REVISION RECORD
FOR THE STATE OF CALIFORNIA

ERRATA

January 1, 2026

2025 Title 24, Part 6, California Energy Code

General Information:

1. The date of this erratum is for identification purposes only. See the History Note Appendix on the backside or accompanying page.
2. This erratum is issued by the California Building Standards Commission to correct non-substantive printing errors or omissions in the 2025 California Energy Code, California Code of Regulations, Title 24, Part 6. Instructions are provided below.
3. Health and Safety Code Section 18938.5 establishes that only building standards in effect at the time of the application for a building permit may be applied to the project plans and construction. This rule applies to both adoptions of building standards for Title 24 by the California Building Standards Commission, and local adoptions and ordinances imposing building standards. An erratum to Title 24 is a non-regulatory correction because of a printing error or omission that does not differ substantively from the official adoption by the California Building Standards Commission. Accordingly, the corrected code text provided by this erratum may be applied on and after the stated effective date.
4. You may wish to retain the superseded material with this revision record so that the prior wording of any section can be easily ascertained.

Title 24, Part 6

Remove Existing Pages	Insert Buff-Colored Pages
iii and iv	iii and iv
1 and 2	1 and 2
15 through 18	15 through 18
27 and 28	27 and 28
147 and 148	147 and 148
269 and 270	269 and 270
323 and 324	323 and 324

Item No. 5560S251

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PREFACE

This document is Part 6 of thirteen parts of the official triennial compilation and publication of the adoptions, amendments and repeal of administrative regulations to *California Code of Regulations, Title 24,* also referred to as the *California Building Standards Code.* This part is known as the *California Energy Code.*

The *California Building Standards Code* is published in its entirety every three years by order of the California legislature, with supplements published in intervening years. The California legislature delegated authority to various state agencies, boards, commissions and departments to create building regulations to implement the State's statutes. These building regulations, or standards, have the same force of law, and take effect 180 days after their publication unless otherwise stipulated. The *California Building Standards Code* applies to occupancies in the State of California as annotated.

A city, county, or city and county may establish more restrictive building standards reasonably necessary because of local climatic, geological or topographical conditions. Findings of the local condition(s) and the adopted local building standard(s) must generally be filed with the California Building Standards Commission (or other filing if indicated) to become effective, and may not be effective sooner than the effective date of this edition of the *California Building Standards Code*. Local building standards that were adopted and applicable to previous editions of the *California Building Standards Code* do not apply to this edition without appropriate adoption and the required filing.

Should you find publication (e.g., typographical) errors or inconsistencies in this code or wish to offer comments toward improving its format, please address your comments to:

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ACKNOWLEDGMENTS

The 2025 *California Building Standards Code* (Code) was developed through the outstanding collaborative efforts of the Department of Housing and Community Development, Division of the State Architect, Office of the State Fire Marshal, Department of Health Care Access and Information, California Energy Commission, California Department of Public Health, California State Lands Commission, Board of State and Community Corrections, Department of Water Resources, State Historical Building Safety Board, Department of Consumer Affairs, State Librarian, Department of Food and Agriculture, and the California Building Standards Commission (Commission).

This collaborative effort included the assistance of the Commission's Code Advisory Committees and many other volunteers who worked tirelessly to assist the Commission in the production of this Code.

Governor Gavin Newsom

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For questions on California state agency amendments, please refer to the contact list on page v.

SUBCHAPTER

1 ALL OCCUPANCIES—GENERAL PROVISIONS

SECTION 100.0—SCOPE

(a) **Buildings covered.** The provisions of Part 6 apply to all buildings:

1. That are of Occupancy Group A, B, E, F, H, I, L, M, R, S or U; and
2. For which an application for a building permit or renewal of an existing permit is filed (or is required by law to be filed) on or after the effective date of the provisions, or which are constructed by a governmental agency; and
3. That are:
   A. Unconditioned; or
   B. Indirectly or directly conditioned, or process spaces.

Exception 1 to Section 100.0(a): Qualified historic buildings as regulated by the *California Historic Building Code* (Title 24, Part 8). Lighting in qualified historic buildings shall comply with the applicable requirements in Section 140.6(a)3Q.

Exception 2 to Section 100.0(a): Building departments, at their discretion, may not require compliance for temporary buildings, temporary outdoor lighting or temporary lighting in an unconditioned building, or structures erected in response to a natural disaster. Temporary buildings or structures shall be completely removed upon the expiration of the time limit stated in the permit.

Exception 3 to Section 100.0(a): Buildings in Occupancy Group I-3 and I-4.

(b) **Parts of buildings regulated.** The provisions of Part 6 apply to the building envelope, space-conditioning systems, water-heating systems, pool and spas, solar ready buildings, indoor lighting systems of buildings, outdoor lighting systems, electrical power distribution systems, and signs located either indoors or outdoors, in buildings that are:

1. Covered by Section 100.0(a); and
2. Set forth in Table 100.0-A.

(c) **Habitable stories.**

1. All conditioned space in a story shall comply with Part 6, whether or not the story is a habitable space.
2. All unconditioned space in a story shall comply with the lighting requirements of Part 6, whether or not the story is a habitable space.

(d) **Outdoor lighting and indoor and outdoor signs.** The provisions of Part 6 apply to outdoor lighting systems and to signs located either indoors or outdoors as set forth in Table 100.0-A.

(e) **Sections applicable to particular buildings.** Table 100.0-A and this subsection list the provisions of Part 6 that are applicable to different types of buildings covered by Section 100.0(a).

1. **All buildings.** Sections 100.0 through 110.12 apply to all buildings.

Exception to Section 100.0(e)1: Spaces or requirements not listed in Table 100.0-A.

TABLE 100.0-A—APPLICATION OF STANDARDS

OCCUPANCIES	APPLICATION	MANDATORY	PRESCRIPTIVE	PERFORMANCE	ADDITIONS/ ALTERATIONS
All Buildings	General	100.0, 100.1, 100.2, 110.0	100.0, 100.1, 100.2, 110.0	100.0, 100.1, 100.2, 110.0	100.0, 100.1, 100.2, 110.0
Nonresidential and Hotels/Motels	General	120.0	140.0, 140.2	140.0, 140.1	141.0
	Envelope (conditioned)	110.6, 110.7, 110.8, 120.7	140.3		
	Envelope (unconditioned, process spaces)	N.A.	140.3(c)		
	HVAC (conditioned)	110.2, 110.5, 120.1, 120.2, 120.3, 120.4, 120.5, 120.8, 120.10	140.4		
	Water Heating	110.3, 120.3, 120.8, 120.9	140.5		
	Indoor Lighting (conditioned, process spaces)	110.9, 120.8, 130.0, 130.1, 130.4	140.3(c), 140.6		
	Indoor Lighting (unconditioned and parking garages)	110.9, 120.8, 130.0, 130.1, 130.4	140.3(c), 140.6	N.A.	
	Outdoor Lighting	110.9, 130.0, 130.2, 130.4	140.7		
	Electrical Power Distribution	110.11, 130.5	N.A.		
	Pool and Spa Systems	110.4, 110.5, 150.0(p)			
	Solar Ready Buildings	110.10			141.0(a)
	Solar PV and Battery Energy Storage Systems	N.A.	140.10	140.0, 140.1	N.A.

TABLE 100.0-A—APPLICATION OF STANDARDS—continued

OCCUPANCIES	APPLICATION	MANDATORY	PRESCRIPTIVE	PERFORMANCE	ADDITIONS/ ALTERATIONS
Covered Processes[1]	Envelope, Ventilation, Process Loads	110.2, 120.3, 120.6	140.9	140.1	110.2, 120.3, 120.6, 140.9, 141.1
Demand Responsive (DR) Controls	DR Control Thermostats	JA5; Exception 5 to Section 110.10(b)1A; Exception 4 to Section 110.10(b)1B	N.A.	N.A.	N.A.
	DR Zonal HVAC Controls	110.12	N.A.	N.A.	N.A.
	DR Lighting Controls	110.12	140.6(a)2K; 170.2(e)2Bxi	N.A.	Table 141.0-F; Table 180.2-E
	DR Electronic Message Center Control	110.12, 130.3(a)3	N.A.	N.A.	N.A.
	DR Controlled Receptacles	110.12, 130.5(e), 160.6(e)	N.A.	N.A.	N.A.
Signs	Indoor and Outdoor	110.9, 130.0, 130.3, 160.5(d)	140.8, 170.2(e)7	N.A.	141.0, 141.0(b)2H, 180.2(b)4Bvi
Single-family	General	150.0	150.1(a), (c)	150.1(a), (b)	150.2(a), (b)
	Envelope (conditioned)	110.6, 110.7, 110.8, 150(a), 150.0(b), 150.0(c), 150.0(d), 150.0(e), 150.0(g), 150.0(q)			
	HVAC (conditioned)	110.2, 110.5, 150.0(h), 150.0(i), 150.0(j), 150.0(m), 150.0(o)			
	Water Heating	110.3, 150.0(j, n)			
	Indoor Lighting (conditioned, unconditioned and parking garages)	110.9, 130.0, 150.0(k)			
	Outdoor Lighting	110.9, 130.0, 150.0(k)			
	Pool and Spa Systems	110.4, 150.0(p)	N.A.	N.A.	
	Solar Ready Buildings	110.10	N.A.	N.A.	N.A.
	Electric Ready	150.0(s), 150.0(t), 150.0(u), 150.0(v)	N.A.	N.A.	N.A.
	Solar PV Systems	N.A.	150.0(c)14	150.1(a), (b)	N.A.
Multifamily	General	160.0	170.2	170.1	180.0
	HVAC (conditioned)	110.6, 110.7, 110.8, 160.1	170.1(a)		
	Ventilation and Indoor Air Quality	160.2	N.A.		
	HVAC (conditioned)	110.2, 110.5, 160.3	170.2(c)		
	Water Heating	110.3, 160.4	170.2(d)		
	Indoor Lighting	110.9, 160.5	170.2(e)		
	Outdoor Lighting	110.9, 160.5	170.2(e)		
	Electrical Power Distribution	110.11, 160.6	N.A.	N.A.	
	Pool and Spa Systems	110.4, 110.5, 160.7			
	Solar Ready Buildings	110.10, 160.8			
	Electric Ready	160.9			N.A.
	Solar PV and Battery Energy Storage Systems	N.A.	170.2(f), (g), (h)	170.1	N.A.

N.A. = Not Applicable

1. Nonresidential and hotel/motel buildings that contain covered processes may conform to the applicable requirements of both occupancy types listed in this table.

Note: Authority: Sections 25213, 25218, 25218.5, 25402 and 25402.1, *Public Resources Code*. Reference: Sections 25007, 25008, 25218.5, 25310, 25402, 25402.1, 25402.4, 25402.5, 25402.8 and 25943, *Public Resources Code*.

2. **Newly constructed buildings.**

A. **All newly constructed buildings.** Sections 110.0 through 110.12 apply to all newly constructed buildings within the scope of Section 100.0(a). In addition, newly constructed buildings shall meet the requirements of Subsections B, C, D or E, as applicable.

B. **Nonresidential and hotel/motel buildings that are mechanically heated or mechanically cooled.**

i. **Sections applicable.** Sections 120.0 through 140.8 apply to newly constructed nonresidential buildings and hotels/motels that are mechanically heated or mechanically cooled.

EXTERIOR WALL is any wall or element of a wall, or any member or group of members, which defines the exterior boundaries or courts of a building and which has a slope of 60 degrees or greater with the horizontal plane. An exterior wall or partition is not an exterior floor/soffit, exterior door, exterior roof/ceiling, window, skylight or demising wall.

EXTERIOR WALL AREA is the area of the opaque exterior surface of exterior walls.

FAÇADE is the contiguous exterior of a building surface, but not limited to fenestration products.

FACTORY is a build, structure or space designated as Factory Group F that is used for assembling, disassembling, fabricating, finishing, manufacturing, packaging, repair, or processing operations.

FACTORY-ASSEMBLED COOLING TOWERS are cooling towers constructed from factory-assembled modules either shipped to the site in one piece or put together in the field.

FAN, EMBEDDED is a fan that is part of a manufactured assembly where the assembly includes functions other than air movement.

FAN ARRAYS are multiple fans in parallel and in a single enclosure between two plenum sections in an air distribution system, where plenum means a compartment or chamber that forms a part of the air distribution system, and that is not used for occupancy or storage.

FAN ELECTRICAL INPUT POWER (FAN kWdesign) is the electrical input power in kilowatts required to operate an individual fan or fan array at design conditions. It includes the power consumption of motor controllers, if present.

FAN ENERGY INDEX (FEI) is the ratio of the electric input power of a reference fan to the electric input power of the actual fan as calculated per ANSI/AMCA 208-18 at fan system design conditions.

FAN NAMEPLATE ELECTRICAL INPUT POWER (kW) is the nominal electrical input power rating stamped on a fan assembly nameplate.

FAN SYSTEM includes all the fans that contribute to the movement of air through a point of a common duct, plenum or cabinet.

FAN SYSTEM, COMPLEX means a fan system that combines a single-cabinet fan system with other supply fans, exhaust fans or both.

FAN SYSTEM, EXHAUST/RELIEF is a fan system dedicated to the removal of air from interior spaces to the outdoors.

FAN SYSTEM, MULTI-ZONE VARIABLE AIR VOLUME (VAV) is a fan system that serves three or more space-conditioning zones where airflow to each zone is individually controlled based on heating, cooling and/or ventilation requirements, indoor fan airflow varies as a function of load, and the sum of the minimum zone airflows for each zone is 40 percent or less of the fan system design conditions.

FAN SYSTEM, RETURN is a fan system dedicated to removing air from interior spaces where some or all of the air is to be recirculated except during economizer operation.

FAN SYSTEM, SINGLE-CABINET is a fan system where a single fan, a single-fan array, a single set of fans operating in parallel, or fans or fan arrays in series and embedded in the same cabinet both supply air to a space and recirculate the air.

FAN SYSTEM, SUPPLY-ONLY is a fan system that provides supply air to interior spaces and does not recirculate the air.

FAN SYSTEM, TRANSFER is a fan system that exclusively moves air from one occupied space to another.

FAN SYSTEM AIRFLOW (cfm) is the sum of the airflow of all fans with fan electrical input power greater than 1 kW at fan system design conditions, excluding the airflow that passes through downstream fans with fan input power less than 1 kW.

FAN SYSTEM DESIGN CONDITIONS are operating conditions that can be expected to occur during normal system operation that result in the highest supply airflow rate to or from the conditioned spaces served by the fan system.

FAN SYSTEM ELECTRICAL INPUT POWER (Fan $kW_{design,system}$) is the sum of the fan electrical input power (Fan kW_{design}) in kilowatts of all fans that are required to operate at fan system design conditions to supply air from the heating or cooling source to the conditioned spaces, return it to the source, exhaust it to the outdoors or transfer it to another space.

FENESTRATION: Includes the following:

ACE is an NFRC-Approved Calculation Entity that conducts calculations of fenestration product ratings for certification authorization using the NFRC component modeling approach and issues label certificates to Specifying Authorities for product certification authorization in accordance with NFRC requirements.

ALTERED COMPONENT is a new fenestration component that has undergone an alteration other than a repair and is subject to all applicable standards requirements.

BAY WINDOW is a combination assembly which is composed of three or more individual windows either joined side by side or installed within opaque assemblies and which projects away from the wall on which it is installed. Center windows, if used, are parallel to the wall on which the bay is installed, the end panels or two side windows, are angled with respect to the center window. Common angles are 30° and 45°, although other angles may be employed.

CHROMOGENIC GLAZING is a class of switchable glazing that includes active materials (e.g., electrochromic) and passive materials (e.g., photochromic and thermochromic) permanently integrated into the glazing assembly. Their primary function is to switch reversibly from a high transmission state to a low transmission state with associated changes in VT and SHGC.

CLERESTORY FENESTRATION is fenestration installed above a roofline greater than or equal to 60 degrees from the horizontal, or any portion of exterior vertical glazing greater than 8 feet per floor above the finished floor of a space.

CMA (component modeling approach) is a fenestration product certification program from the National Fenestration Rating Council (NFRC) that enables energy-related performance ratings for nonresidential fenestration products, including the thermal performance *U*-factor, solar heat gain coefficient, and visible transmittance.

CMAST (component modeling approach software tool) is an NFRC approved software that allows a user to create a fenestration product "virtually" and generate its energy-related performance ratings, including the thermal performance *U*-factor, solar heat gain coefficient, and visible transmittance.

CURTAIN WALL/STOREFRONT is an external non-bearing wall intended to separate the exterior nonconditioned and interior conditioned spaces. It also consists of any combination of framing materials, fixed glazing, opaque glazing, operable windows or other in-fill materials.

Note: Window wall is also included as part of the curtain wall/storefront fenestration category.

DUAL-GLAZED GREENHOUSE WINDOWS is a double glass pane separated by an air or other gas space that adds conditioned volume but not conditioned floor area to a building.

DYNAMIC GLAZING SYSTEMS are glazing systems that have the ability to reversibly change their performance properties, including *U*-factor, Solar Heat Gain Coefficient (SHGC) and/or Visible Transmittance (VT) between well-defined end points. These may include, but are not limited to, chromogenic glazing systems and integrated shading systems (defined below). Dynamic Glazing systems do not include internally mounted or externally mounted shading devices that attach to the window framing/glazing that may or may not be removable.

FENESTRATION ALTERATION is any change to an existing building's exterior fenestration product that is not a repair (see "fenestration repair") that:

i. Replaces existing fenestration in an existing wall or roof with no net area added; or
ii. Replaces existing fenestration and adds new net area in the existing wall or roof; or
iii. Adds a new window that increases the net fenestration area to an existing wall or roof.

FENESTRATION AREA is the rough opening area of any fenestration product.

FENESTRATION PRODUCT is any transparent or translucent material plus any sash, frame, mullions and dividers, in the facade of a building, including, but not limited to, windows, glazed doors, skylights, curtain walls, dynamic glazing, garden windows, glass block and glazing used in greenhouses.

FENESTRATION REPAIR is the reconstruction or renewal for the purpose of maintenance of any fenestration product, component or system and shall not increase the preexisting energy consumption of the repaired fenestration product, component, system or equipment. Replacement of any component, system or equipment for which there are requirements in the Standards are considered an alteration (see Fenestration, alteration) and not a repair and is subject to the requirements of Part 6 of the Standards.

FIELD-FABRICATED is a fenestration product whose frame is made at the construction site of standard dimensional lumber or other materials that were not previously cut, or otherwise formed with the specific intention of being used to fabricate a fenestration product. Field fabricated does not include site-built fenestration.

FIN is an opaque surface, oriented vertically and projecting outward horizontally from an exterior vertical surface.

FIN OFFSET is the horizontal distance from the edge of exposed exterior glazing at the jamb of a window to the fin.

FIN PROJECTION is the horizontal distance, measured outward horizontally, from the surface of exposed exterior glazing at the jamb of a window to the outward edge of a fin.

FIXED is fenestration that is not designed to be opened or closed.

GLAZED DOOR is an exterior door having a glazed area of 25 percent or greater of the area of the door. Glazed doors shall meet fenestration product requirements. See "door."

GREENHOUSE or **GARDEN WINDOW** is a window unit that consists of a three-dimensional, five-sided structure generally protruding from the wall in which it is installed. Operating sash may or may not be included.

HORIZONTAL SLATS, when referring to a daylighting device, is a set of adjacent surfaces located directly adjacent to vertical fenestration, oriented horizontally and projecting horizontally from its interior or exterior vertical surface.

INTEGRATED SHADING SYSTEM is a class of fenestration products including an active layer: e.g., shades, louvers, blinds or other materials permanently integrated between two or more glazing layers. The *U*-factor and/or SHGC and VT of the insulating glass assembly can be altered by reversibly changing the enclosed active layer.

LIGHT SHELF is an adjacent, opaque surfaced daylighting device located at the sill of clerestory glazing, oriented horizontally and projecting horizontally from an interior or exterior vertical surface.

MANUFACTURED or KNOCKED DOWN PRODUCT is a fenestration product constructed of materials that are factory cut or otherwise factory formed with the specific intention of being used to fabricate a fenestration product. Knocked down or partially assembled products may be sold as a fenestration product when provided with temporary and permanent labels as described in Section 10-111, or as a site-built fenestration product when not provided with temporary and permanent labels as described in Section 10-111.

NFRC 100 is the National Fenestration Rating Council document titled "Procedure for Determining Fenestration Product *U*-factors," (2020) (ANSI/NFRC 100-2020).

NFRC 200 is the National Fenestration Rating Council document titled "Procedure for Determining Fenestration Product Solar Heat Gain Coefficients and Visible Transmittance at Normal Incidence," (2020) (ANSI/NFRC 200-2020).

NFRC 202 is the National Fenestration Rating Council document titled "Procedures for Determining Translucent Fenestration Product Visible Transmittance at Normal Incidence," (2020) (ANSI/NFRC 202-2020).

NFRC 203 is the National Fenestration Rating Council document titled "Procedure for Determining Visible Transmittance of Tubular Daylighting Devices," (2020) (ANSI/NFRC 203-2020).

NFRC 400 is the National Fenestration Rating Council document titled "Procedure for Determining Fenestration Product Air Leakage," (2020) (ANSI/NFRC 400-2020).

OPERABLE SHADING DEVICE is a device at the interior or exterior of a building or integral with a fenestration product, which is capable of being operated, either manually or automatically, to adjust the amount of solar radiation admitted to the interior of the building.

RELATIVE SOLAR HEAT GAIN COEFFICIENT (RSHGC) is the ratio of solar heat gain through a fenestration product (corrected for external shading) to the incident solar radiation. Solar heat gain includes directly transmitted solar heat and absorbed solar radiation, which is then reradiated, conducted or convected into the space.

SITE-BUILT is fenestration designed to be field-glazed or field assembled units using specific factory cut or otherwise factory formed framing and glazing units that are manufactured with the intention of being assembled at the construction site. These include storefront systems, curtain walls and atrium roof systems.

SKYLIGHT ROOF RATIO (SRR) is the ratio of the skylight area to the gross exterior roof area.

SOLAR HEAT GAIN COEFFICIENT (SHGC) is the ratio of the solar heat gain entering the space through the fenestration area to the incident solar radiation. Solar heat gain includes directly transmitted solar heat and absorbed solar radiation, which is then reradiated, conducted or convected into the space.

SPANDRAL is opaque glazing material most often used to conceal building elements between floors of a building so they cannot be seen from the exterior, also known as "opaque in-fill systems."

TINTED GLASS is colored glass by incorporation of a mineral admixture resulting in a degree of tinting. Any tinting reduces both visible and radiant transmittance.

VERTICAL FENESTRATION is all fenestration other than skylights and doors.

VISIBLE REFLECTANCE is the reflectance of light at wavelengths from 410 to 722 nanometers.

VISIBLE TRANSMITTANCE (VT) is the ratio (expressed as a decimal) of visible light that is transmitted through a glazing fenestration. The higher the VT rating, the more light is allowed through a window.

WINDOW is fenestration that is not a skylight and that is an assembled unit consisting of a frame and sash component holding one or more pieces of glazing.

WINDOW AREA is the area of the surface of a window, plus the area of the frame, sash and mullions.

WINDOW HEAD HEIGHT is the height from the floor to the top of the vertical fenestration.

WINDOW WALL RATIO (WWR) is the ratio of the window area to the gross exterior wall area.

FIELD ERECTED COOLING TOWERS are cooling towers which are custom designed for a specific application and which cannot be delivered to a project site in the form of factory assembled modules due to their size, configuration, or materials of construction.

FIREPLACE is a hearth and fire chamber, or similar prepared place, in which a fire may be made, and which is built in conjunction with a flue or chimney, including but not limited to factory-built fireplaces, masonry fireplaces, and masonry heaters as further clarified in the CBC.

FLOOR/SOFFIT TYPE is a type of floor/soffit assembly having a specific heat capacity, framing type and *U*-factor.

FLUID COOLER is a fan-powered heat rejection device that includes a water or glycol circuit connected by a closed circulation loop to a liquid-cooled refrigerant condenser, and may be either evaporative-cooled, or air-cooled, or a combination of the two.

FLUX is the rate of energy flow per unit area.

FOOD PREPARATION EQUIPMENT is cooking equipment intended for commercial use, including coffee machines, espresso coffee makers, conductive cookers, food warmers including heated food servers, fryers, griddles, nut warmers, ovens, popcorn makers, steam kettles, ranges and cooking appliances for use in commercial kitchens, restaurants or other business establishments where food is dispensed.

FREEZER is a space designed to be capable of operation at less than 28°F.

GAS COOLER is a refrigeration component that reduces the temperature of a refrigerant vapor by rejecting heat to air mechanically circulated over its heat transfer surface. Used by a CO_2 refrigeration system in transcritical mode, and normally also capable of operating in subcritical mode.

GAS COOLING EQUIPMENT is cooling equipment that produces chilled water or cold air using natural gas or liquefied petroleum gas as the primary energy source.

GAS HEATING SYSTEM is a system that uses natural gas or liquefied petroleum gas as a fuel to heat a conditioned space.

GAS LOG is a self-contained, free-standing, open-flame, gas-burning appliance consisting of a metal frame or base supporting simulated logs, and designed for installation only in a vented fireplace.

GLAZING (See "fenestration product.")

GLOBAL WARMING POTENTIAL (GWP) is the radiative forcing impact of one mass-based unit of a given greenhouse gas relative to an equivalent unit of carbon dioxide over a given period of time.

GLOBAL WARMING POTENTIAL VALUE (GWP Value) is the 100-year GWP value published by the Intergovernmental Panel on Climate Change (IPCC) in either its Second Assessment Report (SAR) (IPCC, 1995), or its Fourth Assessment A-3 Report (AR4) (IPCC, 2007). Both the 1995 IPCC SAR values and the 2007 IPCC AR4 values are published in Table 2.14 of the 2007 IPCC AR4. The SAR GWP values are found in column "SAR (100-yr)" of Table 2.14.; the AR4 GWP values are found in column "100 yr" of Table 2.14.

GOVERNMENTAL AGENCY is any public agency or subdivision thereof, including, but not limited to, any agency of the state, a county, a city, a district, an association of governments or a joint power agency.

GROSS EXTERIOR ROOF AREA is the sum of the skylight area and the exterior roof/ceiling area.

GROSS EXTERIOR WALL AREA is the sum of the window area, door area and exterior wall area.

HABITABLE SPACE is space in a building for living, sleeping, eating or cooking, excluding bathrooms, toilets, hallways, storage areas, closets, utility rooms and similar areas are not considered habitable spaces. (See also "occupiable space".)

HABITABLE STORY is a story that contains habitable space and that has at least 50 percent of its volume above grade.

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.

HEAT CAPACITY (HC) is the measurable physical quantity that characterizes the amount of heat required to change a substance's temperature by a given amount.

HEAT PUMP is an appliance that consists of one or more assemblies; that uses an indoor conditioning coil, a compressor, and a refrigerant-to-outdoor air heat exchanger to provide air heating; and that may also provide air cooling, dehumidifying, humidifying, circulating, or air cleaning.

HEAT PUMP WATER HEATER (HPWH) (See "Water heater.")

HEATED SLAB FLOOR is a concrete floor either on-grade, raised, or a lightweight concrete slab topping. Heating is provided by a system placed within or under the slab and is sometimes referred to as a radiant slab floor.

HEATING EQUIPMENT is equipment used to provide mechanical heating for a room or rooms in a building.

HEATING SEASONAL PERFORMANCE FACTOR (HSPF) is the total heating output of a central air-conditioning heat pump (in Btu) during its normal use period for heating divided by the total electrical energy input (in watt-hours) during the same period, as determined using the applicable test method in the Appliance Efficiency Regulations.

HEATING SEASONAL PERFORMANCE FACTOR 2 (HSPF2) is the HSPF metric for residential central heat pumps effective January 1, 2023, as created by the U.S. Department of Energy "ISSUANCE 2016-11-30 Energy Conservation Program: Test Procedures for Central Air Conditioners and Heat Pumps, Final Rule."

HIGH-RISE RESIDENTIAL BUILDING is a building, other than a hotel/motel, of occupancy Group R-2 or R-4 with four or more habitable stories.

HORTICULTURAL LIGHTING consists of luminaires used for plant growth and maintenance. Horticultural luminaires may have either plug-in or hard-wired connections for electric power.

HOTEL/MOTEL is a building or buildings that has six or more guest rooms or a lobby serving six or more guest rooms, where the guest rooms are intended or designed to be used, or which are used, rented or hired out to be occupied, or which are occupied for sleeping purposes by guests, and all conditioned spaces within the same building envelope. Hotel/motel includes all conditioned spaces which are (1) on the same property as the hotel/motel, (2) served by the same central heating, ventilation and air-conditioning system as the hotel/motel, and (3) integrally related to the functioning of the hotel/motel as such, including, but not limited to, exhibition facilities, meeting and conference facilities, food service facilities, lobbies and laundries. Hotel/motel also includes the following:

A building of Occupancy Group R-1,

Vacation timeshare properties and hotel or motel buildings of Occupancy Group R-2, and

The following types of Occupancy Group R-3:

Congregate residences for transient use,

Boarding houses of more than 6 guests, and

Alcohol or drug abuse recovery homes of more than 6 guests.

HVAC SYSTEM is a space-conditioning system or a ventilation system.

HVI 915 is the Home Ventilating Institute document titled "HVI Loudness Testing and Rating Procedure," 2020 (HVI Publication 915-2020).

HVI 916 is the Home Ventilating Institute document titled "HVI Airflow Test Procedure," 2020 (HVI Publication 916-2020).

HVI 920 is the Home Ventilating Institute document titled "HVI Product Performance Certification Procedure Including Verification and Challenge," 2020 (HVI Publication 920-2020).

IES HB (See "IES Lighting Library.")

IES LIGHTING LIBRARY, formerly called the **"**IES Lighting Handbook (IES HB)," is the Illuminating Engineering Society document titled "The IES Lighting Library™."

Lobby, main entry is the contiguous area in buildings including hotel/motel that is directly located by the main entrance of the building through which persons must pass, including any ancillary reception, waiting and seating areas.

Locker room is a room or area for changing clothing, sometimes equipped with lockers.

Lounge/breakroom or waiting area is a room or area in which people sit, wait and relax.

Mall is a roofed or covered common pedestrian area within a mall building that serves as access for two or more tenants.

Manufacturing, commercial and industrial work area is a room or area in which an art, craft, assembly or manufacturing operation is performed. Lighting installed in these areas is classified as follows:

High bay: Where the luminaires are 25 feet or more above the floor.

Low bay: Where the luminaires are less than 25 feet above the floor.

Precision: Where visual tasks of small size or fine detail such as electronic assembly, fine woodworking, metal lathe operation, fine hand painting and finishing, egg processing operations or tasks of similar visual difficulty are performed.

Multipurpose room is a room that can be used for multipurpose activities such as meetings, instructional activities and social gatherings. Multipurpose rooms are typically found in offices, schools, convention centers, and assisted living facilities.

Museum areas include the following:

Exhibit/display is a room or area in a museum that has for its primary purpose exhibitions, having neither fixed seating nor fixed staging. An exhibit does not include a gallery or other place where art is for sale. An exhibit does not include a lobby, conference room, or other occupancies where the primary function is not exhibitions.

Restoration room is a room or area in which the primary function is the care of works of artistic, historical or scientific value. A restoration does not include a gallery or other place where art is for sale. A restoration does not include a lobby, conference room or other occupancies where the primary function is not the care or exhibit of works of artistic, historical or scientific value.

Office area is a room or area in a building of CBC Group B Occupancy in which business, clerical or professional activities are conducted.

Parking garage areas include the following:

Daylight adaptation zone in a parking garage is the interior path of travel for vehicles adjacent to the entrance or exit of a parking garage as needed for visual adaptation to transition from exterior daylight levels to interior light levels. Daylight adaptation zones only include the path of vehicular travel and do not include adjacent parking areas.

Parking zones and ramps in a parking garage are used for the purpose of parking and maneuvering of vehicles. Parking areas include sloping floors of a parking garage, ramps and driveways specifically for the purpose of moving vehicles between floors of a parking garage. Parking areas and ramps do not include daylight adaptation zones or the roof of a parking garage, which may be present in a parking garage.

Pharmacy area is a room or area where medicinal drugs are dispensed and sold, usually in a retail store.

Playing area for sports arena is an area where sports are played in front an audience.

Religious worship area is a room or area in which the primary function is for an assembly of people to worship. Religious worship does not include classrooms, offices or other areas in which the primary function is not for an assembly of people to worship.

Restroom is a room providing personal facilities such as toilets and washbasins.

Retail sales areas include the following:

Fitting room is a room or area where the retail customers try out clothing before purchasing.

Grocery sales is a room or area that has as its primary purpose the sale of foodstuffs requiring additional preparation prior to consumption.

Retail merchandise sales is a room or area in which the primary activity is the sale of merchandise.

Server room is a room smaller than 500 square feet, within a larger building, in which networking equipment and Information Technology (IT) server equipment is housed, and a minimum of five IT servers are installed in frame racks.

Server aisle is an aisle of racks of Information Technology (IT) server equipment in a Server Room. While networking equipment may also be housed on these racks, it is largely a room to manage server equipment.

Stairs is a series of steps providing passage for persons from one level of a building to another, including escalators.

Stairwell is a vertical shaft in which stairs are located.

Storage, commercial and industrial area includes the following:

Shipping & Handling is a room or areas used for packing, wrapping, labeling and shipping out goods, merchandise and materials.

Warehouse is a room or areas used for storing of items such as goods, merchandise and materials.

Support area is a room or area used as a passageway, utility room, storage space or other type of space associated with or secondary to the function of an occupancy that is listed in these regulations.

Tenant lease area is a room or area in a building intended for lease for which a specific tenant is not identified at the time of building permit application.

Theater areas include the following:

Motion picture theater is an assembly room or area with rows of seats for the showing of motion pictures.

Performance theater is an assembly room or area with rows of seats for the viewing of dramatic performances, lectures, musical events and similar live performances.

Transportation function areas include the following:

Baggage area is a room or area in a transportation facility such as an airport where the travelers reclaim their baggage.

Ticketing area is a room or area in a transportation facility such as an airport or a train station where travelers purchase tickets, check in baggage, or inquire about travel information.

Videoconferencing studio is a room or area with permanently installed videoconferencing cameras, audio equipment and playback equipment for both audio-based and video-based two-way communication between local and remote sites.

NONSTANDARD PART LOAD VALUE (NPLV) is a single-number part-load efficiency figure of merit for chillers referenced to conditions other than IPLV conditions. (See "integrated part load value.")

NORTH-FACING (See "orientation.")

OCCUPANCY is the purpose for which a building or part thereof is used or intended to be used.

OCCUPANCY, HUMAN is any occupancy that is intended primarily for human activities.

OCCUPANCY GROUP is a classification of occupancy defined in Chapter 3 of the CBC (Title 24, Part 2).

OCCUPANCY TYPE is a description of occupancy that is more specific than occupancy group and that relates to determining the amount of lighting, ventilation, or other services needed for that portion of the building.

OCCUPIABLE SPACE is any enclosed space that is intended for human occupancy, including all habitable spaces as well as bathrooms, toilets, closets, halls, storage and utility areas, laundry areas, and similar areas. (See also "habitable space.")

OCCUPIED STANDBY MODE is when a zone is scheduled to be occupied and an occupant sensor indicates zero population within the zone.

ONLINE CAPACITY is the total combined capacity in actual cubic feet per minute of compressed air at a given pressure from all online compressors.

ONLINE COMPRESSORS are all the compressors that are physically connected to compressed air piping and are available to serve peak load. Online compressors do not include back up compressors whose only purpose is to be available when an online compressor fails.

OPEN COOLING TOWER, or OPEN-CIRCUIT COOLING TOWER is an open, or direct contact, cooling tower which exposes water directly to the cooling atmosphere, thereby transferring the source heat load from the water directly to the air by a combination of heat and mass transfer.

OPENADR 2.0a is the OpenADR Alliance document titled "OpenADR 2.0 Profile Specification A Profile," 2011.

OPENADR 2.0b is the OpenADR Alliance document titled "OpenADR 2.0 Profile Specification B Profile," 2015.

OPENADR 3.0, BASELINE PROFILE is the specific baseline profile defined in the OpenADR Alliance document titled, "OpenADR 3.0 Specification," 2023.

OPERABLE FENESTRATION is designed to be opened or closed.

OPTIMUM START CONTROLS are controls that are designed to automatically adjust the start time of a space-conditioning system each day with the intent of bringing the space to desired occupied temperature levels at the beginning of scheduled occupancy.

OPTIMUM STOP CONTROLS are controls that are designed to setup or setback thermostat setpoints before scheduled unoccupied periods based upon the thermal lag and acceptable drift in space temperature that is within comfort limits.

OSHPD is the California Office of Statewide Hospital Planning and Development.

ORIENTATION, CARDINAL is one of the four principal directional indicators, north, east, south and west, which are marked on a compass. Also called cardinal directions.

ORIENTATION, EAST-FACING is oriented to within 45 degrees of true east, including 45°00'00" south of east (SE), but excluding 45°00'00" north of east (NE).

ORIENTATION, NORTH-FACING is oriented to within 45 degrees of true north, including 45°00'00" east of north (NE), but excluding 45°00'00" west of north (NW).

ORIENTATION, SOUTH-FACING is oriented to within 45 degrees of true south including 45°00'00" west of south (SW), but excluding 45°00'00" east of south (SE).

ORIENTATION, WEST-FACING is oriented to within 45 degrees of true west, including 45°00'00" north of due west (NW), but excluding 45°00'00" south of west (SW).

OUTDOOR AIR (Outside air) is air taken from outdoors and not previously circulated in the building.

TABLE 140.10-A—PV CAPACITY FACTORS (W/ft² of conditioned floor area)																
BUILDING TYPE	**CZ 1**	**CZ 2**	**CZ 3**	**CZ 4**	**CZ 5**	**CZ 6**	**CZ 7**	**CZ 8**	**CZ 9**	**CZ 10**	**CZ 11**	**CZ 12**	**CZ 13**	**CZ 14**	**CZ 15**	**CZ 16**
Events & Exhibits	3.48	4.28	3.66	4.32	3.77	4.05	4.28	4.83	4.63	4.80	5.04	4.44	4.95	4.36	5.48	3.38
Library	0.39	3.23	2.59	3.25	2.48	2.74	3.04	3.49	3.32	3.69	3.79	3.32	3.79	3.37	4.49	2.84
Hotel/Motel	1.69	1.90	1.66	1.97	1.69	1.87	1.94	2.22	2.09	2.20	2.30	2.05	2.30	2.02	2.72	1.73
Office, Financial Institution, Unleased Tenant Space, Medical Office Building/Clinic	2.59	3.13	2.59	3.13	2.59	3.13	3.13	3.13	3.13	3.13	3.13	3.13	3.13	3.13	3.80	2.59
Restaurants	8.55	9.32	8.16	9.65	8.21	8.73	9.11	10.18	9.75	10.28	10.85	9.73	10.69	9.73	12.25	8.47
Retail, Grocery	3.14	3.49	3.01	3.61	3.05	3.27	3.45	3.83	3.65	3.81	4.09	3.64	3.99	3.71	4.60	3.21
School	1.27	1.63	1.27	1.63	1.27	1.63	1.63	1.63	1.63	1.63	1.63	1.63	1.63	1.63	2.46	1.27
Warehouse	0.39	0.44	0.39	0.44	0.39	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.58	0.39
Religious Worship	4.25	4.65	3.49	4.52	3.72	4.29	4.64	5.89	5.30	5.67	5.89	4.99	5.78	4.63	7.57	3.90
Sports & Recreation	2.47	1.97	1.54	2.03	1.60	1.84	1.98	2.63	2.47	2.60	2.75	2.20	2.72	2.15	4.03	1.81
Multifamily > 3 stories	1.82	2.21	1.82	2.21	1.82	2.21	2.21	2.21	2.21	2.21	2.21	2.21	2.21	2.21	2.77	1.82

TABLE 140.10-B—BESS CAPACITY FACTORS (Wh/ft² of conditioned floor area)																
BUILDING TYPE	**CZ 1**	**CZ 2**	**CZ 3**	**CZ 4**	**CZ 5**	**CZ 6**	**CZ 7**	**CZ 8**	**CZ 9**	**CZ 10**	**CZ 11**	**CZ 12**	**CZ 13**	**CZ 14**	**CZ 15**	**CZ 16**
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, Medical Office Building/Clinic	NR[1]	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
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	1.71	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[1]	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	NR[1]	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
Religious Worship	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
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

1. NR = Not Required.

Note: Authority: Sections 25213, 25218, 25218.5, 25402 and 25402.1, *Public Resources Code*. Reference: Sections 25007, 25008, 25218.5, 25310, 25402, 25402.1, 25402.4, 25402.8 and 25943, *Public Resources Code*.

where:

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

kW_{PVdc} = Minimum Rated PV System Capacity in kW from Equation 170.2D.

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

CFA = Conditioned floor area that is subject to the PV system requirements of Section 170.2(g) in square feet.

B = BESS Capacity Factor in Wh/square foot as specified in Table 170.2-V for the building type.

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

EQUATION 170.2-G—BATTERY *ENERGY STORAGE SYSTEM MINIMUM* RATED POWER CAPACITY

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

where:

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

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

Exception 1 to Section 170.2(h): No BESS is required if the installed PV system capacity is less than 15 percent of the capacity determined by Equation 170.2-D.

Exception 2 to Section 170.2(h): No BESS is required in buildings with BESS requirements with less than 10 kWh minimum rated usable energy capacity.

TABLE *170.2-V—BESS CAPACITY FACTORS (Wh/ft² of conditioned floor area)*

BUILDING TYPE	CZ 1	CZ 2	CZ 3	CZ 4	CZ 5	CZ 6	CZ 7	CZ 8	CZ 9	CZ 10	CZ 11	CZ 12	CZ 13	CZ 14	CZ 15	CZ 16
Event & Exhibit	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, Medical Office Building/Clinic	NR[1]	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
Restaurant	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	1.71	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[1]	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	NR[1]	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
Religious Worship	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
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

1. NR = Not Required.

NOTE: Authority: Sections 25213, 25218, 25218.5, 25402 and 25402.1, *Public Resources Code*. Reference: Sections 25007, 25008, 25218.5, 25310, 25402, 25402.1, 25402.4, 25402.8 and 25943, *Public Resources Code*.

HISTORY NOTE APPENDIX

2025 California Energy Code
California Code of Regulations, Title 24, Part 6

HISTORY:

For prior code history, see the History Note Appendix to the *California Energy Code,* 2022 Triennial Edition, effective January 1, 2023.

1. (CEC 01/24)—Repeal the 2022 adoption of the *California Energy Code*, CCR Title 24, Part 6 and adopt the 2025 *California Energy Code*. Approved by the California Building Standards Commission on December 17, 2024, filed with the Secretary of State on January 16, 2025, and effective on January 1, 2026.
2. Erratum to address miscellaneous corrections in Preface, Table 100.0-A—Application of Standards and Section 100.1—Definitions and Rules of Construction, and BESS capacity factors in Tables 140.10-B and 170.2-V, effective January 1, 2026.