



# California Energy Commission

## 2025 Building Energy Efficiency Standards

### What's New for Multifamily Buildings

#### Solar PV and Battery Energy Storage Systems

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

#### HVAC

- Multifamily dwelling units must have balanced or supply ventilation system, with compartmentalization verified by ECC-Rater. Section 160.2(b)2Aivb
- Adds mandatory requirements for balanced and supply-only ventilation to have accessible air filters, including HRV/ERVs for attached dwelling units. Section 160.2(b)2Axi
- Adds exception in Climate Zone 6 for central ventilation system duct sealing requirements for dwelling units. Section 160.2(b)2C
- Updates mandatory requirements for dwelling units: exception for block loads in determining system size for addition; outdoor design conditions may be selected using ASHRAE Handbook, Fundamental Volume, or ACCA Manual J; defrost requirements for heat pumps with defrost delay timer; thermostat requirements for variable or multi-speed systems. Section 160.3(b)
- Adds mandatory acceptance testing requirements for DOAS and HRV/ERV systems, with some exceptions. Section 160.3(d)1D
- Updates prescriptive requirements: balanced systems with HRV/ERV for dwelling units in Climate Zones 1, 2, 4, 11-14, 16; all HRVs and ERVs for dwelling units to have fault indicator display (FID) with ECC-rater verification. Section 170.2(c)3B
- Updates prescriptive requirement for cooling tower to have minimum rated efficiency per Table 170.2-I. Section 170.2(c)4Fv
- Revises prescriptive requirements for dedicated outdoor air systems (DOAS). Section 170.2(c)4N
- Adds exception for dwelling unit air leakage test for additions. Section 180.1(a)2

#### Lighting

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

- Control interactions for occupied-standby space-conditioning zones. Section 160.5(b)4F
- Clarifies which outdoor luminaires require motion sensors. Section 160.5(c)2Ci
- Removes prescriptive Tailored Method of calculating lighting power allowances in common use areas; some allowances moved to Area Category Method. Removes most automatically-compliant sign light sources. Section 170.2(e)

### **Envelope**

- Updates mandatory wall insulation maximum U-factors: metal framed U-factor 0.151, wood framed and others for 2x4" framing U-factor 0.095, for 2x6" framing U-factor 0.069. Section 160.1(b)
- Updates prescriptive roofing product efficiencies in Table 170.2-A: maximum aged solar reflectance (SR) for Option B steep-sloped roofs aged SR 0.25 in Climate Zones 10, 11, 13, 15, Aged SR 0.20 in Climate Zones 12, 14; Option D low-sloped roofs aged SR 0.63, thermal emittance 0.75, SRI 75 in Climate Zones 2, 4, 6-15. Section 170.2(a)1A
- Updates prescriptive fenestration maximum U-factors in Table 170.2-A for all other fenestration: U-factor 0.28 in climates zones 1,3-5, 11, 13-16, U-factor 0.30 in Climate Zones 2, 8-10, 12, U-factor 0.34 in Climate Zones 6, 7. Section 170.2(a)3

### **Electric Ready**

- Relocates HPWH-ready requirements; adds mandatory heat pump water heater (HPWH) ready for individual dwellings and central systems, including dedicated receptacle, condensate drain, designated space, and ventilation. Section 160.9(e-f)

### **Water Heating**

- Updates backup heat required for HPWHs with unconditioned inlet air, unless compressor cutoff temperature below local Heating Winter Median of Extremes; adds ventilation or minimum space volume requirements when installing consumer integrated HPWH. Section 110.3(c)7
- Adds piping insulation requirements, insulation on first 8 feet of cold water piping, insulation continuity, pipe supports must be on outside of insulation, isolation valves must be extended-stem, and insulation for hot water plumbing appurtenances. Section 160.4(e)
- Updates prescriptive water heater options for multifamily dwellings with individual water heaters, removes gas tankless water heaters (low-rise only), adds 120V HPWH. Section 170.2(d)1
- Updates prescriptive requirements for central systems: HPWH can meet NEEA Advanced Water Heater Specification for Commercial HPWH Tier 2; main HPWH must be single-pass; all hot water pipes must meet California Plumbing Code Appendix M; systems serving buildings with more than 8 dwellings must have recirculation systems with thermostatic mixing valve on each supply and return loop, meet RA4.4.19; pipe insulation requires ECC-rater verification per RA3.6.3. Section 170.2(d)2

### **Pools and Spas**

- Adds pool/spa heaters must be tested to new standards, by fuel type. Section 110.4(b)
- Add requirement for primary pool/spa heaters to be heat pump and/or solar, or use at least 60% renewable/recovered energy, sized appropriately. Section 110.4(c)
- Updates controls for heat pump pool heaters must prevent supplementary heating when load can be met by heat pump alone. Section 110.4(d)
- Updates public pools/spas must meet requirements under Section 150.0(p)2-4. Section 160.7(b)

### **Performance Compliance**

- Energy budget expressed in terms of long-term system cost (LSC) and source energy; LSC is categorized as Total LSC and Efficiency LSC; Total LSC is the sum of Efficiency LSC, photovoltaic system LSC, battery energy storage system LSC, and demand flexibility LSC; Efficiency LSC energy is the sum of the LSC energy for space-conditioning, water heating, mechanical ventilation, lighting, and self-utilization credit; and the source energy budget sums the same end uses as Total LSC, but in source energy. For multifamily, the source energy budget applies the mandatory and prescriptive requirements of the standard design, except with a consumer gas or propane water heater, to the proposed design. Section 170.1(a)
- Adds verification requirements for thermal balancing valves with variable speed circulation pump. Section 170.1(b)2D