

# EFFICIENCY STANDARDS

## CALIFORNIA CODE OF REGULATIONS TITLE 24, PART 6

## SUBCHAPTER 1 ALL OCCUPANCIES—GENERAL PROVISIONS

### SECTION 100 – SCOPE

- (a) **Buildings Covered.** The provisions of Title 24, Part 6, apply to all buildings:
1. That are of Occupancy Group A, B, E, F, H, 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, indirectly or directly conditioned by mechanical heating or mechanical cooling or process spaces; or
    - B. Low-rise residential buildings that are heated with a wood heater or another non-mechanical heating system.

**EXCEPTION 1 to Section 100(a):** Qualified historic buildings, as regulated by the California Historic Building Code (Title 24, Part 8).

**EXCEPTION 2 to Section 100(a):** Building departments, at their discretion, may exempt 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.

- (b) **Parts of Buildings Regulated.** The provisions of Title 24, Part 6, apply to the building envelope, space-conditioning systems, water-heating systems, and indoor lighting systems of buildings, and outdoor lighting systems and signs located either indoors or outdoors that are covered by Section 100(a) as set forth in TABLE 100-A.
- (c) **Floors and Habitable Stories.**
1. Only habitable floors that have at least 50 percent of their volume above grade as defined in the CBC shall be counted in determining how many habitable stories a building has.
  2. All conditioned space in a floor shall comply with Title 24, Part 6, whether or not the floor is above grade and whether or not it is habitable. All unconditioned space in a floor shall comply with the lighting requirements of Title 24, Part 6, whether or not the floor is above grade and whether or not it is habitable.
- (d) **Outdoor Lighting and Indoor and Outdoor Signs.** The provisions of Title 24, Part 6, apply to outdoor lighting systems and to signs located either indoors or outdoors as set forth in TABLE 100-A.
- (e) **Sections Applicable to Particular Buildings.** TABLE 100-A and this subsection list the provisions of Title 24, Part 6, that are applicable to different types of buildings covered by Section 100(a).
1. **All buildings.** Sections 100 through 119 apply to all buildings.

**EXCEPTION to Section 100(e)1:** Spaces or requirements not listed in TABLE 100-A
  2. **Newly constructed buildings.**
    - A. **All newly constructed buildings.** Sections 110 through 119 apply to all newly constructed buildings within the scope of Section 100(a). In addition, newly constructed buildings shall meet the requirements of B, C or D, as applicable.
    - B. **Nonresidential, high-rise residential, and hotel/motel buildings that are mechanically heated or mechanically cooled.**
      - i. Sections applicable. Sections 120 through 1487 apply to newly constructed nonresidential buildings, high-rise residential buildings, and hotels/motels that are mechanically heated or mechanically cooled.

ii. Compliance approaches. In order to comply with Title 24, Part 6, newly constructed nonresidential buildings, high-rise residential buildings, and hotels/motels that are mechanically heated or mechanically cooled must meet the requirements of:

a. Mandatory measures: The applicable provisions of Sections 120 through 139; and

b. Either:

Performance approach: Section 141; or

Prescriptive approach: Sections 142 through 148.

C. **Unconditioned nonresidential buildings and process spaces.** Sections 119, 130 through 134~~2~~, 143(c), 146, 147, and 148 apply to all newly constructed unconditioned buildings and process spaces within the scope of Section 100(a).

D. **Low-rise residential buildings.**

i. Sections applicable. Sections 150 through 151 apply to newly constructed low-rise residential buildings.

ii. Compliance approaches. To comply with Title 24, Part 6, newly constructed low-rise residential buildings must meet the requirements of:

a. Mandatory measures: The applicable provisions of Sections 110 through 119, and 150; and

b. Either:

Performance approach: Section 151(a) through (e); or

Prescriptive approach: Sections 151(a) and (f).

**EXCEPTION 1 to Section 100(d)2Diib:** Seasonally occupied agricultural housing limited by state or federal agency contract to occupancy not more than 180 days in any calendar year.

**EXCEPTION 2 to Section 100 (d)2Diib:** Low-rise residential buildings that are heated with a wood heater or another non-mechanical heating system and that use no energy obtained from depletable sources for lighting or water heating.

3. **New construction in existing buildings.**

A. **Nonresidential, high-rise residential, and hotel/motel buildings.** Section 149 applies to new construction in existing buildings that will be nonresidential, high-rise residential, and hotel/motel occupancies.

B. **Low-rise residential buildings.** Section 152 applies to new construction in existing buildings that will be low-rise residential occupancies.

4. **Installation of insulation in existing buildings.** Section 118(d) applies to buildings in which insulation is being installed in existing attics, or on existing water heaters, or existing space conditioning ducts.

5. **Outdoor Lighting.** Sections 119, 130, 132, 134, 147, and 150 apply to newly constructed outdoor lighting systems, and Section 149 applies to outdoor lighting additions and alterations.

6. **Signs.** Sections 130, ~~132-133~~ and 148 apply to newly constructed signs located either indoors or outdoors and Section 149 applies to sign alterations located either indoors or outdoors.

(f) **Mixed Occupancy**<sup>[45dayMaz6]</sup>. When a building is designed and constructed for more than one type of occupancy (residential and nonresidential), the space for each occupancy shall meet the provisions of Title 24, Part 6, applicable to that occupancy.

**EXCEPTION to Section 100(f):** <sup>[45dayMaz7]</sup>If one occupancy constitutes at least 80 percent<sup>1</sup> of the conditioned floor area of the building, the entire building envelope, HVAC, and water heating may comply with the provisions of Title 24, Part 6 applicable to that occupancy, provided that the applicable lighting requirements in Sections 146 through 148 or 150(k) are met for each occupancy and space and mandatory measures in Sections 110 through 139, and 150, are met for each occupancy and space.

(g) **Administrative Requirements.** Administrative requirements relating to permit requirements, enforcement by the Commission, locally adopted energy standards, interpretations, claims of exemption, approved calculation methods,

rights of appeal, and certification and labeling requirements of fenestration products and roofing products are specified in California Code of Regulations, Title 24, Part 1, Sections 10-101 to 10-114.

(h) **Certification Requirements for Manufactured Devices.** Title 24, Part 6, limits the installation of the following manufactured devices to those that have been certified by their manufacturer to meet or exceed minimum specifications or efficiencies adopted by the Commission.

1. Central air-conditioning heat pumps and other central air conditioners (Sections 111 and 112).
2. Combination equipment: space heating and cooling, or space heating and water heating (Section 112(a)3).
3. Fenestration products (Section 116).
4. Fluorescent lamp ballasts (Section 111).
5. Gas space heaters (Sections 111 and 112).
6. Insulating materials and cool roofs (Section 118).
7. Lighting control devices and lighting control systems (Section 119).
8. Oil-fired storage water heaters (Section 113).
9. Other heating and cooling equipment (Sections 111 and 112).
10. Plumbing fittings (Section 111).
11. Pool heaters (Section 114).
12. Refrigerators, refrigerator-freezers, and freezers (Section 111).
13. Room air conditioners (Section 111).
14. Slab floor perimeter insulation (Section 150 (l)).
15. Water heaters (Section 113).
16. Track lighting integral current limiter (Section 119(l)).
17. High efficacy LED ~~lighting systems~~ light sources (Section 119(m)).
18. Ballasts for residential recessed luminaires (Section 119(n)).
19. Dimmable fluorescent ballasts for power adjustment factors (Section 119(o)).

The certification status of any such manufactured device may be confirmed only by reference to:

1. A directory published or approved by the Commission; or
2. A copy of the application for certification from the manufacturer and the letter of acceptance from the Commission staff; or
3. Written confirmation from the publisher of a Commission-approved directory that a device has been certified; or
4. A Commission-approved label on the device.

**NOTE:** Title 24, Part 6, does not require a builder, designer, owner, operator, or enforcing agency to test any certified device to determine its compliance with minimum specifications or efficiencies adopted by the Commission.

TABLE 100-A APPLICATION OF STANDARDS

Occupancies	Application	Mandatory	Prescriptive	Performance	Additions/Alterations
General Provisions		100, 101, 102, 110, 111			
Nonresidential, High-Rise Residential, And Hotels/Motels	General	140	142	141	149
	Envelope (conditioned)	116, 117, 118	143		
	Envelope (unconditioned, process spaces)		143(c)		
	HVAC (conditioned)	112, 115, 120-125	144		
	Water Heating (conditioned)	113, 123	145		
	Indoor Lighting (conditioned, process spaces)	119, 130, 131, 134	143(c), 146		
	Indoor Lighting (unconditioned)	119, 130, 131, 134	143(c), 146		
	Outdoor Lighting	119, 130, 132, 134	147		
Refrigerated Warehouse	Envelope and HVAC	126	N.A.	N.A.	
Signs	Indoor and Outdoor	130, 133	148		
Low-Rise Residential	General	150	151(a, f)	151(a-e)	152
	Envelope (conditioned)	116, 117, 118, 150(a-g, l)			
	HVAC (conditioned)	112, 115, 150(h, i, m)			
	Water heating (conditioned)	113, 150(j)			
	Indoor Lighting (conditioned, <u>unconditioned</u> and parking garages)	119, 150(k)			
	Outdoor Lighting	119, 150(k)			

**SECTION 101 – DEFINITIONS AND RULES OF CONSTRUCTION**

(a) **Rules of Construction.**

1. Where the context requires, the singular includes the plural and the plural includes the singular.
2. The use of "and" in a conjunctive provision means that all elements in the provision must be complied with, or must exist to make the provision applicable. Where compliance with one or more elements suffices, or where existence of one or more elements makes the provision applicable, "or" (rather than "and/or") is used.
3. "Shall" is mandatory and "may" is permissive.

(b) **Definitions.** Terms, phrases, words and their derivatives in Title 24, Part 6, shall be defined as specified in Section 101. Terms, phrases, words and their derivatives not found in Section 101 shall be defined as specified in Title 24, Part 2, Chapter 2 of the California Code of Regulations. Terms, phrases, words and their derivatives not found in either Title 24, Part 6, or Chapter 2 shall be defined as specified in Title 24, Part 2, Chapter 2 of the *California Building Code*. Where terms, phrases, words and their derivatives are not defined in any of the references above, they shall be defined as specified in *Webster's Third New International Dictionary of the English Language, Unabridged* (1987 edition), unless the context requires otherwise.

**ACCA** is the Air Conditioning Contractors of America.

**ACCA MANUAL J** is the Air Conditioning Contractors of America document entitled "Manual J - Residential Load Calculation, Eighth Edition" (2003).

**ACCEPTANCE REQUIREMENTS FOR CODE COMPLIANCE** is a description of test procedures in the Reference Nonresidential Appendices that includes equipment and systems to be tested, functions to be tested, conditions under

which the test shall be performed, the scope of the tests, results to be obtained, and measurable criteria for acceptable performance.

**ACCENT (LIGHT)** is a directional luminaire designed to highlight or spotlight objects. It can be recessed, surface mounted, or mounted to a pendant, stem, or track.

**ACCESSIBLE** is having access thereto, but which first may require removal or opening of access panels, doors, or similar obstructions.

**ADDITION** is any change to a building that increases conditioned floor area and conditioned volume. See also “newly conditioned space.” Addition is also any change that increases the floor area or volume of an unconditioned building of an occupancy group or type regulated by Part 6. Addition is also any change that increases the illuminated area of an outdoor lighting application regulated by Part 6.

**AGRICULTURAL BUILDING** is a structure designed and constructed to house farm implements, hay, grain, poultry, livestock or other horticultural products. It is not a structure that is a place of human habitation, a place of employment where agricultural products are processed, treated or packaged, or a place used by the public.

**AIR-DISTRIBUTION SYSTEM** <sup>[TM9]</sup> is a central forced air heating and/or cooling system which is intended to operate on a regular basis to bring in outdoor ventilation air and/or distribute air around the home for comfort and ventilation even when heating and cooling are not needed.

**AIR-TO-AIR HEAT EXCHANGER** is a device which will reduce the heat losses or gains that occur when a building is mechanically ventilated, by transferring heat between the conditioned air being exhausted and outside air being supplied.

**ALTERATION** is any change to a building's water-heating system, space-conditioning system, lighting system, or envelope that is not an addition. Alteration is also any change that is regulated by Part 6 to an outdoor lighting system that is not an addition. Alteration is also any change that is regulated by Part 6 to signs located either indoors or outdoors.

**ALTERED COMPONENT** is a component that has undergone an alteration and is subject to all applicable Standards requirements.

**ALTERNATIVE CALCULATION METHODS (ACMs)** are the Commission's Public Domain Computer Programs, one of the Commission's Simplified Calculation Methods, or any other calculation method approved by the Commission. ACMs are also referred to as compliance software.

**ALTERNATIVE CALCULATION METHODS APPROVAL MANUAL** is the document that specifies the procedures and tests required for approval of Alternative Calculation Methods.

**ANNUAL FUEL UTILIZATION EFFICIENCY (AFUE)** <sup>[MS12]</sup> is a measure of the percentage of heat from the combustion of gas or oil which is transferred to the space being heated during a year, as determined using the applicable test method in the Appliance Efficiency Regulations or Section 112.

**ANNUNCIATED** is a type of visual signaling device that indicates the on, off, or other status of a load.

**ANSI** is the American National Standards Institute.

**ANSI C82.6-2005** is the American National Standards Institute document entitled “Ballasts for High-Intensity Discharge Lamps – Methods of Measurement” (ANSI C82.6-2005)

**ANSI Z21.10.3** is the American National Standards Institute document entitled “Gas Water Heaters, Volume I, Storage Water Heaters with input ratings above 75,000 Btu per hour,” 2001 (ANSI Z21.10.3-2001).

**ANSI Z21.13** is the American National Standards Institute document entitled “Gas-Fired Low Pressure Steam and Hot Water Boilers,” 2000 (ANSI Z21.13-2000).

**ANSI Z21.40.4** is the American National Standards Institute document entitled “Performance Testing and Rating of Gas-Fired, Air Conditioning and Heat Pump Appliances,” 1996 (ANSI Z21.40.4-1996).

**ANSI Z21.47** is the American National Standards Institute document entitled “Gas-Fired Central Furnaces,” 2001 (ANSI Z21.47-2001).

**ANSI Z83.8** is the American National Standards Institute document entitled “Gas Unit Heaters and Gas-Fired Duct Furnaces,” 2002 (ANSI Z83.8 -2002).

**APPLIANCE EFFICIENCY REGULATIONS** are the regulations in Title 20, Section 1601 et seq. of the California Code of Regulations.

**APPROVED BY THE COMMISSION** means approval under Section 25402.1 of the Public Resources Code.

**APPROVED CALCULATION METHOD** (See “alternative calculation methods.”)

**ARI** is the Air-conditioning and Refrigeration Institute.

**ARI 210/240** is the Air-conditioning and Refrigeration Institute document entitled “Unitary Air-Conditioning and Air-Source Heat Pump Equipment,” 2003 (ARI 210/240-2003).

**ARI 310/380** is the Air-conditioning and Refrigeration Institute document entitled “Packaged Terminal Air-Conditioners and Heat Pumps,” 1993 (ARI 310/380-93).

**ARI 320** is the Air-conditioning and Refrigeration Institute document entitled “Water-Source Heat Pumps,” 1998 (ARI 320-98).

**ARI 325** is the Air-conditioning and Refrigeration Institute document entitled “Ground Water-Source Heat Pumps,” 1998 (ARI 325-98).

**ARI 340/360** is the Air-conditioning and Refrigeration Institute document entitled “Commercial and Industrial Unitary Air-Conditioning and Heat Pump Equipment,” 2000 (ARI 340/360-2000).

**ARI 365** is the Air-conditioning and Refrigeration Institute document entitled, "Commercial and Industrial Unitary Air-Conditioning Condensing Units," 2002 (ARI 365-2002).

**ARI 460** is the Air-conditioning and Refrigeration Institute document entitled “Remote Mechanical-Draft Air-Cooled Refrigerant Condensers,” 2000 (ARI 460-2000).

**ARI 550/590** is the Air-conditioning and Refrigeration Institute document entitled “Standard for Water Chilling Packages Using the Vapor Compression Cycle,” 1998 (ARI 550/590-98).

**ARI 560** is the Air-conditioning and Refrigeration Institute document entitled “Absorption Water Chilling and Water Heating Packages,” 2000 (ARI 560-2000).

**ASHRAE** is the American Society of Heating, Refrigerating, and Air-conditioning Engineers.

**ASHRAE CLIMATIC DATA FOR REGION X** is the American Society of Heating, Refrigerating and Air-Conditioning Engineers document entitled "ASHRAE Climatic Data for Region X, Arizona, California, Hawaii and Nevada," Publication SPCDX, 1982 and “Supplement,” 1994.

**ASHRAE HANDBOOK, APPLICATIONS VOLUME** is the American Society of Heating, Refrigerating and Air-Conditioning Engineers document entitled "ASHRAE Handbook: Heating, Ventilating, and Air-Conditioning Applications" (2003).

**ASHRAE HANDBOOK, EQUIPMENT VOLUME** is the American Society of Heating, Refrigerating and Air-Conditioning Engineers document entitled "ASHRAE Handbook: Heating, Ventilating, and Air-Conditioning Systems and Equipment" (2000).

**ASHRAE HANDBOOK, FUNDAMENTALS VOLUME** is the American Society of Heating, Refrigerating and Air-Conditioning Engineers document entitled "ASHRAE Handbook: Fundamentals" (2001).

**ASHRAE STANDARD 55** is the American Society of Heating, Refrigerating and Air-Conditioning Engineers document entitled "Thermal Environmental Conditions for Human Occupancy," 2004 (ASHRAE Standard 55-2004).

**ASHRAE STANDARD 62.2** is the American Society of Heating, Refrigerating and Air-Conditioning Engineers document entitled "Ventilation and Acceptable Indoor Air Quality in Low-Rise Residential Buildings," 2007 (ASHRAE Standard 62.2-2007).

**ASME** is the American Society of Mechanical Engineers.

**ASTM** is the American Society for Testing and Materials.

**ASTM C1167** is the American Society for Testing and Materials document entitled “Standard Specification for Clay Roof Tiles,” 1996 (ASTM C1167-96).

**ASTM C1371** is the American Society for Testing and Materials document entitled “Standard Test Method for Determination of Emittance of Materials Near Room Temperature Using Portable Emissometers,” 1998 (ASTM C1371-98).

**ASTM C1583** is the American Society of Testing and Materials document entitled, “Standard Test Method for Tensile Strength of Concrete Surfaces and the Bond Strength or Tensile Strength of Concrete Repair and Overlay Materials by Direct Tension” (Pull-off Method),” 2004 (ASTM C1583-04).

**ASTM C177** is the American Society for Testing and Materials document entitled “Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus,” 1997 (ASTM C177-97).

**ASTM C272** is the American Society for Testing and Materials document entitled “Standard Test Method for Water Absorption of Core Materials for Structural Sandwich Constructions,” 2001 (ASTM C272-01).

**ASTM C335** is the American Society for Testing and Materials document entitled “Standard Test Method for Steady-State Heat Transfer Properties of Horizontal Pipe Insulation,” 1995 (ASTM C335-95).

**ASTM C518** is the American Society for Testing and Materials document entitled “Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus,” 2002 (ASTM C518-02).

**ASTM C55** is the American Society for Testing and Materials document entitled “Standard Specification for Concrete Brick,” 2001 (ASTM C55-01).

**ASTM C731** is the American Society for Testing and Materials document entitled “Standard Test Method for Extrudability, After Package Aging of Latex Sealants,” 2000 (ASTM C731-00).

**ASTM C732** is the American Society for Testing and Materials document entitled “Standard Test Method for Aging Effects of Artificial Weathering on Latex Sealants,” 2001 (ASTM C732-01).

**ASTM C836** is the American Society of Testing and Materials document entitled, “Standard Specification for High Solids Content, Cold Liquid-Applied Elastomeric Waterproofing Membrane for Use with Separate Wearing Course,” 2005 (ASTM C836-05).

**ASTM D1003** is the American Society for Testing and Materials document entitled “Standard Test Method for Haze and Luminous Transmittance of Transparent Plastics,” 2000 (ANSI/ASTM D1003-00).

**ASTM D1653** is the American Society of Testing and Materials document entitled, “Standard Test Methods for Water Vapor Transmission of Organic Coating Films,” 2003 (ASTM D1653-03).

**ASTM D2370** is the American Society of Testing and Materials document entitled, “Standard Test Method for Tensile Properties of Organic Coatings,” 2002 [ASTM D2370-98 (2002)].

**ASTM D2824** is the American Society of Testing and Materials document entitled “Standard Specification for Aluminum-Pigmented Asphalt Roof Coatings, Nonfibered, Asbestos Fibered, and Fibered without Asbestos,” 2002 (ASTM D2824-02).

**ASTM D3468** is the American Society of Testing and Materials document entitled, “Standard Specification for Liquid-Applied Neoprene and Chlorosulfonated Polyethylene Used in Roofing and Waterproofing,” 1999 (ASTM D3468-99).

**ASTM D3805** is the American Society of Testing and Materials document entitled “Standard Guide for Application of Aluminum-Pigmented Asphalt Roof Coatings,” 1997 (ASTM D3805-97 (reapproved 2003)).

**ASTM D4798** is the American Society for Testing and Materials document entitled “Standard Test Method for Accelerated Weathering Test Conditions and Procedures for Bituminous Materials (Xenon-Arc Method),” 2001 (ASTM D4798-01).

**ASTM D522** is the American Society of Testing and Materials document entitled, “Standard Test Methods for Mandrel Bend Test of Attached Organic Coatings,” 2001 [ASTM D522-93a (2001)].

**ASTM D822** is the American Society of Testing and Materials document entitled, “Standard Practice for Filtered Open-Flame Carbon-Arc Exposures of Paint and Related Coatings,” 2001 (ASTM D822-01).

**ASTM D5870** is the American Society of Testing and Materials document entitled, “Standard Practice for Calculating Property Retention Index of Plastics,” 2003 [ASTM D5870-95 (2003)].

**ASTM D6083** is the American Society of Testing and Materials document entitled, “Standard Specification for Liquid Applied Acrylic Coating Used in Roofing,” 2005 (ASTM D6083-05e1).

**ASTM D6694** is the American Society of Testing and Materials document entitled, “Standard Specification for Liquid-Applied Silicone Coating Used in Spray Polyurethane Foam Roofing,” 2001 (ASTM D6694-01).

**ASTM D6848** is the American Society of Testing and Materials document entitled “Standard Specification for Aluminum-Pigmented Emulsified Asphalt Used as a Protective Coating for Roofing,” 2002 (ASTM D6848-02).

**ASTM E96** is the American Society for Testing and Materials document entitled “Standard Test Methods for Water Vapor Transmission of Materials,” 200 (ASTM E96-00).

**ASTM E283** is the American Society for Testing and Materials document entitled “Standard Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen,” 1991 (ASTM E283-91(1999)).

**ASTM E408** is the American Society for Testing and Materials document entitled, “Standard Test Methods for Total Normal Emittance of Surfaces Using Inspection-Meter Techniques,” 1971 (ASTM E408-71(2002)).

[MS13]

**AUTOMATIC** is capable of operating without human intervention.

**AUTOMATIC MULTI-LEVEL DAYLIGHTING CONTROL** is a multi-level lighting control that automatically reduces lighting in multiple steps or continuous dimming in response to available daylight. This control uses one or more photosensors to detect changes in daylight illumination and then change the electric lighting level in response to the daylight changes.

**AUTOMATED TELLER MACHINE (ATM)** is any electronic information processing device which accepts or dispenses currency in connection with a credit, deposit, or convenience account without involvement by a clerk.

**AUTOMATIC TIME SWITCH CONTROL DEVICES** are devices capable of automatically turning loads off and on based on time schedules.

**BATHROOM** (See [NRP15] “Residential Space Type”.)

**BELOW-GRADE WALL** is the portion of a wall, enclosing conditioned space that is below the grade line.

**BUILDING** is any structure or space covered by Section 100 of the Building Energy Efficiency Standards.

**BUILDING ENVELOPE** is the ensemble of exterior and demising partitions of a building that enclose conditioned space.

**CALL CENTER** is a phone center that handles large number of phone calls including but not limited to help desk, customer and sales support, technical support, emergency response, telephone answering service, and inbound and outbound telemarketing.

**CAPTIVE-KEY OVERRIDE** is a type of lighting control in which the key that activates the override cannot be released when the lights are in the on position.

**CENTRAL FAN-INTEGRATED VENTILATION SYSTEM** is a central forced air heating and/or cooling system which is intended to operate on a regular basis to bring in outdoor ventilation air and/or distribute air around the home for comfort and ventilation even when heating and cooling are not needed.

**CERTIFYING ORGANIZATION** is an independent organization recognized by the Commission to certify manufactured devices for performance values in accordance with procedures adopted by the Commission.

**CHANDELIER** is a ceiling-mounted, close-to-ceiling, or suspended decorative luminaire that uses glass, crystal, ornamental metals, or other decorative material and that typically is used in hotel/motels, restaurants, or churches as a significant element in the interior architecture

**CLIMATE ZONES** are the 16 geographic areas of California for which the Commission has established typical weather data, prescriptive packages and energy budgets. Climate zone boundary descriptions are in the document "California Climate Zone Descriptions" (July 1995), incorporated herein by reference. FIGURE 101-A is an approximate map of the 16 climate zones.

**CLOSED-CIRCUIT COOLING TOWER** [TMM19] is a closed-circuit cooling tower that utilizes indirect contact between a heated fluid, typically water or glycol, and the cooling atmosphere to transfer the source heat load indirectly to the air, essentially combining a heat exchanger and cooling tower into one relatively compact device.

**CODES, CALIFORNIA HISTORICAL BUILDING CODE** is the California Historical Building Code, California Code of Regulations, Title 24, Part 8 and Part 2 (Chapter 34)

**CODES, CBC** is the 2007~~6~~ California Building Code.

**CODES, CEC** is the 2007~~6~~ California Electric Code.

**CODES, CMC** is the 2007~~6~~ California Mechanical Code.

**COEFFICIENT OF PERFORMANCE (COP), COOLING**, is the ratio of the rate of net heat removal to the rate of total energy input, calculated under designated operating conditions and expressed in consistent units, as determined using the applicable test method in the Appliance Efficiency Regulations or Section 112.

**COEFFICIENT OF PERFORMANCE (COP), HEATING**, is the ratio of the rate of net heat output to the rate of total energy input, calculated under designated operating conditions and expressed in consistent units, as determined using the applicable test method in the Appliance Efficiency Regulations or Section 112.

**COEFFICIENT OF PERFORMANCE (COP), HEAT PUMP** is the ratio of the rate of useful heat output delivered by the complete heat pump unit (exclusive of supplementary heating) to the corresponding rate of energy input, in consistent units and as determined using the applicable test method in Appliance Efficiency Regulations or Section 112.

**COMBUSTION EFFICIENCY** [MS23] is a measure of the percentage of heat from the combustion of gas or oil that is transferred to the space-medium being heated or lost as jacket loss.

**COMMISSION** is the California State Energy Resources Conservation and Development Commission.

**CONDITIONED FLOOR AREA (CFA)** is the floor area (in square feet) of enclosed conditioned space on all floors of a building, as measured at the floor level of the exterior surfaces of exterior walls enclosing the conditioned space.

**CONDITIONED SPACE** is space in a building that is either directly conditioned or indirectly conditioned.

**CONDITIONED SPACE, DIRECTLY** is an enclosed space that is provided with wood heating, is provided with mechanical heating that has a capacity exceeding 10 Btu/hr-ft<sup>2</sup>, or is provided with mechanical cooling that has a capacity exceeding 5 Btu/hr-ft<sup>2</sup>, unless the space-conditioning system is designed for a process space. (See "pProcess space")

**CONDITIONED SPACE, INDIRECTLY** is enclosed space, including, but not limited to, unconditioned volume in atria, that (1) is not directly conditioned space; and (2) either (a) has a thermal transmittance area product (UA) to directly conditioned space exceeding that to the outdoors or to unconditioned space and does not have fixed vents or openings to the outdoors or to unconditioned space, or (b) is a space through which air from directly conditioned spaces is transferred at a rate exceeding three air changes per hour.

**CONDITIONED VOLUME** is the total volume (in cubic feet) of the conditioned space within a building.

**CONTINUOUS DIMMING** (See "dimming, continuous.")

**COOL ROOF** is a roofing material with high thermal emittance and high solar reflectance, or low thermal emittance and exceptionally high solar reflectance as specified in Section 118(i) that reduces heat gain through the roof.

**COOLING EQUIPMENT** is equipment used to provide mechanical cooling for a room or rooms in a building.

**CRAWL SPACE** is a space immediately under the first floor of a building adjacent to grade.

**CRRC-1** is the Cool Roof Rating Council document entitled "Product Rating Program Manual."

**CTI** is the Cooling Technology Institute.

**CTI ATC-105** is the Cooling Technology Institute document entitled “Acceptance Test Code for Water Cooling Towers,” 2000 (CTI ATC-105-00).

**CTI STD-201** is the Cooling Technology Institute document entitled “Standard for the [TMM27] Certification of Water-Cooling Tower Thermal Performance,” 2004 (CTI STD-201-04).

**C-VALUE** (also known as C-factor) is the time rate of heat flow through unit area of a body induced by a unit temperature difference between the body surfaces, in Btu (hr· x ft<sup>2</sup> x °F). It is not the same as K-value or K-factor.

**DAYLIGHT AREA** is the floor area under skylights or next to windows. The daylight area includes Primary Sidelit Daylight Area, Secondary Sidelit Daylight Area, and Skylit Daylight Area.

~~**DAYLIGHT AREA, PRIMARY SIDELIT** is the floor area directly adjacent to vertical glazing. The Primary Sidelit Daylight Area is primary sidelit depth multiplied by the sidelit width. The sidelit width is the width of the window plus, on each side, the lesser of either 2 feet, the distance to a 60-inch or higher permanent partition or one half the distance to the closest skylight or vertical glazing. The primary sidelit depth is the horizontal distance perpendicular to the glazing which is the lesser of one window head height (head height is the distance from the floor to the top of the glazing), the distance to the nearest 60-inch or higher permanent partition, or one half the distance to the closest skylight or vertical glazing.~~

~~**DAYLIGHT AREA, SECONDARY SIDELIT** is the floor area adjacent to the Primary Sidelit Daylight Area that is illuminated by vertical glazing. The Secondary Sidelit Daylight Area is the secondary sidelit depth multiplied by the sidelit width. The sidelit width is the width of the window plus, on each side, the lesser of either 2 feet, the distance to a 60-inch or higher permanent partition or one half the distance to the closest skylight or vertical glazing. The secondary sidelit depth is the horizontal distance perpendicular to the glazing which begins from one window head height (head height is the distance from the floor to the top of the glazing), and ends at the lesser of: two window head heights, the distance to the nearest 60-inch or higher permanent partition, or one half the distance to the closest skylight or vertical glazing.~~

~~**DAYLIGHT AREA, SKYLIT** is the rough opening of the skylight, plus, in each horizontal direction perpendicular to the sides of the skylight opening, extended horizontally of the lateral and longitudinal dimensions of the skylight, the lesser of 70% of the floor to ceiling height, the distance to any permanent partition or permanent rack which is farther away than 70% of the distance between the top of the permanent partition or permanent rack and the ceiling, or one half the horizontal distance to the edge of the closest skylight or vertical glazing.~~

**DEADBAND** is the temperature range within which the HVAC system is neither calling for heating or cooling.

**DECORATIVE GAS APPLIANCE** is a gas appliance that is designed or installed for visual effect only, cannot burn solid wood, and simulates a fire in a fireplace.

**DEGREE DAY, HEATING**, is a unit, based upon temperature difference and time, used in estimating fuel consumption and specifying nominal annual heating load of a building. For any one day, when the mean temperature is less than 65°F, there exist as many degree days as there are Fahrenheit degrees difference in temperature between the mean temperature for the day and 65°F. The number of degree days for specific geographical locations are those listed in the Residential Manual. For those localities not listed in the Residential Manual, the number of degree days is as determined by the applicable enforcing agency.

**DEMAND RESPONSE** is controlling electricity loads in buildings in response to an electronic signal sent by the local utility requesting their customers to reduce electricity consumption.

**DEMAND RESPONSE PERIOD** is a period of time during which the local utility is curtailing electricity loads by sending out a demand response signal.

**DEMAND RESPONSE SIGNAL** is an electronic signal sent out by the local utility indicating a request to their customers to curtail electricity consumption.

**DEMAND RESPONSIVE LIGHTING CONTROL** is a control that reduces lighting power consumption in response to a demand response signal.

**DEMISING PARTITION** is a wall, fenestration, floor, or ceiling that separates conditioned space from enclosed unconditioned space.

**DESIGN CONDITIONS** are the parameters and conditions used to determine the performance requirements of space-conditioning systems. Design conditions for determining design heating and cooling loads are specified in Section 144(b) for nonresidential, high-rise residential, and hotel/motel buildings and in Section 150(h) for low-rise residential buildings.

**DESIGN HEAT GAIN RATE** is the total calculated heat gain through the building envelope under design conditions.

**DESIGN HEAT LOSS RATE** is the total calculated heat loss through the building envelope under design conditions.

**DIMMING, CONTINUOUS** is a lighting control method that is capable of varying the light output of lamps over a continuous range from full light output to minimum light output.

**DIMMING, STEPPED** is a lighting control method that varies the light output of lamps in one or more predetermined discrete steps between full light output and off.

**DIRECT DIGITAL CONTROL (DDC)** is a type of control where controlled and monitored analog or binary data, such as temperature and contact closures, are converted to digital format for manipulation and calculations by a digital computer or microprocessor, then converted back to analog or binary form to control mechanical devices.

**[MS29]DISPLAY LIGHTING** is lighting confined to the area of a display that provides a higher level of illuminance than the level of surrounding ambient illuminance.

**DISPLAY PERIMETER** is the length of an exterior wall in a Group B; Group F, Division 1; or Group M Occupancy that immediately abuts a public sidewalk, measured at the sidewalk level for each story that abuts a public sidewalk.

**DOOR** is an operable opening in the building envelope that is not a fenestration product, including swinging and roll-up doors, fire doors, and access hatches. Doors that are more than one-half glass in area are considered a fenestration product.

**DUAL-GLAZED GREENHOUSE WINDOWS** are a type of dual-glazed fenestration product which adds conditioned volume but not conditioned floor area to a building.

**DUCT SEALING** is a procedure for installing a space conditioning distribution system that minimizes leakage of air from or to the distribution system. Minimum specifications for installation procedures, materials, diagnostic testing and field verification are contained in the Reference Residential Appendix RA3 and Reference Nonresidential Appendix NA1.

**EAST-FACING** (See “orientation.”)

**ECONOMIZER, AIR**, is a ducting arrangement, including dampers, linkages, and an automatic control system, that allows a cooling supply fan system to supply outside air to reduce or eliminate the need for mechanical cooling.

**ECONOMIZER, WATER**, is a system by which the supply air of a cooling system is cooled directly or indirectly by evaporation of water, or other appropriate fluid, in order to reduce or eliminate the need for mechanical cooling.

**EFFECTIVE APERTURE (EA)** is a measure of the extent that vertical glazing or skylights are effective for providing daylighting.

**EFFICACY, LAMP** is the quotient of rated initial lamp lumens divided by the rated lamp power (watts), without including auxiliaries such as ballasts, transformers, and power supplies.

**ELECTRONICALLY-COMMUTATED MOTOR** is a brushless DC motor with a permanent magnet rotor that is surrounded by stationary motor windings, and an electronic controller that varies rotor speed and direction by sequentially supplying DC current to the windings.

**EMITTANCE, THERMAL** is the ratio of the radiant heat flux emitted by a sample to that emitted by a blackbody radiator at the same temperature.

**ENCLOSED SPACE** is space that is substantially surrounded by solid surfaces, including walls, ceilings or roofs, doors, fenestration areas, and floors or ground.

**ENERGY BUDGET** is the maximum amount of Time Dependent Valuation (TDV) energy that a proposed building, or portion of a building, can be designed to consume, calculated with the approved procedures specified in Title 24, Part 6.

**ENERGY EFFICIENCY RATIO (EER)** is the ratio of net cooling capacity (in Btu/hr-) to total rate of electrical energy input (in watts), of a cooling system under designated operating conditions, as determined using the applicable test method in the Appliance Efficiency Regulations or Section 112.

**ENERGY FACTOR (EF)** of a water heater is a measure of overall water heater efficiency, as determined using the applicable test method in the Appliance Efficiency Regulations.

**ENERGY MANAGEMENT CONTROL SYSTEM (EMCS)** is often a computerized control system designed to regulate the energy consumption of a building by controlling the operation of energy consuming systems, such as the heating, ventilation and air conditioning (HVAC), lighting and water heating systems. The EMCS is also capable of monitoring environmental and system loads and adjusting HVAC operations in order to optimize energy usage and respond to demand response signals.

**ENERGY OBTAINED FROM DEPLETABLE SOURCES** is electricity purchased from a public utility, or any energy obtained from coal, oil, natural gas, or liquefied petroleum gases.

**ENERGY OBTAINED FROM NONDEPLETABLE SOURCES** is energy that is not energy obtained from depletable sources.

**ENFORCEMENT AGENCY** is the city, county, or state agency responsible for issuing a building permit.

**ENTIRE BUILDING** is the ensemble of all enclosed space in a building, including the space for which a permit is sought, plus all existing conditioned and unconditioned space within the structure.

**ENVELOPE** (See “building envelope.”)

**EXFILTRATION** is uncontrolled outward air leakage from inside a building, including leakage through cracks and interstices, around windows and doors, and through any other exterior partition or duct penetration.

**EXTERIOR DOOR** is a door through an exterior partition that is opaque or has a glazed area that is less than or equal to one-half of the door area. Doors with a glazed area of more than one half of the door area are treated as a fenestration product.

**EXTERIOR FLOOR/SOFFIT** is a horizontal exterior partition, or a horizontal demising partition, under conditioned space. For low-rise residential occupancies, exterior floors also include those on grade.

**EXTERIOR PARTITION** is an opaque, translucent, or transparent solid barrier that separates conditioned space from ambient air or space that is not enclosed. For low-rise residential occupancies, exterior partitions also include barriers that separate conditioned space from unconditioned space, or the ground.

**EXTERIOR ROOF/CEILING** is an exterior partition, or a demising partition, that has a slope less than 60 degrees from horizontal, that has conditioned space below, and that is not an exterior door or skylight.

**EXTERIOR ROOF/CEILING AREA** is the area of the exterior surface of exterior roof/ceilings.

**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.

**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.

**FENESTRATION, 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 two side windows are angled with respect to the center window(s). Common angles are 30° and 45°, although other angles are sometimes employed.

**FENESTRATION, CURTAIN WALL** [MS32] is [NRP33] an external nonbearing wall intended to separate the exterior and interior environments, which may consist entirely (or principally) of a combination of framing materials, glass and glazing, opaque in-fill and other surfacing materials supported by or within a framework.

**FENESTRATION, GARDEN WINDOW:** a window unit that consists of a three-dimensional, five-sided structure, with or without an operating sash, also known as greenhouse window.

**FENESTRATION PRODUCT** is any transparent or translucent material plus any sash, frame, mullions and dividers, in the envelope of a building, including, but not limited to, windows, sliding glass doors, French doors, skylights, curtain walls, garden windows, and other doors with a glazed area of more than one half of the door area.

**FENESTRATION PRODUCT, FIELD-FABRICATED** is a fenestration product including a glazed exterior door, 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 or exterior door. Field fabricated does not include site-built fenestration with a label certificate or products required to have temporary or permanent labels.

**FENESTRATION PRODUCT, MANUFACTURED** is a fenestration product constructed of materials which are factory cut or otherwise factory formed with the specific intention of being used to fabricate a fenestration product. A manufactured fenestration product is typically factory-assembled before delivery to a job site. However a “knocked-down” or partially assembled product sold as a fenestration product is also a manufactured fenestration product when provided with temporary and permanent labels as described in Section 10-111; otherwise it is a site-built fenestration product when provided with temporary and permanent labels as described in Section 10-111; otherwise it is a site built fenestration product. [NRP36]

**FENESTRATION PRODUCT, 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 and are provided with an NFRC label certificate for site built fenestration.~~ Examples of site-built fenestration include storefront systems, curtain walls, and atrium roof systems.

**FENESTRATION SYSTEM** is a collection of fenestration products included in the design of a building. (See “fenestration product”)

**FIELD ERECTED COOLING TOWERS** are cooling towers which are custom designed for a specific application and which can not 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.

**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.

**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 natural gas or liquefied petroleum gas heating system.

**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.

**GENERAL LIGHTING** is lighting designed to provide a substantially uniform level of illumination throughout an area, exclusive of any provision for special visual tasks or decorative effect. When designed for lower-than-task illuminance used in conjunction with other specific task lighting systems, it is also called “ambient” lighting.

**GLAZING** (See “fenestration product.”)

**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.

**GU-24** is the designation of a lamp holder and socket configuration, based on a coding system by the International Energy Consortium, where “G” indicates the broad type of two or more projecting contacts, such as pins or posts, “U”

distinguishes between lamp and holder designs of similar type but that are not interchangeable due to electrical or mechanical requirements, and “24” indicates 24 millimeters center to center spacing of the electrical contact posts.

**HABITABLE STORY** is a story that contains space in which humans may work or live in reasonable comfort, and that has at least 50 percent of its volume above grade.

**HEAT CAPACITY (HC)** is the amount of heat necessary to raise the temperature of all the components of a unit area in an assembly by 1°F. It is calculated as the sum of the average thickness times the density times the specific heat for each component, and is expressed in Btu/ft<sup>2</sup>-per-square-foot-per °F.

**HEAT PUMP** is a device that is capable of heating by refrigeration, and that may include a capability for cooling.

**HEATED SLAB FLOOR** is a concrete slab floor or a lightweight concrete topping slab laid over a raised floor, with embedded space heating hot water pipes. The heating system using the heated slab floor is sometimes referred to as radiant slab floors or radiant heating.

**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.

**HI** is the Hydronics Institute of the Gas Appliance Manufacturers Association (GAMA).

**HI HTG BOILER STANDARD** is the Hydronics Institute document entitled “Testing and Rating Standard for Rating Boilers,” 1989.

**HIGH-RISE RESIDENTIAL BUILDING** is a building, other than a hotel/motel, of Occupancy Group R, Division 1 with four or more habitable stories.

**HOTEL/MOTEL** is a building or buildings incorporating 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 also 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.

**HVAC SYSTEM** (See “space-conditioning system.”)

**IESNA HB** (See “IESNA Lighting Handbook”)

**IESNA LIGHTING HANDBOOK** is the Illuminating Engineering Society National Association document entitled “The IESNA Lighting Handbook: Reference and Applications, Ninth Edition” (2000).

**INFILTRATION** is uncontrolled inward air leakage from outside a building or unconditioned space, including leakage through cracks and interstices, around windows and doors, and through any other exterior or demising partition or pipe or duct penetration.

**INTEGRATED PART LOAD VALUE (IPLV)** is a single-number figure of merit based on part load EER or COP expressing part load efficiency for air-conditioning and heat pump equipment on the basis of weighted operation at various load capacities for the equipment as determined using the applicable test method in the Appliance Efficiency Regulations or Section 112.

**ISO 13256-1** is the International Organization for Standardization document entitled “Water-source heat pumps -- Testing and rating for performance -- Part 1: Water-to-air and brine-to-air heat pumps,” 1998.

**KITCHEN** — (See **Residential Space Type**.)

**LIGHT EMITTING DIODE (LED)**, also known as **Solid State Lighting (SSL)**, is a *pn* junction semiconductor device that emits incoherent optical radiation when biased in the forward direction. The acronym “LED” typically refers to an LED **Component package**, LED **Device lamp**, or LED **Package component**.

Hybrid LED Luminaire is a complete lighting unit consisting of a light source and driver together with parts to distribute light, to position and protect the light source, and to connect the light source to a branch circuit. The light sources in the Hybrid LED Luminaire contain both LED Source Systems, or LED Lamps, as well as other type of light sources such as incandescent or fluorescent lamps. The Hybrid LED Luminaire is intended to be connected directly to a branch circuit.

LED Array is an assembly of LED packages on a printed circuit board or substrate, possibly with optical elements and additional thermal, mechanical, and electrical interfaces. The device does not contain a power source and is not connected directly to the branch circuit.

LED Array is an assembly of LED Components, LED Devices or LED Packages on a printed circuit board or substrate, possibly with optical elements and additional thermal, mechanical, and electrical (LED Control Circuitry) interfaces that are connected to the load side of LED Driver (Power Source). LED Array does not contain an LED Driver (Power Source) and is not connected directly to the branch circuit.

LED Component is a semiconductor die that contains wire bond connections, an optical element, or a thermal, mechanical, or electrical interface.

LED Component (or LED Device, or LED Package) is a semiconductor die that contains wire bond connections, possibly with an optical element, or a thermal, mechanical, or electrical interface. LED Component, LED Device, or LED Package does not contain an LED Driver (Power Source) and is not connected directly to the branch circuit.

LED Control Circuitry is electronic components located between the Power Source (LED Driver) and the LED Component, or LED Device, or LED Package designed to limit voltage and current, to dim, to switch or otherwise control the electrical energy to the LED. The circuitry does not include a Power Source.

LED Driver is a power source with integral LED control circuitry designed to meet the specific requirements of a LED lamp or a LED array. Lamp, an LED Array, or an LED Module. Typically LED Driver (Power Source) contains the LED Control Circuitry.

LED lamp, Integrated is an LED with an integrated LED driver and a standardized base that is designed to connect to the branch circuit via a standardized lampholder/socket.

**NOTE:** In North America, “a standardized base” refers to an ANSI standard base. In the U.S. “branch circuit” is used to describe the “mains voltage” in IEC documents.

LED lamp, Non-Integrated is an LED device with no integral power source and with a standardized base designed for connection to a LED luminaire.

LED Lamp is an LED Component, LED Device, or LED Package and other optical, thermal, mechanical and electrical (LED Control Circuitry) components with an integrated LED Driver (Power Source) and a standardized base that is designed to connect to the branch circuit via a standardized base, lamp-holder, or socket.

In North America, “a standardized base” refers to an ANSI standard base. In the U.S. “branch circuit” is used to describe the “mains voltage” in IEC documents.

Note: Non-integrated type of LED Lamp should not be defined, it is a LED Module.

LED Lighting System is the component part of an LED luminaire that includes one or more LED's or an LED array; an LED driver; electrical and mechanical interfaces; and an integral heat sink to provide thermal dissipation. An led lighting system may be designed to accept additional components that provide aesthetic, optical, and environmental control (other than thermal dissipation).

LED Luminaire is a complete LED lighting unit consisting of a light source and driver together with parts to distribute light, to position and protect the light source, and to connect the light source to a branch circuit. The light source itself may be an LED array, an LED module, an LED lighting system, or an LED lamp. The LED luminaire is intended to connect directly to a branch circuit.

LED Module is a component part of an LED light source that includes one or more LEDs that are connected to the load side of LED power source or LED driver. Electrical, electronic, optical, and mechanical components may also be part of an LED module. The LED module does not contain a power source.

~~LED Package is an assembly of one or more semiconductor die that contains wire bond connections, possibly with an optical element and thermal, mechanical, and electrical interfaces. The LED Package does not include a power source and is not connected directly to the branch circuit.~~

LED Light Engine with Integral Heat Sink (or LED Light Source System) is a subsystem of an LED Luminaire that includes one or more LED Components, LED Devices or LED Packages, an LED Array, or LED Module; an LED Driver (Power Source); electrical and mechanical interfaces; and an integral heat sink to provide thermal dissipation. An LED Source System may be designed to accept additional components that provide aesthetic, optical, and environmental control (other than thermal dissipation). An LED Source System with standardized base is an LED Lamp.

LED Luminaire is a complete LED lighting unit consisting of a light source and driver together with parts to distribute light, to position and protect the light source, and to connect the light source to a branch circuit. The light source itself may be an LED Components, LED Packages or LED Devices, LED Array, an LED Module, an LED Source System, or an LED Lamp. The LED Luminaire is intended to be connected directly to a branch circuit.

LED Module is a component part of an LED Source System that includes one or more LED Components, LED Devices or LED Packages, possibly with optical elements and additional thermal, mechanical, and electrical (LED Control Circuitry) interfaces that are connected to the load side of LED Drive (Power Source). The LED Module does not contain a power source. An LED Array is equivalent to an LED Module.

~~LIGHTING FLOOR AREA is the floor area (in square feet) of enclosed space on all floors of a building, as measured at the floor level of the interior surfaces of all walls.~~

**LISTED** is equipment, materials, or services included in a list published by an organization that is recognized to have the authority to evaluate and test the equipment, material or services. The organization performs periodic inspection and evaluation to ensure that the listed equipments, material, or services meet identified standards or has been tested and found suitable for a specified purpose. The recognized organizations include Underwriters Laboratories (UL) and other nationally recognized testing/rating laboratories.

**LOW-RISE RESIDENTIAL BUILDING** is a building, other than a hotel/motel that is of Occupancy Group R, Division 1, and is multi-family with three stories or less, or a single family residence of Occupancy Group R, Division 3, or an Occupancy Group U building located on a residential site.

**LPG** is liquefied petroleum gas. Propane is one type of LPG.

**LUMINAIRE** is a complete lighting unit consisting of a lamp(s) and the parts designed to distribute the light, to position and protect the lamp(s), and to connect the lamp(s) to the power supply; commonly referred to as "lighting fixtures."

**MANUAL** is capable of being operated by personal intervention.

**MANUFACTURED DEVICE** is any heating, cooling, ventilation, lighting, water heating, refrigeration, cooking, plumbing fitting, insulation, door, fenestration product, or any other appliance, device, equipment, or system subject to Sections 110 through 119 of Title 24, Part 6.

~~**MANUFACTURED FENESTRATION PRODUCT** is a fenestration product constructed of materials which are factory cut or otherwise factory formed with the specific intention of being used to fabricate a fenestration product. A manufactured fenestration product is typically assembled before delivery to a job site. However a "knocked down" or partially assembled product sold as a fenestration product is also a manufactured fenestration product when provided with temporary and permanent labels as described in Section 10-111; otherwise it is a site built fenestration product when provided with temporary and permanent labels as described in Section 10-111; otherwise it is a site built fenestration product.~~

**MECHANICAL COOLING** is lowering the temperature within a space using refrigerant compressors or absorbers, desiccant dehumidifiers, or other systems that require energy from depletable sources to directly condition the space. In nonresidential, high-rise residential, and hotel/motel buildings, cooling of a space by direct or indirect evaporation of water alone is not considered mechanical cooling.

**MECHANICAL HEATING** is raising the temperature within a space using electric resistance heaters, fossil fuel burners, heat pumps, or other systems that require energy from depletable sources to directly condition the space.

**METAL BUILDING** is a complete integrated set of mutually dependent components and assemblies that form a building, which consists of a steel-framed superstructure and metal skin. This does not include structural glass or metal panels such as in a curtainwall system.

**MODELING ASSUMPTIONS** are the conditions (such as weather conditions, thermostat settings and schedules, internal gain schedules, etc.) that are used for calculating a building's annual energy consumption as specified in the Alternative Calculation Methods Manuals.

**MOTION SENSOR, LIGHTING**, is a device that automatically turns lights off soon after an area is vacated. The term motion sensor applies to a device that controls outdoor lighting systems. When the device is used to control indoor lighting systems, it is termed an occupant sensor. The device also may be called an occupancy sensor, occupant-sensing device, or vacancy sensor.

**MOVABLE SHADING DEVICE** (See “operable shading device.”)

**MULTI-LEVEL LIGHTING CONTROL** is a lighting control that reduces lighting power in multiple steps while maintaining a reasonably uniform level of illuminance throughout the area controlled.

**MULTISCENE PROGRAMMABLE SYSTEM** is a lighting control device that has the capability of setting light levels throughout a continuous range, and that has pre-established settings within the range.

**NEWLY CONDITIONED SPACE** is any space being converted from unconditioned to directly conditioned or indirectly conditioned space. Newly conditioned space must comply with the requirements for an addition. See Section 149 for nonresidential occupancies and Section 152 for residential occupancies.

**NEWLY CONSTRUCTED BUILDING** is a building that has never been used or occupied for any purpose.

**NFRC 100** is the National Fenestration Rating Council document entitled “NFRC 100: Procedure for Determining Fenestration Product U-factors.” (~~1997 or November 2002~~2007; NFRC 100 includes procedures for site fenestration formerly included in a separate document, NFRC 100-SB)

**NFRC 200** is the National Fenestration Rating Council document entitled “NFRC 200: Procedure for Determining Fenestration Product Solar Heat Gain Coefficients and Visible Transmittance at Normal Incidence.” (~~1995 or November 2002~~2007)

**NFRC 400** is the National Fenestration Rating Council document entitled “NFRC 400: Procedure for Determining Fenestration Product Air Leakage.” (~~2007~~1995 or January 2002)

**NONRESIDENTIAL BUILDING** is any building which is a Group A, B, E, F, H, M, or S; and is a U Occupancy when the Group U Occupancy is on a nonresidential site.

**NOTE:** Requirements for high-rise residential buildings and hotels/motels are included in the nonresidential sections of Title 24, Part 6.

**NONRESIDENTIAL COMPLIANCE MANUAL** is the manual developed by the Commission, under Section 25402.1(e) of the Public Resources Code, to aid designers, builders, and contractors in meeting the energy efficiency requirements for nonresidential, high-rise residential, and hotel/motel buildings.

**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.”).

**NONRESIDENTIAL FUNCTION AREA OR TYPE OF USE** is one of the following:

**Atrium** is a large-volume space created by openings connecting two or more stories and is used for purposes other than an enclosed stairway, an elevator hoistway, an escalator opening, or as a utility shaft for plumbing, electrical, air-conditioning or other equipment and is not a mall.

**Auditorium** is the part of a public building where an audience sits in fixed seating, or a room, area, or building with fixed seats used for public meetings or gatherings not specifically for the viewing of dramatic performances.

**Auto repair** is the portion of a building used to repair automotive equipment and/or vehicles, exchange parts, and may include work using an open flame or welding equipment.

**Beauty Salon** is a room or area in which the primary activity is manicures, pedicures, facials, or the cutting or styling of hair. Also known as beauty shop or beauty parlor.

**Civic meeting place** is a city council or board of supervisors meeting chamber, courtroom, or other official meeting space accessible to the public.

**Classroom Building** is a building or group of buildings that is predominately classrooms used by an organization that provides instruction to students, which may include corridors and stairways, restrooms and small storage closets, faculty offices, and workshops and labs. A classroom building does not include buildings that are not predominantly classroom, including auditorium, gymnasium, kitchen, library, multi-purpose, dining and cafeteria, student union, maintenance staff workroom, or storage buildings.

**Classroom, lecture, training, vocational room** is a room or area where an audience or class receives instruction.

**Commercial and industrial storage** is a room, area, or building used for storing items.

**Convention, conference, multipurpose and meeting centers** is an assembly room, area, or building that is used for meetings, conventions and multiple purposes, including, but not limited to, dramatic performances, and that has neither fixed seating nor fixed staging.

**Corridor** is a passageway or route into which compartments or rooms open.

**Dining** is a room or rooms in a restaurant or hotel/motel (other than guest rooms) where meals that are served to the customers will be consumed.

**Dormitory** is a building consisting of multiple sleeping quarters and having interior common areas such as dining rooms, reading rooms, exercise rooms, toilet rooms, study rooms, hallways, lobbies, corridors, and stairwells, other than high-rise residential, low-rise residential, and hotel/motel occupancies.

**Electrical/mechanical/telephone room** is a room in which the building's electrical switchbox or control panels, telephone switchbox, and/or HVAC controls or equipment is located.

**Exercise center/gymnasium** is a room or building equipped for gymnastics, exercise equipment, or indoor athletic activities.

**Exhibit** is a room or area that is used for exhibitions that has neither fixed seating nor fixed staging.

**Financial institution** is a public establishment used for conducting financial transactions including the custody, loan, exchange, or issue of money, for the extension of credit, and for facilitating the transmission of funds.

**Financial transactions** is the teller, ~~area and~~ work stations, ~~and for~~ customers ~~waiting areas~~ to complete financial transactions. Financial transaction areas do not include private offices, hallways, restrooms, or other support areas.

**General commercial and industrial work** is a room, area, or building in which an art, craft, assembly or manufacturing operation is performed.

**High bay:** Luminaires 25 feet or more above the floor.

**Low bay:** Luminaires less than 25 feet above the floor.

**Precision:** Involving 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.

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

**Grocery store** is a building that has as its primary purpose the sale of foodstuffs requiring additional preparation prior to consumption.

**Hotel function area** is a hotel room or area such as a hotel ballroom, meeting room, exhibit hall or conference room, together with pre-function areas and other spaces ancillary to its function.

**Housing, Public and Commons Areas** is housing other than Occupancy Group I that are living quarters. Commons areas may include dining, reading, study, library or other community spaces and/or medical treatment or hospice facilities.

**Multi-family:** A multi-family building contains multiple dwelling units that share common walls and may also share common floors or ceilings (apartments).

**Dormitory:** A space in a building where group sleeping accommodations are provided in one room, or in a series of closely associated rooms, for persons not members of the same family group, under joint occupancy and single management, as in college dormitories or fraternity houses.

**Senior housing:** Is specifically for habitation by seniors, including but not limited to independent living quarters, and assisted living quarters.

**Kitchen/food preparation** is a room or area with cooking facilities and/or an area where food is prepared.

**Laundry** is a place where laundering activities occur.

**Library** is a repository for literary materials, such as books, periodicals, newspapers, pamphlets and prints, kept for reading or reference.

**Reading areas:** Is a library facility term describing areas within a prescribed building space containing tables, chairs, or desks for library patrons to use for the purpose of reading books and other reference documents.

Library reading areas include reading, circulation, and checkout areas. Reading areas do not include private offices, meeting, photocopy, or other rooms not used specifically for reading by library patrons.

**Stacks:** Is a library facility term describing a large grouping of shelving sections within a prescribed building space. Stack aisles include pedestrian paths located in stack areas. Book stack aisle lighting is typically a central aisle luminaire distributing light to stack faces on both sides of an aisle.

**Laboratory, Scientific** is a space or facility where research, experiments, and measurement in medical and physical sciences are performed requiring examination of fine details. The space may include workbenches, countertops, scientific instruments, and associated floor spaces. Scientific laboratory does not refer to film, computer, and other laboratories where scientific experiments are not performed.

**Lobby,**

**Hotel:** Is the contiguous space in a hotel/motel between the main entrance and the front desk, including reception, waiting and seating areas.

**Main entry:** Is the contiguous space in buildings other than hotel/motel that is directly located by the main entrance of the building through which persons must pass, including reception, waiting and seating areas.

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

**Lounge/recreation** is a room used for leisure activities which may be associated with a restaurant or bar.

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

**Medical and clinical care** is a ~~none "I" occupancy room or area or in a building~~ that does not provide overnight patient care and that is used to ~~promote the condition of being sound in body or mind~~ provide physical and mental care through medical, dental, or psychological examination and treatment, including, but not limited to, laboratories and treatment ~~facilities~~ spaces.

**Medical buildings and clinics** is a building ~~that where medical and clinical care is provided, does not provide overnight patient care and that is used to promote the condition of being sound in body or mind through medical, dental, or psychological examination and treatment, including, but not limited to, laboratories and treatment facilities.~~

**Museum** is a space in which the primary function is the care or exhibit of works of artistic, historical, or scientific value. A museum does not include a gallery or other place where art is for sale. A museum 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** is a room, area, or building of CBC Group B Occupancy other than restaurants.

**Parking garage** is a covered building or structure for the purpose of parking vehicles, which consists of at least a roof over the parking area enclosed with walls on all sides. Parking garages may have fences, rails, partial walls, or other barriers in place of one or more walls. The structure has an entrance(s) and exit(s), and includes areas for vehicle maneuvering to reach the parking spaces. If the roof of a parking structure is also used for parking, the section without an overhead roof is considered a parking lot instead of a parking garage.

**Parking area** is the area of a parking garage used for purpose of parking and maneuvering of vehicles on a single floor, and which is not the roof of a parking structure.

**Ramps and entries** are driveways for the purpose of moving vehicles between floors of a parking garage. Parking entries are driveways for the purpose of vehicles entering into a parking garage.

[GF 4546]**Religious facility** is a building in which the primary function is for an assembly of people to worship. Religious facilities do not include classroom, housing, or gymnasium buildings.

**Religious worship** is a room, area, or building 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.

**Restaurant** is a room, area, or building that is a food establishment as defined in Section 27520 of the Health and Safety Code.

**Restroom** is a room or suite of rooms providing personal facilities such as toilets and washbasins.

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

**School** is a building or group of buildings that is used by an organization that provides instruction to students, which is predominately classroom buildings but may also include auditorium, gymnasium, kitchen, library, multi-purpose rooms, dining and cafeteria, student union, maintenance staff workroom, and small storage spaces.

[GF 4547]**Stairs** is a series of steps providing passage from one level of a building to another, including escalators.

**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 space** is a portion of a building intended for lease for which a specific tenant is not identified at the time of permit application.

#### **Theater**

**Motion picture** is an assembly room, a hall, or a building with tiers of rising seats or steps for the showing of motion pictures.

**Performance** is an assembly room, a hall, or a building with tiers of rising seats or steps for the viewing of dramatic performances, lectures, musical events and similar live performances.

**Transportation function** is the ticketing area, waiting area, baggage handling areas, concourse, or other areas not covered by primary functions in Table 146-C in an airport terminal, bus or rail terminal or station, subway or transit station, or a marine terminal.

**Vide Conferencing studio is a room 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.**

**Vocational room** is a room used to provide training in a special skill to be pursued as a trade.

**Waiting area** is an area other than a hotel lobby or main entry lobby normally provided with seating and used for people waiting.

**Wholesale showroom** is a room where samples of merchandise are displayed.

**OCCUPANT SENSOR, LIGHTING**, is a device that automatically turns lights off soon after an area is vacated. The term occupant sensor applies to a device that controls indoor lighting systems. When the device is used to control outdoor lighting systems, it is termed a motion sensor. The device also may be called an occupancy sensor, occupant-sensing device, or vacancy sensor.

**OPEN 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.

**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.

**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).

[MS48].

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

**OUTDOOR LIGHTING** definitions include the following:

**Building entrance** is any operable doorway in or out of a building, including overhead doors.

**Building façade** is the exterior surfaces of a building, not including horizontal roofing, signs, and surfaces not visible from any reasonable viewing location.

**Canopy** is a permanent structure, other than a parking garage as defined in Section 101, consisting of a roof and supporting building elements, with the area beneath at least partially open to the elements. A canopy may be freestanding or attached to surrounding structures. A canopy roof may serve as the floor of a structure above.

**Carport** is a covered, open-sided structure used solely for the purpose of parking vehicles, consisting of a roof over the parking area. Typically, carports are free-standing or projected from the side of the building and are only two or fewer car lengths deep.

**Hardscape** is an improvement to a site that is paved or has other structural features, including but not limited to, curbs, plazas, entries, parking lots, site roadways, driveways, walkways, sidewalks, bikeways, water features and pools, storage or service yards, loading docks, amphitheaters, outdoor sales lots, and private monuments and statuary.

**Landscape lighting** is lighting that is recessed into or mounted on the ground, paving, or raised deck, which is mounted less than 42" above grade or mounted onto trees or trellises, and that is intended to be aimed only at landscape features.

**Lantern** is an ornamental outdoor luminaire that uses an electric lamp to replicate a pre-electric lantern, which used a flame to generate light.

**Lighting zone** is a geographic area designated by the California Energy Commission that determines requirements for outdoor lighting, including lighting power densities and specific control, equipment or performance requirements. Lighting zones are numbered LZ1, LZ2, LZ3, and LZ4.

**Marquee lighting** is a permanent lighting system consisting of one or more rows of many small lights, including light emitting diodes (LEDs), or fiber optic lighting, attached to a canopy.

**Ornamental lighting** is post-top luminaires, lanterns, pendant luminaires, chandeliers, and marquee lighting.

**Outdoor lighting** is all electrical lighting for parking lots, signs, building entrances, outdoor sales areas, outdoor canopies, landscape lighting, lighting for building facades and hardscape lighting.

**Outdoor sales frontage** is the portion of the perimeter of an outdoor sales area immediately adjacent to a street, road, or public sidewalk.

**Outdoor sales lot** is an uncovered paved area used exclusively for the display of vehicles, equipment or other merchandise for sale. All internal and adjacent access drives, walkway areas, employee and customer parking areas, vehicle service or storage areas are not outdoor sales lot areas, but are considered hardscape.

**Parking lot** is an uncovered area for the purpose of parking vehicles. Parking lot is a type of hardscape.

**Paved area** is an area that is paved with concrete, asphalt, stone, brick, gravel, or other improved wearing surface, including the curb.

**Pendant** is a mounting method in which the luminaire is suspended from above.

**Post Top Luminaire** is an ornamental outdoor luminaire that is mounted directly on top of a lamp-post.

**Principal viewing location** is anywhere along the adjacent highway, street, road or sidewalk running parallel to an outdoor sales frontage

**Public monuments** are statuary, buildings, structures, and/or hardscape on public land.

**Sales canopy** is a canopy specifically to cover and protect an outdoor sales area.

**Stairways and Ramps.** Stairways are one or more flights of stairs with the necessary landings and platforms connecting them to form a continuous and uninterrupted passage from one level to another. An exterior stairway is open on at least one side, except for required structural columns, beams, handrails and guards. The adjoining open areas shall be either yards, courts or public ways. The other sides of the exterior stairway need not be open. Ramps are walking surfaces with a slope steeper than 5 percent.

**Vehicle service station** is a gasoline, natural gas, diesel, or other fuel dispensing station.

**PERMANENTLY INSTALLED LIGHTING** includes all luminaires attached to the inside or outside of a building or site, including track and flexible lighting system; lighting attached to walls, ceilings, columns, inside or outside of permanently installed cabinets, internally illuminated case work, mounted on poles, in trees, or in the ground; attached to ceiling fans and integral to exhaust fans that are other than exhaust hoods for cooking equipment,. Permanently installed luminaires may have either plug-in or hardwired connections for electric power. Permanently installed lighting does not include portable lighting or lighting that is installed by the manufacturer in refrigerators, stoves, microwave ovens, exhaust hoods for cooking equipment, refrigerated cases, vending machines, food preparation equipment, and scientific and industrial equipment.

**PHOTOCONTROL** is an electric device that detects changes in illumination levels then controls lighting load at predetermined illumination levels.

**POOLS, ANSI/NSPI-5** is the American National Standards Institute and National Spa and Pool Institute document entitled “American National Standard for Residential Inground Swimming Pools” 2003 (ANSI/NSPI-5 2003).

**POOLS, AUXILIARY POOL LOADS** are features or devices that circulate pool water in addition to that required for pool filtration, including, but not limited to, solar pool heating systems, filter backwashing, pool cleaners, waterfalls, fountains, and spas.

**POOLS, BACKWASH VALVE** is a diverter valve designed to backwash filters located between the circulation pump and the filter, including, but not limited to, slide, push-pull, multi-port, and full-flow valves.

**POOLS, MULTI-SPEED PUMP** is a pump capable of operating at two (2) or more speeds and includes two-speed and variable-speed pumps.

**POOLS, NSF/ANSI 50** is the NSF International (formerly National Sanitation Foundation) Standard and American National Standards Institute document entitled “Circulation System Components and Related Materials for Swimming Pools, Spas/Hot Tubs” 2005 (NSF/ANSI 50 – 2005).

**POOLS, RESIDENTIAL** are permanently installed residential in-ground swimming pools intended to use by a single-family home for noncommercial purposes and with dimensions as defined in ANSI/NSPI-5.

**PORTABLE LIGHTING** is lighting with plug-in connections for electric power that is table and freestanding floor lamps, attached to modular furniture, workstation task lights, lights attached to workstation panels, movable displays, and other equipment that is not permanently installed lighting.

**PRIMARY AIRFLOW** [TMM49] is the airflow (cfm or L/s) supplied to the zone from the air-handling unit at which the outdoor air intake is located. It includes outdoor intake air and recirculated air from that air-handling unit but does not include air transferred or air recirculated to the zone by other means.

**PRIMARY SIDELIT DAYLIGHT AREA** (See Daylight Area, Primary Sidelit)

**PROCESS** is an activity or treatment that is not related to the space conditioning, lighting, service water heating, or ventilating of a building as it relates to human occupancy.

**PROCESS SPACE** is a space that is thermostatically controlled to maintain a process environment temperature less than 55° F or to maintain a process environment temperature greater than 90° F for the whole space that the system serves, or that is a space with a space-conditioning system designed and controlled to be incapable of operating at temperatures above 55° F or incapable of operating at temperatures below 90° F at design conditions.

**PROCESS LOAD** is a load resulting from a process.

**PUBLIC AREAS** are spaces generally open to the public at large, customers or congregation members, or similar spaces where occupants need to be prevented from controlling lights for safety, security, or business reasons.

**RADIANT BARRIER** is a highly reflective, low emitting material installed at the underside surface of the roof deck and the inside surface of gable ends or other exterior vertical surfaces in attics to reduce solar heat gain into the attic.

**RAISED FLOOR** is a floor (partition) over a crawl space, or an unconditioned space, or ambient air [RV50].

**READILY ACCESSIBLE** is capable of being reached quickly for operation, repair or inspection, without requiring climbing or removing obstacles, or resorting to access equipment.

**RECOOL** is the cooling of air that has been previously heated by space-conditioning equipment or systems serving the same building.

**RECOVERED ENERGY** is energy used in a building that (1) is recovered from space conditioning, service water heating, lighting, or process equipment after the energy has performed its original function; (2) provides space conditioning, service water heating, or lighting; and (3) would otherwise be wasted.

**REFERENCE APPENDICES** is the support document for the Building Energy Efficiency Standards and the ACM Approval Manuals. The document consists of three sections: the Reference Joint Appendices (JA), the Reference Residential Appendices (RA), and the Reference Nonresidential Appendices (NA).

[MS52]**REFLECTANCE, SOLAR** is the ratio of the reflected solar flux to the incident solar flux.

**REFRIGERATED CASE** is a manufactured commercial refrigerator or freezer, including but not limited to display cases, reach-in cabinets, meat cases, and frozen food and soda fountain units.

**REFRIGERATED WAREHOUSE** is a building or a space constructed for storage of products, where mechanical refrigeration is used to maintain the space temperature at 55° F or less.

**REFRIGERATED SPACE** is a building or a space that is a refrigerated warehouse, walk-in cooler, or a freezer.

**REHEAT** is the heating of air that has been previously cooled by cooling equipment or supplied by an economizer.

**RELATIVE SOLAR HEAT GAIN** 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.

**RELOCATABLE PUBLIC SCHOOL BUILDING** is a relocatable building as defined by Title 24, Part 1, Section 4-314, which is subject to Title 24, Part 1, Chapter 4, Group 1.

**REPAIR** is the reconstruction or renewal for the purpose of maintenance of any component, system, or equipment of an existing building. Replacement of any component, system, or equipment for which there are requirements in the standards is considered an alteration and not a repair.

**RESIDENTIAL BUILDING** (See “high-rise residential building” and “low-rise residential building.”)

**RESIDENTIAL COMPLIANCE MANUAL** is the manual developed by the Commission, under Section 25402.1 of the Public Resources Code, to aid designers, builders, and contractors in meeting energy efficiency standards for low-rise residential buildings.

**RESIDENTIAL SPACE TYPE** is one of the following:

**Bathroom** is a room or area containing a sink used for personal hygiene, toilet, shower, or a tub.

**Closet** is a non-habitable room used for the storage of linens, household supplies, clothing, non-perishable food, or similar uses, and which is not a hallway or passageway.

**Garage** is a non-habitable building or portion of building, attached to or detached from a residential dwelling unit, in which motor vehicles are parked.

**Kitchen** is a room or area used for cooking, food storage and preparation and washing dishes, including associated counter tops and cabinets, refrigerator, stove, ovens, and floor area. [GF 4554][ce55]

**Laundry** is a non-habitable room or space which contains plumbing and electrical connections for a washing machine or clothes dryer.

**Storage Building** is a non-habitable detached building used for the storage of tools, garden equipment, or miscellaneous items.

**Utility Room** is a non-habitable room or building which contains only HVAC, plumbing, or electrical controls or equipment; and which is not a bathroom, closet, garage, or laundry room.

**ROOF** is the outside cover of a building or structure including the structural supports, decking, and top layer that is exposed to the outside with a slope less than 60 degrees from the horizontal.

**ROOF, LOW-SLOPED** is a roof that has a ratio of rise to run of 2:12 or less (9.5 degrees from the horizontal).

**ROOF, STEEP-SLOPED** is a roof that has a ratio of rise to run of greater than 2:12 (9.5 degrees from the horizontal).

**ROOFING PRODUCT** is the top layer(s) of the roof that is exposed to the outside, which has properties including but not limited to reflectance, emittance, and mass.

**RUNOUT** is piping that is no more than 12 feet long and that connects to a fixture or an individual terminal unit.

**SCIENTIFIC EQUIPMENT** is measurement, testing or metering equipment used for scientific research or investigation, including but not limited to manufactured cabinets, carts and racks.

**SCONCE** is a wall mounted ornamental luminaire.

**SEASONAL ENERGY EFFICIENCY RATIO (SEER)** is the total cooling output of an air conditioner in Btu during its normal usage period for cooling 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.

~~**SECONDARY SIDELIT DAYLIGHT AREA** (See Daylight Area, Secondary Sidelit)~~

**SERIES FAN-POWERED TERMINAL UNIT** is a terminal unit that combines a VAV damper in series with a downstream fan which runs at all times that the terminal unit is supplying air to the space.

**SERVICE WATER HEATING** is heating of water for sanitary purposes for human occupancy, other than for comfort heating.

**SHADING** is the protection from heat gains because of direct solar radiation by permanently attached exterior devices or building elements, interior shading devices, glazing material, or adherent materials.

**SHADING COEFFICIENT (SC)** is the ratio of the solar heat gain through a fenestration product to the solar heat gain through an unshaded 1/8-inch-thick clear double strength glass under the same set of conditions. For nonresidential, high-rise residential, and hotel/motel buildings, this shall exclude the effects of mullions, frames, sashes, and interior and exterior shading devices.

**SIGN** definitions include the following:

**Electronic Message Center (EMC)** is a pixilated image producing electronically controlled sign formed by any light source. Bare lamps used to create linear lighting animation sequences through the use of chaser circuits, also known as “chaser lights” are not consider an EMC.

**Illuminated face** is a side of a sign that has the message on it. For an exit sign it is the side that has the word “EXIT” on it.

**Sign, cabinet** is an internally illuminated sign consisting of frame and face(s), with a continuous translucent message panel, also referred to as a panel sign

**Sign, channel letter** is an internally illuminated sign with multiple components, each built in the shape of an individual three dimensional letter or symbol that are each independently illuminated, with a separate translucent panel over the light source for each element.

**Sign, double-faced** is a sign with two parallel opposing faces.

**Sign, externally illuminated** is any sign or a billboard that is lit by a light source that is external to the sign directed towards and shining on the face of the sign.

**Sign, internally illuminated** is a sign that is illuminated by a light source that is contained inside the sign where the message area is luminous, including cabinet signs and channel letter signs.

**Sign, traffic** is a sign for traffic direction, warning, and roadway identification.

**Sign, unfiltered** is a sign where the viewer perceives the light source directly as the message, without any colored filter between the viewer and the light source, including neon, cold cathode, and LED signs.

**SINGLE PACKAGE VERTICAL AIR CONDITIONER (SPVAC):** is a type of air-cooled small or large commercial package air-conditioning and heating equipment; factory assembled as a single package having its major components arranged vertically, which is an encased combination of cooling and optional heating components; is intended for exterior mounting on, adjacent interior to, or through an outside wall; and is powered by single or three-phase current. It may contain separate indoor grille(s), outdoor louvers, various ventilation options, indoor free air discharge, ductwork, wall plenum, or sleeve. Heating components may include electrical resistance, steam, hot water, gas, or no heat but may not include reverse cycle refrigeration as a heating means.

**SINGLE PACKAGE VERTICAL HEAT PUMP (SPVHP):** is an SPVAC that utilizes reverse cycle refrigeration as its primary heat source, with secondary supplemental heating by means of electrical resistance, steam, hot water, or gas.<sup>2</sup>

**SITE-BUILT FENESTRATION** 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 and are provided with an NFRC label certificate for site-built fenestration. Examples of site-built fenestration include storefront systems, curtain walls, and atrium roof systems.

**SITE SOLAR ENERGY** is thermal, chemical, or electrical energy derived from direct conversion of incident solar radiation at the building site.

**SKYLIGHT** is fenestration installed on a roof less than 60 degrees from the horizontal.

**SKYLIGHT AREA** is the area of the rough opening for the skylight.

**SKYLIGHT TYPE** is one of the following three types of skylights: glass mounted on a curb, glass not mounted on a curb or plastic (assumed to be mounted on a curb).

**SKYLIT DAYLIGHT AREA** (See Daylight Area, Skylit)

**SMACNA** is the Sheet Metal and Air-conditioning Contractors National Association.

**SMACNA RESIDENTIAL COMFORT SYSTEM INSTALLATION STANDARDS MANUAL** is the Sheet Metal Contractors’ National Association document entitled “Residential Comfort System Installation Standards Manual, Seventh Edition.” (1998).

**SOCIAL SERVICES BUILDING** is a space where public assistance and social services are provided to individuals or families.<sup>[NRP59]</sup>

**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.

**SOLAR HEAT GAIN COEFFICIENT, CENTER OF GLAZING (SHGC<sub>c</sub>)** is the SHGC for the center of glazing area.

**SOLAR HEAT GAIN COEFFICIENT, TOTAL FENESTRATION PRODUCT (SHGC or SHGC<sub>T</sub>)** is the SHGC for the total fenestration product.

**SOLAR REFLECTANCE INDEX (SRI)** is a measure of the roof's ability to reject solar heat which includes both reflectance and emittance.

**SOUTH-FACING** (See "orientation.")

**SPA** is a vessel that contains heated water in which humans can immerse themselves, is not a pool, and is not a bathtub.

**SPACE-CONDITIONING SYSTEM** is a system that may consist of but not limited to chiller/compressor, air handler unit, cooling and heating coils, air and water cooled condenser, economizers, and the air distribution system, which provide either collectively or individually heating, ventilating, or cooling within or associated with conditioned spaces in a building.

**STEPPED DIMMING** (See "dimming, stepped.")

**STEPPED SWITCHING** is a lighting control method that varies the light output of a lighting system with the intent of maintaining approximately the relative uniformity of illumination by turning off alternate groups of lamps or luminaires.

**STORAGE, COLD**, is a storage area within a refrigerated warehouse where space temperatures are maintained at or above 32° F.

**STORAGE, FROZEN** is a storage area within a refrigerated warehouse where the space temperatures are maintained below 32° F.

**SYSTEM** is a combination of equipment, controls, accessories, interconnecting means, or terminal elements by which energy is transformed to perform a specific function, such as space conditioning, service water heating, or lighting.

**TASK LIGHTING** is lighting that is designed specifically to illuminate a task location, and that is generally confined to the task location.

**TEMPORARY LIGHTING** is a lighting installation with plug-in connections that does not persist beyond 60 consecutive days or more than 120 days per year.

**TENANT SPACE** is a portion of a building intended for occupancy by a single tenant.

**THERMAL MASS** is solid or liquid material used to store heat for later heating use or for reducing cooling requirements.

**THERMAL RESISTANCE (R)** is the resistance of a material or building component to the passage of heat in (hr· x ft.<sup>2</sup> x °F)/Btu.

**THERMOSTATIC EXPANSION VALVE (TXV)** is a refrigerant metering valve, installed in an air conditioner or heat pump, which controls the flow of liquid refrigerant entering the evaporator in response to the superheat of the gas leaving it.

**THROW DISTANCE** is the distance between the luminaire and the center of the plane lit by the luminaire on a display.

**TIME DEPENDENT VALUATION (TDV) ENERGY** is the time varying energy caused to be used by the building to provide space conditioning and water heating and for specified buildings lighting. TDV energy accounts for the energy used at the building site and consumed in producing and in delivering energy to a site, including, but not limited to, power generation, transmission and distribution losses.

**U-FACTOR** is the overall coefficient of thermal transmittance of a construction assembly, in Btu/(hr· x ft.<sup>2</sup> x °F), including air film resistance at both surfaces.

**U-FACTOR, CENTER OF GLAZING (U-FACTOR<sub>c</sub>)** is the U-Factor for the center of glazing area.

**U-FACTOR, TOTAL FENESTRATION PRODUCT (U-FACTOR or U-FACTOR<sub>t</sub>)** is U-Factor for the total fenestration product.

**UL®** is the Underwriters Laboratories.

**UL 181** is the Underwriters Laboratories document entitled “Standard for Factory-Made Air Ducts and Air Connectors,” 1996.

**UL 181A** is the Underwriters Laboratories document entitled “Standard for Closure Systems for Use With Rigid Air Ducts and Air Connectors,” 1994.

**UL 181B** is the Underwriters Laboratories document entitled “Standard for Closure Systems for Use With Flexible Air Ducts and Air Connectors,” 1995.

**UL 723** is the Underwriters Laboratories document entitled “Standard for Test for Surface Burning Characteristics of Building Materials,” 1996.

**UL 727** is the Underwriters Laboratories document entitled “Standard for Oil-Fired Central Furnaces,” 1994.

**UL 731** is the Underwriters Laboratories document entitled “Standard for Oil-Fired Unit Heaters,” 1995.

**UL 1574** is the Underwriters Laboratories document entitled “Track Lighting Systems,” 2000

**UL 1598** is the Underwriters Laboratories document entitled “Standard for Luminaires,” 2000.

**UL 2108** is the Underwriters Laboratories document entitled “Low Voltage Lighting Systems,” 2008

**UNCONDITIONED SPACE** is enclosed space within a building that is not directly conditioned, or indirectly conditioned.

**UNIT INTERIOR MASS CAPACITY (UIMC)** is the amount of effective heat capacity per unit of thermal mass, taking into account the type of mass material, thickness, specific heat, density and surface area.

**VACANCY SENSOR, LIGHTING**, is an occupant sensor for which the lights must be manually turned on but the sensor automatically turns the lights off soon after an area is vacated. The device also may be called a manual-on occupant sensor.

**VAPOR BARRIER** is a material that has a permeance of one perm or less and that provides resistance to the transmission of water vapor.

**VARIABLE AIR VOLUME (VAV) SYSTEM** is a space-conditioning system that maintains comfort levels by varying the volume of supply air to the zones served.

**VENDING MACHINE** is a machine for vending and dispensing refrigerated or non-refrigerated food and beverages or general merchandise.

**VERTICAL GLAZING** (See “window”)

**VERY VALUABLE MERCHANDISE** is rare or precious objects, including, but not limited to, jewelry, coins, small art objects, crystal, , ceramics, or silver, the selling of which involves customer inspection of very fine detail from outside of a locked case.

**VISIBLE TRANSMITTANCE (VT)** is the ratio (expressed as a decimal) of visible light that is transmitted through a glazing to the light that strikes the material as calculated in NFRC 200,-

**VISIBLE TRANSMITTANCE, CENTER OF GLAZING (VT<sub>c</sub>)** is the VT for the center of glazing area.

**VISIBLE TRANSMITTANCE, TOTAL FENESTRATION PRODUCT (VT or VT<sub>t</sub>)** is the VT for the total fenestration product.

**WALL TYPE** is a type of wall assembly having a specific heat capacity, framing type, and U-factor.

**WEST-FACING** (See “orientation-”)

**WINDOW** is fenestration that is not a skylight.

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

**WINDOW TYPE** is a window assembly having a specific solar heat gain coefficient, relative solar heat gain, and U-factor.

**WINDOW WALL RATIO** is the ratio of the window area to the gross exterior wall area.

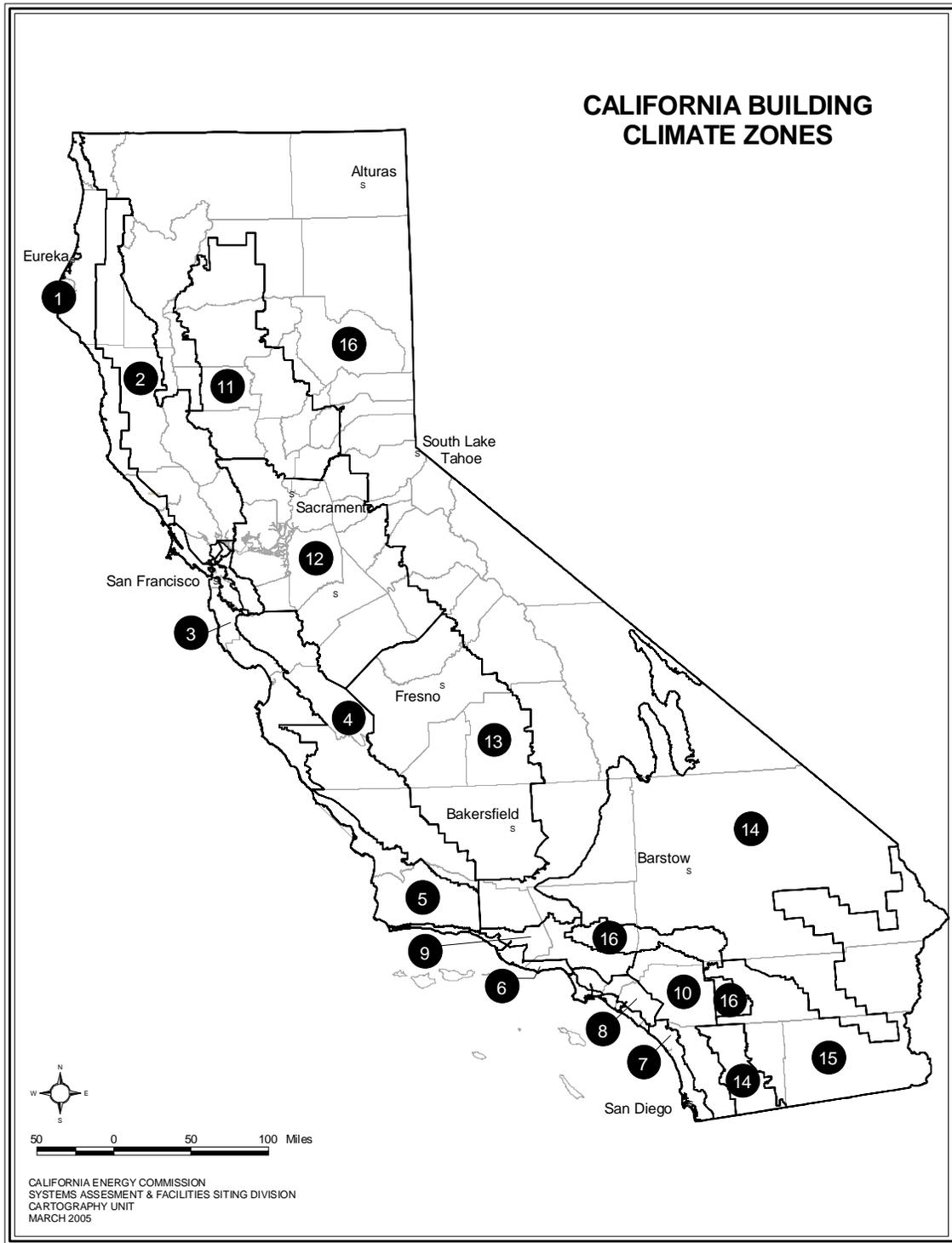
**WOOD HEATER** is an enclosed wood-burning appliance used for space heating and/or domestic water heating.

**WOOD STOVE** (See “wood heater.”)

**ZONE, CRITICAL** [MS62] is a zone serving a process where reset of the zone temperature setpoint during a demand shed event might disrupt the process, including but not limited to data centers, telecom and private branch exchange (PBX) rooms, and laboratories.

**ZONE, NON-CRITICAL** is a zone that is not a critical zone.

**ZONE, SPACE-CONDITIONING**, is a space or group of spaces within a building with sufficiently similar comfort conditioning requirements so that comfort conditions, as specified in Section 144(b)3 or 150(h), as applicable, can be maintained throughout the zone by a single controlling device.



**FIGURE 101-A—CALIFORNIA CLIMATE ZONES**  
**Climate Zones for Residential and Nonresidential Occupancies**

**SECTION 102 – CALCULATION OF TIME DEPENDENT VALUATION (TDV) ENERGY**

Time Dependent Valuation (TDV) energy shall be used to compare proposed designs to their energy budget when using the performance compliance approach. TDV energy is calculated by multiplying the site energy use (electricity kWh, natural gas therms, or fuel oil or LPG gallons) for each energy type times the applicable TDV multiplier. TDV multipliers vary for each hour of the year and by energy type (electricity, natural gas or propane), by climate zone and by building type (low-rise residential or nonresidential, high-rise residential or hotel/motel). TDV multipliers are summarized in Reference Joint Appendix 3. TDV multipliers for propane shall be used for all energy obtained from depletable sources other than electricity and natural gas.

**SECTION 103 – RESERVED.**

**SECTION 104 – RESERVED.**

**SECTION 105 – RESERVED.**

**SECTION 106 – RESERVED.**

**SECTION 107 – RESERVED.**

**SECTION 108 – RESERVED.**

**SECTION 109 – RESERVED.**

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<sup>1</sup> Change per CABEC recommendation.

<sup>2</sup> The definitions of SPVAC and SPVHP are added to support new equipment classes added to §112 per ASHRAE 90.1-2007.