



California Energy Commission

2022 Building Energy Efficiency Standards

What's New for Nonresidential

Nonresidential What's New for 2022 Summary

Under the 2022 Building Energy Efficiency Standards (Energy Code), major changes to nonresidential and hotel/motel building requirements include new photovoltaic (PV) and energy storage system requirements, a prescriptive heat pump space-conditioning baseline for certain climate zones, requirements for DOAS, and the addition of new covered processes, including controlled environment horticulture spaces. A definition for “Multifamily Building” was added, and multifamily buildings now have their own sections, beginning with §160.0.

Administrative Regulations:

- Lighting controls and mechanical systems acceptance test technician certification providers must record related Certificates of Compliance, Installation, and Acceptance Testing in an electronic database. §10-103.1(c)3H and §10-103.2(c)3H
- Outdoor lighting zones (LZ) updated and rural areas moved to LZ1 and urban clusters added to LZ2. Building types added to state defaults, and notification requirements for LZ amendments were removed. §10-114
- Energy Commission-approved community shared solar or renewable system and energy storage system qualification requirements updated. §10-115

PV and Energy Storage Systems (ESS)

- New prescriptive requirements added for PV and battery storage systems for specific building types. §140.10
- Energy Commission-approved shared solar PV, other renewable electric generation system, or ESS may be used to meet PV or ESS requirements using the performance method. §140.1(b)

Envelope

- The default calculations in Reference Nonresidential Appendix NA6 for U-factor, solar heat gain coefficient, and visible transmittance is limited to nonresidential buildings with skylight area less than 200 square feet (SF). §110.6
- For steep-sloped roofs in climate zones 2 and 4–16, minimum aged solar reflectance, thermal emittance, and SRI increased to 0.25, 0.80, and 23, respectively. (No change for hotel/motel.) §140.3(a)1Aib2
- Prescriptive metal-framed wall U-factor maximums decreased in all climate zones. §140.3(a)2 and Table 140.3-B
- Vertical glazing efficiency values are more stringent and now climate zone dependent for fixed windows, curtainwalls, and storefronts. §140.3(a)5 and Table 140.3-B
- Exterior doors with 25 percent or more glazing are considered glazed doors. §140.3(a)7
- Prescriptive air barrier requirements expanded to all climate zones. Language added to include specifications on construction documents, and verification requirements updated and clarified. §140.3(a)9 and Table 140.3-A
- Altered roofs must meet requirements from 140.3(b) for minimum aged solar reflectance and thermal emittance, or SRI. The U-factors in Table 141.0-B were decreased. §140.0(b)2Bi
- Existing building envelope wall where 25 percent or more of the wall area is being altered must comply with §140.3(a)9. §141.0(b)2Q
- Alterations that add exterior door area must meet prescriptive U-factor requirements. §141.0(b)2R

Indoor Lighting

- New mandatory occupant sensing control requirements for office spaces greater than 250 SF. §130.1(c)6D
- Automatic daylighting controls for secondary sidelit daylit zones now mandatory. §130.1(d)
- Power adjustment factor for continuous dimming plus off control expanded to include luminaires in secondary sidelit daylit zone. §140.6(a)2 and Table 140.6-A
- Prescriptive lighting power density allowances reduced for specific uses for complete building method, area category method, and tailored method. Prescriptive lighting power density allowances increased for specific detailed task work for area category method. Tables 140.6-B, -C, -D, and -G

Outdoor Lighting

- General hardscape lighting power allowances decreased, and asphalt/concrete distinction removed. Table 140.7-A



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- Additional lighting power allowance added for security cameras. Table 140.7-B
- The term “cutoff” has been replaced with the term “shielding.” §130.2(b)

Mechanical and Water Heating

- Minimum heating, ventilation, and air conditioning efficiency requirements updated for various equipment types. Minimum efficiency requirements added for dedicated outside air systems (DOAS), air conditioners serving computer rooms, and heat pump and heat recovery chiller packages. §110.2
- Mandatory requirement clarifications to spaces for which occupant sensor ventilation control devices are required. §120.1(d)5
- Mandatory requirement for ductwork and plenums to be constructed to Seal Class A. §120.4(b)
- Duct leakage testing is now mandatory. §120.4(g)
- Single zone space conditioning systems with direct expansion cooling and a rated cooling capacity of 240,000 Btu/hr or less serving certain spaces are required to use heat pumps for space conditioning. §140.4(a)2
- Prescriptive fan power allowances updated and changed from nameplate horsepower to electric input power. §140.4(c) and Tables 140.4-A through 140.4-D
- Threshold for when an economizer is required changed from air handler total mechanical cooling capacity or 54,000 Btu/hr to 33,000 Btu/hr. New economizer exception for specific DOAS and for controlled environment horticulture spaces. §140.4(e)
- New equipment efficiency and distribution system requirements for gas hot water boiler systems used for space heating in climate zones 1-6, 9-14, and 16 with a total system input of 1-10 MMBtu/h. §140.4(k)8
- New prescriptive requirements for DOAS. §140.4(p)
- Exhaust air heat recovery prescriptively required for fan systems. §140.4(q) and Tables 140.4-J and 140.4-K
- New prescriptive requirements for heat pump water heating for school buildings less than 25,000 SF. New exception for an instantaneous electric water heater serving individual bathroom spaces. §140.5(a)
- Hotel/motel water-heating requirements aligned with multifamily water-heating requirements. §140.5(b)
- New prescriptive minimum thermal efficiency of 90 percent for gas water-heating systems with total capacity of 1 MMBtu/h or greater. §140.5(c)
- Additional allowances available when determining the fan power budget for alterations. §141.0(b)2C and Table 141.0-D

Electrical Power Distribution

- Demand responsive lighting controls now required for buildings with total installed lighting power of 4,000 watts or greater rather than buildings larger than 10,000 SF. §110.12(c)
- Controlled receptacles now required to be demand responsive and verified through acceptance testing. §110.12(e) and §130.4(a)8

Covered Processes

- New mandatory requirement that transcritical carbon dioxide (CO₂) refrigeration systems be designed to operate at a minimum condensing temperature of 60°F or less. New requirements for transcritical CO₂ gas coolers. §120.6(a) and (b)
- New mandatory requirements for compressed air systems regarding monitoring, leak testing, and pipe sizing. §120.6(e)
- New mandatory requirements for controlled environment horticulture systems regarding dehumidification, lighting, electrical power distribution, building envelope, and space conditioning. §120.6(h)
- New mandatory requirements for steam traps regarding fault detection and diagnostic monitoring, strainer installation, and acceptance testing. §120.6(i)
- New mandatory requirements for computer rooms regarding reheating, humidification, and fan control. §120.6(j)
- New prescriptive requirements for computer rooms regarding refrigerant economizer coefficient of performance, design load thresholds, and uninterruptible power supply (UPS) efficiency. §140.9(a) and Tables 140.9-A and B.
- Prescriptive requirements for fault detection for laboratory and factory exhaust systems updated. §140.9(c)
- Requirements specified for new cooling systems and UPSs in computer room additions and alterations. §141.1(b)
- Requirements specified for additions and alterations to controlled environment horticulture spaces. §141.1(c)