of roof meet aged solar reflectance (SR) and thermal emittance (TE), or SR Index (SRI)
  - Low-sloped roofs climate zones 13, 15
    - Minimum aged SR 0.63
    - Minimum TE 0.75
    - SRI 75
  - Steep-sloped roofs in climate zones 10-15
    - Minimum aged SR 0.20
    - Minimum TE 0.75
    - SRI 16

Insulation Addition Prescriptive Requirements

Single-family §150.2(a)1A



Additions greater than 700 ft^2

- Wall extensions, and walls where existing siding is unaltered
  - R-21 in 2x6 wood-framed, no continuous insulation
  - R-15 in 2x4 wood-framed, no continuous insulation
- QII exceptions
  - Existing window and door headers shall not be required to be insulated
  - No air sealing if existing air barrier not removed or replaced

Additions Roof and Ceiling Insulation Prescriptive Requirements

Single-family § 150.2(a)1B

Additions 700 ft^2 or less – roof and ceiling insulation

- Roof and ceiling insulation for vented attics maximum assembly U-factor
  - Climate zones 1, 2, 4, 8-16 U-factor 0.025
    - Wood framed: R-38 or greater
  - Climate zones 3, 5-7 U-factor 0.031
    - Wood framed: R-30 or greater
- Exception: enclosed rafter ceiling meet mandatory per § 150.0(a)2
  - Maximum assembly U-factor 0.043
    - Wood framed: R-22 or greater
- Radiant barrier in climate zones 2-15
- QII not required

Additions Fenestration Prescriptive Requirements

Single-family §150.2(a)1A-B

New windows, skylights, and glazed doors

Updated for 2025

- Meet U-factor 0.27 and 0.30 for certain climate zones and SHGC 0.23 per § Table 150.1-A
- New fenestration maximum SHGC 0.23 in climate zone 15
- Fenestration area per CFA and climate zone

Addition	Max Total Fenestration Area	Max West-Facing Area Climate Zones 2, 4, 6-15
Over 700 ft^2	Larger of 175 ft^2 or 20% CFA	70 ft^2 or 5% CFA per § 150.1(c)
401 ft^2 to 700 ft^2	Larger of 120 ft^2 or 25% CFA	60 ft^2
400 ft^2 or less	Larger of 75 ft^2 or 30% CFA	60 ft^2

Additions HVAC Mandatory Requirements Summary

Single-family §§ 150.2(a), 150.0(h, i ,m)

Completely new space conditioning systems (ducting and equipment)

Updated for 2025

- Equipment requirements under §150.0(h)
  - Exception to §150.0(h)1 – allows block load calculations for additions
- Thermostats requirements for heat pumps with supplemental heating
- Duct insulation
- Air filtration
  - MERV 13 filters
- ECC testing
  - Leakage testing
  - Airflow and fan efficacy

Additions HVAC Prescriptive Requirements

Single-family §§ 150.2(a), 150.1(c)

Updated for 2025

Completely new space conditioning systems (ducting and equipment)

- Load calculations and system capacity
- ECC testing
  - Refrigerant charge verification (Table 150.1-A)
    - AC - climate zones 2, 8-15
    - Heat pump – All climate zones

Additions Ventilation Prescriptive and Performance Requirements

Single-family §§ 150.2(a)1C, 150.2(a)2C, 150.0(o)

Mechanical ventilation for indoor air quality comply with §150.0(o)

- Whole-dwelling unit mechanical ventilation
  - Exceptions
    - Additions 1,000 ft^2 or less
    - Junior ADUs that are additions to an existing building
  - Note: new dwellings must comply regardless of size
- Local mechanical exhaust
  - Additions to existing buildings shall comply with all applicable requirements specified in §§ 150.0(o)1G and 150.0(o)2

Additions Ventilation Mandatory Requirements

Single-family §§ 150.2(a)1Ci, 150.0(o)1C

Whole dwelling unit ventilation

Updated for 2025

- Dwellings must have mechanical ventilation that meets Section 150.0(o)1c, subsections i and iv.
- Detached and attached dwelling units not sharing ceilings or floors with other dwelling units, occupiable space, public garages, or commercial spaces may reduce their required ventilation per Section 150.0(o)1c, subsections ii and iii
- Vertically attached dwelling units cannot reduce their minimum ventilation rates per Section 150.0(o)1c, subsections ii and iii

Addition Ventilation Mandatory Requirements

Single-family §§ 150.2(a)1Ci, 150.0(o)1C

Whole dwelling unit ventilation per ASHRAE 62.2

- 2025 Equation 150.0-B
  - Q_{tot} = **0.03** x A_{floor} + 7.5 x (Nbr + 1)
    - Q_{tot} = total required ventilation rate, cfm
    - A_{floor} = dwelling-unit floor area, ft^2
    - Nbr = number of bedrooms (not less than 1)

Additions Local Exhaust Ventilation Mandatory Requirements

Single-family §§ 150.2(a)1Cii, 150.0(o)1G

Local mechanical exhaust

- Kitchen and bathroom exhaust requirements in accordance with ASHRAE 62.2 Section 7.1
- Tables 150.0-E, 150.0-F, 150.0-G for ventilation rates and capture efficiency

Airflow rate measurement for local exhaust by the installer

- Installer must measure the airflow rate per RA3.7
  - Airflow rate corresponding to capture efficiency used for compliance
  - Table 150.0-H prescriptive duct sizing table may be used for capture efficiency compliance

Sound ratings for local exhaust

- Sound rating to use minimum airflow rates required per § 150.0(o)1G

Ventilation and IAQ Mandatory Requirements

Single-family Tables 150.0-E, 150.0-F

Updated for 2025

Table 150.0-E Demand-Controlled Local Ventilation Exhaust Airflow Rates and Capture Efficiency

Application	Compliance Criteria
Enclosed Kitchen or Nonenclosed Kitchen	Vented range hood, including appliance-range hood combinations shall meet either the capture efficiency (CE) or the airflow rate specified in Table 150.0-G as applicable.
Enclosed Kitchen or Nonenclosed Kitchen	Other kitchen exhaust fans, including downdraft: 300 cfm (150 L/s)
Bathroom	50 cfm (25 L/s)

Table 150.0-F Continuous Local Ventilation Exhaust Airflow Rates

Application	Airflow
Enclosed kitchen	5 air changes per hour (ach), based on kitchen volume
Bathroom	20 cfm (10 L/s)

ASHRAE 62.2

Enclosed kitchen:

kitchen whose permanent openings to interior adjacent spaces do not exceed 60 ft^2 in total

Ventilation and IAQ Mandatory Requirements for Kitchen Range Hoods

Single-family Table 150.0-G

Table 150.0-G Kitchen Range Hood Airflow Rates (cfm) and ASTM E3087 Capture Efficiency (CE) Ratings According to Dwelling Unit Floor Area and Kitchen Range Fuel Type

Dwelling Unit Floor Area (ft^2)	Hood Over Electric Range	Hood Over Natural Gas Range
>1500	50% CE or 110 cfm	70% CE or 180 cfm
>1000 - 1500	50% CE or 110 cfm	80% CE or 250 cfm
750 - 1000	55% CE or 130 cfm	85% CE or 280 cfm
<750	65% CE or 160 cfm	85% CE or 280 cfm

Ventilation for Duct Sizing Mandatory Requirements

Single-family Table 150.0-H

Table 150.0-H Prescriptive Ventilation System Duct Sizing [ASHRAE 62.2:Table 5-3]

Fan Airflow Rating, cfm at minimum static pressure[f] 0.25 in. water (L/s at minimum 62.5 Pa)	≤50 (25)	≤80 (40)	≤100 (50)	≤125 (60)	≤150 (70)	≤175 (85)	≤200 (95)	≤250 (120)	≤350 (165)	≤400 (190)	≤450 (210)	≤700 (330)	≤800 (380)
Minimum Duct Diameter, in. (mm) [a,b] For Rigid duct	4[e] (100)	5 (125)	5 (125)	6 (150)	6 (150)	7 (180)	7 (180)	8 (205)	9 (230)	10 (255)	10 (255)	12 (305)	12[d] (305)
Minimum Duct Diameter, in. (mm) [a,b] For Flex duct [c]	4 (100)	5 (125)	6 (150)	6 (150)	7 (150)	7 (180)	8 (205)	8 (205)	9 (230)	10 (255)	NP	NP	NP

Footnotes for Table 150.0-H:

a. For noncircular ducts, calculate the diameter as four times the cross-sectional area divided by the perimeter.
b. NP = application of the prescriptive table is not permitted for this scenario.
c. Use of this table for verification of flex duct systems requires flex duct to be fully extended and any flex duct elbows to have a minimum bend radius to duct diameter ratio of 1.0.
d. For this scenario, use of elbows is not permitted.
e. For this scenario, 4 in. (100 mm) oval duct shall be permitted, provided the minor axis of the oval is greater than or equal to 3 in. (75 mm)
f. When a vented range hood utilizes a capture efficiency rating to demonstrate compliance with 150.0(o)1Giiib, a static pressure greater than or equal to 0.25 in. of water at the rating point shall not be required, and the airflow listed in the approved directory corresponding to the compliant capture efficiency rating point shall be applied to Table 150.0-H for determining compliance.

ECC Verification for Mandatory Ventilation Requirements

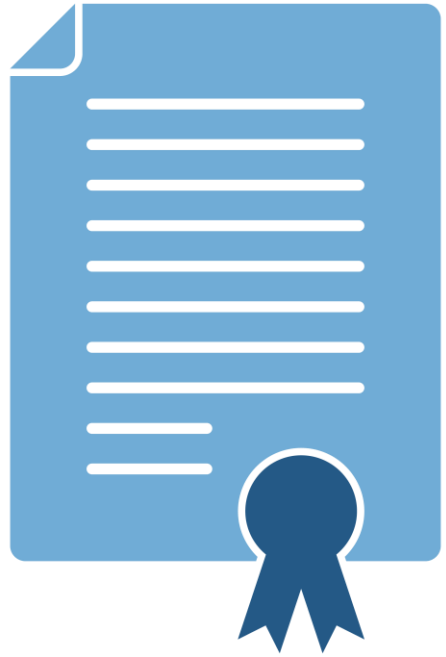
Single-family § 150.0(o)2A-C

ECC verifications

- Whole-dwelling unit ventilation airflow
  - Airflow measurement for balanced airflow rate determination and measurement of systems with multiple operating modes per RA3.7
- Kitchen local exhaust
  - Vented range hoods installed to meet IAQ requirements
  - Includes use of capture efficiency ratings for compliance
- Heat recovery ventilation and energy recovery ventilation
  - Requires verification of HRV or ERV fan efficacy ≤1.0 W per cfm

Check Your Understanding – Question 1

- Do ADU additions smaller than 1,000 ft^2 need to meet IAQ?
  - Yes. All ADUs must meet IAQ requirements regardless of size
    - Junior ADUs exempt from whole-building ventilation only



Addition HVAC Prescriptive and Performance Requirements

Single-family § 150.2(a)1E

Space-conditioning load calculations and system capacity

Updated for 2025

- Minimum capacity limits and supplemental heating requirements per § 150.0(h)
- Maximum capacity depends on calculated heating design load and cooling design load, type of space conditioning system, and duct sizing
  - No limit where airflow is field verified to be at least 350 cfm/ton
  - Where airflow is not field verified, system capacities:
    - Heating load per Table 150.2-A
    - Cooling load per Table 150.2-B
- Envelope leakage specified in load calculation no greater than values in Table 150.2-C

Additions HVAC Heating Load Calculation Prescriptive Requirements

Single-family § 150.2(a)1E, Table 150.2-A

New for 2025

TABLE 150.2-A MAXIMUM HEATING CAPACITY

System Type	Maximum Heating Capacity for Heating Only Systems	Heat Pump Maximum Heating Capacity when HL is greater than CL	Heat Pump Maximum Heating Capacity when CL is greater than HL by less than 12 kBtu/h	Heat Pump Maximum Heating Capacity when CL is greater than HL by 12 kBtu/h or more
Single-Speed System Capacity	HL + 6 kBtu/h	No Maximum	HL + 12 kBtu/h	No Maximum
Variable- or Multi-Speed System Maximum Capacity	HL + 6 kBtu/h	No Maximum	HL + 12 kBtu/h	No Maximum
Variable- or Multi-Speed System Capacity at Lowest Speed	80% of HL	80% of HL	No Maximum	No Maximum

HL and CL refer to the design heating load and design cooling load, respectively.

Additions HVAC Cooling Load Calculation Prescriptive Requirements

Single-family § 150.2(a)1E, Table 150.2-B

New for 2025

TABLE 150.2-B MAXIMUM COOLING CAPACITY

System Type	Maximum Cooling Capacity for Cooling Only Systems	Heat Pump Maximum Cooling Capacity when HL is greater than CL	Heat Pump Maximum Cooling Capacity when CL is greater than HL by less than 12 kBtu/h	Heat Pump Maximum Cooling Capacity when CL is greater than HL by 12 kBtu/h or more
Single-Speed System Capacity	CL + 6 kBtu/h	No Maximum	CL + 6 kBtu/h	CL + 6 kBtu/h
Variable- or Multi-Speed System Maximum Capacity	CL + 6 kBtu/h	No Maximum	CL + 6 kBtu/h	CL + 6 kBtu/h
Variable- or Multi-Speed System Capacity at Lowest Speed	80% of CL	No Maximum	80% of CL	80% of CL

HL and CL refer to the design heating load and design cooling load, respectively.

Additions HVAC Envelope Leakage Load Calculations Prescriptive Requirements

Single-family § 150.2(a)1E, Table 150.2-C

New for 2025

TABLE 150.2-C MAXIMUM INFILTRATION AIR CHANGES PER HOUR FOR LOAD CALCULATIONS

Floor Area of Conditioned Space	Single-Story Heating	Single-Story Cooling	Two-Story Heating	Two-Story Cooling	Townhouse or Condominium Heating	Townhouse or Condominium Cooling
ACH for ≤ 900 ft^2	0.61	0.32	0.79	0.41	0.69	0.36
ACH for 901-1,500 ft^2	0.45	0.23	0.80	0.30	0.50	0.27
ACH for 1,501-2,000 ft^2	0.38	0.20	0.50	0.26	0.43	0.23
ACH for 2,001-3000 ft^2	0.32	0.16	0.41	0.21	0.36	0.19
ACH for ≥ 3,001 ft^2	0.28	0.15	0.37	0.19	0.32	0.17
CFM for One Fireplace	20	0	20	0	20	0

Water Heating Addition Prescriptive Requirements

Single-family § 150.2(a)1D

Additional water heater installed

Updated for 2025

- Removes prescriptive options for gas and electric instantaneous water heaters
- Heat pump water heater - meet one:
  - Not located outdoors, on R-10 surface, demand responsive per 110.12(a) or has ANSI/CTA-2045-B communication port
  - NEEA Tier 3 specification or higher
- Additions 500 ft^2 or less
  - Electric water heater with point of use distribution per RA4.4.5
  - Removes “instantaneous”
- Water heating system determined by Executive director to use no more than one of listed options

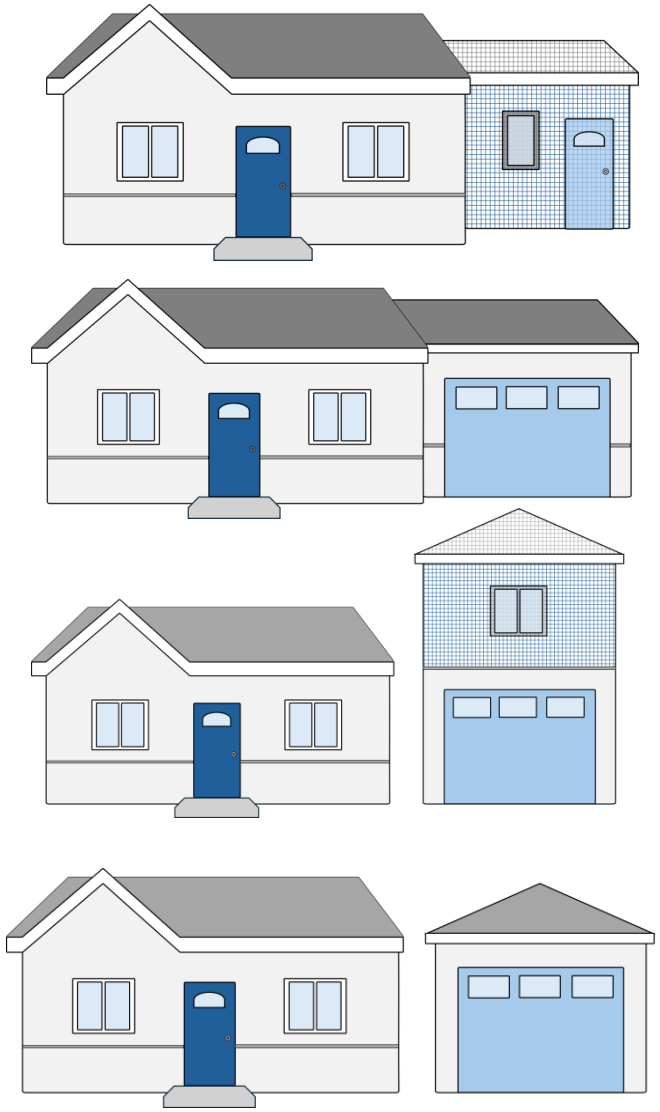
Plan Check and Inspection

ADU Additions

Plan Check Additions

Types of additions

- Attached new CFA
- Attached existing conversion to CFA
- Detached existing new CFA
- Detached existing conversion to CFA



ADU Addition
CF1R-PRF-01

GENERAL INFORMATION					
01	Project Name	Example ADU			
02	Run Title	ADU Addition Alone			
03	Project Location	715 P Street			
04	City	Sacramento, CA	05	Standards Version	2025
06	Zip code	95814	07	Software Version	CBECC-Res 2025.1.0
08	Climate Zone	12	09	Front Orientation (deg/ Cardinal)	0
10	Building Type	Single family	11	Number of Dwelling Units	1
12	Project Scope	Newly Constructed Addition	13	Number of Bedrooms	4
14	Addition Cond. Floor Area (ft^2)	400	15	Number of Stories	1
16	Existing Cond. Floor Area (ft^2)	2100	17	Fenestration Average U-factor	0.3
18	Total Cond. Floor Area (ft^2)	2500	19	Glazing Percentage (%)	26.09%
20	ADU Bedroom Count	1	21	ADU Conditioned Floor Area	400
22	Fuel Type	Natural gas	23	No Dwelling Unit:	No

ADDITION ALONE - Project Analysis Parameters					
01	02	03	04	05	06
Existing Area (excl. new addition) (ft2)	Addition Area (excl. existing) (ft2)	Total Area (ft2)	Existing Bedrooms	Addition Bedrooms	Total Bedrooms
2100	400	2500	3	1	4

ADDITION ALONE - ACCESSORY DWELLING UNIT (ADU) PROJECT ANALYSIS PARAMETERS							
01	02	03	04	05	06	07	08
Zone Name	Existing Area (excl. new addition) (ft^2)	ADU Area (excl. existing) (ft^2)	Total Area (ft^2)	Existing Bedrooms	Addition Bedrooms	Total Bedrooms	Attached vs. Detached
ADU	2100	400	2500	3	1	4	Attached

ADU Addition
CF1R-PRF-01

ENERGY USE INTENSITY

	Standard Design (kBtu/ft^2 - yr)	Proposed Design (kBtu/ft^2 - yr)	Margin (kBtu/ft^2 - yr)	Margin Percentage
Gross EUI[1]	50.01	48.39	1.62	3.24
Net EUI[2]	9.2	48.39	-39.19	-425.98

Notes
1. Gross EUI is Energy Use Total (not including PV) / Total Building Area.
2. Net EUI is Energy Use Total (including PV) / Total Building Area.

REQUIRED SPECIAL FEATURES

The following are features that must be installed as condition for meeting the modeled energy performance for this computer analysis.

- Cool roof
- Insulation below roof deck
- Window overhangs and/or fins
- Electric water heater exception - Exception 2 to Section 150.1(c)8
- Point of use

ECC FEATURE SUMMARY

The following is a summary of the features that must be field-verified by a certified ECC Rater as a condition for meeting the modeled energy performance for this computer analysis. Additional detail is provided in the building tables below. Registered CF2Rs and CF3Rs are required to be completed in the ECC Registry

- Quality insulation installation (QII)
- Indoor air quality ventilation
- Kitchen range hood
- Verified Refrigerant Charge
- Verified heat pump rated heating capacity

ZONE INFORMATION

01	02	03	04	05	06	07
Zone Name	Zone Type	HVAC System Name	Zone Floor Area (ft^2)	Avg. Ceiling Height	Water Heating System 1	Status
ADU	Conditioned	HVAC System 1	400	8	DHW System	New

ADU Addition
CF1R-PRF-01

OPAQUE SURFACES SUMMARY

01	02	03	04	05	06	07	08	09	10
Name	Zone	Construction	Azimuth	Orientation	Gross Area (ft^2)	Window and Door Area (ft2)	Tilt (deg)	Wall Exceptions	Status
ADU Front	ADU	R15 Wall	0	Front	160	61	90	Ex. w/ Siding	New
ADU Left	ADU	R15 Wall	90	Left	160	6	90	Ex. w/ Siding	New
ADU Back	ADU	R15 Wall	180	Back	160	57.35	90	Ex. w/ Siding	New
ADU Right	ADU	R15 Wall	270	Right	160	0	90	Ex. w/ Siding	New
Ceiling	ADU	R38 Ceiling below attic	n/a	n/a	400	n/a	n/a		New

ATTIC

01	02	03	04	05	06	07	08a
Name	Construction	Type	Roof Rise (x in 12)	CRRC Rated Roof Reflectance	CRRC Rated Roof Emittance	Radiant Barrier	Above Roof Deck Air Gap
Attic	Tile High Performance	Ventilated	5	0.2	0.85	No	Yes

FENESTRATION / GLAZING

01	02	03	04	05	06	07	08	09	10
Name	Type	Surface	Orientation	Azimuth	Mult.	Area (ft^2)	U-factor	SHGC	Rating Source
F1	Window	ADU Front	Front	0	1	25	0.3	0.23	NFRC
F2	Window	ADU Front	Front	0	1	16	0.3	0.23	NFRC
L1	Window	ADU Left	Left	90	1	6	0.3	0.23	NFRC
B1 SGD	Window	ADU Back	Back	180	1	33.35	0.3	0.23	NFRC
B2	Window	ADU Back	Back	180	1	24	0.3	0.23	NFRC
Total North Facing Fenestration						41			
Total East Facing Fenestration						0			

ADU Addition
CF1R-PRF-01

FENESTRATION / GLAZING

01	02	03	04	05	06	07	08	09	10
Name	Type	Surface	Orientation	Azimuth	Mult.	Area (ft^2)	U-factor	SHGC	Rating Source
Total South Facing Fenestration						57.35			
Total West Facing Fenestration						6			

OPAQUE DOORS

01	02	03	04	05
Name	Side of Building	Area (ft^2)	U-factor	NFRC Rating Req.
Front Dr	ADU Front	20	0.2	Yes

OVERHANGS AND FINS

01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16
Window	Width (ft)	Height (ft)	Overhang				Left Fin				Right Fin				
			Depth	Dist Up	Left Extent	Right Extent	Flap Ht.	Depth	Top Up	Dist L	Bot Up	Depth	Top Up	Dist R	Bot Up
F1	5	5	1	1.33	3	28	0.4	0	0	0	0	0	0	0	0
F2	4	4	1	1.33	28	3	0.4	0	0	0	0	0	0	0	0
L1	2	3	1	1.33	6	8	0.4	0	0	0	0	0	0	0	0
B1 SGD	5	6.67	6	1.33	4	40	0.4	0	0	0	0	0	0	0	0
B2	6	4	6	1.33	23	23	0.4	0	0	0	0	0	0	0	0

Refer to Section 7.6.2 and 7.6.3 of the 2022 CBECC-Res User manual for explanation of overhang and fin descriptions.

SLAB FLOORS

01	02	03	04	05	06	07
Name	Zone	Area (ft^2)	Perimeter (ft)	Edge Insul. R-value	Edge Insul. Depth	Heated
Slab On Grade	ADU	400	80	none	0	No

ADU Addition
CF1R-PRF-01

OPAQUE SURFACE CONSTRUCTIONS

01	02	03	04	05	06	07	08
Construction Name	Surface Type	Construction Type	Framing	Total Cavity R-value	Interior / Exterior Continuous R-value	U-factor	Assembly Layers
R15 Wall	Exterior Walls	Wood Framed Wall	2x4 @ 16 in. O. C.	R-15	None / None	0.095	Inside Finish: Gypsum Board Cavity / Frame: R-15 / 2x4 Exterior Finish: 3 Coat Stucco
Tile High Performance	Attic Roofs	Wood Framed Ceiling	2x4 @ 24 in. O. C.	R-19	None / None	0.049	Roofing: 10 PSF (RoofTileAirGap) Tile Gap: present Roof Deck: Wood Siding/sheathing/decking Cavity / Frame: R-13.0 / 2x4 Under Roof Joists: R-6.0 insul.
R38 Ceiling below attic	Ceilings (below attic)	Wood Framed Ceiling	2x4 Bottom Chord of Truss @ 24 in. O. C.	R-38	None / None	0.025	Over Ceiling Joists: R-28.9 insul. Cavity / Frame: R-9.1 / 2x4 Btm Chrd Inside Finish: Gypsum Board

WATER HEATING SYSTEMS

01	02	03	04	05	06	07	08	09
Name	System Type	Distribution Type	Water Heater Name	Number of Units	Solar Heating System	Compact Distribution	ECC Verification	Water Heater Name (#)
DHW System	Domestic Hot Water (DHW)	Point of Use	Small Instantaneous	1	n/a	None	n/a	Small Instantaneous (1)

ADU Addition
CF1R-PRF-01

WATER HEATERS

01	02	03	04	05	06	07	08	09	10	11	12	13
Name	Heating Element Type	Tank Type	# of Units	Tank Vol. (gal)	Heating Efficiency Type	Efficiency	Rated Input Type	Input Rating or Pilot	Tank Insulation R-value (Int/Ext)	Standby Loss or Recovery Eff	1st Hr. Rating or Flow Rate	Tank Location
Small Instantaneous	Electric Resistance	Consumer Instantaneous	1	0	UEF	0.92	kW	12	0	99	2	

HVAC - HEAT PUMPS

01	02	03	04	05	06	07	08	09	10	11	12
Name	System Type	Number of Units	Heating				Cooling			Airflow Target	Fan Power (Watts/CFM)
			Heating Efficiency Type	HSPF/HSPF2/COP	Cap 47	Cap 17	Cooling Efficiency Type	SEER/SEER2	EER/EER2/CEER		
Minisplit	Ductless MiniSplit HP	1	HSPF2	7.5	36000	24000	EER2/SEER2	14.3	12	0	0

INDOOR AIR QUALITY (IAQ) FANS

01	02	03	04	05	06	07	08
Dwelling Unit	Airflow (CFM)	Fan Efficacy (W/CFM)	IAQ Fan Type	Includes Heat/Energy Recovery?	IAQ Recovery Effectiveness - ASRE	Includes Fault Indicator Display?	Status
SFam ADU IAQVentRpt	27	0.35	Exhaust	No	n/a / n/a	No	

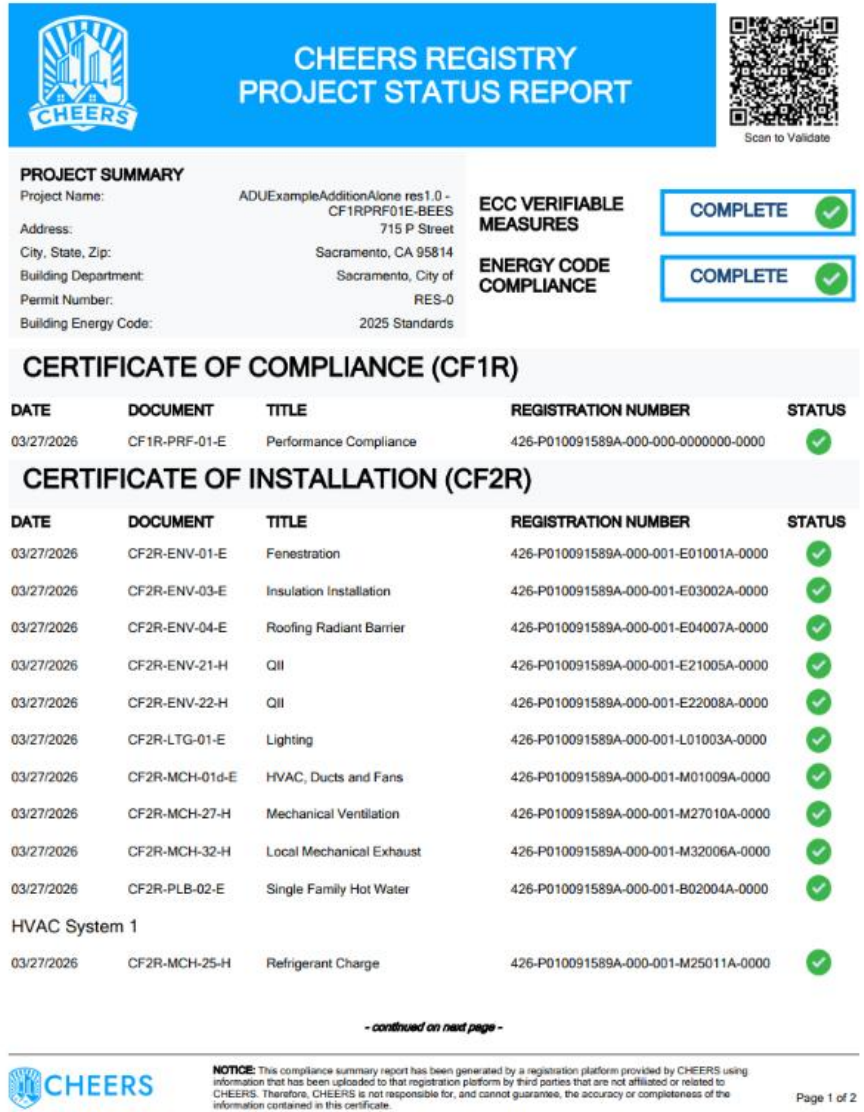
Field Inspection Additions

For additions

- Require ECC verification 100% of the time
- Verify all compliance documents are registered
- Ask for Project Status Report
- Ensure IAQ met

Project Status Report

- Summarizes status of all required compliance documents
- Available for all projects registered with ECC provider
- Online access to registry
- Request hard copy at final inspection to verify compliance
- ECC and overall status marked **Complete** to pass inspection



CHEERS REGISTRY
PROJECT STATUS REPORT

Scan to Validate

PROJECT SUMMARY

Project Name:	ADUExampleAdditionAlone res1.0 - CF1RPRF01E-BEES
Address:	715 P Street
City, State, Zip:	Sacramento, CA 95814
Building Department:	Sacramento, City of
Permit Number:	RES-0
Building Energy Code:	2025 Standards

ECC VERIFIABLE MEASURES	COMPLETE
ENERGY CODE COMPLIANCE	COMPLETE

CERTIFICATE OF COMPLIANCE (CF1R)

DATE	DOCUMENT	TITLE	REGISTRATION NUMBER	STATUS
03/27/2026	CF1R-PRF-01-E	Performance Compliance	426-P010091589A-000-000-0000000-0000	

CERTIFICATE OF INSTALLATION (CF2R)

DATE	DOCUMENT	TITLE	REGISTRATION NUMBER	STATUS
03/27/2026	CF2R-ENV-01-E	Fenestration	426-P010091589A-000-001-E01001A-0000	
03/27/2026	CF2R-ENV-03-E	Insulation Installation	426-P010091589A-000-001-E03002A-0000	
03/27/2026	CF2R-ENV-04-E	Roofing Radiant Barrier	426-P010091589A-000-001-E04007A-0000	
03/27/2026	CF2R-ENV-21-H	QII	426-P010091589A-000-001-E21005A-0000	
03/27/2026	CF2R-ENV-22-H	QII	426-P010091589A-000-001-E22008A-0000	
03/27/2026	CF2R-LTG-01-E	Lighting	426-P010091589A-000-001-L01003A-0000	
03/27/2026	CF2R-MCH-01d-E	HVAC, Ducts and Fans	426-P010091589A-000-001-M01009A-0000	
03/27/2026	CF2R-MCH-27-H	Mechanical Ventilation	426-P010091589A-000-001-M27010A-0000	
03/27/2026	CF2R-MCH-32-H	Local Mechanical Exhaust	426-P010091589A-000-001-M32006A-0000	
03/27/2026	CF2R-PLB-02-E	Single Family Hot Water	426-P010091589A-000-001-B02004A-0000	
HVAC System 1				
03/27/2026	CF2R-MCH-25-H	Refrigerant Charge	426-P010091589A-000-001-M25011A-0000	

- continued on next page -

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Page 1 of 2

Check Your Understanding – Question 2

Do new ADUs that are additions require ECC testing?

- Yes. ECC verification is required:
  - IAQ fan required 100% of the time
  - Vented kitchen range hood installed
  - QII, HVAC, duct testing - when required
  - All compliance documents must be registered with ECC registry
    - Compliance documents must have registration number and watermark

2025 Energy Code

ADUs New Construction

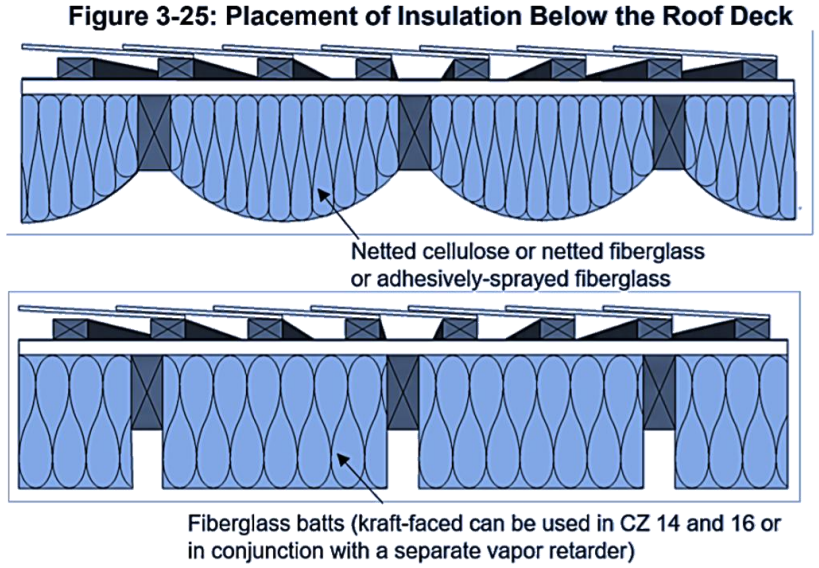
Insulation Mandatory Requirements

Single-family § 150.0(a)1

Updated for 2025

Roof deck insulation

- Revises roof deck insulation to mandatory requirement
- Attics above conditioned space
- Climate zones 4 and 8-16
- Maximum U-factor 0.184
- Exceptions:
  - Ducts and air handler located entirely in conditioned space
  - Air handler and 12 feet or less of supply duct in unconditioned space or ductless
  - Ducts buried within insulation in an attic that meets § 150.1(b) and verified per RA3.1.4.1



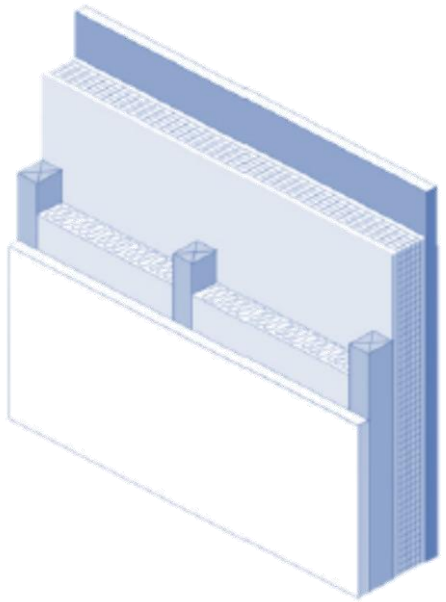
Insulation Walls Mandatory Requirements

Single-family § 150.0(c)

Updated for 2025

Wall insulation

- 2x4 walls assembly U-factor 0.095 or R-15
- 2x6 walls assembly U-factor of 0.069 or R-21
- Opaque non-framed assembly U-factor 0.102
- Masonry/Mass walls must meet prescriptive requirements (no trade-offs)
  - Climate zones 1-15, above grade
    - Interior insulation – U-factor 0.077
    - Exterior insulation – U-factor 0.125
  - Climate zone 16, above grade
    - Interior insulation – U-factor 0.059
    - Exterior insulation – U-factor 0.077



Insulation Walls Prescriptive Requirements

Single-family Table 150.1-A

Wall insulation

- Above Grade
  - Framed
    - U-factor 0.048 in CZ 1-5 and 8-16
    - U-factor 0.065 in CZ 6 and 7
  - Mass Wall Interior
    - U-factor 0.077 or R-13 in CZ 1-15
    - U-factor 0.059 or R-17 in CZ 16
  - Mass Wall Exterior
    - U-factor 0.125 or R-8 in CZ 1-15
    - U-factor 0.077 or R-13 in CZ 16
- Below Grade
  - Interior
    - U-factor 0.077 or R-13 in CZ 1-15
    - U-factor 0.067 or R-15 in CZ 16
  - Exterior
    - U-factor 0.200 or R-5 in CZ 1-13
    - U-factor 0.100 or R-10 in CZ 14-15
    - U-factor 0.053 or R-19 in CZ 16

Insulation Roof and Ceiling Prescriptive Requirements

Single-family § 150.1(c)1A, Table 150.1-A

Updated for 2025

Roof and ceiling insulation - Option C per Table 150.1-A

- Cathedral ceiling insulation
  - R-38 all climate zones
- Ceiling insulation for vented attic
  - R-38 climate zones 1, 8-16
  - R-30 climate zones 2-7
  - Meet § 150.1(c)9B with ECC verification of ducts in conditioned space
- Radiant barrier
  - Climate zones 2-15

Roofing Products Prescriptive Requirements

Single-family Table 150.1-A

Roofing products

- Low-sloped
  - Aged Solar Reflectance – 0.63 in CZ 13 and 15
  - Thermal Emittance – 0.75 in CZ 13 and 15
- Steep-sloped
  - Aged Solar Reflectance – 0.20 in CZ 10-15
  - Thermal Emittance – 0.65 in CZ 10-15

Insulation Floors and QII Prescriptive Requirements

Single-family Table 150.1-A

Updated for 2025

Floor insulation and QII

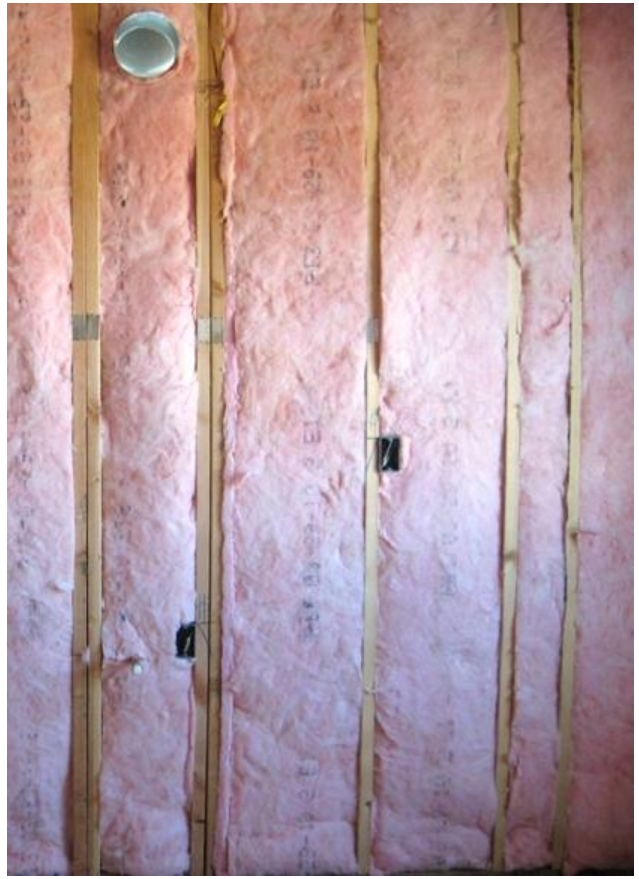
- Slab Perimeter – F-value 0.58 or R-7 in CZ 16
- Raised – U-factor 0.037 or R-19 in all CZs
- Concrete Raised
  - U-factor 0.092 or R-8.0 in CZ 1-2, 11, 13-14, 16
  - U-factor 0.269 or R-0 in CZ 3-10
  - U-factor 0.138 or R-4.0 in CZ 12 and 15
- Quality Insulation Installation (QII) – required for all CZs

Quality Insulation Installation Prescriptive Requirements

Single-family §150.1(c)1E

Quality insulation installation (QII)

- Requires ECC verification of installed insulation and exterior air barrier
- Meet criteria in Reference Residential Appendix RA3.5
- Not mandatory, but difficult to offset
- Modeling without QII can have significant penalty

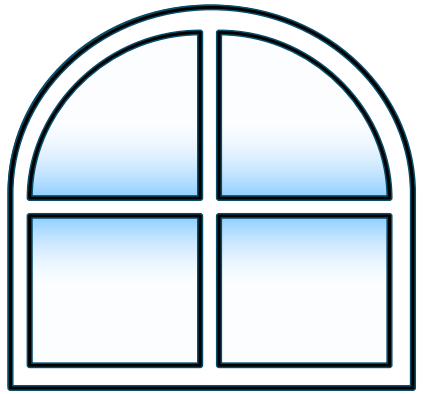


Fenestration Mandatory Requirements

Single-family § 150.0(q)

Updated for 2025

Fenestration and skylight products



- Mandatory U-factor more stringent
- Maximum weighted average U-factor 0.40
- All climate zones
- Exceptions to U-factor requirement
  - Fenestration area up to 10 square feet or 0.5% of conditioned floor area, whichever is greater
  - Dual-glazed greenhouse or garden windows up to 30 square feet of fenestration area
  - Buildings meeting CBC Part 7, California Wildland-Urban Interface (WUI) Code, and located in Fire Hazard Severity Zones or WUI Fire Areas designated by local enforcement agency

Fenestration Prescriptive Requirements

Single-family § 150.1(c)3, Table 150.1-A

Windows, skylights and glazed doors

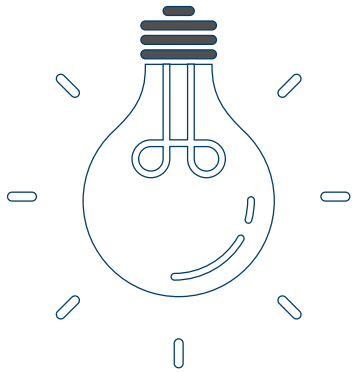
Updated for 2025

Per Table 150.1-A

- Maximum U-factor of 0.27 in climate zones 1-5, 11-14, 16
- Maximum U-factor of 0.30 in climate zones 6-10, 15
- Maximum SHGC of 0.23 in climate zones 2, 4, 6-14
- Maximum SHGC of 0.20 in climate zone 15
  - No SHGC requirement in climate zones 1, 3, 5, 16
- Total fenestration area 20% maximum
- West-facing fenestration area 5% maximum in climate zones 2, 4, 6-15
- Adds exception for new dwelling units 500 ft^2 or less in climate zone 5 maximum U-factor 0.30
- Updates exception for skylights up to 16 ft^2 with maximum U-factor of 0.40 and SHGC of 0.30 in climate zones 2,4, and 6-15
  - No SHGC in climate zones 1,3,5,16

Lighting Mandatory Requirements

Single-family § 150.0(k)1A



Luminaire requirements

Updated for 2025

- Meet JA8
- Exceptions include lighting that is
  - Integrated device lighting subject to federal appliance standards (e.g. exhaust fans, kitchen range hoods)
  - Navigation lighting < 5 watts (e.g., night, step, and path lights)
  - Inside drawers, cabinetry, or linen closets ≥ 45 lumens per watts
  - Light sources
    - LEDs installed outdoors
    - Inseparable solid state lighting (SSL) with colored decorative light sources
    - High intensity discharge (HIDs)
    - Luminaires with hardwired high-frequency generators and induction lamps

Lighting Mandatory Requirements

Single-family § 150.0(k)1C-3

Updated for 2025

Luminaire requirements

- Ceiling recessed downlights
  - No screw base
  - Luminaire airtight and air sealed
  - Meet CA Electrical Code § 410.116

Indoor lighting controls

- Auto-off controls for lighting in drawers and cabinets
- Undershelf, display cabinets, switched outlets controlled separately from ceiling lighting
- Exceptions to dimmer requirements
  - Lighting integral to kitchen range hoods and bathroom exhaust fans

Mounted outdoor lighting controls

- Manual on/off control
- Photocell + motion sensor, photocell + auto-timer, or astronomical timer

HVAC Mandatory Requirements

Single-family § 150.0(h)1

Building cooling and heating load

Updated for 2025

- Heating and cooling loads determined using either
  - American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE)
  - Sheet Metal and Air Conditioning Contractors' National Association (SMACNA)
  - Air Conditioning Contractors of America (ACCA) manual J
- Exception: Block load - total load for all rooms combined served by central equipment may be used for sizing for additions

HVAC Mandatory Requirements

Single-family § 150.0(h)2

Design conditions

Updated for 2025

- Design conditions determined by either
  - Indoor design temperature must be 68^{0}F for heating and 75^{0}F for cooling
  - Outdoor design conditions must be selected from one of the following:
    - Reference Joint Appendix JA2
    - ASHRAE handbook
    - ACCA Manual J
  - Outdoor design temperature
    - Heating - minimum 99.0% Dry Bulb or Winder Median of Extremes
    - Cooling - maximum 1.0% Dry Bulb and Mean Coincident Wet Bulb

HVAC System Selection Mandatory Requirements

Single-family §150.0(h)5

System selection

New for 2025

- Equipment sizing and selection meet cooling and heating loads of § 150.0(h)1-2
- System must be sized based on ACCA Manual S-2023
  - No limit on minimum cooling capacity
  - Furnaces heating capacity sized per ACCA Manual S-2023 Table N2.5
  - Heating pump heating capacity
    - Meet minimum requirements of the CBC not including supplementary heating
    - No limit on maximum heating capacity

HVAC Defrost Mandatory Requirements

Single-family §150.0(h)6

Defrost

New for 2025

- Defrost delay timer set not less than 90 minutes for heat pump with installer-adjustable defrost delay timer
- Installer certifies on CF2R that control configuration has been tested
- Exceptions
  - Dwelling units in climate zones 6 and 7
  - Dwelling units with conditioned floor area 500 ft^2 or less in climate zones 3, 5-10, 15

HVAC Supplementary Heating Control Configuration Mandatory Requirements

Single-family §150.0(h)7

Supplementary heating control configuration

New for 2025

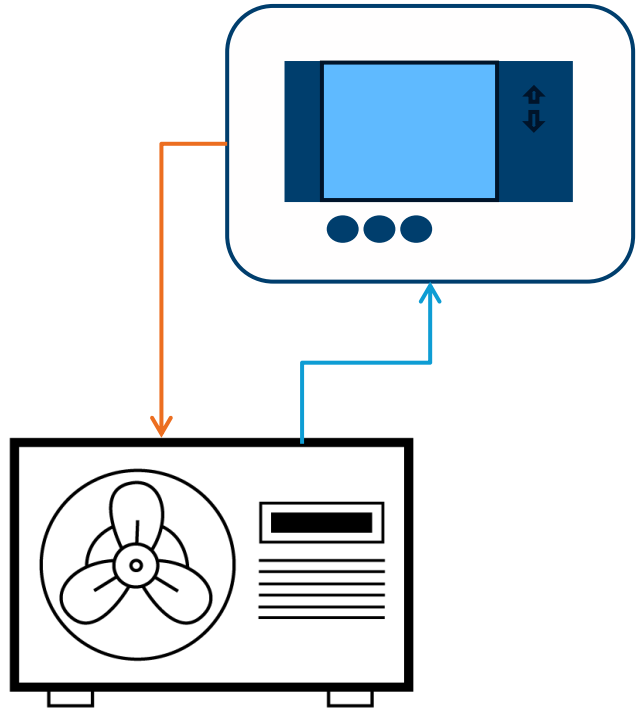
- Heat pumps with supplementary heat including electric resistance heaters or gas furnace
  - Lock out supplementary heating when outdoor air above 35°F and meet thermostat requirements per § 150.0(i)2
  - Controls may allow supplementary heat operation above 35°F only during defrost or emergency operation
- Installer certifies on CF2R that control configuration has been tested

HVAC Supplementary Heating Control Configuration Exceptions

Single-family Exceptions to §150.0(h)7

New for 2025

- **Exception 1:** Buildings under 500 ft^2 of condition floor area in all climate zones and buildings of any size in climate zones 7 and 15, must meet either:
  - Option A
    - Prevent supplementary heater operation when heating load can be met by the heat pump alone
    - Cut-on temperature for heat pump heating > cut-on temperature for supplementary heat; cut-off temperature for heat pump heating > cut-off temperature for supplemental heating
  - Option B
    - Controls that allow supplementary heat operation under defrost mode and transient periods (e.g. start-ups and following room thermostat setpoint advance)
- **Exception 2:** Room air-conditioner heat pumps



HVAC Sizing of Electric Resistance Supplementary Heat Mandatory Requirements

Single-family §150.0(h)8

Sizing of electric resistance supplementary

New for 2025

- Capacity of electric resistance heat for heat pumps with electric resistance heat
  - Must not exceed heat pump nominal cooling capacity (at 95°F ambient conditions) multiplied by 2.7 kW per ton, rounded up to closest kW

HVAC Capacity Variation with Third-Party Thermostats Mandatory Requirements

Single-family §150.0(h)9

Capacity variation with third-party thermostat

New for 2025

- Variable or multi-speed systems
  - Capable of responding to heating and cooling loads by modulating systems compressor speed
  - Meet thermostat requirements per Section 150.0(i)2
  - Installer certifies on CF2R that control configuration has been tested

HVAC Thermostats Mandatory Requirements

Single-family §150.0(i)2

Thermostats for heat pumps with supplemental heating — New for 2025

- Receive and display outdoor air temperature from sensor or internet weather service
- Lock out supplementary heat when outdoor air above 35°F
  - Only allowed in defrost or emergency operations
- Indicate when supplementary heat or emergency heat in operation
- Installer certifies on CF2R that control configuration has been tested
- Exceptions
  - Lock out supplementary heat when outdoor air above 35°F by another device per § 150.0(h)7
  - Systems compliant with Exception 1 to §150.0(h)7
  - Room air conditioner heat pumps

Ducts, Plenums, and Fans Mandatory Requirements

Single-family § 150.0(m)1B

Duct insulation

Updated for 2025

- Ducts insulated to R-6.0
  - Exception: Portions of duct system located in conditioned space below ceiling separating occupiable space from attic
    - Non-insulated portion of duct system located entirely inside thermal envelope as confirmed by visual inspection
    - Locations that penetrate unconditioned space, draft stopped and air-sealed, connections in unconditioned space insulated to R-6.0
  - Exception - Minimum R-4.2 insulation for ducts in unvented attic
    - Attic has R-30 insulation between roof rafters in contact with roof deck
    - Gable ends meet wall insulation per § 150.1(c)1B
    - Dwelling unit has whole building leakage rate of 3.0 ACH50 or less as confirmed by ECC rater
- No duct insulation when duct system located entirely in conditioned space with ECC verification per RA3.1.4.3.8
  - For dwelling units with attic, the duct system must be located below ceiling separating the occupiable space from the attic

HVAC Mandatory and Prescriptive Requirements

Single-family § 150.0(m)11-13, 150.1(c)

Duct system sealing and leakage testing

Updated for 2025

- ECC rater
  - Leakage testing
  - Airflow and fan efficacy
  - Refrigerant charge in climate zones 2, 8-15

Air filtration

- MERV 13 filters
- Air filter racks or grilles be gasketed or sealed to prevent air from bypassing filter
- Makeup air systems comply same as supply ventilation systems

Fan efficacy

- Modifies an exception from fan efficacy requirements for multispeed systems

Ventilation and Indoor Air Quality Mandatory Requirements

Single-family § 150.0(o)1B-C

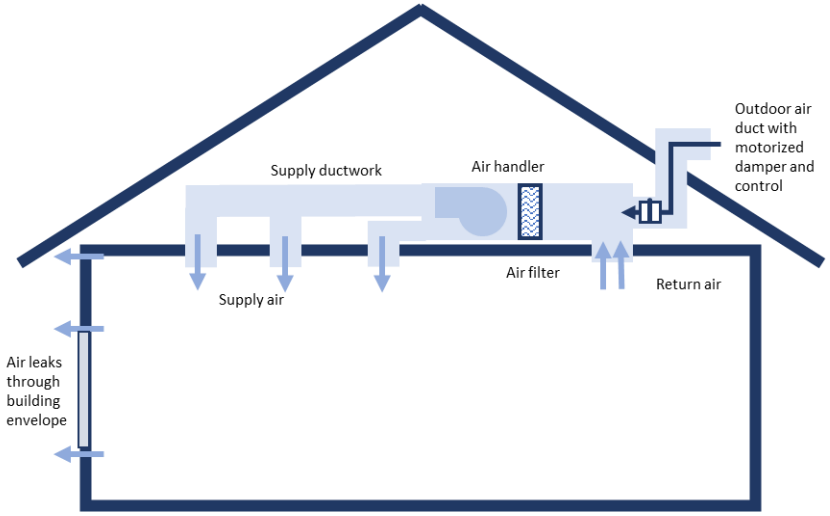
Updated for 2025

Central fan integrated ventilation system

- Outdoor air dampers
- Damper control
- Variable ventilation controls

Whole-dwelling unit mechanical ventilation

- Reduces required mechanical ventilation rate for detached and attached. Reduction not applicable to vertically attached dwelling units



Balanced and Supply Only Ventilation and IAQ Mandatory Requirements

Single-family § 150.0(o)1Civa

Balance and supply-only ventilation systems

Updated for 2025

- Updates that balanced and supply-only ventilation have accessible air filters, including HRV/ERV recovery cores
  - Exception to § 150.0(o)1Civa: Systems that require servicing from inside the attic must have:
    - Fault indicator display (FID) meeting JA17
    - Attic access door located in wall or access provided through a ceiling that includes a ladder
    - Walkway from the attic access door to the HRV/ERV

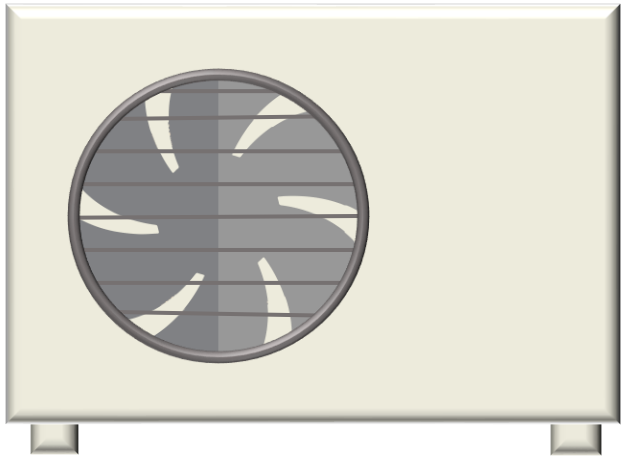
HVAC Prescriptive Requirements

Single-family § 150.1(c)6

Updated for 2025

Heating system type

- Heating system types installed per Table 150.1-A
- All climate zones either
  - Heat pump for space conditioning system
  - Meet performance compliance requirements



HVAC Distribution Systems Prescriptive Requirements

Single-family § 150.1(c)9

Space conditioning distribution systems

Updated for 2025

- All space conditioning systems meet either
  - High performance attics
  - Duct systems and air handlers to be entirely in conditioned space and ECC-rater verified
    - Duct insulation levels must meet requirements in Table 150.1-A
    - For dwellings with attics, duct and air handlers must be located below ceiling separating occupiable space

HVAC Central Fan Integrated Ventilation Systems Prescriptive Requirements

Single-family § 150.1(c)10

Central fan integrated ventilation system requirements

- Central fan integrated ventilation systems
  - Air handling unit fan efficacy maximum
    - 0.45 W/cfm for gas furnace air-handling units
    - 0.58 W/cfm for air-handling units that are not gas furnaces
    - 0.62 W/cfm for small duct high velocity air-handling units verified by a ECC rater
  - Field verification
    - Diagnostic testing per RA3.3
    - Intermittent Systems per RA3.7.4.2
- Exception: Gas furnace air-handling units manufactured before July 3, 2019, must comply with the minimum fan efficacy value of 0.58 w/cfm and confirmed by field and diagnostic testing per RA3.3

HVAC Ventilation Cooling Prescriptive Requirements

Single-family § 150.1(c)12

Ventilation cooling

- Must comply with the whole-house fan (WHF) requirements per Table 150.1-A. When WHF is required, it must meet the following criteria
  - Install one or more WHFs with a combined airflow of at least 1.5 cfm/ft^2 of conditioned floor area. Airflow is determined using the Home Ventilating Institute Certified Product Directory
  - Provide a minimum of 1 ft^2 of attic vent free area for every 750 cfm of rated WHF airflow cfm or manufacturer specified free vent area if larger
    - Exception: WHFs that are directly vented to the outside
  - Provide one-page operating instructions for WHF
- Exception: new dwelling units with 500 ft^2 or less exempt

HVAC Ventilation System FID Prescriptive Requirements

Single-family § 150.1(c)15

Ventilation system fault indicator display (FID)

Updated for 2025

- All HRV/ERV systems serving individual dwelling units
- ECC-rater verified per Reference Joint Appendix JA17

Water Heating Prescriptive Requirements

Single-family § 150.1(c)8

Domestic water-heating systems meet one

Updated for 2025

- Heat pump water heater (HPWH) in all climate zones located in garage or conditioned space
  - HPWH 240V
    - Compact distribution per RA4.4.6 in climate zones 1, 16
    - Drain water heat recovery system that is field verified per RA3.6.9 in climate zone 16
  - HPWH 240V meets NEEA Tier 3 or higher
    - Drain water heat recovery in climate zone 16
- Solar water-heating system with electric backup meeting RA4 and with a minimum annual solar savings fraction of 0.7
- Note: other types may comply using performance method

Exceptions for Water Heating Prescriptive Requirements

Single-family § 150.1(c)8

Domestic water-heating systems

Updated for 2025

- Exceptions
  - New dwelling unit with a conditioned floor area of 500 ft^2 or less may install electric water heater with point of use distribution per RA4.4.5
    - Removes “instantaneous”
  - New dwelling unit with 1 bedroom or less may install 120V HPWH in place of 240V HPWH

Electric Ready Mandatory Requirements for Water Heating

Single-family § 150.0(n)1A

If using gas or propane water heating system

Updated for 2025

- Provide designated space for future HPWH at least 2.5 feet by 2.5 feet and 7 feet tall by meeting either:
  - **If space is within 3 ft from water heater**, then the space must include
    - Dedicated 125-volt, 20-amp electrical circuit with 120/240V 3 conductor, branch circuit rated at 30A minimum
    - Both ends of unused conductor labeled as “spare” and electrically isolated
    - Reserved single pole circuit breaker in the main panel, labeled “Future 240V Use”
    - Condensate drain no more than 2 in. higher than the base of installed WH, allows natural draining without pump assistance

Electric Ready Mandatory Requirements for HPWHs

Single-family § 150.0(n)1B

If using gas or propane water heating system

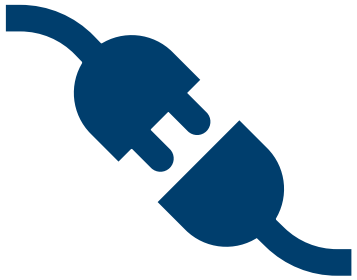
- Provide designated space for future HPWH at least 2.5 feet by 2.5 feet and 7 feet tall by meeting either:
  - **If space is more than 3 ft from water heater**, then the space must include
    - Dedicated 240V branch circuit rated at least 30A, installed within 3 ft from space, blank cover labeled as “240V ready”
    - Reserved double pole circuit breaker, labeled “For Future 240V Use”
    - Cold water line routes through designated space before reaching gas or propane water heater
    - Hot water supply pipe out of the water heater shall be routed first through the HPWH location before serving fixtures.
    - Cold and hot water piping at the HPWH location shall be exposed for future installation of HPWH
    - Condensate drain no more than 2 in. higher than the base of installed WH, allows natural draining without pump assistance

Electric Ready Mandatory Requirements

Single-family §§ 150.0(t, u, v)

Adds electric-ready capability when installing gas systems

- See the online FAQs
- Dedicated 240V branch circuit within 3 feet of each appliance
- Reserved double pole circuit breakers in main panel for each appliance, labeled “For Future 240V use”
- Branch circuit conductor minimum rating:
  - Heat pump space heater: 30A
  - Electric cooktop: 50A
  - Electric clothes dryer: 30A



Battery Energy Storage System Ready Mandatory Requirements

Single-family § 150.0(s)

Updated for 2025

All newly constructed single-family residences with 1-2 dwelling units, with dwelling unit electrical service > 125A shall have:

- At least one of the following:
  - BESS ready interconnection equipment with minimum backed up capacity of 60A and 4 BESS supplied branch circuits per §150.0(s)2
  - Dedicated raceway from main service to subpanel that supplies branch circuits per §150.1(s)2
- Identify at least 4 branch circuits suitable to be supplied by BESS
  - Minimum: refrigerator, lighting near front door, one outlet in bedroom
- Main panel minimum busbar rating of 225A
- Space for future system isolation equipment or transfer switch within 3 feet of main panel
  - Raceways installed between panel and system isolation equipment or transfer switch location to allow the connection of backup power source

Exception to Battery Energy Storage System Ready Mandatory Requirements

Single-family § 150.0(s)

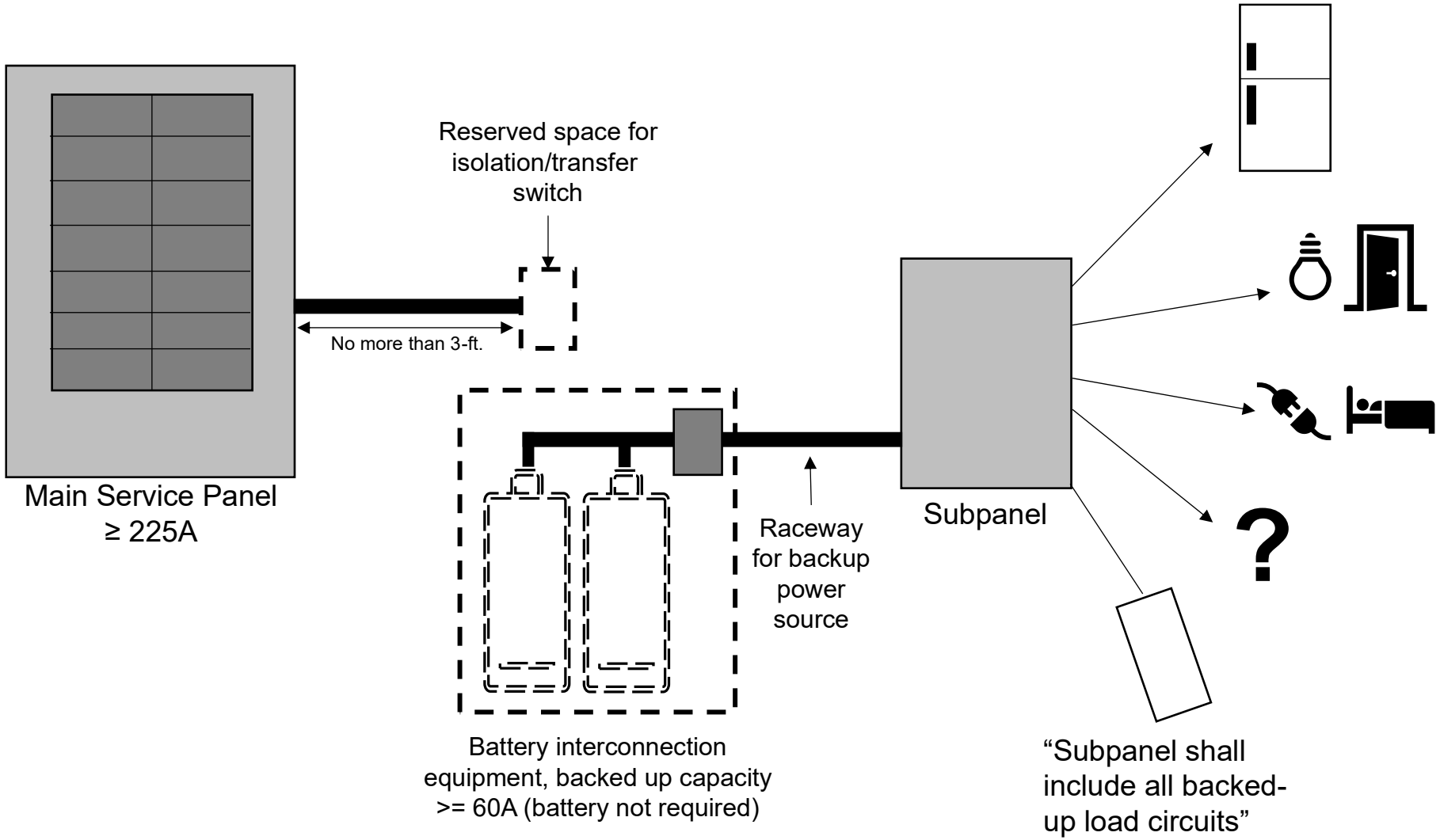
New for 2025

Exception

- Buildings with BESS installed are not required to meet § 150.0(s)

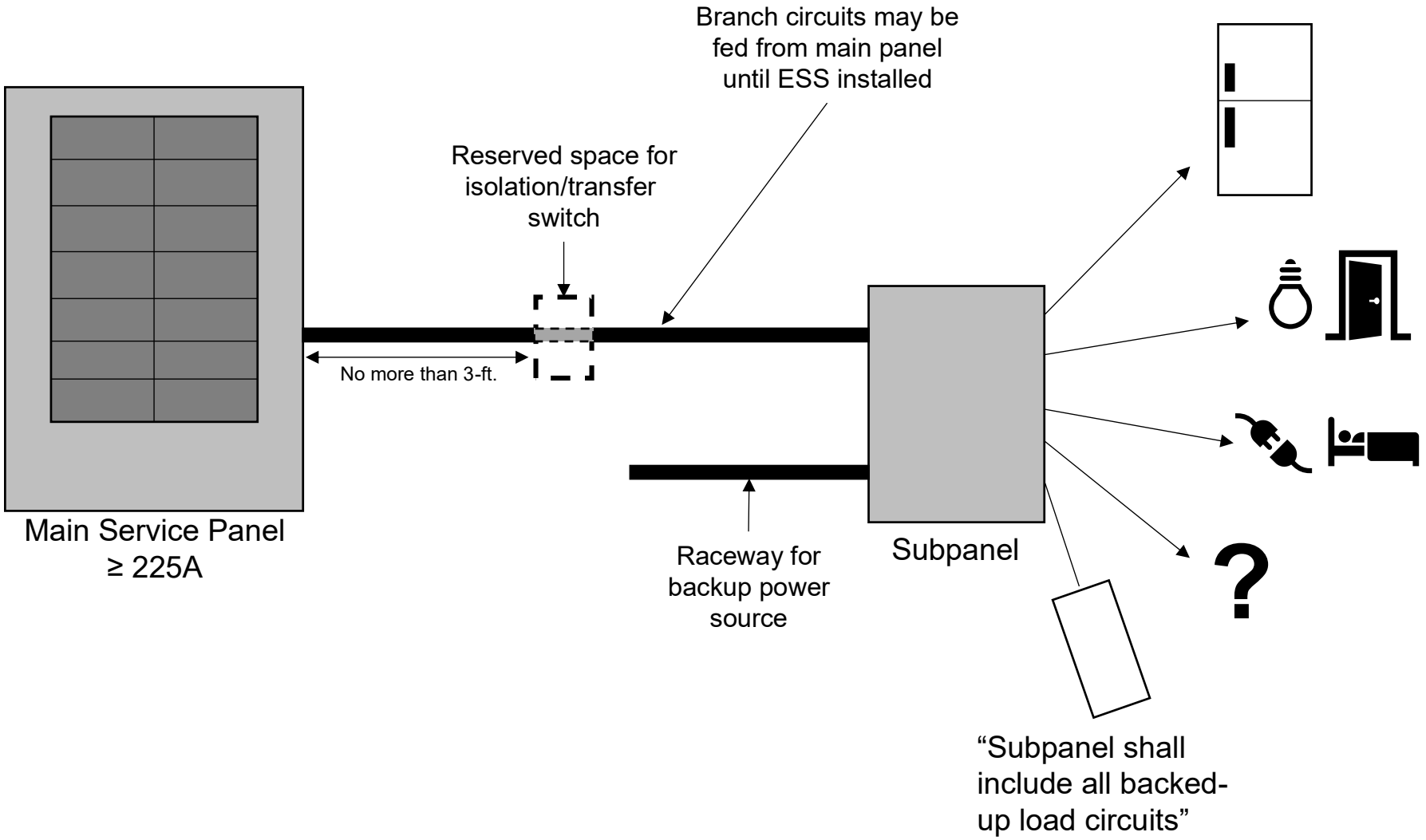
Battery Energy Storage Systems Ready Figure 1

Single-family § 150.0(s)1A



Battery Energy Storage Systems Ready Figure 2

Single-family § 150.0(s)1B



Check Your Understanding – Question 3

Battery energy storage systems (BESS) ready for newly constructed ADU

Does an ADU need to meet BESS-ready requirements?

- Yes. A newly constructed accessory dwelling unit of any size must meet the BESS-ready requirements. If the electric service for the ADU is 125 amps or less, the BESS-ready requirements will not apply as indicated in Section 150.0(s).
- See the FAQs for more information about BESS-ready

Check Your Understanding – Question 4

Battery energy storage systems (BESS) ready for newly constructed ADU

Does an ADU need dedicated 225-amp panel if subpanel is connected to existing main residence?

- No. Requirement is met if main panel in existing residence has 225-amp busbar rating
- See the FAQs for more information about BESS-ready

Photovoltaic Systems Prescriptive Requirements

Single-family § 150.1(c)14

Updated for 2025

- All newly constructed buildings require newly installed PV system or modules meeting JA11
- Minimum PV capacity (kW_{dc}) = whichever is smaller
  - Equation 150.1-C
    - $kW_{PV} = {}^{CFA \times A}/_{100} + (N_{DU} \times B)$
      - kW_{PV} = size of PV system
      - N_{DU} = Number of dwellings
      - A = CFA adjustment factor from Table 150.1-C
      - B = Dwelling adjusting factor from Table 150.1-C
  - Solar access roof area (SARA)
    - Steep slope roofs - SARA x 18 Watts/ft^2
    - Low slope roofs - SARA x 14 Watts/ft^2
- See the online FAQs

Solar Access Roof Area (SARA) Prescriptive Requirements

Single-family § 150.1(c)14A&B

Updated for 2025

- Includes area of building's roof space, area of roof space on covered parking areas, carports, and other newly constructed structures on site that can structurally support PV system
- Excludes roof area(s)
  - Less than 70% annual solar access
    - Divides total annual solar insolation with shading, by total annual solar insolation without shading
    - As calculated by Executive Director-approved solar assessment tool
  - Occupied per CBC §503.1.4
  - Roof area otherwise unavailable due to either
    - Other state building code requirements
    - Local building code requirements confirmed by Executive Director.

Exceptions to Solar PV Prescriptive Requirements

Single-family § 150.1(c)14

Updated for 2025

- **Exception 1:** Steep slope roofs areas with azimuth between 300 degrees and 90 degrees not included in SARA, no PV if SARA is less than 80 ft^2
- **Exception 2:** No PV system when required PV size is less than 1.8 kWdc
- **Exception 3:** Areas with high snow loads where PV is not possible
- **Exception 4:** Buildings approved by AHJ prior to January 1, 2020
  - Shading from roof designs and configurations for steep-sloped roofs included in SARA
  - Roof areas that are not allowed to have PV, not considered in SARA
- **Exception 5:** PV system size per Equation 150.1-C may be reduced by 25% if BESS installed
  - Meet requirements in Reference Joint Appendix JA12
  - Minimum compliance cycling capacity of 7.5 kWh as defined in JA12

Check Your Understanding – Question 5

PV for newly constructed ADU

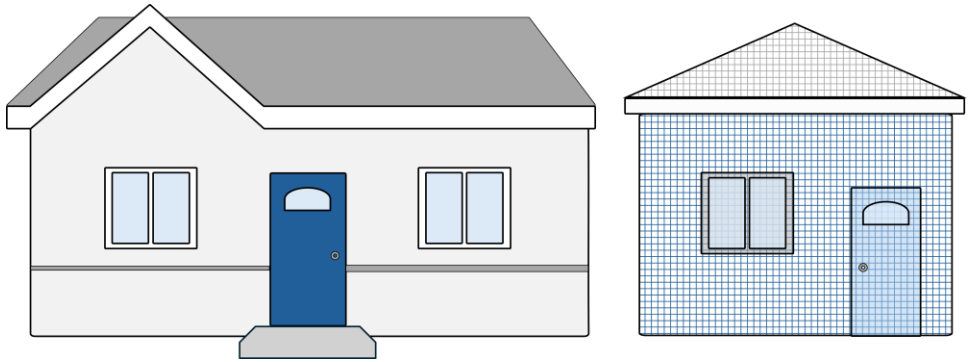
Does a newly built ADU need to comply with the PV requirements?

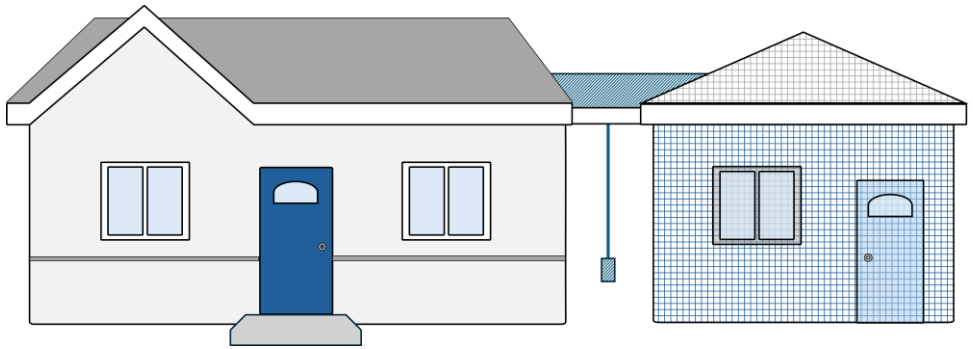
- Yes. PV requirements apply to all newly built single-family dwellings
  - Does not apply to additions or alterations
- Check exceptions for very small ADUs
  - No PV system when minimum required PV system is less than 1.8 kWdc per Exception 2 to § 150.1(c)14

Plan Check and Inspection

ADUs New Construction

Plan Check New Construction





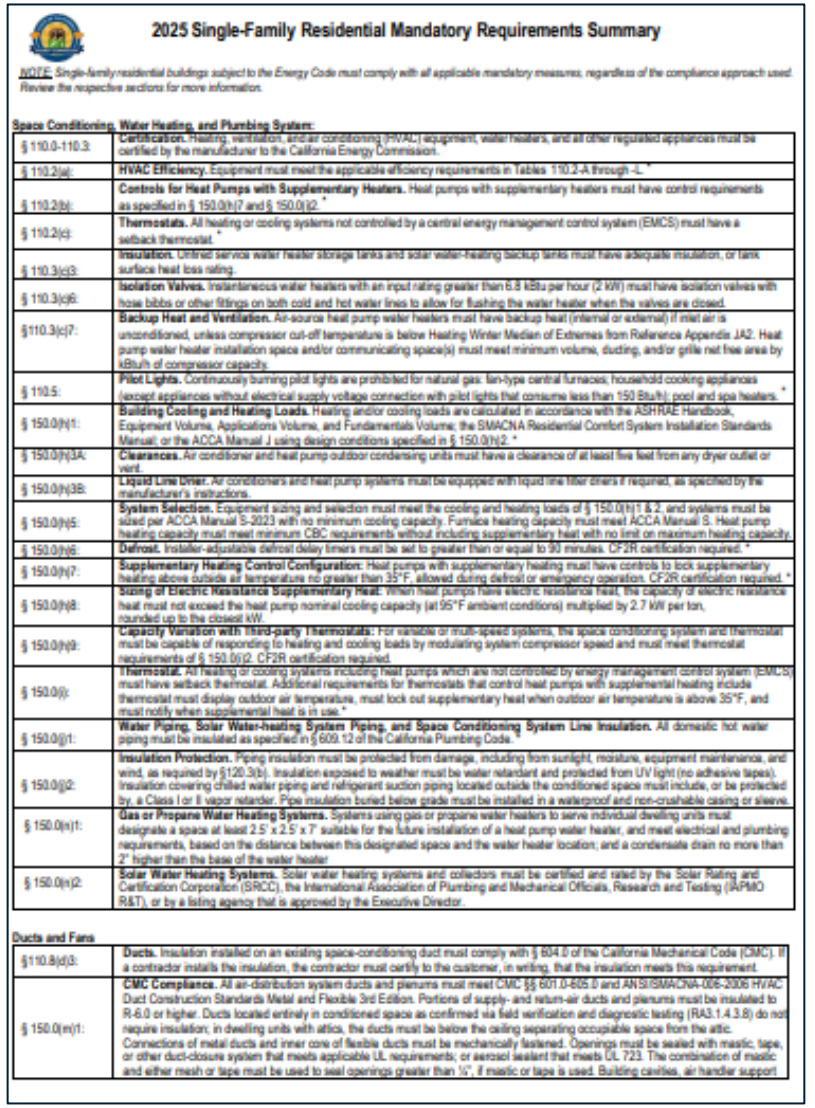
Types of new construction

- Detached newly constructed building
- Newly constructed with breezeway

Mandatory Requirements Summary

Single-family residential

- Designers may choose to include on plans
- Enforcement agencies may require on plans



2025 Single-Family Residential Mandatory Requirements Summary

NOTE: Single-family residential buildings subject to the Energy Code must comply with all applicable mandatory measures, regardless of the compliance approach used. Review the respective sections for more information.

Space Conditioning, Water Heating, and Plumbing System:

§ 110.0-110.3:	**Certification.** Heating, ventilation, and air conditioning (HVAC) equipment, water heaters, and all other regulated appliances must be certified by the manufacturer to the California Energy Commission.
§ 110.2(a):	**HVAC Efficiency.** Equipment must meet the applicable efficiency requirements in Tables 110.2-A through -L. *
§ 110.2(b):	**Controls for Heat Pumps with Supplementary Heaters.** Heat pumps with supplementary heaters must have control requirements as specified in § 150.0(h)7 and § 150.0(j)2. *
§ 110.2(c):	**Thermostats.** All heating or cooling systems not controlled by a central energy management control system (EMCS) must have a setback thermostat. *
§ 110.3(c)3:	**Insulation.** Unfired service water heater storage tanks and solar water-heating backup tanks must have adequate insulation, or tank surface heat loss rating.
§ 110.3(c)6:	**Isolation Valves.** Instantaneous water heaters with an input rating greater than 6.8 kBtu per hour (2 kW) must have isolation valves with hose bibbs or other fittings on both cold and hot water lines to allow for flushing the water heater when the valves are closed.
§110.3(c)7:	**Backup Heat and Ventilation.** Air-source heat pump water heaters must have backup heat (internal or external) if inlet air is unconditioned, unless compressor cut-off temperature is below Heating Winter Median of Extremes from Reference Appendix JA2. Heat pump water heater installation space and/or communicating space(s) must meet minimum volume, ducting, and/or grille net free area by kBtu/h of compressor capacity.
§ 110.5:	**Pilot Lights.** Continuously burning pilot lights are prohibited for natural gas: fan-type central furnaces; household cooking appliances (except appliances without electrical supply voltage connection with pilot lights that consume less than 150 Btu/h); pool and spa heaters. *
§ 150.0(h)1:	**Building Cooling and Heating Loads.** Heating and/or cooling loads are calculated in accordance with the ASHRAE Handbook, Equipment Volume, Applications Volume, and Fundamentals Volume; the SMACNA Residential Comfort System Installation Standards Manual; or the ACCA Manual J using design conditions specified in § 150.0(h)2. *
§ 150.0(h)3A:	**Clearances.** Air conditioner and heat pump outdoor condensing units must have a clearance of at least five feet from any dryer outlet or vent.
§ 150.0(h)3B:	**Liquid Line Drier.** Air conditioners and heat pump systems must be equipped with liquid line filter driers if required, as specified by the manufacturer's instructions.
§ 150.0(h)5:	**System Selection.** Equipment sizing and selection must meet the cooling and heating loads of § 150.0(h)1 & 2, and systems must be sized per ACCA Manual S-2023 with no minimum cooling capacity. Furnace heating capacity must meet ACCA Manual S. Heat pump heating capacity must meet minimum CBC requirements without including supplementary heat with no limit on maximum heating capacity.
§ 150.0(h)6:	**Defrost.** Installer-adjustable defrost delay timers must be set to greater than or equal to 90 minutes. CF2R certification required. *
§ 150.0(h)7:	**Supplementary Heating Control Configuration:** Heat pumps with supplementary heating must have controls to lock supplementary heating above outside air temperature no greater than 35°F, allowed during defrost or emergency operation. CF2R certification required. *
§ 150.0(h)8:	**Sizing of Electric Resistance Supplementary Heat:** When heat pumps have electric resistance heat, the capacity of electric resistance heat must not exceed the heat pump nominal cooling capacity (at 95°F ambient conditions) multiplied by 2.7 kW per ton, rounded up to the closest kW.
§ 150.0(h)9:	**Capacity Variation with Third-party Thermostats:** For variable or multi-speed systems, the space conditioning system and thermostat must be capable of responding to heating and cooling loads by modulating system compressor speed and must meet thermostat requirements of § 150.0(j)2. CF2R certification required.
§ 150.0(i):	**Thermostat.** All heating or cooling systems including heat pumps which are not controlled by energy management control system (EMCS) must have setback thermostat. Additional requirements for thermostats that control heat pumps with supplemental heating include thermostat must display outdoor air temperature, must lock out supplementary heat when outdoor air temperature is above 35°F, and must notify when supplemental heat is in use. *
§ 150.0(j)1:	**Water Piping, Solar Water-heating System Piping, and Space Conditioning System Line Insulation.** All domestic hot water piping must be insulated as specified in § 609.12 of the California Plumbing Code. *
§ 150.0(j)2:	**Insulation Protection.** Piping insulation must be protected from damage, including from sunlight, moisture, equipment maintenance, and wind, as required by §120.3(b). Insulation exposed to weather must be water retardant and protected from UV light (no adhesive tapes). Insulation covering chilled water piping and refrigerant suction piping located outside the conditioned space must include, or be protected by, a Class I or II vapor retarder. Pipe insulation buried below grade must be installed in a waterproof and non-crushable casing or sleeve.
§ 150.0(n)1:	**Gas or Propane Water Heating Systems.** Systems using gas or propane water heaters to serve individual dwelling units must designate a space at least 2.5' x 2.5' x 7' suitable for the future installation of a heat pump water heater, and meet electrical and plumbing requirements, based on the distance between this designated space and the water heater location; and a condensate drain no more than 2" higher than the base of the water heater
§ 150.0(n)2:	**Solar Water Heating Systems.** Solar water heating systems and collectors must be certified and rated by the Solar Rating and Certification Corporation (SRCC), the International Association of Plumbing and Mechanical Officials, Research and Testing (IAPMO R&T), or by a listing agency that is approved by the Executive Director.

Ducts and Fans

§110.8(d)3:	**Ducts.** Insulation installed on an existing space-conditioning duct must comply with § 604.0 of the California Mechanical Code (CMC). If a contractor installs the insulation, the contractor must certify to the customer, in writing, that the insulation meets this requirement.
§ 150.0(m)1:	**CMC Compliance.** All air-distribution system ducts and plenums must meet CMC §§ 601.0-605.0 and ANSI/SMACNA-006-2006 HVAC Duct Construction Standards Metal and Flexible 3rd Edition. Portions of supply- and return-air ducts and plenums must be insulated to R-6.0 or higher. Ducts located entirely in conditioned space as confirmed via field verification and diagnostic testing (RA3.1.4.3.8) do not require insulation; in dwelling units with attics, the ducts must be below the ceiling separating occupiable space from the attic. Connections of metal ducts and inner core of flexible ducts must be mechanically fastened. Openings must be sealed with mastic, tape, or other duct-closure system that meets applicable UL requirements; or aerosol sealant that meets UL 723. The combination of mastic and either mesh or tape must be used to seal openings greater than ¼", if mastic or tape is used. Building cavities, air handler support

New Construction
CF1R-PRF-01

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD **CF1R-PRF-01-E**

Project Name: Sample ADU- New construction **Calculation Date/Time:** 2025-11-13T14:04:11-08:00

Calculation Description: Sample ADU - New Construction **Input File Name:** Sample ADU- New construction.ribd25

GENERAL INFORMATION					
01	Project Name	Sample ADU- New construction			
02	Run Title	Sample ADU - New Construction			
03	Project Location	4567 ADU BLVD			
04	City	Sacramento, CA	05	Standards Version	2025
06	Zip code	95819	07	Software Version	CBECC-Res 2025.1.0
08	Climate Zone	12	09	Front Orientation (deg/ Cardinal)	270
10	Building Type	Single family	11	Number of Dwelling Units	1
12	Project Scope	Newly Constructed	13	Number of Bedrooms	1
14	Addition Cond. Floor Area (ft^2)	0	15	Number of Stories	1
16	Existing Cond. Floor Area (ft^2)	n/a	17	Fenestration Average U-factor	0.3
18	Total Cond. Floor Area (ft^2)	816	19	Glazing Percentage (%)	19.24%
20	ADU Bedroom Count	n/a	21	ADU Conditioned Floor Area	n/a
22	Fuel Type	Natural gas	23	No Dwelling Unit:	No

COMPLIANCE RESULTS	
01	Building Complies with Computer Performance
02	This building incorporates features that require field testing and/or verification by a certified HERS rater under the supervision of a CEC-approved HERS provider.
03	This building incorporates one or more Special Features shown below

New Construction CF1R-PRF-01

Compliance Summary				
	Long Term System Cost (LSC)[1]		Source Energy Use	Peak Cooling**
	Efficiency[2] ($/ft²-yr)	Total[3] ($/ft²-yr)	Total[3] (kBtu/ft²-yr)	Electricity (kWh)
Standard Design	17.26	32.37	19.71	293
Proposed Design	16.24	31.46	12.05	238
Compliance Margins	1.02	0.91	7.66	55
	Pass	Pass	Pass	Pass
RESULT*: Complies				

[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 efficient improvements such as better building envelope and more efficient mechanical equipment
[3]Total includes the sum of efficiency measures, solar photovoltaic (PV) measures and battery storage measures
* Building complies when Proposed Design is equal to or less than Standard Design in all three compliance categories
** Peak cooling target represents 120% of the standard design building peak cooling energy use.

New Construction
CF1R-PRF-01

LSC AND SOURCE ENERGY COMPLIANCE RESULTS FOR PERFORMANCE COMPONENTS						
Energy Use	Standard Design Source Energy (kBtu/ft^2 -yr)	Standard Design LSC[1] ($/ft^2 -yr)	Proposed Design Source Energy (kBtu/ft^2 -yr)	Proposed Design LSC[1] ($/ft^2 -yr)	Compliance Margin Source (kBtu/ft^2 -yr)	Compliance Margin LSC[1] ($/ft^2 -yr)
Space Heating	1.9	4.12	1.79	4.39	0.11	-0.27
Space Cooling	0.53	3.91	0.57	3.84	-0.04	0.07
IAQ Ventilation	0.25	0.97	0.25	0.97	0	0
Water Heating	9.57	8.26	1.98	7.04	7.59	1.22
Self Utilization/Flexibility Credit			0	0	0	0
Efficiency Compliance Total	**12.25**	**17.26**	**4.59**	**16.24**	**7.66**	**1.02**
Photovoltaics And Battery	-1.57	-9.6	-1.57	-9.49		
Flexibility			0			
Indoor Lighting	0.62	2.18	0.62	2.18		
Appl. & Cooking	5.28	10.76	5.28	10.76		
Plug Loads	2.99	11.3	2.99	11.3		
Outdoor Lighting	0.14	0.47	0.14	0.47		
TOTAL COMPLIANCE	**19.71**	**32.37**	**12.05**	**31.46**		

New Construction
CF1R-PRF-01

ENERGY USE INTENSITY				
	Standard Design (kBtu/ft^2 - yr)	Proposed Design (kBtu/ft^2 - yr)	Margin (kBtu/ft^2 - yr)	Margin Percentage
Gross EUI[1]	22.14	21.61	0.53	2.39
Net EUI[2]	9.65	9.13	0.52	5.39

Notes
1. Gross EUI is Energy Use Total (not including PV) / Total Building Area.
2. Net EUI is Energy Use Total (including PV) / Total Building Area.

REQUIRED PV SYSTEMS

01	02	03	04	05	06	07	08	09	10	11	12
DC System Size (kWdc)	Exception	Module Type	Array Type	Power Electronics	CFI	Azimuth (deg)	Tilt Input	Array Angle (deg)	Tilt: (x in 12)	Inverter Eff. (%)	Annual Solar Access (%)
1.9	NA	Standard (14-17%)	Fixed	none	true	150-270	n/a	n/a	<=7:12	96	98

REQUIRED SPECIAL FEATURES

The following are features that must be installed as condition for meeting the modeled energy performance for this computer analysis.

- PV System: 1.9 kWdc
- Whole house fan
- Cool roof
- Insulation below roof deck
- Northwest Energy Efficiency Alliance (NEEA) rated heat pump water heater; specific brand/model, or equivalent, must be installed
- One or more heat pump water heaters have been modeled as demand response compatible

New Construction
CF1R-PRF-01

ECC FEATURE SUMMARY

The following is a summary of the features that must be field-verified by a certified ECC Rater as a condition for meeting the modeled energy performance for this computer analysis. Additional detail is provided in the building tables below. Registered CF2Rs and CF3Rs are required to be completed in the ECC Registry

- Quality insulation installation (QII)
- Indoor air quality ventilation
- Kitchen range hood
- Whole house fan airflow and fan efficacy
- Minimum Airflow
- Verified Refrigerant Charge
- Fan Efficacy Watts/CFM
- Verified heat pump rated heating capacity
- Duct leakage testing

BUILDING - FEATURES INFORMATION

01	02	03	04	05	06	07
Project Name	Conditioned Floor Area (ft^2)	Number of Dwelling Units	Number of Bedrooms	Number of Zones	Number of Ventilation Cooling Systems	Number of Water Heating Systems
Sample ADU- New construction	816	1	1	1	1	1

ZONE INFORMATION

01	02	03	04	05	06	07
Zone Name	Zone Type	HVAC System Name	Zone Floor Area (ft^2)	Avg. Ceiling Height	Water Heating System 1	Status
ADU	Conditioned	HP HVAC System	816	9	DHW System 1	New

OPAQUE SURFACES SUMMARY

01	02	03	04	05	06	07	08
Name	Zone	Construction	Azimuth	Orientation	Gross Area (ft^2)	Window and Door Area (ft2)	Tilt (deg)
Front Wall	ADU	R21 R5 Stucco Wall	270	Front	306	60	90
Left Wall	ADU	R-21+R-5 Wall	0	Left	216	0	90
Right Wall	ADU	R-21+R-5 Wall	180	Right	216	64	90
Rear Wall	ADU	R-21+R-5 Wall	90	Back	306	33	90

New Construction
CF1R-PRF-01

OPAQUE SURFACES SUMMARY

01	02	03	04	05	06	07	08
Name	Zone	Construction	Azimuth	Orientation	Gross Area (ft^2)	Window and Door Area (ft2)	Tilt (deg)
Ceiling below attic	ADU	R38 Ceiling below attic	n/a	n/a	816	n/a	n/a
Floor Over Crawlspace	ADU	R-19 Crawspace	n/a	n/a	816	n/a	n/a

ATTIC

01	02	03	04	05	06	07	08a
Name	Construction	Type	Roof Rise (x in 12)	CRRC Rated Roof Reflectance	CRRC Rated Roof Emittance	Radiant Barrier	Above Roof Deck Air Gap
Attic	Tile Roof +R-19 BRD	Ventilated	5	0.2	0.85	No	Yes

FENESTRATION / GLAZING

01	02	03	04	05	06	07	08	09	10
Name	Type	Surface	Orientation	Azimuth	Mult.	Area (ft^2)	U-factor	SHGC	Rating Source
Window 1	Window	Front Wall	Front	270	1	20	0.3	0.23	NFRC
Window 2	Window	Front Wall	Front	270	1	20	0.3	0.23	NFRC
Window 6	Window	Right Wall	Right	180	1	24	0.3	0.23	NFRC
Window 7	Window	Right Wall	Right	180	1	40	0.3	0.23	NFRC
Window 3	Window	Rear Wall	Back	90	1	20	0.3	0.23	NFRC
Window 4	Window	Rear Wall	Back	90	1	4	0.3	0.23	NFRC
Window 5	Window	Rear Wall	Back	90	1	9	0.3	0.23	NFRC
Total North Facing Fenestration						40			
Total East Facing Fenestration						64			
Total South Facing Fenestration						33			

New Construction
CF1R-PRF-01

FENESTRATION / GLAZING

01	02	03	04	05	06	07	08	09	10
Name	Type	Surface	Orientation	Azimuth	Mult.	Area (ft^2)	U-factor	SHGC	Rating Source
Total West Facing Fenestration						0			

OPAQUE DOORS

01	02	03	04	05
Name	Side of Building	Area (ft^2)	U-factor	NFRC Rating Req.
Front Door	Front Wall	20	0.2	Yes

OPAQUE SURFACE CONSTRUCTIONS

01	02	03	04	05	06	07	08
Construction Name	Surface Type	Construction Type	Framing	Total Cavity R-value	Interior / Exterior Continuous R-value	U-factor	Assembly Layers
R-21+R-5 Wall	Exterior Walls	Wood Framed Wall	2x6 @ 16 in. O. C.	R-21	None / 5	0.048	Inside Finish: Gypsum Board Cavity / Frame: R-21 / 2x6 Sheathing / Insulation: R-5 Sheathing Exterior Finish: Synthetic Stucco
R21 R5 Stucco Wall	Exterior Walls	Wood Framed Wall	2x6 @ 16 in. O. C.	R-21	None / 5	0.048	Inside Finish: Gypsum Board Cavity / Frame: R-21 / 2x6 Sheathing / Insulation: R-5 Sheathing Exterior Finish: Synthetic Stucco
Tile Roof +R-19 BRD	Attic Roofs	Wood Framed Ceiling	2x4 Top Chord of Roof Truss @ 24 in. O. C.	R-19	None / None	0.049	Roofing: 10 PSF (RoofTileAirGap) Tile Gap: present Roof Deck: Wood Siding/sheathing/decking Cavity / Frame: R-13.0 / 2x4 Top Chrd Under Roof Joists: R-6.0 insul.

New Construction
CF1R-PRF-01

Project Name: Sample ADU- New construction **Calculation Date/Time:** 2026-03-12T09:54:21-07:00
Calculation Description: Sample ADU - New Construction **Input File Name:** Sample ADU- New construction.ribd25

OPAQUE SURFACE CONSTRUCTIONS

01	02	03	04	05	06	07	08
Construction Name	Surface Type	Construction Type	Framing	Total Cavity R-value	Interior / Exterior Continuous R-value	U-factor	Assembly Layers
R-19 Crawspace	Floors Over Crawlspace	Wood Framed Floor	2x6 @ 16 in. O. C.	R-19	None / None	0.049	Floor Surface: Carpeted Floor Deck: Wood Siding/sheathing/decking Cavity / Frame: R-19 / 2x6
R38 Ceiling below attic	Ceilings (below attic)	Wood Framed Ceiling	2x4 Bottom Chord of Truss @ 24 in. O. C.	R-38	None / None	0.025	Over Ceiling Joists: R-28.9 insul. Cavity / Frame: R-9.1 / 2x4 Btm Chrd Inside Finish: Gypsum Board

WATER HEATING SYSTEMS

01	02	03	04	05	06	07	08	09
Name	System Type	Distribution Type	Water Heater Name	Number of Units	Solar Heating System	Compact Distribution	ECC Verification	Water Heater Name (#)
DHW System 1	Domestic Hot Water (DHW)	Standard	HPWH NEEA T3	1	n/a	None	n/a	HPWH NEEA T3 (1)

WATER HEATERS - NEEA HEAT PUMP

01	02	03	04	05	06	07	08	09	10
Name	# of Units	Tank Vol. (gal)	NEEA Heat Pump Brand	NEEA Heat Pump Model	Tank Location	Duct Inlet Air Source	Duct Outlet Air Source	UEF	JA13 Compliant
HPWH NEEA T3	1	80	A. O. Smith	AOSmithHP1080 H45DVCTA130	Outside	Outside	Outside	n/a	☒

New Construction
CF1R-PRF-01

HVAC - HEAT PUMPS

01	02	03	04	05	06	07	08	09	10	11	12
Name	System Type	Number of Units	Heating				Cooling			Airflow Target	Fan Power (Watts/CFM)
			Heating Efficiency Type	HSPF/HSPF2/COP	Cap 47	Cap 17	Cooling Efficiency Type	SEER/SEER2	EER/EER2/CEER		
HeatPumpSystem	Central split HP	1	HSPF2	7.5	36000	22536	EER2/SEER2	14.3	11.7	0	0.58

HVAC - DISTRIBUTION SYSTEMS

01	02	03	04	05	06	07
Name	Type	Design Type	Duct Ins. R-value		Duct Location	
			Supply/Return		Supply	Return
R-8 Ducts Attic	Unconditioned attic	Non-Verified	R-8		Attic	Attic

INDOOR AIR QUALITY (IAQ) FANS

01	02	03	04	05	06	07	08
Dwelling Unit	Airflow (CFM)	Fan Efficacy (W/CFM)	IAQ Fan Type	Includes Heat/Energy Recovery?	IAQ Recovery Effectiveness - ASRE	Includes Fault Indicator Display?	Status
SFam IAQVentRpt	39	0.35	Exhaust	No	n/a / n/a	No	

COOLING VENTILATION

01	02	03	04	05	06	07	08	09
Name	Airflow Rate (CFM/ft2)	Cooling Vent CFM	Cooling Vent Watts/CFM	Total Watts	Number of Fans	CFVCS Type	Exhausts to	ECC Verification
Whole House Fan 2	1.5	1224	0.14	171.36	1	Not a CFVCS	Attic	Required

Field Inspection New Construction

For newly constructed buildings

- ADUs are no different than primary dwelling units
- Verify ECC inspections complete
- Verify all compliance documents are registered
- Ask for Project Status Report
- If gas appliances, ensure electric-ready

Project Status Report (PSR)

- Summarizes status of all required compliance documents
- Available for all projects registered with ECC provider
- Online access to registry
- Request hard copy at final inspection to verify compliance
- ECC and overall status marked **Complete** to pass inspection

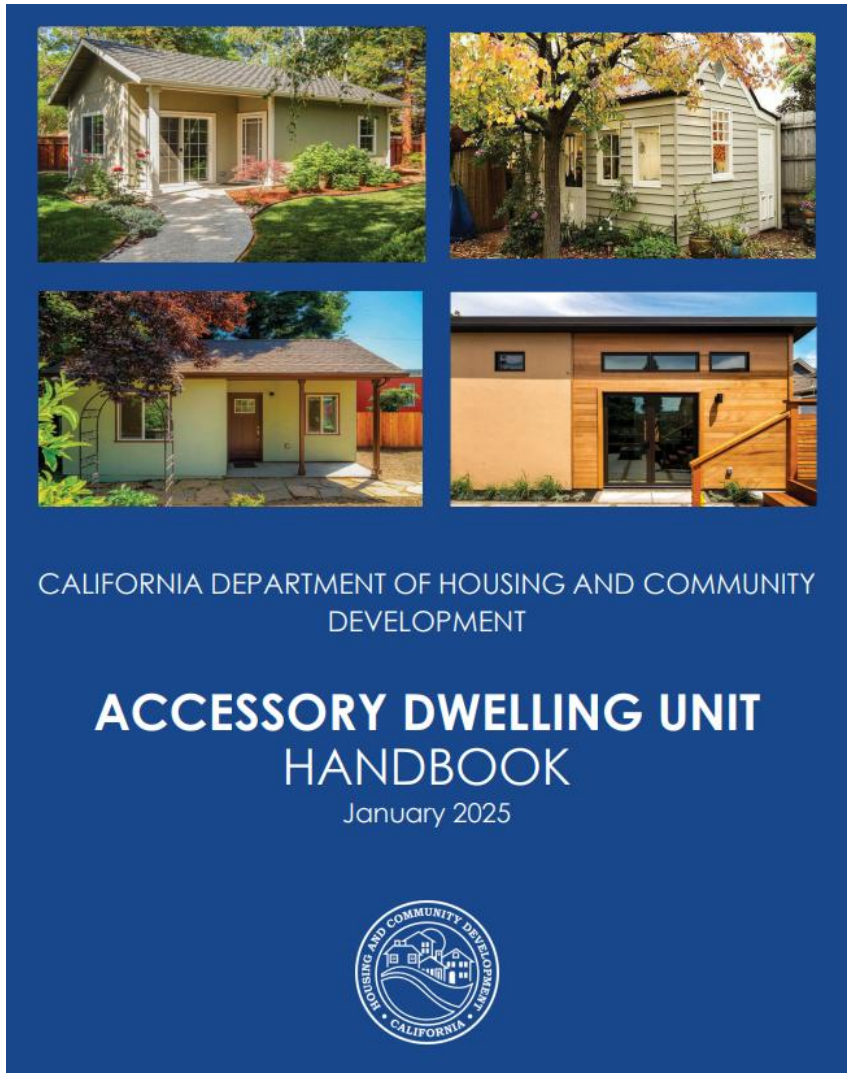
Check Your Understanding – Question 6

Do newly constructed ADUs require ECC testing?

- Yes. ECC verification is required:
  - IAQ fan required 100% of the time
  - Vented kitchen range hood installed
  - QII, HVAC, duct testing - when required
  - All compliance documents must be registered with ECC registry
    - Compliance documents must have registration number and watermark

Resources

HCD ADU Resources

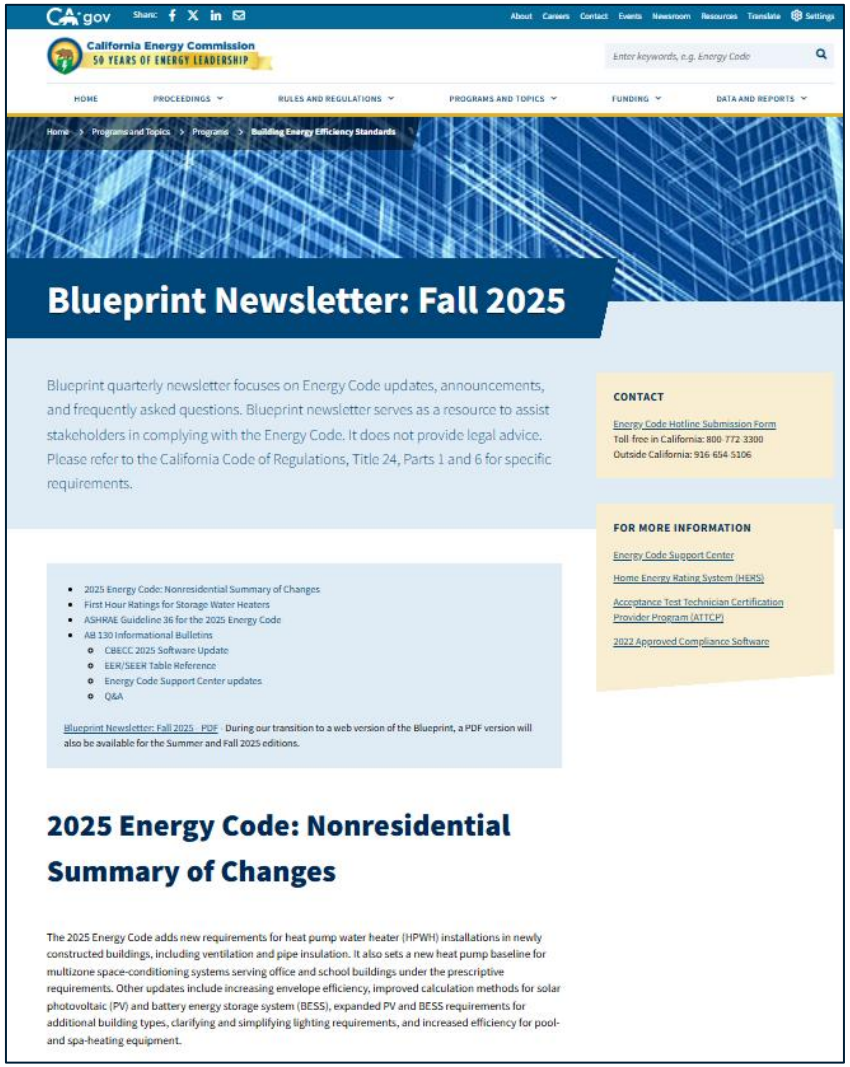


- HCD Accessory Dwelling Unit Handbook
- HCD Factory Built Housing

Blueprint Newsletter

Energy Code quarterly newsletter

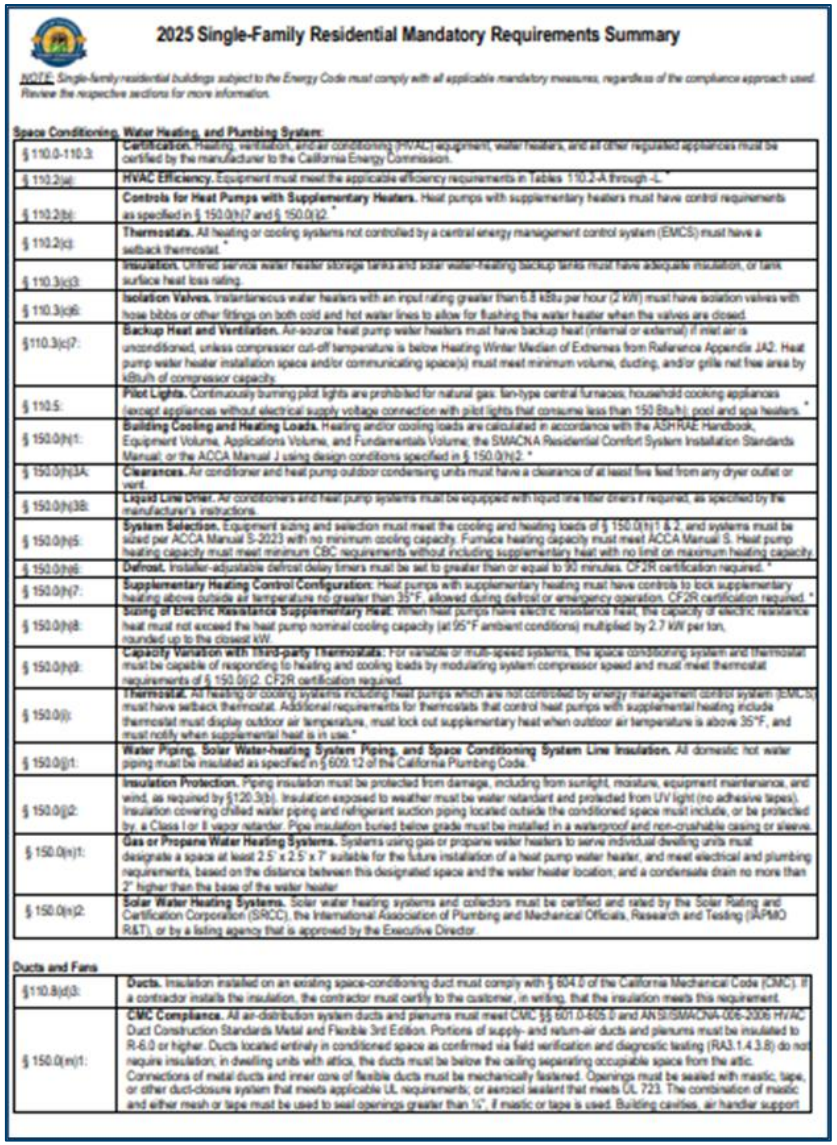
- New webpage format
- Updates
- Clarifications
- Frequently asked questions



Single-family Summary

What's New for Single-family

- Summary of significant changes
- Code references
- Mandatory requirements summary
- Download from the Energy Code Support Center



2025 Single-Family Residential Mandatory Requirements Summary

NOTE: Single-family residential buildings subject to the Energy Code must comply with all applicable mandatory measures, regardless of the compliance approach used. Review the respective sections for more information.

Space Conditioning, Water Heating, and Plumbing System:

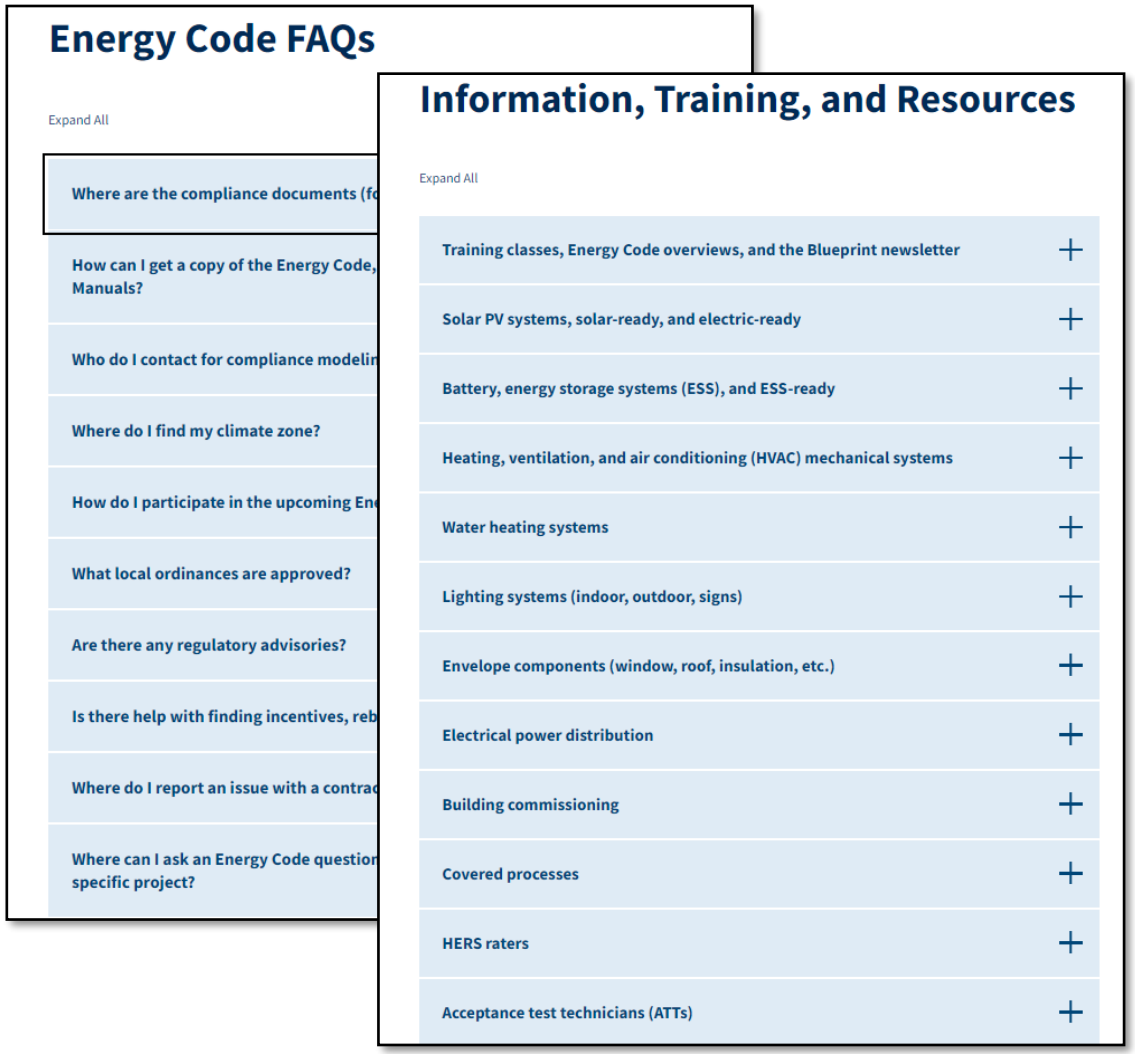
§ 110.0-110.3:	**Certification.** Heating, ventilation, and air conditioning (HVAC) equipment, water heaters, and all other regulated appliances must be certified by the manufacturer to the California Energy Commission.
§ 110.2(a):	**HVAC Efficiency.** Equipment must meet the applicable efficiency requirements in Tables 110.2-A through -L. *
§ 110.2(b):	**Controls for Heat Pumps with Supplementary Heaters.** Heat pumps with supplementary heaters must have control requirements as specified in § 150.0(h)7 and § 150.0(j)2. *
§ 110.2(c):	**Thermostats.** All heating or cooling systems not controlled by a central energy management control system (EMCS) must have a setback thermostat. *
§ 110.3(c)3:	**Insulation.** Unfired service water heater storage tanks and solar water-heating backup tanks must have adequate insulation, or tank surface heat loss rating.
§ 110.3(c)6:	**Isolation Valves.** Instantaneous water heaters with an input rating greater than 6.8 kBtu per hour (2 kW) must have isolation valves with hose bibbs or other fittings on both cold and hot water lines to allow for flushing the water heater when the valves are closed.
§110.3(c)7:	**Backup Heat and Ventilation.** Air-source heat pump water heaters must have backup heat (internal or external) if inlet air is unconditioned, unless compressor cut-off temperature is below Heating Winter Median of Extremes from Reference Appendix JA2. Heat pump water heater installation space and/or communicating space(s) must meet minimum volume, ducting, and/or grille net free area by kBtu/h of compressor capacity.
§ 110.5:	**Pilot Lights.** Continuously burning pilot lights are prohibited for natural gas: fan-type central furnaces; household cooking appliances (except appliances without electrical supply voltage connection with pilot lights that consume less than 150 Btu/h); pool and spa heaters. *
§ 150.0(h)1:	**Building Cooling and Heating Loads.** Heating and/or cooling loads are calculated in accordance with the ASHRAE Handbook, Equipment Volume, Applications Volume, and Fundamentals Volume; the SMACNA Residential Comfort System Installation Standards Manual; or the ACCA Manual J using design conditions specified in § 150.0(h)2. *
§ 150.0(h)3A:	**Clearances.** Air conditioner and heat pump outdoor condensing units must have a clearance of at least five feet from any dryer outlet or vent.
§ 150.0(h)3B:	**Liquid Line Drier.** Air conditioners and heat pump systems must be equipped with liquid line filter driers if required, as specified by the manufacturer's instructions.
§ 150.0(h)5:	**System Selection.** Equipment sizing and selection must meet the cooling and heating loads of § 150.0(h)1 & 2, and systems must be sized per ACCA Manual S-2023 with no minimum cooling capacity. Furnace heating capacity must meet ACCA Manual S. Heat pump heating capacity must meet minimum CBC requirements without including supplementary heat with no limit on maximum heating capacity.
§ 150.0(h)6:	**Defrost.** Installer-adjustable defrost delay timers must be set to greater than or equal to 90 minutes. CF2R certification required. *
§ 150.0(h)7:	**Supplementary Heating Control Configuration:** Heat pumps with supplementary heating must have controls to lock supplementary heating above outside air temperatures no greater than 35°F, allowed during defrost or emergency operation. CF2R certification required. *
§ 150.0(h)8:	**Sizing of Electric Resistance Supplementary Heat.** When heat pumps have electric resistance heat, the capacity of electric resistance heat must not exceed the heat pump nominal cooling capacity (at 95°F ambient conditions) multiplied by 2.7 kW per ton, rounded up to the closest kW.
§ 150.0(h)9:	**Capacity Variation with third-party Thermostats:** For variable or multi-speed systems, the space conditioning system and thermostat must be capable of responding to heating and cooling loads by modulating system compressor speed and must meet thermostat requirements of § 150.0(j)2. CF2R certification required.
§ 150.0(i):	**Thermostat.** All heating or cooling systems including heat pumps which are not controlled by energy management control system (EMCS) must have setback thermostat. Additional requirements for thermostats that control heat pumps with supplemental heating include thermostat must display outdoor air temperature, must lock out supplemental heat when outdoor air temperature is above 35°F, and must notify when supplemental heat is in use. *
§ 150.0(j)1:	**Water Piping, Solar Water-heating System Piping, and Space Conditioning System Line Insulation.** All domestic hot water piping must be insulated as specified in § 609.12 of the California Plumbing Code. *
§ 150.0(j)2:	**Insulation Protection.** Piping insulation must be protected from damage, including from sunlight, moisture, equipment maintenance, and wind, as required by §120.3(b). Insulation exposed to weather must be water retardant and protected from UV light (no adhesive tapes). Insulation covering chilled water piping and refrigerant suction piping located outside the conditioned space must include, or be protected by, a Class I or II vapor retarder. Pipe insulation buried below grade must be installed in a waterproof and non-crushable casing or sleeve.
§ 150.0(n)1:	**Gas or Propane Water Heating Systems.** Systems using gas or propane water heaters to serve individual dwelling units must designate a space at least 2.5' x 2.5' x 7' suitable for the future installation of a heat pump water heater, and meet electrical and plumbing requirements, based on the distance between this designated space and the water heater location; and a condensate drain no more than 2" higher than the base of the water heater.
§ 150.0(n)2:	**Solar Water Heating Systems.** Solar water heating systems and collectors must be certified and rated by the Solar Rating and Certification Corporation (SRCC), the International Association of Plumbing and Mechanical Officials, Research and Testing (IAPMO R&T), or by a listing agency that is approved by the Executive Director.

Ducts and Fans

§110.8(d)3:	**Ducts.** Insulation installed on an existing space-conditioning duct must comply with § 604.0 of the California Mechanical Code (CMC). If a contractor installs the insulation, the contractor must certify to the customer, in writing, that the insulation meets this requirement.
§ 150.0(m)1:	**CMC Compliance.** All air-distribution system ducts and plenums must meet CMC §§ 601.0-605.0 and ANSI/SMACNA-006-2006 HVAC Duct Construction Standards Metal and Flexible 3rd Edition. Portions of supply- and return-air ducts and plenums must be insulated to R-6.0 or higher. Ducts located entirely in conditioned space as confirmed via field verification and diagnostic testing (RA3.1.4.3.8) do not require insulation; in dwelling units with attics, the ducts must be below the ceiling separating occupiable space from the attic. Connections of metal ducts and inner core of flexible ducts must be mechanically fastened. Openings must be sealed with mastic, tape, or other duct-closure system that meets applicable UL requirements; or aerosol sealant that meets UL 723. The combination of mastic and either mesh or tape must be used to seal openings greater than ¼", if mastic or tape is used. Building cavities, air handler support

Energy Code Support Center

Visit the webpage



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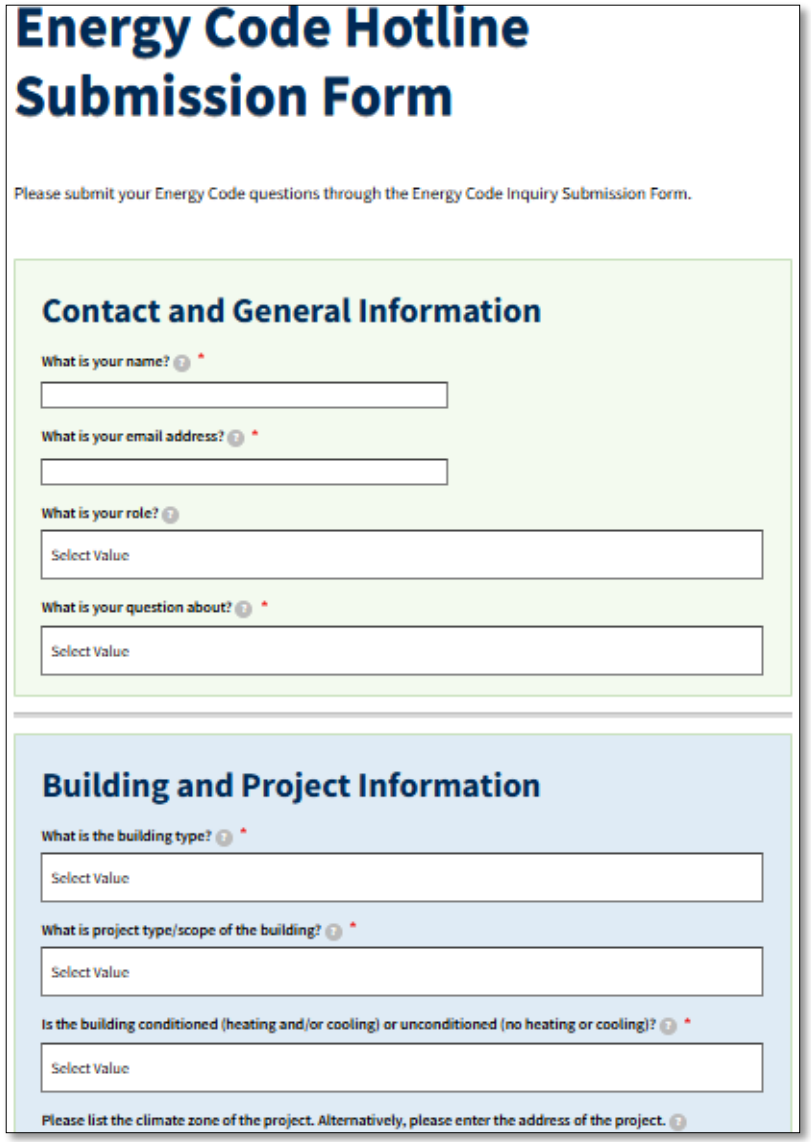

Energy Code Hotline Submission Form

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? *

What is your role?

Select Value

What is your question about? *

Select Value

Building and Project Information

What is the building type? *

Select Value

What is project type/scope of the building? *

Select Value

Is the building conditioned (heating and/or cooling) or unconditioned (no heating or cooling)? *

Select Value

Please list the climate zone of the project. Alternatively, please enter the address of the project.

- Monday through Friday
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  - 1:00 p.m. to 4:30 p.m.
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- Compliance Software Support
  - CBECC-Res
    - cbecc.res@energy.ca.gov
  - CBECC
    - cbecc@energy.ca.gov

ECC Program

ECC Program information

CHEERS

- Newly constructed buildings single-family and low-rise multifamily homes
- Additions to existing single-family and LRMF homes
- Alterations of single-family homes and multifamily dwelling units
- Efficiency measure in dwelling units and mechanical systems in nonresidential buildings

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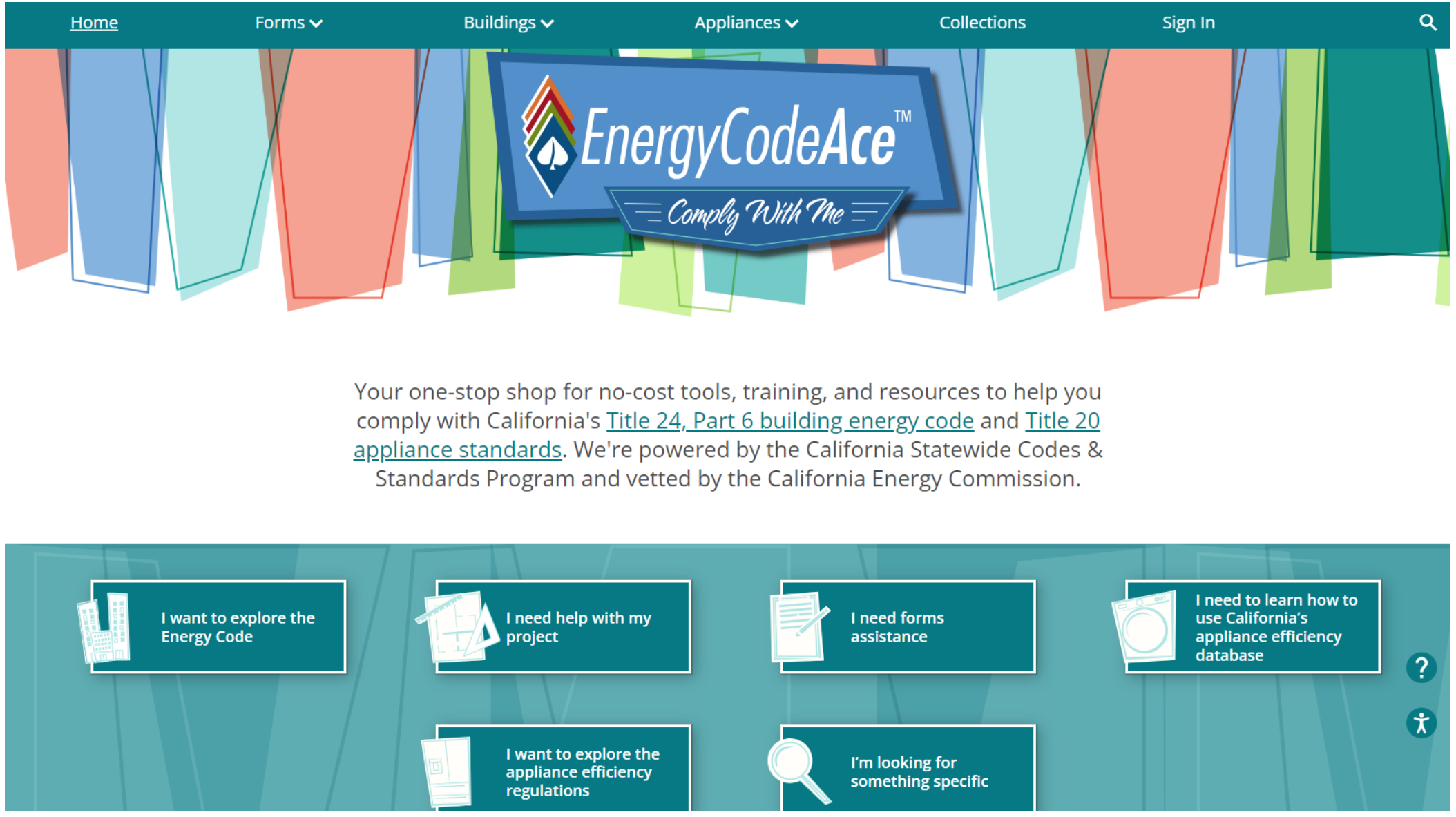
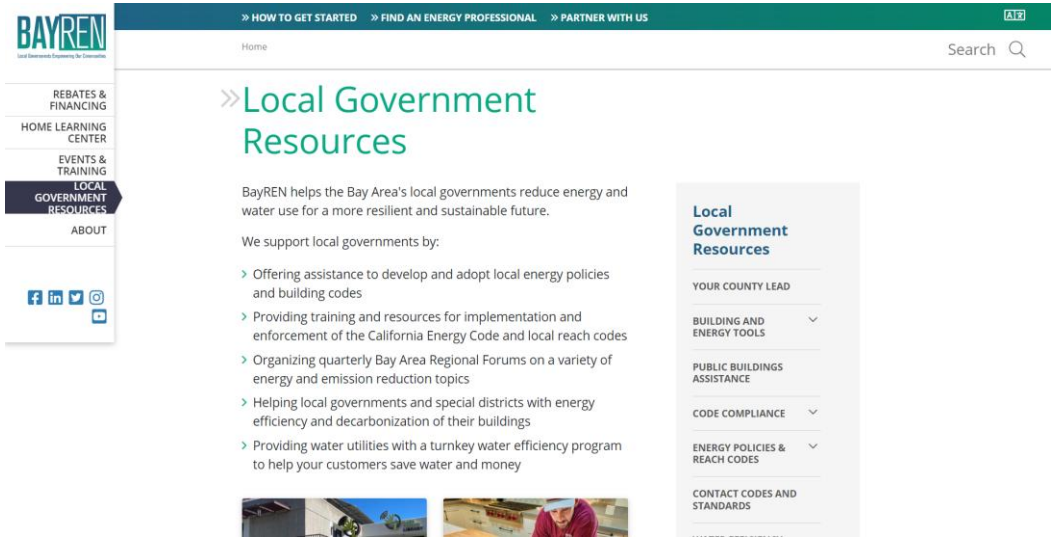
Energy Code Ace



Local RENs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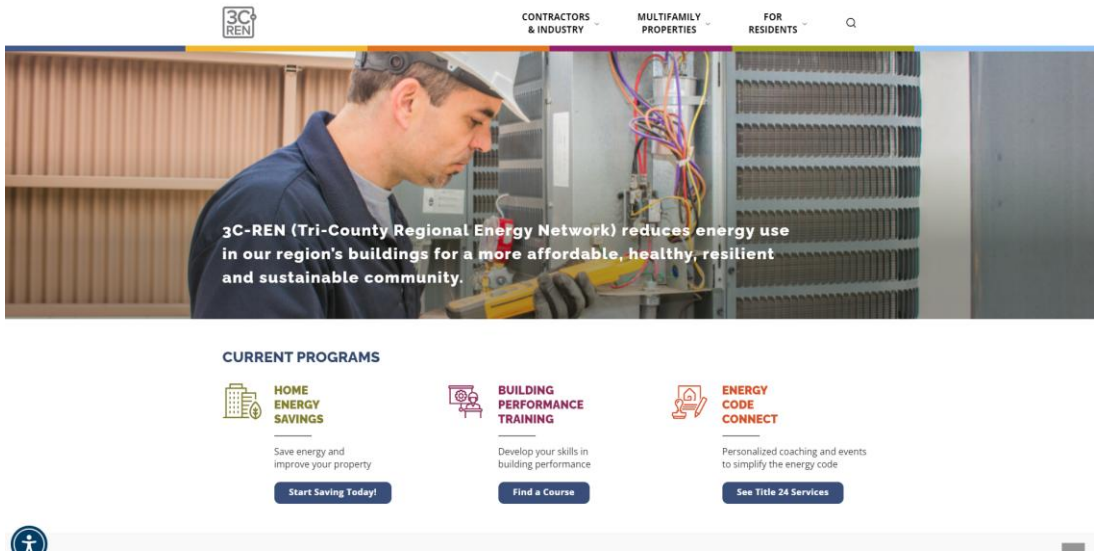
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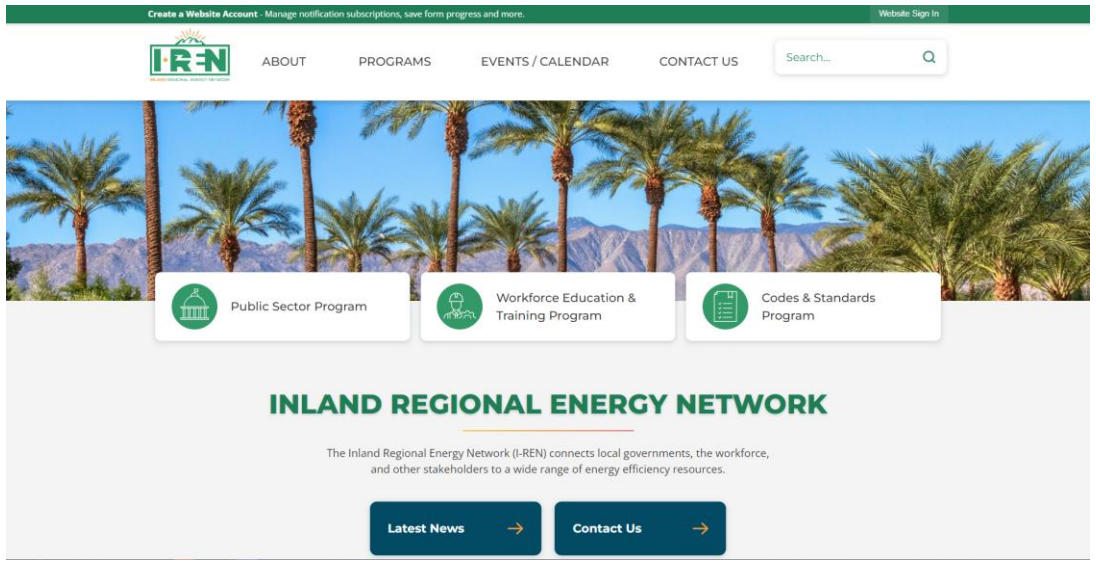
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