

➤ Nonresidential Buildings What's Changed in 2025?



Using this Fact Sheet

Use this fact sheet if you need to examine the language of the California Building Energy Efficiency Standards (Energy Code or Title 24, Part 6) for nonresidential buildings.

- ✦ Energy Code changes are organized by building feature, such as envelope, electrical, etc.
- ✦ Each building feature section includes explanatory notes on all applicable sections.
- ✦ When language has been added or substantially revised, the intent of the language of the 2025 Energy Code is included.
- ✦ If there are no changes, or minimal clean-up, those Energy Code sections are not included.

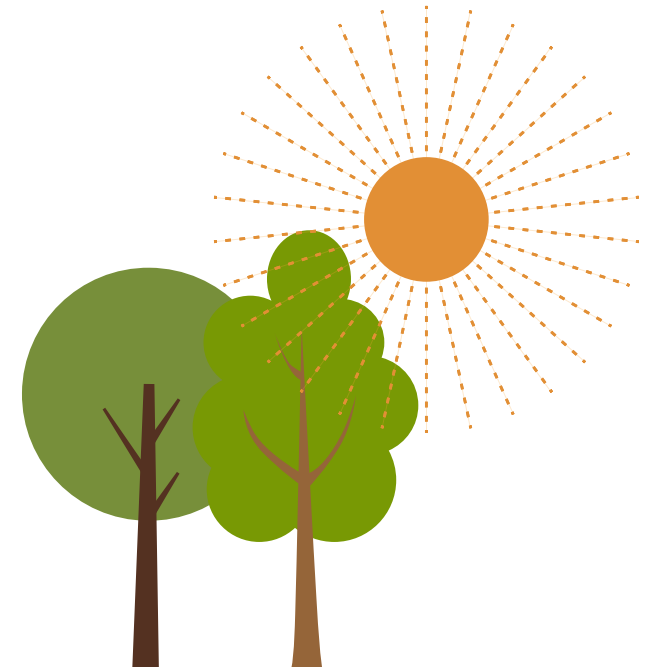
What's Included:

This fact sheet describes changes made to the 2022 Energy Code and incorporated in the 2025 Energy Code for nonresidential buildings.

As in the 2022 Energy Code, the 2025 Energy Code includes hotels and motels in the nonresidential subchapters.





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Mechanical Systems: Nonresidential and Hotel/Motel Occupancies

Table 1: Changes to the 2025 Energy Code, Mechanical Systems

Building Application	 Mandatory		 Prescriptive	 Performance	 Additions and Alterations	Reference Appendices
	All Occupancy Subchapters 1-2 (§§100.0-110.12)	Subchapter 3 (§§120.0-120.10)	Subchapter 5 (§§140.0, 140.2-10)	Subchapter 5 (§140.0)	Subchapter 6 (§§140.0-1)	
General	§100.0 Revised §100.1 Revised §100.2 Revised §§110.0-.1 No Change	§120.0 No Change	§140.0 No Change §140.2 No Change	§§140.0-1 Revised	§141.1 Revised	JA2 Weather and Climate: No Change JA3 Energy Budget: Revised
Heating, Ventilation, Air Conditioning (HVAC) (conditioned spaces)	§110.2 Revised §110.5 No Change	§120.1 Revised §120.2 Revised §120.3 Revised §120.4 Revised §120.5 Revised §120.8 No Change §120.10 No Change	§140.4 Revised	§§140.0-1 Revised	§141.0 Revised	JA5 OCST Thermostats: Revised JA6 HVAC System FDD: Revised JA9 Low Leakage AHU: No Change JA14 Hotel/motel Central HPWH: No Change JA18 Guideline 36 Programming Library: NEW! NA1 ECC/HERS Testing: REMOVED NA3 Fan Motor Efficiencies: No Change NA4 Relocatable School Building: No Change NA7 Installation/Acceptance: Revised
Water Heating	§110.3 Revised	§120.3 Revised §§120.8-9 No Change	§140.5 No Change	§§140.0-1 Revised	§141.0 Revised	JA13 HPWH Demand Management: Revised JA14 Central Heat Pump Water Heater: No Change JA15 Central Heat Pump Water Heater Ready: NEW!
Pool and Spa	§110.4 Revised §110.5 No Change	N/A	N/A	N/A	§141.0 Revised	JA16 Criteria for Pool and Spa Heating: NEW!

Title 24, Part 1

Article 1 – Energy Building Regulations



› Mandatory

› Section 10-103.1 through 10-103.2 Nonresidential Lighting and Mechanical Acceptance Test Training and Certification

§10-103.1(c)3F through 10-103.2(c)3F “Quality Assurance and Accountability”

Revised: Additional requirements have been added in support of the auditing requirements.

§10-103.3 “Administrative Procedures for Energy Code Compliance Program (ECC)”

NEW!: Program requirements moved from Title 20 to Title 24. Home Energy Rating System (HERS) is now called Energy Code Compliance (ECC). New requirements are introduced for both ECC-Raters and ECC-Providers.

Title 24, Part 6

Subchapter 1 – All Occupancies

General Provisions



› Mandatory

› Section 100.0 Scope

§100.0(a)1 “Buildings Covered”

NEW!: Occupancy L (Laboratories) buildings are now subject to the Energy Code.



› Mandatory

› Section 100.1 Definitions and Rules of Construction

NEW!: **Air-to-Water Heat Pump (AWHP)** is a factory-made packaged heat pump system containing one or more compressors, and heat exchangers for transferring heat between refrigerant and air, as well as between refrigerant and water, and various other components. Its primary purpose is to generate heated or cooled water to meet space conditioning loads, domestic hot water loads, or both.

NEW!: **Ashrae Guideline 36** is the American Society of Heating, Refrigerating and Air-Conditioning Engineers document titled “High-Performance Sequences of Operation for HVAC Systems.” 2021 (ASHRAE Guideline 36-2021).

NEW!: **Domestic Hot Water System Appurtenance** includes all elements that are in series in a domestic hot water distribution system, including fittings (elbows, tees, flanges, etc.), pumps, valves (isolation, mixing, balancing, check, etc.), strainers, hose bibs, coil u-bends, meters, sensors, heat exchangers, and air separators.

Title 24, Part 6

Subchapter 1 – All Occupancies

General Provisions



› Mandatory

› Section 100.1 Definitions and Rules of Construction *(continued)*

Revised: Energy Budget is the maximum energy consumption that a proposed building, or portion of a building, can be designed to consume, calculated using Commission-approved compliance software as specified by §10-109 of the Energy Code and the Alternative Calculation Method Reference Manual. The Energy Budget for newly constructed buildings are expressed in terms of the Long-term System Cost (LSC) and Source Energy. The energy budget for Additions and Alterations is expressed in terms of LSC.

Revised: Energy Efficiency Ratio 2 (EER2) is the ratio of the average rate of space cooling capacity (Btu/h) delivered to the average rate of electrical energy consumed by the air conditioner or heat pump as determined in accordance to the test method in 10CFR430 Subpart B Appendix M1. EER is expressed in Btu/Wh.

Revised: Healthcare Facility is a health facility as defined in the California Health and Safety Code Division 2, Chapter 2, §1250 or clinic as defined in the California Health and Safety Code Division 2, Chapter 1 §1204 that is located within a health facility.

NEW!: Long-term System Cost (LSC) is the CEC-projected present value of costs to California's energy system over a period of 30 years. LSC does not represent a prediction of individual utility bills.

NEW!: Net Free Area (NFA) is the total unobstructed area within the air gaps between louver and grille slats in a vent, allowing the passage of air. The narrowest distance between two slats, perpendicular to the surface of both slats, is the air gap height. The narrowest width of the gap is the air gap width. The NFA is the air gap height multiplied by the air gap width multiplied by the total number of air gaps between slats in the vent.

Revised: Nonresidential Function Areas now includes:

- ✦ **Laboratory** is a space or room where hazardous materials are used for activities such as testing, analysis, instruction, research, or developmental activities.
- ✦ **Laboratory Suite** is a Group L occupancy space within a building or structure, which may include multiple laboratories, offices, storage, equipment rooms or similar support functions.

Revised: Pools is any structure or product intended for swimming, bathing, or wading; designed and manufactured to be connected to a circulation system; and not intended to be drained and filled with each use. This includes, but is not limited to, inground, above ground, and on ground pools; and wading pools.

Revised: Pools, Residential is a pool intended for use that is an accessory to a residential setting and available only to the household and its guests, and with specifications as defined within the scope of either ANSI/APSP/ICC-4, 2012 (R2022) or ANSI/APSP/ICC-5, 2011 (R2022).

NEW!: Pool Pump, Dedicated-Purpose refers to a category of pumps designed specifically for various pool related functions. This includes self-priming pool filter pumps, non-self-priming pool filter pumps, waterfall pumps, pressure cleaner booster pumps, integral sand-filter pool pumps, integral-cartridge filter pool pumps, storable electric spa pumps, and rigid electric spa pumps, as defined by 20 CCR §1602(g)(4).

Title 24, Part 6

Subchapter 1 – All Occupancies

General Provisions



› Mandatory

› Section 100.1 Definitions and Rules of Construction *(continued)*

- NEW!:** **Pool, Public** is a pool other than a residential pool, that is intended to be used for swimming or bathing and is operated by an owner, lessee, operator, licensee, or concessionaire, regardless of whether a fee is charged for use. Public pools include pools installed in private settings such as multifamily residential buildings or hotels that are available exclusively for use by tenants or guests.
- NEW!:** **Portable Electric Spa** is a factory-built electric spa or hot tub, supplied with equipment for heating and circulating water at the time of sale or sold separately for subsequent attachment, as defined by 20 CCR §1602(g)(2).
- NEW!:** **Programming Library** is a collection of programming logic used for controlling HVAC equipment with direct digital control systems.
- NEW!:** **Recovered Energy, On-Site** is recovered energy that is captured at the building site.
- NEW!:** **Simultaneous Mechanical Heat Recovery** is the simultaneous utilization of heat rejected from mechanical cooling for space heating or water heating.
- NEW!:** **Single Zone Constant Volume Heat Pump (SZHP)** is an Air-source Heat Pump which uses a supply fan whose speed does not vary.
- NEW!:** **Solar Pool Heating System** is an assembly of components designed to heat water for swimming pools, spas or swimming pool and spa combinations by solar thermal means, excluding pool recirculation components.
- Revised:** **Pools, Residential** is a pool intended for use that is an accessory to a residential setting and available only to the household and its guests, and with specifications as defined within the scope of either ANSI/APSP/ICC-4, 2012 (R2022) or ANSI/APSP/ICC-5, 2011 (R2022).
- Revised:** **Source Energy** is defined as the long run hourly marginal source energy of fossil fuels that are combusted as a result of building energy consumption either directly at the building site or caused to be consumed to meet the electrical demand of the building considering the long-term effects of Commission-projected energy resource procurement. For a given hour, the value in that hour for each forecasted year is averaged to establish a lifetime average source energy.
- Revised:** **Virtual End Node (VEN)** is an interface with a demand responsive control system that accepts signals transmitted through OpenADR, consistent with the specifications in OpenADR 2.0a, or 2.0b, or Baseline Profile OpenADR 3.0.

Title 24, Part 6

Subchapter 1 – All Occupancies

General Provisions



› Mandatory

› **Section 100.1 Definitions and Rules of Construction** (*continued*)

Revised: **Water Heater** definitions include the following:

Consumer Water Heater is a water heater that meets the definition of a consumer product under USDOE 10 CFR 430.

Heat Pump Water Heater (HPWH) is a water heater that transfers thermal energy from one temperature level to another temperature level for the purpose of heating water, including all ancillary equipment such as fans, storage tanks, pumps, or controls necessary for the device to perform its function.

- ✦ **Integrated Heat Pump Water Heater** is a HPWH which has all components, including fans, storage tanks, pumps, or controls necessary for the device to perform its function contained in a single factory-made assembly.
- ✦ **Split-Refrigerant Heat Pump Water Heater** is a HPWH which has a single outdoor section and one or more indoor sections connected to the outdoor section via a refrigerant circuit.
- ✦ **Split-Hydronic Heat Pump Water Heater** is a HPWH that consists of multiple separate sections. One section houses all the refrigerant components, while one or more additional sections are designated for water storage. These sections are interconnected through a hydronic circuit.

Multi-Pass Water Heater is a water heater that the cold water passes through multiple times. The water temperature increases with each pass, until the storage tank reaches the intended storage temperature.

Single-Pass Water Heater is a water heater that the cold water passes through once and is heated to the intended use temperature.



› Mandatory

› **Section 100.2 Calculation of Energy Budgets**

Revised: When using the Performance Approach for compliance, the energy budget for all newly constructed nonresidential buildings is now expressed in terms of Long-term System Cost (LSC) and Source Energy. The energy budget for Additions and Alterations are expressed in terms of LSC.

LSC is calculated by multiplying the buildings annual hourly site energy use for each fuel type by the CEC published LSC hourly factors, which vary for each hour of the year based on the energy type, Climate Zone, and building type. All other depletable energy sources other than electricity and natural gas must use the LSC factors for propane. A summary of LSC hourly factors is found in the Reference Joint Appendix JA3.

Source Energy is calculated by multiplying the annual hourly site energy use by Btu factors for fossil fuel used directly or indirectly at the building site, or to meet the electrical demand of the building.

Subchapter 2 – All Occupancies

Mandatory Requirements for the Manufacture, Construction and Installation of Systems, Equipment and Building Components



› Mandatory

› Section 110.2 Mandatory Requirements for Space-Conditioning Equipment

§110.2(a) “Efficiency”

Revised: When a Federal Minimum Efficiency standard dictates, the Energy Code no longer specifies the required efficiency value. Instead, minimum efficiency will be determined using Title 20. As a result, the following tables are no longer supported in Title 24, Part 6:

- ✦ **Removed:** Table 110.2-E “Packaged Terminal Air Conditioners (PTAC) and Packaged Terminal Heat Pumps (PTHP)”
- ✦ **Removed:** Table 110.2-I “Warm-Air Furnaces and Combination Warm-Air Furnaces/Air-Conditioning Units, Warm-Air Duct Furnaces, and Unit Heaters”
- ✦ **Removed:** Table 110.2-J “Gas- and Oil-Fired Boilers”
- ✦ **Removed:** Table 110.2-L “Floor-Mounted Air Conditioners and Condensing Units Serving Computer Rooms”
- ✦ **Removed:** Table 110.2-M “Ceiling-Mounted Air Conditioners and Condensing Units Serving Computer Rooms”

The following tables include new revised efficiency minimums including referring to Federal Minimum Efficiency, when applicable:

- ✦ **Revised:** Table 110.2-A “Air Conditioners and Condensing Units”
- ✦ **Revised:** Table 110.2-B “Heat Pumps, Minimum Efficiency Requirements”
- ✦ **Revised:** Table 110.2-F (used to be 110.2-G) “Electrically Operated Variable Refrigerant Flow (VRF) Air-to-Air and Applied Heat Pumps – Minimum Efficiency Requirements”
- ✦ **Revised:** Table 110.2-G (used to be 110.2-H) “Electrically Operated Variable Refrigerant Flow Air-to-Air and Applied Heat Pumps”
- ✦ **Revised:** Table 110.2-H (used to be 110.2-K) “DX-DOAS Units, Single-Package and Remote Condenser no longer supports non energy recovery systems”
- ✦ **Revised:** Table 110.2-I, J, K, L (used to be Table 110.2-N) “Heat Pump and Heat Recovery Chiller Packages” has been broken up to support ADA compliance and there are changes to some of the minimum efficiencies required.

Title 24, Part 6

Subchapter 2 – All Occupancies

Mandatory Requirements for the Manufacture, Construction and Installation of Systems, Equipment and Building Components



› Mandatory

› Section 110.2 Mandatory Requirements for Space-Conditioning Equipment

§110.2(e) “Open and Closed-circuit Cooling Towers”

Revised: 1. Controls:

- ✦ Flow-based controls that maximize cycles of concentration are no longer allowed, only conductivity controls are allowed.
- ✦ Automated systems that control system bleed and chemical feed based on conductivity are to be installed per the manufacturer’s specifications to maximize accuracy, are required, and no longer allow for “proportion to metered makeup volume, metered bleed volume, recirculating pump run time, or bleed time” design options.

2. Documentation: Maximum achievable cycles of concentration must be calculated using new methods. These calculations must be signed off by a Professional Engineer (P.E.) of record. The maximum achievable cycles of concentrations are based on the local water supply quality as reported by the local water supplier, and shall be the minimum of:

- A. 2,970 divided by the conductivity of the entering make-up water
- B. 1,845 divided by the total dissolved solids of the entering make-up water
- C. 540 divided by the M-alkalinity excluding galvanized steel of the entering make-up water
- D. 450 divided by the M-alkalinity including galvanized steel of the entering make-up water
- E. 540 divided by the calcium hardness of the entering make-up water
- F. 270 divided by the chlorides of the entering make-up water
- G. 225 divided by the sulfates of the entering make-up water
- H. 135 divided by the silica of the entering make-up water
- I. **Langelier Saturation Index:**

$$10^{\left(\frac{-1}{2.038895} * [\text{Log}(M * 0.9 * 1.219) - 0.061105 * \text{Log}(C * 0.8) + 0.55 * \text{Log}(H * M) + 0.0050325 * T - 5.95]\right)}$$

WHERE:

C = Conductivity of the entering make-up water
H = Calcium hardness of the entering make-up water

M = M-alkalinity excluding galvanized steel of the entering make-up water
T = Max skin temperature

Subchapter 2 – All Occupancies

Mandatory Requirements for the Manufacture, Construction and Installation of Systems, Equipment and Building Components



› **Mandatory**

› **Section 110.2 Mandatory Requirements for Space-Conditioning Equipment** *(continued)*

Revised: 3. **Cooling towers** shall not allow blowdown until one or more of the parameters in Table 110.2-A-1 reaches the maximum value specified:

Table 110.2-A-1 Recirculating Water Properties

Recirculating Water Parameters	Maximum Values
Conductivity (micro-siemens/cm)	2,970 micro-siemens/cm
Total dissolved solids (ppm)	1,845 ppm
Total alkalinity as CaCO ₃ (ppm) excluding galvanized steel	540 ppm
Total alkalinity as CaCO ₃ (ppm) galvanized steel (passivated)	450 ppm
Calcium hardness as CaCO ₃ (ppm)	540 ppm
Chlorides as Cl (ppm)	270 ppm
Sulfates (ppm)	225 ppm
Silica (ppm)	135 ppm
Langelier saturation index (LSI)	2.5 (LSI)

4. **No change:** Flow meter.

5. **No change:** Overflow Alarm.

6. **No change:** Drift Eliminators.

7. **NEW!** Conductivity controls and overflow alarm shall be verified according to NA 7.5.18 “Cooling Tower Conductivity Controls”

The exception to §110.2(e) for open- and closed-circuit cooling towers with a rated capacity less than 150 tons has not changed.

Subchapter 2 – All Occupancies

Mandatory Requirements for the Manufacture, Construction and Installation of Systems, Equipment, and Building Components



› **Mandatory**

› **Section 110.3 Mandatory Requirements for Service Water-Heating Systems and Equipment**

§110.3(c)7 “Installation – Air-Source Heat Pump Water Heaters (HPWHs)”

NEW!: There are new requirements for air-source heat pump water heaters regarding backup heat and ventilation.



› **Mandatory**

› **Section 110.4 Mandatory Requirements For Pool and Spa Systems and Equipment**

Revised: **a) Certification by Manufacturers:** Manufacturers are now required to include an energy efficiency rating within the permanent plate or card in addition to supporting the instructions for the energy efficiency operation of the pool or spa. There are no other substantive changes to the section.

b) Installation: Heating equipment must comply with the standard requirements of Table 110.4-A “Heating Equipment Standards.” The piping length between the filter and heater, or dedicated suction and return lines, has changed from 36” to 18.” Covers are required for electric or gas heated pools or spas. Time switches (or similar) must be permanently installed.

c) Heating Source Sizing: The newly installed heating source must be either a solar thermal system sized to 65% or more of the surface area for a public pool (if a residential pool or spa is serving only one dwelling unit, then it will meet the same requirements as single-family, which is 60%); a heat pump meeting JA16.3 “Criteria for Pool and/or Spa Heating” and supplementary heating controls per §110.4(d) “Controls for Heat Pump Pool Heaters with Supplementary Heating;” a solar system combined with a heat pump pool heater; or an on-site renewable or recovered energy system that provides 60% or more of the annual heating energy. Exceptions may apply, such as Alterations to existing heated pools or spas.

d) Controls for Supplementary Heating: Controls are required so that supplementary heating does not operate when the heating load can be met by a heat pump pool heater. Additionally, cut-on and cut-off temperatures for heat pump heating must be set higher than those set for supplementary heating.

Subchapter 3 – Nonresidential, Hotel and Motel Occupancies, and Covered Processes



› Mandatory

› Section 120.1 Requirements for Ventilation and Indoor Air Quality

§120.1(c)1 “Air Filtration”

Revised: A new exception stipulates that air filtration of evaporative coolers is not required.

§120.1(c)3 “Mechanical Ventilation”

Revised: The formula for determining minimum cubic feet per minute (CFM) has changed, though the CFM requirements by space type have not, except for Pet Shops (previously 0.15, revised to 0.20 cfm/ft²). Per Equation 120.1-F “Mechanical Ventilation,” the larger of either equation sets the minimum airflow CFM requirements for the space.

Equation 120.1-F:

$$V_z = \text{The larger of } R_p \times P_z \text{ or } R_a \times A_z$$

WHERE:

R_p = 15 cubic feet per minute of outdoor airflow per person.

P_z = The expected number of occupants. For spaces without fixed seating, the expected number of occupants shall be the expected number specified by the building designer or the default occupancy density in Table 160.2-B “Minimum Ventilation Rates” times the occupiable floor area of the zone, whichever is greater. For spaces with fixed seating, the expected number of occupants shall be determined in accordance with the California Building Code §1004.6.

R_a = The area-based minimum ventilation airflow rate in Table 160.2-B “Minimum Ventilation Rates.”

A_z = The net occupiable floor area of the ventilation zone in square feet.

Subchapter 3 – Nonresidential, Hotel and Motel Occupancies, and Covered Processes



› **Mandatory**

› **Section 120.1 Requirements for Ventilation and Indoor Air Quality** *(continued)*

§120.1(h) “Ventilation Only Mechanical Systems”

Revised: Table 120.1-B “Minimum Exhaust Rates” has been revised to include spaces common with Occupancy L (Laboratory) spaces since Occupancy L is now subject to the Energy Code.

Table 120.1-B — Minimum Exhaust Rates [ASHRAE 62.1: Table 6.-25]

Occupancy Category	Exhaust Rate cfm/unit	Exhaust Rate cfm/ft ²	Air Class	Notes
Animal imaging (MRI/CT/PET)	-	0.9	3	-
Animal operating rooms	-	3.00	3	-
Animal postoperative recovery room	-	1.5	3	-
Animal preparation rooms	-	1.5	3	-
Animal procedure room	-	2.25	3	-
Animal surgery scrub	-	1.50	3	-
Large animal holding room	-	2.25	3	-
Animal Necropsy	-	2.25	3	-
Small-animal-cage room (static cages)	-	2.25	3	-
Small-animal-cage room (ventilated cages)	-	1.50	3	-

Note: The rest of this table contains no changes.

§120.1(d)4E “Demand Control Ventilation Devices”

Revised: When the system is operating during hours of expected occupancy, the controls shall maintain system outdoor air ventilation rates no less than $R_a \times A_z$ per Equation 120.1-F “Mechanical Ventilation” for each space with a CO₂ sensor(s), plus the greater of either the exhaust air rate or the rate required by Section 120.1(c)3 “Mechanical Ventilation” for other spaces served by the system.

Subchapter 3 – Nonresidential, Hotel and Motel Occupancies, and Covered Processes



› **Mandatory**

› **Section 120.1 Requirements for Ventilation and Indoor Air Quality** *(continued)*

§120.1(d)5 “Occupied Standby Zone Controls”

Revised: Previously called “occupancy sensor ventilation control devices,” the requirements have not changed but a new exception has been added for zone and ventilation systems served by pneumatic controls.

§120.1(g) “Air Classification and Recirculation Limitations”

Revised: There are no changes to the requirements for air classification, but Table 120.1-C has been revised:

Table 120.1-C — Airstreams or Sources [ASHRAE 62.1:Table 5.16.16-3]

Description	Air Class
Commercial kitchen grease hoods	4
Commercial kitchen hoods other than grease	3
Diazo printing equipment discharge	4
Hydraulic elevator machine room	2
Laboratory hoods	4 ^a
Paint spray booths	4
Refrigerating machinery rooms	3

^aAir Class 4 unless determined otherwise by the Environmental Health and Safety professional responsible to the owner or to the owner’s designee.

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Subchapter 3 – Nonresidential, Hotel and Motel Occupancies, and Covered Processes



› **Mandatory**

› **Section 120.2 Required Controls For Space-Conditioning Systems**

§120.2(l) “HVAC Hot Water Temperature”

NEW!: Zones that use hot water for space heating shall be designed for a hot water supply temperature no greater than 130°F.



› **Mandatory**

› **Section 120.3 Requirements for Pipe Insulation**

§§120.3(a) through (c) “General Requirements”

Revised: Changes to support process cooling and heating piping (refrigerant, steam, steam condensate and hot water fluid distribution systems for heating or cooling a process unrelated to space conditioning or service water-heating) are now subject to pipe insulation in Table 120.3-A1 “Space Heating and Service Water Heating Systems and Process Heating System Pipe Insulation Thickness” and Table 120.3-A2 “Space Cooling Systems and Process Cooling System Pipe Insulation Thickness.” Additionally, what was formerly Table 120.3-A is now broken out into two separate tables to support ADA compliance, but there are no changes to the insulation requirements.



› **Mandatory**

› **Section 120.4 Requirements for Air Distribution System Ducts and Plenums**

§120.4(g) “Duct Sealing”

Revised: When duct sealing is triggered in Title 24, Part 6, a certified Acceptance Test Technician (ATT) will test the system rather than an ECC-Rater (previously known as a HERS Rater).

Title 24, Part 6

Subchapter 3 – Nonresidential, Hotel and Motel Occupancies, and Covered Processes



› Mandatory

› Section 120.5 Required Nonresidential Mechanical System Acceptance

§120.5(a)4 “Before an Occupancy Permit is Granted...”

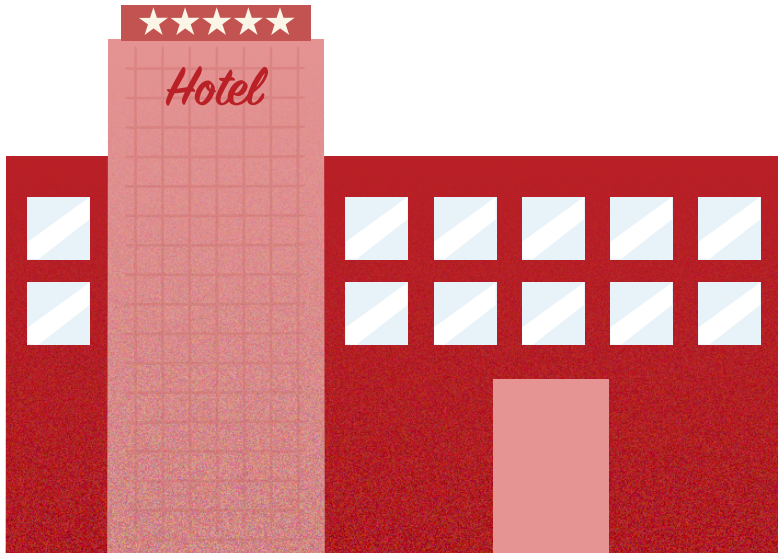
Revised: Air economizers, and now also dedicated outdoor air systems (DOAS), heat recovery ventilation (HRV) or energy recovery ventilation (ERV) systems, shall be tested in accordance with NA7.5.4 “Air Economizer Controls and Exhaust Air Heat Recovery.”

Exception: Air economizers installed by the HVAC system manufacturer and certified to the CEC as being factory calibrated and tested are not required to comply with the Functional Testing section of the air economizer controls acceptance test, as described in NA7.5.4.2 “Functional Testing.”

NEW! Exception: DOAS, HRV or ERV units that do not meet the exhaust air heat recovery ratio as specified in §140.4(q)1 “Exhaust Air Heat Recovery Sensible Energy Recovery Ratio” or that do not include bypass or control to disable energy recovery as specified in Section 140.4(q)2 “Exhaust Air Heat Recovery Bypass.”

§120.5(a)19 “Before an Occupancy Permit is Granted...”

NEW!: Conductivity controls and overflow alarms for open-and closed-circuit cooling towers shall be tested according to NA7.5.18 “Cooling Tower Conductivity Controls.”



Subchapter 5 – Nonresidential, High-Rise Residential, and Hotel and Motel Occupancies Performance and Prescriptive Compliance Approaches for Achieving Energy Efficiency



› Performance

› Section 140.1 Performance Approach

§140.1 “Energy Budget”

Revised: The energy budget of the Proposed Design building shall be no greater than the energy budget calculated for the Standard Design building using CEC-certified compliance software as specified by Section 10-109(c) “Compliance Software” and Section 10-116 “3rd Party Alternative Calculation Method Compliance Software.”

Energy Budget. The energy budget is expressed in terms of Long-term System Cost (LSC) and Source Energy.

- ✦ **Long-term System Cost (LSC).** The LSC energy budget is determined by applying the Mandatory and Prescriptive Requirements of the Standard Design to the Proposed Design building and has two components, the **Efficiency LSC** and the **Total LSC**. The **Efficiency LSC** energy is the sum of the LSC energy for space-conditioning, water-heating, mechanical ventilation, and self-utilization credit(s). **Total LSC** energy is the sum of the Efficiency LSC energy and LSC energy from the PV system, battery energy storage systems (BESS), lighting, demand flexibility, and other plug loads.
- ✦ **Source Energy.** Source Energy reflects the long run marginal source energy of fossil fuels that are combusted as a result of building energy consumed either directly at the building site or to meet the electrical demand of the building.

Title 24, Part 6

Subchapter 5 – Nonresidential, High-Rise Residential, and Hotel and Motel Occupancies
Performance and Prescriptive Compliance Approaches for Achieving Energy Efficiency



› **Prescriptive**

› **Section 140.4 Prescriptive Requirements for Space Conditioning Systems**

§140.4(a)3 “Multi-zone Space-conditioning System Types”

NEW!: New office buildings in all Climate Zones (CZ) and school buildings in CZ 1-5 and 8-16 of 150,000 ft² or less or five stories or fewer with multizone space-conditioning must utilize one of the following options:

Table: Multi-zone Space-conditioning System Types

HVAC Equipment Type	Additional Features		
Variable Refrigerant Flow (VRF) Heat Pump	<ul style="list-style-type: none"> ✦ Indoor fans per §140.4(a)3D “Indoor Fans” ✦ Dedicated outdoor air system (DOAS) per §140.4(a)3E “DOAS” to all zones served by VRF ✦ Refrigerant-loop heat recovery 		
Four-pipe Fan Coil (FPFC) Terminal Unit Utilizing Air-to-water Heat Pump (AWHP)	<ul style="list-style-type: none"> ✦ Indoor fans per §140.4(a)3D “Indoor Fans” ✦ Dedicated outdoor air system (DOAS) per §140.4(a)3E “DOAS” ✦ Air-to-water heat pump (AWHP) per §140.4(a)3C “AWHP Space-heating Hot Water Loop” to supply heating hot water 		
Variable Air Volume (VAV) Utilizing AWHP per §140.4(a)3C	<table border="0" style="width: 100%;"> <tr> <td style="vertical-align: top; width: 50%;"> <p>Office Buildings in all CZs:</p> <ul style="list-style-type: none"> ✦ Parallel fan-powered boxes for perimeter zone heating <ul style="list-style-type: none"> » CZs 1-6, 16: 100% » CZs 7-15: 25% ✦ CZs 1, 3, and 5: Meet §140.4(q) “Exhaust Air Heat Recovery” ✦ CZs 3 and 5: Fan power 15% lower than §140.4(c)1 “Fan Power Budget” </td> <td style="vertical-align: top; width: 50%;"> <p>School Buildings in CZs 2, 4, 8-16:</p> <ul style="list-style-type: none"> ✦ Parallel fan-powered boxes for perimeter zone heating per §140.4(a)3E “DOAS” ✦ CZs 2, 4, 11-16: Meet §140.4(q) “Exhaust Air Heat Recovery” ✦ CZ 2: Fan power 15% lower than §140.4(c)1 “Fan Power Budget” and heating loop leaving water temperature ≤ 120 °F </td> </tr> </table>	<p>Office Buildings in all CZs:</p> <ul style="list-style-type: none"> ✦ Parallel fan-powered boxes for perimeter zone heating <ul style="list-style-type: none"> » CZs 1-6, 16: 100% » CZs 7-15: 25% ✦ CZs 1, 3, and 5: Meet §140.4(q) “Exhaust Air Heat Recovery” ✦ CZs 3 and 5: Fan power 15% lower than §140.4(c)1 “Fan Power Budget” 	<p>School Buildings in CZs 2, 4, 8-16:</p> <ul style="list-style-type: none"> ✦ Parallel fan-powered boxes for perimeter zone heating per §140.4(a)3E “DOAS” ✦ CZs 2, 4, 11-16: Meet §140.4(q) “Exhaust Air Heat Recovery” ✦ CZ 2: Fan power 15% lower than §140.4(c)1 “Fan Power Budget” and heating loop leaving water temperature ≤ 120 °F
<p>Office Buildings in all CZs:</p> <ul style="list-style-type: none"> ✦ Parallel fan-powered boxes for perimeter zone heating <ul style="list-style-type: none"> » CZs 1-6, 16: 100% » CZs 7-15: 25% ✦ CZs 1, 3, and 5: Meet §140.4(q) “Exhaust Air Heat Recovery” ✦ CZs 3 and 5: Fan power 15% lower than §140.4(c)1 “Fan Power Budget” 	<p>School Buildings in CZs 2, 4, 8-16:</p> <ul style="list-style-type: none"> ✦ Parallel fan-powered boxes for perimeter zone heating per §140.4(a)3E “DOAS” ✦ CZs 2, 4, 11-16: Meet §140.4(q) “Exhaust Air Heat Recovery” ✦ CZ 2: Fan power 15% lower than §140.4(c)1 “Fan Power Budget” and heating loop leaving water temperature ≤ 120 °F 		
Dual-Fan Dual-duct (DFDD)	<ul style="list-style-type: none"> ✦ Economizers located on the cold deck ✦ 100% return air supplied by hot deck and be a heat pump ✦ ASHRAE Guideline 36 for DFDD and terminal unit controls 		
Other	When the Executive Director (CEC) determines additional system(s) use the same energy as supported above.		

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Subchapter 5 – Nonresidential, High-Rise Residential, and Hotel and Motel Occupancies Performance and Prescriptive Compliance Approaches for Achieving Energy Efficiency



› Prescriptive

› Section 140.4 Prescriptive Requirements for Space Conditioning Systems

§140.4(b)3 “Outdoor Design Conditions”

Revised: Outdoor design conditioned for nonresidential and hotel/motel, but not including licensed healthcare facilities, can use either JA2 “Climatic Data” or the ASHRAE Handbook, Fundamentals Volume. Heating design temperatures shall be based on “99% Heating Dry Bulb” or the “Heating Winter Median of Extremes” values.

§140.4(c)1 “Fan Systems”

Revised: If using a multi-zone space-conditioning system that meets the new requirements of §140.4(a)3 “Multi-zone Space-conditioning System Types,” the fan energy requirements of this section will not apply to that system design.

§140.4(c)2 “VAV Systems”

Revised: Control sequences of operation for static pressure setpoint reset shall be in accordance with ASHRAE Guideline 36.

§140.4(d)2 “Space-conditioning Zone Controls”

Revised: For each zone with direct digital controls (DDC), control sequences of operation for reheat zones shall be in accordance with ASHRAE Guideline 36.

§§140.4(e)1 and 2 “Economizers”

Revised: If a multi-zone space-conditioning system, as defined in §140.4(a)3 “Multi-zone Space-conditioning System Types,” uses an economizer that meets the new requirements of §140.4(a)3Ai “VRF Option,” the economizer requirements of this section will not apply to that system design.

When economizers are required per this section of the Energy Code, and if controlled by a DDC system, they shall be configured with control sequences of operation in accordance with ASHRAE Guideline 36.

§140.4(f) “Supply Air Temperature Reset Controls”

Revised: Space-conditioning systems that supply heated or cooled air to multiple zones shall include controls that automatically reset supply air temperatures, in addition to meeting the new requirement for configuration of the control sequences of operation in accordance with ASHRAE Guideline 36.

§140.4(g) “Electric Resistance Heating”

Revised: If a multi-zone space-conditioning system, as defined in §140.4(a)3 “Multi-zone Space-conditioning System Types,” includes supplemental electric resistance heating that meets the new requirements of §140.4(a)3C “AWHP Space-heating Hot Water Loop,” the electric resistance limitations of this section will not apply to that system design.

Subchapter 5 – Nonresidential, High-Rise Residential, and Hotel and Motel Occupancies Performance and Prescriptive Compliance Approaches for Achieving Energy Efficiency



› **Prescriptive**

› **Section 140.4 Prescriptive Requirements for Space Conditioning Systems**

§140.4(h)5 “Cooling Tower Efficiency”

Revised: Axial fan, open-circuit cooling towers serving condenser water loops for chilled water plants with a total of 900 gallons per minute (GPM) or greater shall meet the minimum rated efficiency requirements listed in Table 140.4-H-2, including Climate Zones 1 and 16 (which was previously exempt):

Table 140.4-H-2 Minimum Efficiency for Propeller or Axial Fan Open-Circuit Cooling Towers (GPM/Hp)

CZ1	CZ2	CZ3	CZ4	CZ5	CZ6	CZ7	CZ8	CZ9	CZ10	CZ11	CZ12	CZ13	CZ14	CZ15	CZ16
42.1	70	60	70	70	80	80	80	80	80	60	70	80	60	80	42.1

§140.4(p)1 “Dedicated Outdoor Air System (DOAS)”

Revised: If a multi-zone space-conditioning system, as defined in §140.4(a)3 “Multi-zone Space-conditioning System Types,” includes a DOAS that meets the new requirements of §140.4(a)3E “DOAS,” the DOAS requirements of this section will not apply to that system design.

§140.4(q)1 “Exhaust Air Heat Recovery”

Revised: Fan systems designed to operate according to the criteria listed in Table 140.4-J “Energy Recovery Requirements by Climate Zone and percent outdoor air at full design airflow (< 8,000 hours/year),” Table 140.4-K “Energy Recovery Requirements by Climate Zone and percent outdoor air at full design airflow (≥ 8,000 hours/year),” or where required by the new §140.4(a)3 “Multi-zone Space-conditioning System Types,” shall include an exhaust air heat recovery system meeting the requirements of this section.

Subchapter 5 – Nonresidential, High-Rise Residential, and Hotel and Motel Occupancies Performance and Prescriptive Compliance Approaches for Achieving Energy Efficiency



› Prescriptive

› Section 140.4 Prescriptive Requirements for Space Conditioning Systems

§140.4(r) “DDC Controller Logic using ASHRAE Guideline 36”

NEW!: HVAC systems with DDC controllers shall use controller logic originating from a programming library based on sequences of operation from ASHRAE Guideline 36 in accordance with the following:

1. Requirement applies to all controllers that are capable of being programmed in the field; **and**
2. Requirement applies to the entirety of all applicable portions of equipment control for configurations included in the programming library; **and**
3. The programming library shall be certified to the CEC as meeting the requirements of JA18 “Guideline 36 Programming Library Certification.”

Exception: Non-programmable (configurable-only) controllers for zone terminal units shall follow applicable ASHRAE Guideline 36 zone sequences referenced in Reference Joint Appendix JA18 “Guideline 36 Programming Library Certification” and Table 18.3-1 “Required Guideline 36 Logic for Certified Programming Library,” but are not subject to certification requirements.

Subchapter 5 – Nonresidential, High-Rise Residential, and Hotel and Motel Occupancies Performance and Prescriptive Compliance Approaches for Achieving Energy Efficiency



› Prescriptive

› Section 140.4 Prescriptive Requirements for Space Conditioning Systems

§140.4(s) “Mechanical Heat Recovery”

NEW!: This section does not apply to buildings with a computer room heat recovery system or wastewater heat recovery system capable of providing at least 25% of the combined service water heating capacity (SWHCAP) and heating capacity (HCAP).

§140.4(s)1A: Simultaneous mechanical heat recovery is required for new buildings, excluding laboratory buildings with exhaust air heat recovery systems meeting Section 140.9(c)6 “Covered Process Laboratory: Exhaust Air Heat Recovery” and buildings in Climate Zone 15 with SWHCAP less than 600 kBtuh, when:

Peak cooling load is at least 200 tons (serving high load spaces*) AND service water heating and space heating is at least 2,200 kBtuh

Section 140.4(s)1Ai: $CHL + 0.1*CLL \geq 200$ tons and $SWHCAP + HCAP \geq 2200$ kBtuh

OR cooling design capacity is at least 300 tons AND service water heating is at least 700 kBtuh

Section 140.4(s)1Aii: $CCAP \geq 300$ tons and $SWHCAP + 0.1*HCAP \geq 700$ kBtuh

WHERE:

CCAP = Design capacity of all mechanical cooling systems.

CHL = Coincident peak cooling load of all spaces with a design equipment power density greater than 5 watts/ft² and a minimum outdoor airflow requirement less than 0.5 CFM/ft², i.e., high load spaces.

CLL = $CCAP - CHL$. If the design includes capacity for future cooling systems, then assume 20% of future systems serve high-load spaces.

SWHCAP = Design capacity of all service water heating (SWH) systems, excluding systems expected to operate less than five hours per week, such as instant-hot water systems for emergency eyewash stations.

HCAP = Design capacity of all space heating systems.

Subchapter 5 – Nonresidential, High-Rise Residential, and Hotel and Motel Occupancies Performance and Prescriptive Compliance Approaches for Achieving Energy Efficiency



› Prescriptive

› Section 140.4 Prescriptive Requirements for Space Conditioning Systems

§140.4(s) “Mechanical Heat Recovery” *(continued)*

NEW!: §140.4(s)1B: The heat recovery system shall include a heat recovery chiller, or other means, capable of transferring the lesser of 25% of the peak heat rejection of the cooling system or 25% of (SWHCAP + HCAP) from spaces in cooling to spaces in heating and/or to the SWH system.

§140.4(s)2: Buildings subject to the requirements of §140.4(s)1, with a SWHCAP of at least 500 kBtuh, must have a simultaneous Heat Recovery system. Service Water Heating for buildings is required to have simultaneous mechanical heat recovery by §140.4(s)1, and SWHCAP \geq 500 kBtuh, then the heat recovery system shall also be capable of heating or preheating the service hot water. The heat recovery system shall have the capacity to transfer either the smaller of 30% of the peak heat rejection of the cooling system, or 30% of the SWHCAP, whichever is smaller.

Title 24, Part 6

Subchapter 6 – Nonresidential and Hotel and Motel Occupancies

Additions, Alterations, and Repairs



› **Additions and Alterations**

› **Section 141.0 Additions, Alterations, and Repairs to Existing Nonresidential and Hotel/Motel Buildings, to Existing Outdoor Lighting, and to Internally and Externally Illuminated Signs**

§141.0(b)2Cii “New or Replacement Single Zone Packaged Rooftop Systems”

NEW!: Single zone packaged rooftop systems with direct expansion cooling with rated cooling capacity less than 65,000 Btu/hr shall meet the applicable requirements specified in Table 141.0-E-1 or shall meet the Performance compliance requirements of §141.0(b)3. Air conditioners with furnaces or dual fuel heat pumps complying with Table 141.0-E-1 using variable speed fan and controls shall be designed to vary the indoor fan air flow rate as a function of the load and shall have a minimum of two stages of fan control. The minimum speed at stage one shall be set for ventilation only mode and shall be the greater of 50% or the minimum fan speed required to meet the minimum ventilation airflow rate. The indoor fan shall draw no more than 30% of the fan power at full fan speed when operating at 50% speed.

Exception: This section is not applicable if the Alteration exceeds the existing main service panel or service transformer capacity. An electrical load calculation shall be submitted by a registered professional engineer in accordance with Article 220 of the California Electrical Code.

Table 141.0-E-1 New or Replacement Single Zone Air Conditioners or Heat Pump Requirement

Building Type	CZ1	CZ2	CZ3	CZ4	CZ5	CZ6	CZ7	CZ8	CZ9	CZ10	CZ11	CZ12	CZ13	CZ14	CZ15	CZ16
Retail and Grocery	NR	NR	SZHP or SZAC1	SZHP or SZAC1	SZHP or SZAC1	SZHP or SZAC1	SZHP or SZAC1	SZHP or SZAC1	SZHP or SZAC1	SZHP or SZAC1	SZHP or SZAC1	SZHP or SZAC1	SZHP or SZAC1	NR	SZHP or SZAC1	NR
School	SZHP or SZAC1	SZHP or SZAC1	SZHP or SZAC1	SZHP or SZAC1	SZHP or SZAC1	SZHP or SZAC1	SZHP or SZAC1	SZHP or SZAC1	SZHP or SZAC1	SZHP or SZAC1	SZHP or SZAC1	SZHP or SZAC1	SZHP or SZAC1	SZHP or SZAC1	SZHP or SZAC1	NR
Office, Financial Institution	NR	NR	SZHP or SZAC1	SZHP or SZAC1	SZHP or SZAC1	SZHP or SZAC1	SZHP or SZAC1	SZHP or SZAC1	SZHP or SZAC1	SZHP or SZAC1	SZHP or SZAC2	SZHP or SZAC1	SZHP or SZAC1	NR	SZHP or SZAC1	NR
Library	SZHP or SZAC1	NR	SZHP or SZAC1	SZHP or SZAC1	SZHP or SZAC1	SZHP or SZAC1	SZHP or SZAC1	SZHP or SZAC1	SZHP or SZAC1	SZHP or SZAC1	SZHP or SZAC1	SZHP or SZAC1	SZHP or SZAC1	SZHP or SZAC1	SZHP or SZAC1	NR

SZHP = Single Zone Heat Pump + Economizer in accordance with §140.4(e) “Economizers”, **SZAC1** = Single Zone Air Conditioner with furnace + Variable Speed Fan, + Economizer in accordance with Section 140.4(e), or Dual Fuel Heat Pump + Speed Fan + Economizer in accordance with §140.4(e) “Economizers”,

NR = No Requirement

Title 24, Part 6

Subchapter 6 – Nonresidential and Hotel and Motel Occupancies

Additions, Alterations, and Repairs



› Additions and Alterations

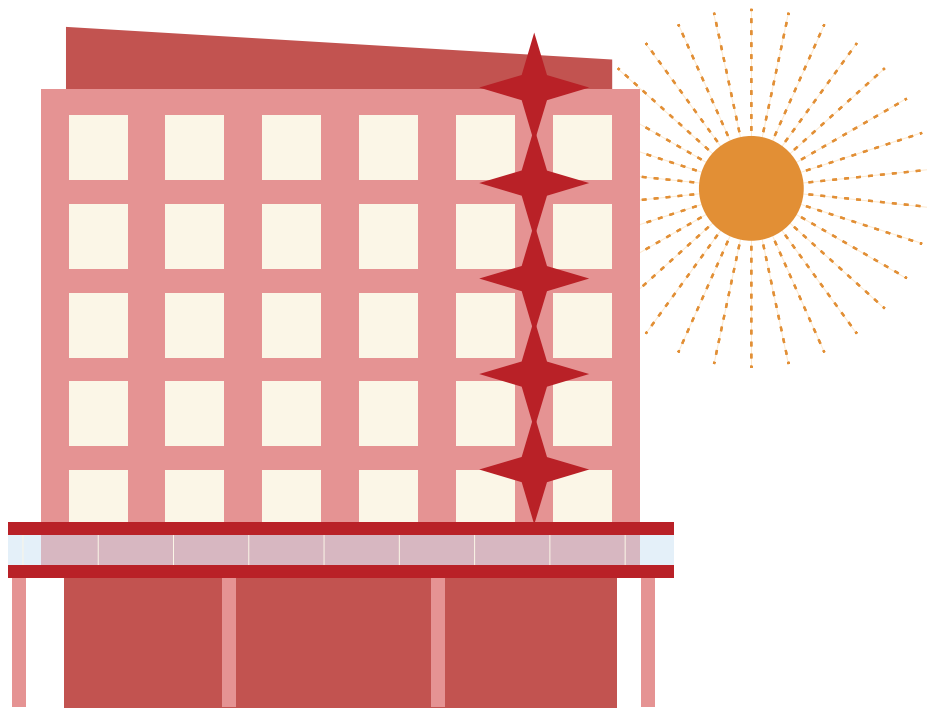
› Section 141.0 Additions, Alterations, and Repairs to Existing Nonresidential and Hotel/Motel Buildings, to Existing Outdoor Lighting, and to Internally and Externally Illuminated Signs

§141.0(b)2C “New or Replacement Space-Conditioning Systems or Components”

NEW!: When altering existing equipment, the new ASHRAE Guideline 36 found in §140.4(c)2Bii “VAV Systems,” §140.4(d)2Av “DDC,” §140.4(e)2D “Zones Served by VAV,” §140.4(f)3 “Supply Air Temperature Reset Controls,” and §140.4(r) “DDC Controller Logic” requirements will not apply, but they will apply if the equipment is new or replaced.





§141.0(b)2Dii “Altered Ducts”

Revised: Energy Code duct testing must be completed by a Certified Acceptance Test Technician (ATT). Testing by an ECC-Rater (formerly a HERS Rater) is no longer allowed.



Envelope and Commissioning: Nonresidential and Hotel and Motel Occupancies

Table 2: Changes to the 2025 Energy Code, Envelope and Commissioning

Building Application	 Mandatory		 Prescriptive	 Performance	 Additions and Alterations	Reference Appendices
	All Occupancy Subchapters 1-2 (§§100.0-110.12)	Subchapter 3 (§§120.0-120.10)	Subchapter 5 (§§140.0, 140.2-10)	Subchapter 5 (§§140.0-1)	Subchapter 6 (§§141.0-1)	
General	§100.0 Revised §100.1 Revised §100.2 Revised	§120.0 <i>No Change</i>	§140.0 <i>No Change</i> §140.2 <i>No Change</i>	N/A	N/A	JA2 Weather and Climate: No Change JA3 Energy Budget: Revised
Commissioning	N/A	§120.8 <i>No Change</i>	N/A	N/A	N/A	N/A
Envelope (conditioned)	§§110.6-8 <i>No Change</i>	§120.7 Revised	§140.3 Revised	§§140.0-1 Revised	§141.0 Revised	JA4 U-factor/C-Factor/Thermal Mass: Revised Table 4.2.5 NA4 Relocatable School Building: No Change NA5 Whole Building Air Leakage: No Change NA6 Alternate Fenestration Method (COG): No Change NA7 Installation/Acceptance NR: Revised NA7.4.6.3
Envelope (unconditioned)	N/A	N/A	§140.3(c) <i>No Change</i>	§§140.0-1 Revised	§141.0 Revised	N/A

Title 24, Part 6

Subchapter 1 – All Occupancies

General Provisions



› Mandatory

› Section 100.0 Scope

§100.0(a)1 “Buildings Covered”

NEW!: Occupancy L (Laboratories) buildings are now subject to the Energy Code.



› Mandatory

› Section 100.1 Definitions And Rules of Construction

Revised: Energy Budget is the maximum energy consumption, that a proposed building, or portion of a building, can be designed to consume. It is calculated using Commission-approved compliance software as specified by §10-109 of the Energy Code and the Alternative Calculation Method Reference Manual. The Energy Budget for newly constructed buildings is expressed in terms of the Long-term System Cost (LSC) and Source Energy. The energy budget for Additions and Alterations is expressed in terms of LSC.

Revised: Healthcare Facility is a health facility as defined in the California Health and Safety Code Division 2, Chapter 2, §1250 or clinic as defined in the California Health and Safety Code Division 2, Chapter 1 Section 1204 that is located within a health facility.

NEW!: **Long-Term System Cost (LSC)** is the CEC-projected present value of costs to California’s energy system over a period of 30 years. LSC does not represent a prediction of individual utility bills.

Revised: Nonresidential Function Areas now includes:

- ✦ **Laboratory** is a space or room where hazardous materials are used for activities such as testing, analysis, instruction, research, or developmental activities.
- ✦ **Laboratory Suite** is a Group L occupancy space within a building or structure, which may include multiple laboratories, offices, storage, equipment rooms or similar support functions.

Revised: Source Energy is defined as the long run hourly marginal source energy of fossil fuels that are combusted as a result of building energy consumption either directly at the building site or caused to be consumed to meet the electrical demand of the building considering the long-term effects of Commission-projected energy resource procurement. For a given hour, the value in that hour for each forecasted year is averaged to establish a lifetime average source energy.

Title 24, Part 6

Subchapter 1 – All Occupancies

General Provisions



› Mandatory

› Section 100.2 Calculation of Energy Budgets

Revised: When using the Performance Approach for compliance, the energy budget for all newly constructed nonresidential buildings is now expressed in terms of LSC and source energy. The energy budget for Additions and Alterations are expressed in terms of LSC.

LSC is calculated by multiplying the buildings annual hourly site energy use for each fuel type by the CEC-published LSC hourly factors, which vary for each hour of the year based on the energy type, CZ, and building type. All other depletable energy sources other than electricity and natural gas must use the LSC factors for propane. A summary of LSC hourly factors is found in the Reference Joint Appendix JA3.

Source energy is calculated by multiplying the annual hourly site energy use by Btu factors for fossil fuel used directly or indirectly at the building site, or to meet the electrical demand of the building.

Title 24, Part 6

Subchapter 2 – All Occupancies

Mandatory Requirements for the Manufacture, Construction and Installation of Systems, Equipment, and Building Components



› Mandatory

› Section 110.8 – Mandatory Requirements For Insulation, Roofing Products, and Radiant Barriers

§110.8(i)3 “Solar Reflectance Index (SRI)”

Revised: Solar Reflectance Index (SRI), calculated as specified by ASTM E1980-11 (2019), may be used as an alternative to thermal emittance and an aged solar reflectance. SRI calculations must be based on Approach I from Section 6.1.1 of ASTM E1980-11 (2019) using only equation one and three and a moderate wind velocity of two to six meters per second.

Title 24, Part 6

Subchapter 3 – Nonresidential, Hotel/Motel Occupancies, and Covered Processes

Mandatory Requirements



› Mandatory

› Section 120.7 – Mandatory Requirements for Building Envelopes

§120.7(d) “Exterior Windows”

NEW!: Vertical fenestration assemblies shall have an area weighted average U-factor no greater than 0.47.

Exception: Fenestration installed in buildings meeting Part 7 of the California Building Code (California Wildland-Urban Interface Code), and where the building is located in Fire Hazard Severity Zones or Wildland-Urban Interface (WUI) Fire Areas as designated by the local enforcement agency.

§120.7(e) “Vestibules”

NEW!: New Occupancy A (Assembly), B (Business), E (Educational), I (Healthcare Facility) and M (Mercantile) buildings with public entrances shall include an enclosed vestibule.

1. All doors opening into and out of the vestibule shall be equipped with self-closing devices.
2. When a heating system or air curtains with integral heating are utilized, controls configured to shut off the source of heating when the outdoor air temperature exceeds 45°F are required. Additionally, vestibule HVAC shall be controlled by a thermostat located within the vestibule configured to limit heating to a maximum of 60°F and cooling to a minimum of 85°F.

Exceptions: Doors not intended to be used by the public; doors opening directly from a sleeping unit or dwelling unit; doors to a space smaller than 3,000 ft²; revolving doors for a public entrance; doors used to facilitate moving vehicles and materials (including adjacent personnel doors); doors that have an air curtain meeting specific requirements; and public entrances, in Climate Zones 2 through 13, where the building is less than four stories above grade and has less than 10,000 ft² of conditioned floor area; projects that have been submitted to the local planning department before January 1, 2026 where compliance with the vestibule requirements would necessitate a resubmittal for approval.

Subchapter 5 – Nonresidential, High-Rise Residential, and Hotel/Motel Occupancies Performance and Prescriptive Compliance Approaches for Achieving Energy Efficiency



› Performance

› Section 140.1 Performance Approach: Energy Budgets

§140.1 “Performance Approach”

Revised: The energy budget of the Proposed Design building shall be no greater than the energy budget calculated for the Standard Design building using CEC-certified compliance software as specified by §10-109(c) “Compliance Software” and §10-116 “3rd Party Alternative Calculation Method Compliance Software.”

Energy Budget for the Standard Design Building. The energy budget is expressed in terms of Long-term System Cost (LSC) and Source Energy.

- ★ **Long-term System Cost (LSC).** The LSC energy budget is determined by applying the Mandatory and Prescriptive requirements of the Standard Design to the Proposed Design building and has two components, the **Efficiency LSC** and the **Total LSC**. The **Efficiency LSC** energy is the sum of the LSC energy for space-conditioning, water heating, mechanical ventilation, lighting, and self-utilization credit(s). Total LSC energy is the sum of the Efficiency LSC energy and LSC energy from the photovoltaic system, battery energy storage systems (BESS), and demand flexibility.
- ★ **Source Energy.** Source Energy reflects the long run marginal source energy of fossil fuels that are combusted as a result of building energy consumed either directly at the building site or to meet the electrical demand of the building.

Title 24, Part 6

Subchapter 11 – Multifamily Occupancies

Performance and Prescriptive Compliance Approaches



› **Prescriptive**

› **Section 140.3 Prescriptive Requirements for Building Envelopes**

§140.3(a) “Envelope Component Requirements”

Revised: The following envelope features supported in Table 140.3-B “Prescriptive Envelope Criteria for Nonresidential Buildings” have lower U-factor requirements. All other envelope features supported in Table 140.3-B have not changed.

Table 140.3-B “Prescriptive Envelope Criteria for Nonresidential Buildings”

Envelope Feature	CZ1	CZ2	CZ3	CZ4	CZ5	CZ6	CZ7	CZ8	CZ9	CZ10	CZ11	CZ12	CZ13	CZ14	CZ15	CZ16
Roofs and Ceilings - Metal Building Max U-Factor	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038
Roofs and Ceilings - Wood Framed and Other Max U-Factor	0.028	0.028	0.028	0.028	0.028	0.047	0.047	0.047	0.028	0.028	0.028	0.028	0.028	0.028	0.028	0.028
Walls - Metal Building Max U-Factor	0.098	0.053	0.098	0.053	0.053	0.098	0.098	0.053	0.053	0.053	0.053	0.053	0.053	0.053	0.050	0.053
Walls - Mass, Light¹ Max U-Factor	0.170	0.138	0.227	0.196	0.364	0.364	0.364	0.364	0.364	0.138	0.138	0.138	0.138	0.138	0.138	0.138
Walls - Mass, Heavy¹ Max U-Factor	0.211	0.650	0.650	0.650	0.650	0.690	0.690	0.690	0.690	0.650	0.160	0.211	0.184	0.160	0.160	0.153
Walls - Wood-framed and Other Max U-Factor	0.078	0.053	0.102	0.053	0.095	0.102	0.102	0.095	0.053	0.053	0.042	0.053	0.053	0.053	0.038	0.053

¹As defined in §100.1, light mass walls are walls with a heat capacity of at least 7.0 Btu/ft²-°F and less than 15.0 Btu/ft²-°F. Heavy mass walls are walls with a heat capacity of at least 15.0 Btu/ft²-°F.

Title 24, Part 6

Subchapter 11 – Multifamily Occupancies

Performance and Prescriptive Compliance Approaches



› **Prescriptive**

› **Section 140.3 Prescriptive Requirements for Building Envelopes**

§140.3(a)8 “Relocatable Public School Buildings”

Revised: Table 140.3-D “Prescriptive Envelope Criteria for Relocatable Public School Buildings for Use in All Climate Zones,” used for the “all Climate Zone” approach for public school buildings, has been revised to reduce many of the U-factor requirements and align with many of the envelope requirements of nonresidential buildings.

Table 140.3-D “Prescriptive Envelope Criteria for Relocatable Public School Buildings for Use in All Climate Zones”

Envelope Feature	Criteria	Value
Roofs and Ceilings - Metal Buildings	Maximum U-factor	0.038 Revised
Roofs and Ceilings - Non-Metal Buildings	Maximum U-factor	0.028 Revised
Roofing Products - Low-Sloped	Aged Solar Reflectance	0.63
	Thermal Emittance	0.75
Roofing Products - Steep-Sloped	Aged Solar Reflectance	0.25
	Thermal Emittance	0.80
Walls - Wood frame buildings	Maximum U-factor	0.038 Revised
Walls - Metal frame buildings	Maximum U-factor	0.055 Revised
Walls - Metal buildings	Maximum U-factor	0.053 Revised
Walls - Mass/7.0≤ HC	Maximum U-factor	0.138 Revised
Walls - All Other Walls	Maximum U-factor	0.038 Revised

Title 24, Part 6

Subchapter 11 – Multifamily Occupancies

Performance and Prescriptive Compliance Approaches



› Prescriptive

› Section 140.3 Prescriptive Requirements for Building Envelopes

§140.3(a)8 “Relocatable Public School Buildings” (continued)

Revised: Table 140.3-D “Prescriptive Envelope Criteria for Relocatable Public School Buildings for Use in All Climate Zones,” used for the “all Climate Zone” approach for public school buildings, has been revised to reduce many of the U-factor requirements and align with many of the envelope requirements of nonresidential buildings.

Table 140.3-D “Prescriptive Envelope Criteria for Relocatable Public School Buildings for Use in All Climate Zones” (continued)

Envelope Feature	Criteria	Value
Floors and Soffits - Raised Mass	Maximum U-factor	0.058 Revised
	Maximum U-factor	0.039 NEW!
Fenestration - Fixed Windows	Maximum U-factor	0.34 Revised
	Maximum RSHGC	0.22 Revised
	Minimum VT	0.42 NEW!
Fenestration - Operable Windows	Maximum U-factor	0.46 NEW!
	Maximum RSHGC	0.22 NEW!
	Minimum VT	0.32 NEW!

Title 24, Part 6

Subchapter 11 – Multifamily Occupancies

Performance and Prescriptive Compliance Approaches



› Prescriptive

› Section 140.3 Prescriptive Requirements for Building Envelopes

§140.3(a)8 “Relocatable Public School Buildings” (continued)

Revised: Table 140.3-D “Prescriptive Envelope Criteria for Relocatable Public School Buildings for Use in All Climate Zones,” used for the “all Climate Zone” approach for public school buildings, has been revised to reduce many of the U-factor requirements and align with many of the envelope requirements of nonresidential buildings.

Table 140.3-D “Prescriptive Envelope Criteria for Relocatable Public School Buildings for Use in All Climate Zones” (continued)

Envelope Feature	Criteria	Value
Fenestration - Glazed Doors (Site-Built and Factory Assembled)	Maximum U-factor	0.45
	Maximum RSHGC	0.23
	Minimum VT	0.17 NEW!
Fenestration - Skylights	Maximum U-factor	See Table 140.3-B Revised
	Maximum RSHGC	See Table 140.3-B Revised
	Minimum VT	See Table 140.3-B Revised
	Maximum SRR	5% Revised
Exterior Doors - Non-Swinging doors	Maximum U-factor	0.50
Exterior Doors - Swinging doors	Maximum U-factor	0.70

Subchapter 6 – Nonresidential and Hotel and Motel Occupancies

Additions, Alterations, and Repairs



› **Additions and Alterations**





› **Section 141.0 Additions, Alterations, And Repairs To Existing Nonresidential And Hotel/Motel Buildings, To Existing Outdoor Lighting, And To Internally And Externally Illuminated Signs**

NEW!: §141.0(b)1E “Mandatory Requirements for Alterations — Windows”

NEW!: When altering more than 150 ft² of vertical fenestration, the maximum area weighted U-factor is 0.58. When adding more than 50 ft² of vertical fenestration, the new Mandatory area weighted U-factor of 0.47 in Section 120.7(d) will apply.





Electrical Systems: Lighting, Demand Management, and Electrical Distribution

Table 3: Changes to the 2025 Energy Code, Electrical Systems

Building Application	 Mandatory		 Prescriptive	 Performance	 Additions and Alterations	Reference Appendices
	All Occupancy Subchapters 1-2 (§§100.0-110.12)	Subchapter 3-4 (§§120.0-130.5)	Subchapter 5 (§§140.0, 140.2-10)	Subchapter 5 (§§140.0-1)	Subchapter 6 (§§140.0-1)	
General	§100.0 Revised §100.1 Revised §100.2 Revised	§120.0 No Change	§140.0 No Change §140.2 No Change	N/A	N/A	JA2 Weather and Climate: No Change JA3 Energy Budget: Revised
Demand Management	§110.12 Revised	N/A	N/A	N/A	§141.0 No Change	NA7 Installation/Acceptance NR: No Change
Electrical Distribution	§110.11 Revised	§130.4 No change §130.5 Revised	N/A	N/A	§141.0 No Change	N/A
Indoor Lighting (conditioned, process spaces)	§110.9 No Change	§120.8 No change §130.0 No change §130.1 Revised §130.4 No change	§140.3(c) No Change §140.6 Revised	§§140.0-1 Revised	§141.0 No Change	JA8 Residential High Efficacy Light: Revised JA10 Residential JA8 Flicker: Revised NA4 Relocatable School Building: No Change NA7 Installation/Acceptance NR: Revised NA7.6.5.1 NA8 Default Luminaire Power: No Change
Indoor Lighting (unconditioned, parking garages)	§110.9 No Change	§120.8 No change §130.0 No change §130.1 Revised §130.4 No change	§140.3(c) No Change §140.6 Revised	N/A	§141.0 No Change	JA8 Residential High Efficacy Light: Revised JA10 Residential JA8 Flicker: Revised NA4 Relocatable School Building: No Change NA7 Installation/Acceptance NR: Revised NA7.6.5.1 NA8 Default Luminaire Power: No Change

Electrical Systems: Lighting, Demand Management and Electrical Distribution

Table 3: Changes to the 2025 Energy Code, Electrical Systems (continued)

Building Application	 Mandatory		 Prescriptive	 Performance	 Additions and Alterations	Reference Appendices
	All Occupancy Subchapters 1-2 (§§100.0-110.12)	Subchapter 3-4 (§§120.0-130.5)	Subchapter 5 (§§140.0, 140.2-10)	Subchapter 5 (§§140.0-1)	Subchapter 6 (§§140.0-1)	
Outdoor Lighting	§110.9 <i>No Change</i>	§130.0 <i>No change</i> §130.2 Revised §130.4 <i>No change</i>	§140.7 <i>No Change</i>	N/A	§141.0 <i>No Change</i>	JA8 Residential High Efficacy Light: Revised JA10 Residential JA8 Flicker: Revised NA4 Relocatable School Building: <i>No Change</i> NA7 Installation/Acceptance NR: Revised NA7.6.5.1 NA8 Default Luminaire Power: <i>No Change</i>
Sign Lighting (indoor and outdoor)	§110.9 <i>No Change</i>	§130.0 <i>No change</i> §130.3 <i>No change</i>	§140.8 Revised	N/A	§141.0 <i>No Change</i>	N/A

Title 24, Part 1

Article 1 – Energy Building Regulations



› Mandatory

› Section 10-103.1 through 10-103.2 Nonresidential Lighting and Mechanical Acceptance Test Training and Certification

§10-103.1(c)3F through 10-103.2(c)3F “Quality Assurance and Accountability”

Revised: Additional requirements have been added in support of auditing.



› Mandatory

› Section 10-114-A Determination of Outdoor Lighting Zones and Administrative Rules for Use

§10-114-A “Outdoor Lighting Zones”

Revised: Outdoor lighting zones are defined by the 2020 U.S. Census (previously 2010 U.S. Census data).

Title 24, Part 6

Subchapter 1 – All Occupancies

General Provisions



› Mandatory

› Section 100.0 Scope

§100.0(a)1 “Buildings Covered”

NEW!: Occupancy L (Laboratories) buildings are now subject to the Energy Code.



› Mandatory

› Section 100.1 Definitions and Rules of Construction

NEW!: **Daylight Responsive Control** adjusts the luminous flux of the electric lighting system in either a series of steps or by continuous dimming in response to available daylight. This kind of control uses one or more photosensors to detect changes in daylight illumination and then automatically adjusts the electric lighting levels in response.

Revised: **Energy Budget** is the maximum energy consumption, that a proposed building, or portion of a building, can be designed to consume. It is calculated using Commission-approved compliance software as specified by §10-109 of the Energy Code and the Alternative Calculation Method Reference Manual. The Energy Budget for newly constructed buildings is expressed in terms of the Long-term System Cost (LSC) and Source Energy. The energy budget for additions and alterations is expressed in terms of LSC.

Revised: **Healthcare Facility** is health facility as defined in the California Health and Safety Code Division 2, Chapter 2, §1250 or clinic as defined in the California Health and Safety Code Division 2, Chapter 1 §1204 that is located within a health facility.

NEW!: **Long-term System Cost (LSC)** is the CEC-projected present value of costs to California's energy system over a period of 30 years. LSC does not represent a prediction of individual utility bills.

Revised: **Multilevel Lighting Control** enables the intensity of lighting to be adjusted upward and downward.

NEW!: **OpenADR 3.0, Baseline Profile** is the specific baseline profile defined in the OpenADR Alliance document titled, “OpenADR 3.0 Specification,” 2023.

Revised: **Source Energy** is defined as the long run hourly marginal source energy of fossil fuels that are combusted as a result of building energy consumption either directly at the building site or caused to be consumed to meet the electrical demand of the building considering the long-term effects of Commission-projected energy resource procurement. For a given hour, the value in that hour for each forecasted year is averaged to establish a lifetime average source energy.

Revised: **Temporary Lighting** is a lighting installation, with plug-in connections, that does not persist beyond the time constraints specified in California Electrical Code Article 590.

Title 24, Part 6

Subchapter 1 – All Occupancies

General Provisions



› Mandatory

› Section 100.2 Calculation of Energy Budgets

Revised: When using the Performance Approach for compliance, the energy budget for all newly constructed nonresidential buildings is now expressed in terms of LSC and Source Energy. The energy budget for Additions and Alterations is expressed in terms of LSC.

LSC is calculated by multiplying the buildings annual hourly site energy use for each fuel type by the CEC published LSC hourly factors, which vary for each hour of the year based on the energy type, CZ, and building type. All other depletable energy sources other than electricity and natural gas must use the LSC factors for propane. A summary of LSC hourly factors is found in the Reference Joint Appendix JA3.

Source Energy is calculated by multiplying the annual hourly site energy use by Btu factors for fossil fuel used directly or indirectly at the building site, or to meet the electrical demand of the building.

Title 24, Part 6

Subchapter 2 – All Occupancies

Mandatory Requirements for the Manufacture, Construction, and Installation of Systems, Equipment and Building Components



› Mandatory

› Section 110.12 Mandatory Requirements for Demand Management

§110.12(a) “Demand Responsive Controls”

Revised: All demand responsive controls shall be either a certified OpenADR 2.0a or OpenADR 2.0b Virtual End Node (VEN); or a certified Baseline Profile OpenADR 3.0 VEN; or certified to the CEC as being capable of responding to a demand response signal from a certified OpenADR 2.0b or a certified Baseline Profile OpenADR 3.0 VEN by automatically implementing the control functions requested by the VEN for the equipment it controls.

Subchapter 4 – Nonresidential, Hotel and Motel Occupancies, and Covered Processes

Mandatory Requirements for Lighting Systems and Equipment, and Electrical Power Distribution Systems



› Mandatory

› Section 130.1 Mandatory Indoor Lighting Controls

§130.1(a) “Manual Controls”

Revised: Manual controls shall be located within the same space of the controlled lighting, or in a location in which the status of the controlled lighting can be seen when operating the controls (annunciated). This is allowed for all space types (it was previously limited to only some space types). Egress manual controls shall not be controllable by unauthorized personnel during a power failure.

§130.1(b) “Multilevel Lighting Controls”

Revised: When required (space of at least 100 ft² that has general lighting greater than 0.5 watts per ft² unless there is only one luminaire, or is a restroom or healthcare facility), the multilevel lighting controls shall provide and enable continuous dimming from 100% to 10% or lower of lighting power, unless using high-intensity discharge (HID) or induction technology for general lighting in which at least one control step between 30 and 70% of full rated power is required. Table 130.1-A “Multilevel Lighting Controls and Uniformity Requirements” has been removed since required control steps have been included in applicable code language.

§130.1(c) “Shut-off Controls”

Revised: Occupant sensor control zones for offices larger than 250 ft² are required to be shown on the lighting plans. All other changes in this section support clean-up efforts with no substantive changes.

§130.1(d) “Daylight Responsive Controls”

Revised: Enclosed space(s) designed with at least 75 watts of general lighting in the total skylit zone(s), or total primary sidelit zones(s) or total secondary sidelit daylit zone(s) must control the general lighting within those zones with daylight responsive controls. When an enclosed space has at least 85 watts of general lighting in the secondary sidelit zone(s) only (none in skylit or primary daylit zones), then the general lighting in the secondary daylit zone is required to use daylight responsive controls. For parking garages, the threshold for daylight responsive controls remains at least 60 watts in primary and secondary sidelit zones combined. All other changes in this section support clean-up efforts with no substantive changes.

Title 24, Part 6

Subchapter 4 – Nonresidential, Hotel and Motel Occupancies, and Covered Processes

Mandatory Requirements for Lighting Systems and Equipment, and Electrical Power Distribution Systems



› Mandatory

› Section 130.1 Mandatory Indoor Lighting Controls

§130.1(f) “Occupancy Sensing Controls Interactions with Space-conditioning Systems (previously called “Control Interactions”)”

Revised: Control interactions have been incorporated within the specific control requirements in §§130.1(a)–(d) and replaced with a duplication of the requirements supported in the §120.2(e)3 “Occupant Sensing Zone Controls,” in which ventilation air shall be reduced to zero when the space is in occupied-standby mode, and the space-conditioning system is controlled by occupancy sensing controls. This applies when ventilation is allowed to be reduced to zero air per Table 120.1-A “Minimum Ventilation Rates” AND the space is required to provide occupancy sensor lighting controls per §130.1(c)5 “Occupant Sensing Controls are required for specified offices, multipurpose rooms, classrooms, conference rooms and restrooms” or §130.1(c)6 “Full or Partial OFF occupant sensing controls are required for aisle ways and open area in warehouses, library book stack aisles, corridors and stairwells, and offices > 250 ft².”



› Mandatory

› Section 130.2 Mandatory Outdoor Lighting Controls

§130.2(b) “Luminaire Shielding Requirements”

Revised: A new exception has been added to align Energy Code exceptions with CalGreen (Title 24, Part 11) exceptions found in §5.106.8. Additionally, any luminaires eligible for the exceptions of §140.7(a) “Prescriptive Requirements for Outdoor Lighting” are also exempt to these Luminaire Shielding Requirements (otherwise known as “BUG” Backlit, Uplight and Glare Ratings).

§130.2(c) “Controls for Outdoor Lighting”

Revised: All changes in this section support clean-up of code language with no substantive changes.

Title 24, Part 6

Subchapter 5 – Nonresidential, Hotel and Motel Occupancies, and Covered Processes Performance and Prescriptive Compliance Approaches for Achieving Energy Efficiency



› Performance

› Section 140.1 Performance Approach: Energy Budgets

§140.1 “Performance Approach”

Revised: Proposed Design building to be no greater than the energy budget calculated for the Standard Design building using CEC-certified compliance software as specified by §10-109(c) “Compliance Software” and §10-116 “Third Party Alternative Calculation Method Compliance Software.”

Energy Budget. The energy budget is expressed in terms of LSC and source energy.

- ✦ **LSC.** The LSC energy budget is determined by applying the Mandatory and Prescriptive Requirements of the Standard Design to the Proposed Design building and has two components, the **Efficiency LSC** and the **Total LSC**. The **Efficiency LSC** energy is the sum of the LSC energy for space-conditioning, water-heating, mechanical ventilation, and self-utilization credit(s). **Total LSC** energy is the sum of the Efficiency LSC energy and LSC energy from the PV system, BESS, lighting, demand flexibility, and other plug loads.
- ✦ **Source Energy.** Source Energy reflects the long run marginal source energy of fossil fuels that are combusted as a result of building energy consumed either directly at the building site or to meet the electrical demand of the building.

Title 24, Part 6

Subchapter 5 – Nonresidential, High-Rise Residential, and Hotel and Motel Occupancies Performance and Prescriptive Compliance Approaches for Achieving Energy Efficiency



› Prescriptive

› Section 140.6 Prescriptive Requirements for Indoor Lighting

§140.6(a) “Calculation of Adjusted Indoor Lighting Power”

Revised: The exception for up to 0.3 watts per ft² of portable lighting within office areas has been removed.

§140.6(a)2lv “PAF for Occupant Sensing Control of Open Offices”

Revised: Occupant sensor control zones for offices greater than 250 ft² are required to be shown on the lighting plans.

§140.6(a)4C “Luminaire Classification and Power Adjustment — Tailored Method”

Revised: The Tailored Method has been removed as a compliance method and all wattage allowances supported in the Tailored Method have been added as “Additional Power Allowances” within the Area Category Approach.

Title 24, Part 6

Subchapter 5 – Nonresidential, High-Rise Residential, and Hotel and Motel Occupancies Performance and Prescriptive Compliance Approaches for Achieving Energy Efficiency



› Prescriptive

› Section 140.6 Prescriptive Requirements for Indoor Lighting *(continued)*

§140.6(b) “Calculation of Allowed Indoor Lighting Power: General Rules”

Revised: The Tailored Method has been removed as a compliance method and all wattage allowances supported in the Tailored Method have been added as “Additional Power Allowances” within the Area Category Approach.



› Prescriptive

› Section 140.8(b) Prescriptive Requirements for Signs





§140.8(b) “Alternate Lighting Sources”

Revised: When a sign is equipped with one of the following, then the wattage limitation for signs does not apply:

- ✦ Neon or cold cathode lamps with transformer or power supply efficiency greater than or equal to the following:
 - » A minimum efficiency of 75% when the transformer or power supply-rated output current is less than 50 mA; **or**
 - » A minimum efficiency of 68% when the transformer or power supply-rated output current is at least 50 mA.
 - » The ratio of the output wattage to the input wattage is at 100% tubing load.
- ✦ Light emitting diodes (LEDs) with a power supply having an efficiency of $\geq 80\%$.
 - » **Exception:** Single voltage external power supplies that are designed to convert 120-volt AC input into lower voltage DC or AC output and have a nameplate output power no greater than 250 watts, shall comply with the applicable requirements of the Appliance Efficiency Regulations (Title 20).

Photovoltaic, Battery Storage Systems, Solar and Battery Readiness: Nonresidential and Hotel and Motel Occupancies

Table 4: Changes to the 2025 Energy Code, Photovoltaic, Battery Storage Systems, and Solar Readiness

Building Application	 Mandatory		 Prescriptive	 Performance	 Additions and Alterations	Reference Appendices
	All Occupancy Subchapters 1-2 (§§100.0-110.12)	Subchapter 3 (§§120.0-120.10)	Subchapter 5 (§§140.0, 140.2-10)	Subchapter 5 (§§140.0-1)	Subchapter 6 (§§141.0-1)	
General	§100.0 Revised §100.1 Revised §100.2 Revised	§120.0 <i>No Change</i>	§140.0 <i>No Change</i> §140.2 <i>No Change</i>	N/A	N/A	JA2 Weather/Climate: <i>No Change</i> JA3 Energy Budget: Revised
Photovoltaic (PV) and Battery Storage Systems	N/A	N/A	§140.10 Revised	§140.0-1 Revised	N/A	JA11 PV Qualifications: <i>No Change</i> JA12 Battery Qualifications: Revised NA4 Relocatable School Building: <i>No Change</i>
Solar Readiness	§110.10 <i>No Change</i>	N/A	N/A	N/A	Additions §110.10 <i>No Change</i>	N/A

Title 24, Part 1

Article 1 – Energy Building Regulations



› Mandatory

› Section 10-115 Community Shared Solar Electric Generation System or Community Shared Battery Energy Storage System (BESS) Compliance Option for On-Site Solar Electric Generation or Battery Energy Storage Requirements

§10-115(a)6 “Community-shared Solar Electric Generation System or Battery Energy Storage System Offset – Location”

Revised: The community shared solar electric generation system and/or the community shared BESS shall be located on a distribution system of the load-serving entity providing service to the participating buildings. The distribution system must have an electrical voltage less than 100kV.

Title 24, Part 6

Subchapter 1 – All Occupancies

General Provisions



› Mandatory

› Section 100.0 Scope

§100.0(a)1 “Buildings Covered”

NEW!: Occupancy L (Laboratories) buildings are now subject to the Energy Code.



› Mandatory

› Section 100.1 Definitions and Rules of Construction

NEW!: **BESS Ready Interconnection Equipment** is equipment, including but not limited to a BESS ready panelboard or switchboard, that can accommodate the connection of a distributed energy resource or a BESS capable of either automatic or manual isolation from the utility power source.

BESS Ready Panelboard/Switchboard is a panelboard or switchboard that can accommodate either automatic or manual switching between a utility power source to a distributed energy resource or a BESS, such as a split bus panelboard or a switchboard.

Revised: **Energy Budget** is the maximum energy consumption, that a proposed building, or portion of a building, can be designed to consume, calculated using Commission-approved compliance software as specified by §10-109 of the Energy Code and the Alternative Calculation Method Reference Manual. The Energy Budget for newly constructed buildings are expressed in terms of the Long-term System Cost (LSC) and Source Energy. The energy budget for Additions and Alterations is expressed in terms of LSC.

NEW!: **Executive Director** is the Executive Director of the Energy Commission.

Revised: **Healthcare Facility** is health facility as defined in the California Health and Safety Code Division 2, Chapter 2, §1250 or clinic as defined in the California Health and Safety Code Division 2, Chapter 1 §1204 that is located within a health facility.

NEW!: **Long-Term System Cost (LSC)** is the CEC-projected present value of costs to California's energy system over a period of 30 years. LSC does not represent a prediction of individual utility bills.

Revised: **Nonresidential Function Areas** now includes:

- ✦ **Laboratory** is a space or room where hazardous materials are used for activities such as testing, analysis, instruction, research, or developmental activities.
- ✦ **Laboratory Suite** is a Group L occupancy space within a building or structure, which may include multiple laboratories, offices, storage, equipment rooms, or similar support functions.

Title 24, Part 6

Subchapter 1 – All Occupancies

General Provisions



› Mandatory

› Section 100.1 Definitions and Rules of Construction *(continued)*

Revised: **Nonresidential Building Types** are no longer dependent upon minimum floor area of one Building Type versus another. The following are new building types added to support the PV requirements of the Energy Code:

- ✦ **NEW!: Events & Exhibits Building** is a Museum Building, Motion Picture or Performance Arts Theater Building, or other building that is comprised of Auditorium Area, Convention, Conference, Multipurpose and Meeting Area, or Civic Meeting Place Area.
- ✦ **NEW!: Religious Worship Building** is a building that is comprised of Religious Worship Area.
- ✦ **NEW!: Sports & Recreation Building** is a building that is comprised of Exercise/Fitness Center and Gymnasium Area, or other area where recreational sports are practiced.
- ✦ **NEW!: Warehouse Building** is a building that is constructed for storage or handling of products.

NEW!: **Power Conditioning System (PCS)** is a device, which may be either integrated into a BESS or standalone, that allows for the BESS to interact with other electrical infrastructure, such as the electrical network. The PCS may include an inverter like that used for a photovoltaic (PV) system.

NEW!: **Recovered Energy, On-Site** is recovered energy that is captured at the building site.

Revised: **Source Energy** is defined as the long run hourly marginal source energy of fossil fuels that are combusted as a result of building energy consumption either directly at the building site or caused to be consumed to meet the electrical demand of the building considering the long-term effects of Commission-projected energy resource procurement. For a given hour, the value in that hour for each forecasted year is averaged to establish a lifetime average source energy.



› Mandatory

› Section 100.2 Calculation of Energy Budgets

Revised: When using the Performance Approach for compliance, the energy budget for all newly constructed nonresidential buildings is now expressed in terms of LSC and Source Energy. The energy budget for Additions and Alterations are expressed in terms of LSC.

LSC is calculated by multiplying the buildings annual hourly site energy use for each fuel type by the CEC published LSC hourly factors, which vary for each hour of the year based on the energy type, CZ, and building type. All other depletable energy sources other than electricity and natural gas must use the LSC factors for propane. A summary of LSC hourly factors is found in the Reference Joint Appendix JA3.

Source Energy is calculated by multiplying the annual hourly site energy use by Btu factors for fossil fuel used directly or indirectly at the building site, or to meet the electrical demand of the building.

Subchapter 5 – Nonresidential, High-Rise Residential, and Hotel and Motel Occupancies Performance and Prescriptive Compliance Approaches for Achieving Energy Efficiency



› Performance

› Section 140.1 Performance Approach: Energy Budgets

§140.1 “Performance Approach”

Revised: The Proposed Design building is to be no greater than the energy budget calculated for the Standard Design building using CEC-certified compliance software as specified by §10-109(c) “Compliance Software” and §10-116 “Third Party Alternative Calculation Method Compliance Software.”

Energy Budget. The energy budget is expressed in terms of LSC and source energy.

- ✦ **LSC.** The LSC energy budget is determined by applying the Mandatory and Prescriptive Requirements of the Standard Design to the Proposed Design building and has two components, the **Efficiency LSC** and the **Total LSC**. The **Efficiency LSC** energy is the sum of the LSC energy for space-conditioning, water-heating, mechanical ventilation, and self-utilization credit(s). **Total LSC** energy is the sum of the Efficiency LSC energy and LSC energy from the PV system, BESS, lighting, demand flexibility, and other plug loads.
- ✦ **Source Energy.** Source Energy reflects the long run marginal source energy of fossil fuels that are combusted as a result of building energy consumed either directly at the building site or to meet the electrical demand of the building.

Title 24, Part 6

Subchapter 5 – Nonresidential, High-Rise Residential, and Hotel and Motel Occupancies Performance and Prescriptive Compliance Approaches for Achieving Energy Efficiency



› Prescriptive

› Section 140.10 Prescriptive Requirements for Photovoltaic and Battery Energy Storage Systems

§140.10(a) “Photovoltaic Requirements”

Revised: When considering the Solar Access Roof Area (SARA) method, low-sloped roofs (less than 2:12) are multiplied by 14 watts. Steep-sloped roofs (2:12 or greater) are now included in SARA, in which the area is multiplied by 18 watts. One of the alternative approaches uses the conditioned floor area for Equation 140.10-A “Photovoltaic Direct Current Capacity” specific to the building type and Climate Zone supported in Table 140.10-A “PV Capacity Factors,” in which many of the capacity factors for other building types have been revised and building types have been added. To determine minimum required PV kW requirements, the smaller of either SARA or Equation 140.10-A (or the Performance Approach, if selected as the alternative compliance method) is used.

Equation 140.10-A “Photovoltaic Direct Current Capacity”

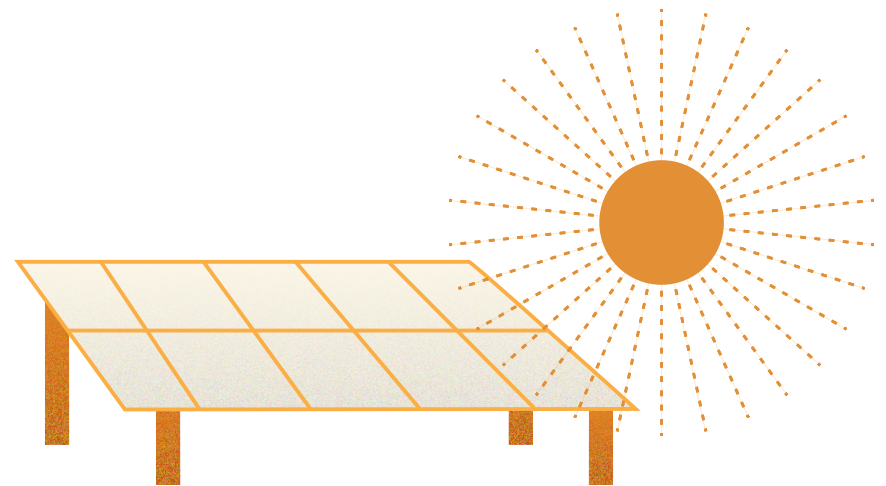
$$\text{kWPVdc} = (\text{CFA} \times \text{A}) / 1000$$

WHERE:

kWPVdc = Minimum rated PV system capacity in kW.

CFA = Conditioned floor area in square feet.

A = PV capacity factor in W/square foot as specified in Table 140.10-A for the building type.



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**Subchapter 5 – Nonresidential, High-Rise Residential, and Hotel and Motel Occupancies
Performance and Prescriptive Compliance Approaches for Achieving Energy Efficiency**



› **Prescriptive**

› **Section 140.10 Prescriptive Requirements for Photovoltaic and Battery Energy Storage Systems**

§140.10(a) “Photovoltaic Requirements” (continued)

Table 140.10-A – PV Capacity Factors (W/ft² of conditioned floor area)

Building Type	CZ1	CZ2	CZ3	CZ4	CZ5	CZ6	CZ7	CZ8
NEW!: Events & Exhibits	3.48 Revised	4.28 Revised	3.66 Revised	4.32 Revised	3.77 Revised	4.05 Revised	4.28 Revised	4.83 Revised
Library	0.39	3.23 Revised	2.59 Revised	3.25 Revised	2.48 Revised	2.74 Revised	3.04 Revised	3.49 Revised
Hotel/Motel	1.69 Revised	1.90 Revised	1.66 Revised	1.97 Revised	1.69 Revised	1.87 Revised	1.94 Revised	2.22 Revised
Office, Financial Institution, Unleased Tenant Space Revised: Medical Office Building/Clinic ¹	2.59	3.13	2.59	3.13	2.59	3.13	3.13	3.13
Restaurants	8.55 Revised	9.32 Revised	8.16 Revised	9.65 Revised	8.21 Revised	8.73 Revised	9.11 Revised	10.18 Revised
Retail, Grocery	3.14 Revised	3.49 Revised	3.01 Revised	3.61 Revised	3.05 Revised	3.27 Revised	3.45 Revised	3.83 Revised
School	1.27	1.63	1.27	1.63	1.27	1.63	1.63	1.63
Warehouse	0.39	0.44	0.39	0.44	0.39	0.44	0.44	0.44
Revised: Religious Worship ¹	4.25 Revised	4.65 Revised	3.49 Revised	4.52 Revised	3.72 Revised	4.29 Revised	4.64 Revised	5.89 Revised
NEW!: Sports & Recreation	2.47 Revised	1.97 Revised	1.54 Revised	2.03 Revised	1.60 Revised	1.84 Revised	1.98 Revised	2.63 Revised
Multifamily > 3 stories	1.82	2.21	1.82	2.21	1.82	2.21	2.21	2.21

¹This is not a new building type, but has been put in a different category that changes the minimum requirements.

Title 24, Part 6

**Subchapter 5 – Nonresidential, High-Rise Residential, and Hotel and Motel Occupancies
Performance and Prescriptive Compliance Approaches for Achieving Energy Efficiency**



› **Prescriptive**

› **Section 140.10 Prescriptive Requirements for Photovoltaic and Battery Energy Storage Systems**

§140.10(a) “Photovoltaic Requirements” (continued)

Revised: Table 140.10-A – PV Capacity Factors (W/ft² of conditioned floor area)

Building Type	CZ9	CZ10	CZ11	CZ12	CZ13	CZ14	CZ15	CZ16
NEW!: Events & Exhibits	4.63 Revised	4.80 Revised	5.04 Revised	4.44 Revised	4.95 Revised	4.36 Revised	5.48 Revised	3.38 Revised
Library	3.32 Revised	3.69 Revised	3.79 Revised	3.32 Revised	3.79 Revised	3.37 Revised	4.49 Revised	2.84 Revised
Hotel/Motel	2.09 Revised	2.20 Revised	2.30 Revised	2.05 Revised	2.30 Revised	2.02 Revised	2.72 Revised	1.73 Revised
Office, Financial Institution, Unleased Tenant Space Revised: Medical Office Building/Clinic¹	3.13	3.13	3.13	3.13	3.13	3.13	3.80	2.59
Restaurants	9.75 Revised	10.28 Revised	10.85 Revised	9.73 Revised	10.69 Revised	9.73 Revised	12.25 Revised	8.47 Revised
Retail, Grocery	3.65 Revised	3.81 Revised	4.09 Revised	3.64 Revised	3.99 Revised	3.71 Revised	4.60 Revised	3.21 Revised
School	1.63	1.63	1.63	1.63	1.63	1.63	2.46	1.27
Warehouse	0.44	0.44	0.44	0.44	0.44	0.44	0.58	0.39
Revised: Religious Worship¹	5.30 Revised	5.67 Revised	5.89 Revised	4.99 Revised	5.78 Revised	4.63 Revised	7.57 Revised	3.90 Revised
NEW!: Sports & Recreation	2.47 Revised	2.60 Revised	2.75 Revised	2.20 Revised	2.72 Revised	2.15 Revised	4.03 Revised	1.81 Revised
Multifamily > 3 stories	2.21	2.21	2.21	2.21	2.21	2.21	2.77	1.82

¹This is not a new building type, but has been put in a different category that changes the minimum requirements.

Title 24, Part 6

Subchapter 5 – Nonresidential, High-Rise Residential, and Hotel and Motel Occupancies Performance and Prescriptive Compliance Approaches for Achieving Energy Efficiency



› Prescriptive

› Section 140.10 Prescriptive Requirements for Photovoltaic and Battery Energy Storage Systems

§140.10(a) “Photovoltaic Requirements” *(continued)*

Revised: There is a new exception that replaces the 2022 Virtual Net Energy Metering (VNEM) exception #5 (Exceptions 1 through 4 remain unchanged from the 2022 Energy Code), exempting PV for tenant spaces in a new multitenant building when all of the following apply to the project scope, unless the CEC has approved a community solar program per Title 24, Part 1, §10-115 that can serve the building, or if a load-serving entity provides a program where PV generation is compensated through virtual energy bill credits, allowing nonresidential, hotel and motel tenant spaces to receive energy bill benefits from netting of energy generation and consumption:

- ✦ The tenant space is no greater than 2,000 ft² of conditioned space; **and**
- ✦ The tenant space is served by an HVAC system that does not serve other tenant spaces in the building; **and**
- ✦ The tenant space has an individual utility meter to track electricity consumption that does not include the electricity consumption of other tenant spaces in the building.

Subchapter 5 – Nonresidential, High-Rise Residential, and Hotel and Motel Occupancies Performance and Prescriptive Compliance Approaches for Achieving Energy Efficiency



› Prescriptive

› Section 140.10 Prescriptive Requirements for Photovoltaic and Battery Energy Storage Systems

§140.10(b) “Battery Energy Storage System (BESS) Requirements”

Revised: Battery energy storage system sizing requirements will depend on how the PV is calculated. If the SARA was used, then Equation 140.10-C “Battery Energy Storage System Minimum Rated Usable Energy Capacity SARA-Adjusted” applies. If Equation 140.10-A “Photovoltaic Direct Current Capacity” was used to size the PV system, then Equation 140.10-B “Battery Energy Storage System Minimum Rated Usable Energy Capacity” applies. The factors in Table 140.10-B “BESS Capacity Factors (Wh/ft² of conditioned floor area)” have been increased.

Revised: Equation 140.10-B “Battery Energy Storage System Minimum Rated Usable Energy Capacity”

$$\text{kWh}_{\text{batt}} = ((\text{CFA} \times \text{B}) / (1000 \times \text{C}^{0.5}))$$

Equation 170.2-F “Battery Energy Storage System Minimum Rated Usable Energy Capacity SARA-Adjusted”

$$\text{kWh}_{\text{batt}} = ((\text{CFA} \times \text{B}) / (1000 \times \text{C}^{0.5})) \times (\text{kW}_{\text{PVdc,SARA}} / \text{kW}_{\text{PVdc}})$$

WHERE:

kWh_{batt}, = Minimum Rated Usable Energy Capacity of the BESS in kWh.

CFA = Conditioned floor area (ft²) that is subject to the PV system requirements of §140.10(a).

kW_{PVdc}, = Minimum Rated PV System Capacity in kW from Equation 140.10-A.

kW_{PVdc, SARA} = Minimum Rated PV System Capacity in kW from the SARA calculation.

B = BESS Capacity Factor in Wh/ft² as specified in Table 140.10-B for the building type.

C = Rated single charge-discharge cycle AC to AC (round-trip) efficiency of the BESS.

Title 24, Part 6

**Subchapter 5 – Nonresidential, High-Rise Residential, and Hotel and Motel Occupancies
Performance and Prescriptive Compliance Approaches for Achieving Energy Efficiency**



› **Prescriptive**

› **Section 140.10 Prescriptive Requirements for Photovoltaic and Battery Energy Storage Systems**

§140.10(b) “Battery Energy Storage System (BESS) Requirements” (continued)

Revised: Table 140.10-B — BESS Capacity Factors (Wh/ft² of conditioned floor area)*

Building Type	CZ1	CZ2	CZ3	CZ4	CZ5	CZ6	CZ7	CZ8	CZ9	CZ10	CZ11	CZ12	CZ13	CZ14	CZ15	CZ16
NEW!: Events & Exhibits	1.82	1.95	1.74	2.12	1.91	2.13	2.24	2.30	2.36	2.47	2.62	2.16	2.64	2.68	3.22	1.89
Library	0.37	7.17	5.97	6.75	5.64	6.08	6.19	7.13	7.18	7.56	7.17	6.93	6.88	6.81	7.93	6.40
Hotel/Motel	0.86	0.84	0.77	0.92	0.81	0.89	0.90	1.01	1.00	1.11	1.14	0.96	1.18	1.18	1.49	0.85
Office, Financial Institution, Unleased Tenant Space	NR	5.26	4.35	5.26	4.35	5.26	5.26	5.26	5.26	5.26	5.26	5.26	5.26	5.26	6.39	4.35
Revised: Medical Office Building/Clinic¹																
Restaurants	4.36	4.11	3.78	4.37	3.89	4.02	4.11	4.49	4.47	4.82	5.05	4.43	5.05	5.24	6.23	4.11
Retail, Grocery	1.89	1.82	2.70	1.82	1.72	1.80	1.76	1.92	1.97	2.05	2.22	1.95	2.16	2.29	2.66	1.91
School	NR	3.05	2.38	3.05	2.38	3.05	3.05	3.05	3.05	3.05	3.05	3.05	3.05	3.05	4.60	2.38
Warehouse	0.37	0.41	0.37	0.41	0.37	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.54	0.37
Revised: Religious Worship¹	2.21	2.25	1.74	2.42	2.08	2.75	2.94	3.37	3.17	3.37	3.58	2.72	3.62	3.21	4.89	2.37
NEW!: Sports & Recreation	1.26	0.98	0.76	1.14	0.86	1.20	1.23	1.57	1.53	1.65	1.83	1.27	1.86	1.57	3.02	1.13
Multifamily > 3 stories	1.88	2.27	1.88	2.27	1.88	2.27	2.27	2.27	2.27	2.27	2.27	2.27	2.27	2.27	2.85	1.88

¹This is not a new building type, but has been put in a different category that changes the minimum requirements.

*Everything in this table has been revised.

NR = No Requirement

Subchapter 5 – Nonresidential, High-Rise Residential, and Hotel and Motel Occupancies Performance and Prescriptive Compliance Approaches for Achieving Energy Efficiency



› Prescriptive

› Section 140.10 Prescriptive Requirements for Photovoltaic and Battery Energy Storage Systems

§140.10(b) “Battery Energy Storage System (BESS) Requirements” (continued)

Revised: Additionally, battery power capacity sizing will be required per Equation 140.10-D “BESS Minimum Rated Power Capacity”

Equation 140.10-D “BESS Minimum Rated Power Capacity”

$$kW_{batt} = kWh_{batt} / 4$$

WHERE:

kW_{batt} = Minimum Rated Power Capacity of the BESS in kWdc

kWh_{batt} = Minimum Rated Usable Energy Capacity of the BESS in kWh

Exceptions have been updated:





Exception: No BESS is required if the installed PV system capacity is less than 15% of the capacity determined by Equation 140.10-A “Photovoltaic Direct Current Capacity.”

Exception: No BESS is required if the rated usable energy capacity determined by Equation 140.10-B “Battery Energy Storage System Minimum Rated Usable Energy Capacity” or Equation 140.10-C “Battery Energy Storage System Minimum Rated Usable Energy Capacity SARA-Adjusted” is less than 10 kWh.

Exception: For multitenant buildings, the energy capacity of the BESS shall be based on the tenant spaces with at least 5,000 ft² of conditioned floor area. For single-tenant buildings with less than 5,000 ft² of conditioned floor area, no BESS is required.





Covered Processes

Table 5: Changes to the 2025 Energy Code, Covered Processes

Building Application	 Mandatory		 Prescriptive	 Performance	 Additions and Alterations	Reference Appendices
	All Occupancy Subchapters 1-2 (§§100.0-110.12)	Subchapter 3 (§§120.0-120.10)	Subchapter 5 (§§140.0, 140.2-10)	Subchapter 5 (§§140.0-1)	Subchapter 6 (§§141.0-1)	
General	§100.0 Revised §100.1 Revised §100.2 Revised §110.2 Revised	§120.0 No Change §120.3 Revised	§140.0 No Change §140.2 No Change	N/A	N/A	JA2 Weather and Climate: No Change JA3 Energy Budget: Revised
Refrigerated Warehouse	N/A	§120.6(a) Revised	§140.10 Revised	N/A	N/A	NA7 Acceptance Covered Process: Revised
Commercial Refrigeration	N/A	§120.6(b) Revised	N/A	N/A	§141.1 Revised	NA7 Acceptance Covered Process: Revised
Parking Garage	N/A	§120.6(c) No Change	N/A	§§140.0-1 Revised	§141.1 No Change	NA7 Acceptance Covered Process: No Change
Process Boilers	N/A	§120.6(d) No Change	N/A	N/A	§141.1 Revised	N/A
Compressed Air	N/A	§120.6(e) No Change	N/A	N/A	§141.1 No Change	NA7 Acceptance Covered Process: No Change
Elevators	N/A	§120.6(f) No Change	N/A	N/A	§141.1 No Change	NA7 Acceptance Covered Process: No Change
Escalators and Moving Walkways	N/A	§120.6(g) No Change	N/A	N/A	§141.1 No Change	NA7 Acceptance Covered Process: Revised
Controlled Environment Horticulture	N/A	§120.6(h) Revised	N/A	N/A	§141.1 Revised	N/A

Covered Processes

Table 5: Changes to the 2025 Energy Code, Covered Processes (continued)

Building Application	 Mandatory		 Prescriptive	 Performance	 Additions and Alterations	Reference Appendices
	All Occupancy Subchapters 1-2 (§§100.0-110.12)	Subchapter 3 (§§120.0-120.10)	Subchapter 5 (§§140.0, 140.2-10)	Subchapter 5 (§§140.0-1)	Subchapter 6 (§§141.0-1)	
Steam Traps	N/A	§120.6(i) <i>No Change</i>	N/A	N/A	§141.1 Revised	N/A
Computer Rooms	N/A	§120.6(j) <i>No Change</i>	§140.9(a) Revised	N/A	§141.1 <i>No Change</i>	N/A
Commercial Kitchens	N/A	§120.6(k) NEW!	§140.9(b) <i>No Change</i>	§§140.0-1 Revised	§141.1 <i>No Change</i>	N/A
Laboratory and Factory Exhaust Systems	N/A	N/A	§140.9(c) Revised	§§140.0-1 Revised	§141.1 Revised	NA7 Acceptance Covered Process: Revised

Title 24, Part 6

Subchapter 1 – All Occupancies

General Provisions



› **Mandatory**

› **Section 100.0 Scope**

§100.0(a)1 “Buildings Covered”

NEW!: Occupancy L (Laboratories) buildings are now subject to the Energy Code.

§100.0(e)2F “Covered Processes”

Revised: §§110.2, 120.3, 120.6, 140.9, and 141.1 apply to covered processes. To comply with Energy Code compliance approaches, covered processes must meet the requirements of the applicable Mandatory measures in §§110.2, 120.3 and 120.6, and use either the Performance Approach requirements, when supported, of §140.1 or the Prescriptive Approach requirements of §140.9.



› **Mandatory**

› **Section 100.1 Definitions and Rules of Construction**

NEW!: **Kitchen, Full-Service Commercial** is a kitchen dedicated to an establishment that offers table service by waitstaff.

Kitchen, Institutional Commercial is a kitchen dedicated to a foodservice establishment that provides meals at institutions including schools, colleges and universities, hospitals, correctional facilities, private cafeterias, nursing homes, and other buildings or structures in which care or supervision is provided to occupants.

Kitchen, Quick-Service Commercial is a kitchen dedicated to an establishment primarily engaged in providing fast food, fast casual, or limited services. Food and drink may be consumed on premises, taken out, or delivered to the customer’s location.

Revised: **Nonresidential Function Areas** now includes:

✦ **Laboratory** is a space or room where hazardous materials are used for activities such as testing, analysis, instruction, research, or developmental activities.

✦ **Laboratory Suite** is a Group L occupancy space within a building or structure, which may include multiple laboratories, offices, storage, equipment rooms or similar support functions.

Revised: **Process, Covered** is a process that includes computer rooms, data centers, elevators, escalators and moving walkways, laboratories, enclosed parking garages, commercial kitchens, refrigerated warehouses, commercial refrigeration, compressed air systems, process boilers, process heating and cooling piping, and controlled environment horticultural spaces.

Process, Non-Covered is a process that is not a covered process regulated under Part 6.

Subchapter 3 — Nonresidential, Hotel and Motel Occupancies, and Covered Processes

Mandatory Requirements



› **Mandatory**

› **Section 120.3 Requirements For Pipe Insulation**

§120.3(a) “General Requirements”

Revised: Process heating and cooling system piping are now subject to the pipe insulation requirements of Table 120.3-A-1 “Space Heating and Service Water Heating Systems (Steam, Steam Condensate, Refrigerant, Space Heating, Service Hot Water) and Process Heating System Pipe Insulation Thickness” and Table 120.3-A-2 “Space Cooling Systems (Chilled Water, Refrigerant and Brine) and Process Cooling System Pipe Insulation Thickness.”

Exceptions added to support covered processes:

- ✦ **Exception 5:** Fluid pumps, steam traps, blow-off valves and piping within process equipment.
- ✦ **Exception 6:** Valves, strainers, coil u-bends and air separators with at least 0.5” of insulation and piping within process equipment.



› **Mandatory**

› **Section 120.6 Mandatory Requirements for Covered Processes**

§120.6(a)3 “Mandatory Requirements for Refrigerated Warehouses — Evaporators”

Revised: Fan-powered evaporators utilizing volatile refrigerants shall meet the applicable efficiency requirements listed in Table 120.6-A-2 “Fan-Powered Evaporators – Minimum Specific Efficiency Requirements.” Evaporator-specific efficiency is defined as the gross total refrigeration capacity (Btu/h) divided by the electrical input power at 100% fan speed at rating conditions listed in Table 120.6-A-2, following the test procedure listed in Table 120.6-A-2.

Exception: Evaporators designed solely for the purpose of quick chilling and freezing of products, including but not limited to spaces with design cooling capacities of greater than 240 Btu/hr-ft² (2 tons per 100 ft²).

The applied static pressure drop for evaporators shall not exceed 0.5” water.

Subchapter 3 — Nonresidential, Hotel and Motel Occupancies, and Covered Processes
Mandatory Requirements



› **Mandatory**

› **Section 120.6 Mandatory Requirements for Covered Processes**

§120.6(a)3 “Mandatory Requirements for Refrigerated Warehouses — Evaporators” (continued)

Table 120.6-A-2 “Fan-Powered Evaporators – Minimum Specific Efficiency Requirements.”

Evaporator Type ^{1,2}		Rating Condition	Efficiency (Btuh/Watt)	Test Procedure ³
Direct Expansion, Ammonia Refrigerant	Cooler/Dock	Dry Coil ✦ +25°F saturated evaporating temperature ✦ +35°F entering drybulb temperature ✦ 0 in. water static pressure	35	AHRI 420
	Freezer	Dry Coil ✦ -20°F saturated evaporating temperature ✦ -10°F entering drybulb temperature ✦ 0 in. water static pressure	25	AHRI 420
Liquid Overfeed, Ammonia Refrigerant	Cooler/Dock	Dry Coil ✦ +25°F saturated evaporating temperature ✦ +35°F entering drybulb temperature ✦ 0 in. water static pressure	50	AHRI 420
	Freezer	Dry Coil ✦ -20°F saturated evaporating temperature ✦ -10°F entering drybulb temperature ✦ 0 in. water static pressure	45	AHRI 420
Direct Expansion, CO₂ Refrigerant	Cooler/Dock	Dry Coil ✦ +25°F saturated evaporating temperature ✦ +35°F entering drybulb temperature ✦ 0 in. water static pressure	35	AHRI 420
	Freezer	Dry Coil ✦ -20°F saturated evaporating temperature ✦ -10°F entering drybulb temperature ✦ 0 in. water static pressure	25	AHRI 420

Subchapter 3 — Nonresidential, Hotel and Motel Occupancies, and Covered Processes
Mandatory Requirements



› **Mandatory**

› **Section 120.6 Mandatory Requirements for Covered Processes**

§120.6(a)3 “Mandatory Requirements for Refrigerated Warehouses — Evaporators” (continued)

Table 120.6-A-2 “Fan-Powered Evaporators – Minimum Specific Efficiency Requirements.” (continued)

Evaporator Type ^{1,2}		Rating Condition	Efficiency (Btuh/Watt)	Test Procedure ³
Liquid Overfeed, CO₂ Refrigerant	Cooler/Dock	Dry Coil ✦ +25°F saturated evaporating temperature ✦ +35°F entering drybulb temperature ✦ 0 in. water static pressure	50	AHRI 420
	Freezer	Dry Coil ✦ -20°F saturated evaporating temperature ✦ -10°F entering drybulb temperature ✦ 0 in. water static pressure	45	AHRI 420
Direct Expansion, Halocarbon Refrigerant	Cooler/Dock	Dry Coil ✦ +25°F saturated evaporating dew point temperature ✦ +35°F entering drybulb temperature ✦ 0 in. water static pressure	45	AHRI 1250
	Freezer	Dry Coil ✦ -20°F saturated evaporating dew point temperature ✦ -10°F entering drybulb temperature ✦ 0 in. water static pressure	40	AHRI 1250

¹Direct expansion: Evaporator in which leaving refrigerant vapor is superheated.

²Liquid overfeed: Evaporator in which refrigerant liquid is supplied at a recirculation rate greater than 1.

³Applicable test procedure and reference year are provided under the definitions.

Subchapter 3 — Nonresidential, Hotel and Motel Occupancies, and Covered Processes

Mandatory Requirements



› **Mandatory**

› **Section 120.6 Mandatory Requirements for Covered Processes**

§120.6(a)4A-C and G-H “Mandatory Requirements for Refrigerated Warehouses — Condensers”

Revised: There is a **new exception** for condensing units that are components of walk-in coolers or walk-in freezers within the scope of the Appliance Efficiency Regulations.

§120.6(b)5 “Mandatory Requirements for Commercial Refrigeration — Transcritical CO₂ Gas Coolers”

Revised: While operating below the critical point, the gas cooler pressure shall be controlled in accordance with §§120.6(b)1B, 120.6(b)1C, or 120.6(b)1D.

§120.6(h) “Mandatory Requirements for Controlled Environment Horticulture (CEH) Spaces”

Revised: For both indoor grow facilities and greenhouses with more than 40 kW of aggregate horticultural lighting load, the photosynthetic photon efficacy (PPE) rated in accordance with ANSI/ASABE S640 for wavelengths from 400 to 700 nanometers is to be at least 2.3 micromoles per joule.

§120.6(k) “Commercial Kitchens”

NEW!: Electric readiness for newly constructed commercial kitchens shall meet the following requirements:

Quick-service commercial kitchens and institutional commercial kitchens shall include a dedicated branch circuit wiring and outlet that would be accessible to cookline appliances and shall meet all of the following requirements:

- ✦ The branch circuit conductors shall be rated at 50 amps minimum.
- ✦ The electrical service panel shall have a minimum capacity of 800 connected amps.
- ✦ The electrical service panel shall be sized to accommodate either an additional 208-volt or 240-volt, 50-amp breaker.

Exceptions: Healthcare facilities; all-electric commercial kitchens

Subchapter 3 — Nonresidential, High-rise Residential, and Hotel and Motel Occupancies Performance and Prescriptive Compliance Approaches for Achieving Energy Efficiency



› Prescriptive

› Section 140.9 Prescriptive Requirements for Covered Processes

§140.9(c) “Prescriptive Requirements for Laboratory and Factory Exhaust Systems”

Revised: There are many changes associated with laboratory and factory exhaust systems (not including healthcare facilities), including:

1. Airflow reduction requirements for laboratory exhaust systems to reduce zone exhaust and makeup airflow rated to the occupied and unoccupied minimum exhaust airflow rated based on demand and sensed occupancy which will require Acceptance Testing per NA7.16 provided by the installing contractor.
Exception: New zones on an existing constant volume exhaust system.
2. Exhaust system transfer air: Conditioned supply air delivered to any space with mechanical exhaust shall comply with the requirements of §140.4(o) “Exhaust System Transfer Air.”
3. Fan system power consumption: Newly installed fan exhaust systems serving a laboratory or factory has a design exhaust fan system airflow rate greater than 10,000 CFM to meet requirements of §140.9(c)3 “Fan System Power Consumption.”
4. **No changes:** Fume hood automatic sash closure.
5. Reheat limitation: Air handlers in buildings with more than 20,000 CFM of laboratory exhaust that serve multiple space conditioning zones in laboratory spaces shall not mechanically cool air handler supply air below 80°F and shall not heat air handler supply air above 50°F, and each zone shall include heating and cooling capacity, to prevent cooling at the air handler and reheating at the zones.
Exceptions 1 through 4 may apply.
6. Exhaust air heat recovery: Buildings with more than 10,000 CFM of laboratory exhaust shall include an exhaust air heat recovery system meeting §140.9(c)6 “Exhaust Air Heat Recovery.”
Exceptions 1 through 5 may apply.

Subchapter 3 — Nonresidential, Hotel and Motel Occupancies, and Covered Processes Additions, Alterations, and Repairs

- **Additions and Alterations**
- **Section 141.1 Requirements for Covered Processes in Additions, Alterations to Existing Nonresidential, and Hotel/Motel Buildings**

141.1(a) “Lab and Process Facility Exhaust Systems”

Revised: Additions and Alterations to existing laboratories and factories shall meet the requirements of §140.9(c) “Prescriptive Requirements for Laboratory and Factory Exhaust Systems.”

§141.1(d) “Process Piping”

NEW!: Newly installed process heating and process cooling system piping and pipes relocated as part of an Alteration shall meet the requirements of §120.3 “Requirements for Pipe Insulation.”

For More Information



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Explore this suite of interactive tools to understand the compliance process, required forms, installation techniques, and efficiency regulations in California.

- ✦ [Reference Ace](#): Navigate Title 24, Part 6 using an index, keyword search, and hyperlinked text.
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On-demand, live in-person, and online training alternatives are tailored to a variety of industry professionals and address key measures.

Of special interest:

- ✦ [2025 Title 24, Part 6 Essentials – Nonresidential Standards: What’s New](#)

Ace*Resources™

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Downloadable materials provide practical and concise guidance on how and when to comply with Title 24, Part 6 and Title 20.

Of special interest:

- ✦ [Fact Sheets for Buildings](#)
 - » Coming soon – search for “nonresidential buildings” on our website for new 2025 resources
- ✦ [Fact Sheets for Appliances](#)
 - » [MAEDbS 101](#)

California Energy Commission (CEC)
energy.ca.gov

Learn more about the CEC and its programs.

- ✦ [2025 Building Energy Efficiency Standards:](#) Explore the main CEC web portal for the 2025 Energy Code, including information, documents, and historical information.
- ✦ [2025 California Energy Code Fact Sheet:](#) Download this brief summary of the Title 24, Part 6 purpose, current changes, and impact.
- ✦ **Energy Code Hotline**
 - » Call: 1-800-772-3300 (Free)
 - » [Submission Form](#)
- ✦ [Energy Code Support Center:](#) Use these online resources developed for building and enforcement communities to learn more about Title 24, Part 6.
- ✦ [Modernized Appliance Efficiency Database System \(MAEDbS\):](#) Search this database to find products that comply with Title 24, Part 6 and Title 20.

Additional Resources

Title 24 Stakeholders title24stakeholders.com

The Codes and Standards Enhancement (CASE) initiative presents recommendations to support the CEC's efforts to update Title 24, Part 6) to include new requirements or to upgrade existing requirements for various technologies. Three California investor-owned utilities sponsor this effort. The Statewide CASE Team encourages the open exchange of comments and concerns from all stakeholders engaged in the Title 24, Part 6 code change process. Contact them and they will put you in touch with the appropriate CASE Team members.

Reach Codes localenergycodes.com

Collaborating with cities, counties, and stakeholders to drive reach code development and adoption for long-term climate and energy efficiency benefits. View a list of adopted ordinances at the link provided.

CALGreen calgreeninfo.com

CALGreen is a mandatory green building code with additional voluntary provisions. CALGreen is Part 11 of the California Building Standards Code, Title 24 of the California Code of Regulations. Codes are updated and adopted on an 18-month cycle, triennial and intervening. The current code is effective through December 31, 2025.



This program is funded by California utility customers and administered by Pacific Gas and Electric Company (PG&E), San Diego Gas & Electric Company (SDG&E®), and Southern California Edison Company (SCE) under the auspices of the California Public Utilities Commission.

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