

**ABSORPTION UNIT** is an absorption refrigeration system which has been factory-assembled and tested prior to its installation.

**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).

**ADDITION** is any change to a building that increases conditioned floor area and conditioned volume. 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. See Newly Conditioned Space

**AFUE** See Annual Fuel Utilization Efficiency

**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, COMBUSTION.** See COMBUSTION AIR.

**AIR, CONDITIONED** is air which has been treated to achieve a desired level of temperature, humidity or cleanliness.

**AIR, EXHAUST** is air being removed from any space or piece of equipment and conveyed directly to the atmosphere by means of openings or ducts.

**AIR-HANDLING UNIT** is a blower or fan used for the purpose of distributing supply air to a room, space or area.

**AIR, MAKEUP** is air which is provided to replace air being exhausted.

**AIR-MOVING SYSTEM** is a system designed to provide heating, cooling or ventilation in which one or more air-handling units are used to

supply air to a common space or are drawing air from a common plenum or space.

**AIR, OUTSIDE** is air from outside the building intentionally conveyed by openings or ducts to rooms or to conditioning equipment.

**AIR POROSITY** is a measure of the air-tightness of infiltration barriers in units of cubic feet per hour per square foot per inch of mercury pressure difference.

ACM Joint Appendix I - Glossary  
2005 Joint Appendices Page I-2

**AIR, RETURN** is air from the conditioned area that is returned to the conditioning equipment for reconditioning.

**AIR, SUPPLY** is air being conveyed to a conditioned area through ducts or plenums from a heat exchanger of a heating, cooling, absorption or evaporative cooling system.

**AIR BREAK** – A physical separation which may be a low inlet into the indirect waste receptor from the fixture, appliance, or device indirectly connected.

**AIR CHAMBER** – A pressure surge-absorbing device operating through the compressibility of air.

**AIRGAP, DRAINAGE** – The unobstructed vertical distance through the free atmosphere between the lowest opening from any pipe, plumbing fixture, appliance or appurtenance conveying waste to the flood level rim of the receptor.

**AIRGAP, WATER DISTRIBUTION** – The unobstructed vertical distance through the free atmosphere between the lowest opening from any pipe or faucet conveying potable water to the flood level rim of any tank, vat or fixture.

**AIRFLOW ACROSS THE EVAPORATOR** is the rate of airflow, usually measured in cfm across a heating or cooling coil. The efficiency of air conditioners and heat pumps is affected by the airflow across the evaporator (or condenser in the case of a heat pump).

See Thermostatic Expansion Valves (TXV).

**AIR-TO-AIR HEAT EXCHANGER** is a device which will reduce the heat losses or gains which

occur when a building is mechanically ventilated, by transferring heat between the conditioned air being exhausted and the unconditioned air being supplied.

**ALTERATION** is any change to a building's water heating system, space conditioning system, lighting system, or building envelope that is not an addition.

**ALTERNATIVE CALCULATION METHOD APPROVAL MANUAL OR ACM MANUAL**

is the Alternative Calculation Method (ACM) Approval Manual for the 2001 Energy Efficiency Standards for Nonresidential Buildings, (P400-01-011) for nonresidential buildings, hotels, and multi-family residential buildings with four or more stories and the Alternative Calculation Method (ACM) Approval Manual for the 2001 Energy Efficiency Standards for Residential Buildings, (P400-01-012) for all single family and low-rise multi-family residential buildings.

**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.

**ALTERNATIVE COMPONENT PACKAGE** is one of the sets of low-rise residential prescriptive requirements contained in § 151(f). Each package is a set of measures that achieve a level of performance, which meets the standards. These are often referred to as the prescriptive packages or packages. "Buildings that comply with the prescriptive standards shall be designed, constructed and equipped to meet all of the requirements of one of the alternative packages of components shown in Tables 151-B and 151-C for the appropriate climate zone..."

**ANNUAL FUEL UTILIZATION EFFICIENCY**

(**AFUE**) 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.

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

**APPLIANCE STANDARDS** are the Standards contained in the Appliance Efficiency Regulations.

**AREA DRAIN** – A receptor designed to collect surface or storm water from an open area.

**AREAL HEAT CAPACITY** See Heat Capacity.

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

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

**ASPIRATOR** – A fitting or device supplied with water or other fluid under positive pressure which passes through an integral orifice or constriction, causing a vacuum.

**ASSEMBLY BUILDING** [Not adopted by HCD] is a building or a portion of a building used, [For SFM] or intended to be used for the gathering together of fifty (50) or more persons for such purposes as deliberation, education, instruction, worship, entertainment, amusement, drinking, dining or awaiting transportation. [for SFM] or education; or structure or portion thereof used or intended to be used for the showing of motion pictures when an admission fee is charged and when such building or structure is open to the public and has a capacity of 10 or more persons.

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

**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.

**ATTIC** is an enclosed unconditioned space directly below the roof and above the ceiling.

**AUDITORIUM:** See Occupancy Type.

**AUTO REPAIR:** See Occupancy Type.

**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 photocontrols to detect changes in daylight illumination and then change the electric lighting level in response to the daylight changes.

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

**AZEOTROPE** is a refrigerant blend comprising multiple components of different volatiles that, when used in refrigeration cycles, do not change volumetric composition or saturation temperature as they evaporate or condense at constant pressure.

**BACKFLOW** – The flow of water or other liquids, mixtures, or substances into the distributing pipes of a potable supply of water from any sources other than its intended source. See Back-Siphonage, Back-Pressure Backflow.

**BACKFLOW CONNECTION** – Any arrangement whereby backflow can occur.

**BACK-PRESSURE BACKFLOW** – Backflow due to an increased pressure above the supply pressure, which may be due to pumps, boilers, gravity or other sources of pressure.

**BACKFLOW PREVENTER** – A device or means to prevent backflow into the potable water system.

**BACK-SIPHONAGE** – The flowing back of used, contaminated, or polluted water from a plumbing fixture or vessel into a water supply pipe due to a pressure less than atmospheric in such pipe. See Backflow.

**BACKWATER VALVE** – A device installed in a drainage system to prevent reverse flow.

**BATHROOM** – A room equipped with a shower or bathtub.

**BATTERY OF FIXTURES** – Any group of two (2) or more similar, adjacent fixtures which discharge into a common horizontal waste or soil branch.

**BOILER BLOWOFF** – An outlet on a boiler to permit emptying or discharge of sediment.

**BOILER, HIGH PRESSURE** is a boiler furnishing steam at pressures in excess of fifteen (15) pounds per square inch (103.4 kPa) or hot water at temperatures in excess of 250°F (121°C) or at pressures in excess of 160 pounds per square inch (1102.4 kPa).

**BOILER ROOM** is any room containing a steam or hot water boiler.

**BREECHING** is a metal connector for medium- and high-heat appliances.

**BRINE** is any liquid used for the transmission of heat without a change in its state, having no flash point or a flash point above 150°F (66°C), as determined by the requirements of the Fire Code. (See U.F.C. Standard 2-2 in Appendix A.)

**BTU/H** is the listed maximum capacity of any appliance, absorption unit or burner expressed in British thermal units input per hour, unless otherwise noted.

**BUILDING CODE** [Not adopted by HCD 1 & 2] is the building code, which is adopted by this jurisdiction. [For DSASS, OSHPD 1, 2, 3 & 4, SFM] For purpose of the California Mechanical Code, "Building Code" shall be the most recent edition of the California Building Code. Exception: [For HCD 1 & 2] Whenever the term "Building Code" is used in this code, it shall mean the California Building Code, Title 24, Part 2.

**BUILDING DRAIN** – That part of the lowest piping of a drainage system which receives the discharge from soil, waste, and other drainage pipes inside the walls of the building and conveys it to the building sewer beginning two (2) feet (610 mm) outside the building wall.

**BUILDING DRAIN (Sanitary)** – A building drain which conveys sewage only.

**BUILDING DRAIN (Storm)** – A building drain which conveys storm water or other drainage, but no sewage

**BUILDING ENERGY EFFICIENCY STANDARDS** are the California Building Energy Efficiency Standards as set forth in the California Code of Regulations, Title 24, Part 6. Also known as the California Energy Code.

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

**BUILDING FACADE** See Outdoor Lighting

**CALIFORNIA ENERGY CODE** See Building Energy Efficiency Standards

**BUILDING SEWER** – That part of the horizontal piping of a drainage system which extends from the end of the building drain and which receives the discharge of the building drain and conveys it to a public sewer, private sewer, private sewage disposal system, or other point of disposal.

**BUILDING SEWER (Combined)** – A building sewer which conveys both sewage and storm water or other drainage.

**BUILDING SEWER (Sanitary)** – A building sewer which conveys sewage only.

**BUILDING SEWER (Storm)** – A building sewer which conveys storm water or other drainage, but no sewage.

**BUILDING SUBDRAIN** – That portion of a drainage system which does not drain by gravity into the building sewer.

**BUILDING SUPPLY** – The pipe carrying potable water from the water meter or other source of water supply to a building or other point of use or distribution on the lot. Building supply shall also mean water service.

**CALIFORNIA BUILDING CODE [For DSA/SS]**  
– The most recent edition of Title 24, Part 2, California Code of Regulations.

**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.

**CENTER OF GLASS U-FACTOR:** is the U-factor for the glass portion only of vertical or horizontal fenestration and is measured at least two and one half inches from the frame. Center of glass U-factor does not consider the U-factor of the frame. Center of glass U-factor is not used

**CERTIFICATE OF COMPLIANCE (CF-1R)** is a document with information required by the Commission that is prepared by the Documentation Author that indicates whether the building includes measures that require field verification and diagnostic testing.

**CERTIFICATE OF FIELD VERIFICATION AND DIAGNOSTIC TESTING (CF-4R)** is a document with information required by the Commission that is prepared by the HERS Rater to certify that measures requiring field verification and diagnostic testing comply with the requirements.

**CHIMNEY** is a vertical shaft enclosing one or more flues for conveying flue gases to the outside atmosphere.

**FACTORY-BUILT CHIMNEY** is a listed chimney.

**MASONRY CHIMNEY** is a chimney of solid masonry units, bricks, stones, listed masonry units or reinforced concrete, lined with suitable flue liners.

**METAL CHIMNEY** is a chimney constructed of metal with a minimum thickness not less than 0.127 inch (3.23 mm) (No. 10 manufacturer's standard gage) steel sheet.

#### **CHIMNEY CLASSIFICATIONS:**

**CHIMNEY, RESIDENTIAL APPLIANCE-TYPE** is a factory-built or masonry chimney suitable for removing products of combustion from residential-type appliances producing combustion gases not in excess of 1000°F (538°C), measured at the appliance flue outlet. Factory-built Type HT chimneys have high-temperature thermal shock resistance.

**CHIMNEY, LOW-HEAT APPLIANCE-TYPE** is a factory-built, masonry or metal chimney suitable for removing the products of combustion from fuel-burning low-heat appliances producing combustion gases not in excess of 1000°F (538°C) under normal operating conditions, but capable of producing combustion gases of 1,400°F (760°C) during intermittent forced firing for periods up to one hour. All temperatures are measured at the appliance flue outlet.

**CHIMNEY, MEDIUM-HEAT APPLIANCE-TYPE** is a factory-built, masonry or metal chimney suitable for removing the products of combustion from fuel-burning medium-heat appliances producing combustion gases not in excess of 2000°F (1093°C), measured at the appliance flue outlet.

**CHIMNEY, HIGH-HEAT APPLIANCE-TYPE** is a factory-built, masonry or metal chimney suitable for removing the products of combustion from fuel-burning high-heat appliances producing combustion gases in excess of 2000°F (1093°C), measured at the appliance flue outlet.

**CHIMNEY CONNECTOR** is the pipe which connects a fuel-burning appliance to a chimney.

**CLEAR WATER WASTE** – Cooling water and condensate drainage from refrigeration and air-conditioning equipment; cooled condensate from steam heating systems; cooled boiler blowdown water.

**CLIMATE CONTROL SYSTEM** See Space Conditioning System.

**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

**CLINIC SINK** – A sink designed primarily to receive wastes from bedpans and having a flush rim, an integral trap with a visible trap seal, and the same flushing and cleansing characteristics as a water closet.

**CLOSED COMBUSTION SOLID FUEL-BURNING APPLIANCE** is a heat-producing appliance that employs a combustion chamber that has no openings other than the flue collar, fuel charging door and adjustable openings provided to control the amount of combustion air that enters the combustion chamber.

**CLTD** is the Cooling Load Temperature Difference

**CMC** is the 2001 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.

**COMBINATION SPACE-HEATING AND WATER-HEATING APPLIANCE** is an appliance that is designed to provide both space heating and water heating from a single primary energy source.

**COMBINATION THERMOSTATIC/PRESSURE BALANCING VALVE** – A mixing valve which senses outlet temperature and incoming hot and cold water pressure and compensates for fluctuations in incoming hot and cold water temperatures and/or pressures to stabilize outlet temperatures.

**COMBINATION WASTE AND VENT SYSTEM** – A specially designed system of waste piping embodying the horizontal wet venting of one or more sinks or floor drains by means of a common waste and vent pipe, adequately sized to provide free movement of air above the flow line of the drain.

**COMBINED BUILDING SEWER** – See Building Sewer, (Combined).

**COMMISSARIES SERVING MOBILE FOOD PREPARATION UNITS [FOR DHS]** – A food establishment in which food, containers, equipment or supplies are stored or handled for use in vehicles, mobile food preparation units, food carts or vending machines.

**COMBINED HYDRONIC SPACE/WATER HEATING SYSTEM** is a system which both domestic hot water and space heating

is supplied from the same water heating equipment. Combined hydronic space heating may include both radiant floor systems and convective or fan coil systems.

**COMBUSTION AIR** is the total amount of air provided to the space which contains fuel-burning equipment. Includes air for fuel combustion, draft hood dilution and ventilation of the equipment enclosure.

**COMPLIANCE APPROACH** is any one of the allowable methods by which the design and construction of a building may be demonstrated to be in compliance with Part 6. The compliance approaches are the performance compliance approach and the prescriptive compliance approach. The requirements for each compliance approach are set forth in Section 100 (d) 2 of Part 6.

**COMPRESSOR, POSITIVE DISPLACEMENT** is a compressor in which increase in pressure is attained by changing the internal volume of the compression chamber.

**COMPRESSOR REFRIGERANT** is a machine, with or without accessories, for compressing a refrigerant vapor.

**CONDENSER** is the part of the system designed to liquefy refrigerant vapor by removal of heat.

**CONDENSING APPLIANCE** is an appliance which condenses part of the water vapor generated by the burning of hydrogen in fuels.

**CONDENSING UNIT** is a mechanical refrigeration system, consisting of one or more power-driven compressors, condensers, liquid receivers if provided, and the regularly furnished accessories which have been factory assembled and tested prior to its installation.

**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 FOOTPRINT** is a projection of all conditioned space on all floors to a vertical

plane. The conditioned footprint area may be equal to the first floor area, or it may be greater, if upper floors project over lower floors. One way to think of the conditioned footprint area is as the area of the largest conditioned floor in the building plus the conditioned floor area of any projections from other stories that extend beyond the outline of that largest floor.

**CONDITIONED SPACE** is an area, room or space normally occupied and being heated or cooled for human habitation by any equipment.

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

**CONFINED SPACE** is a room or space having a volume less than fifty (50) cubic feet (1.42 m<sup>3</sup>) per 1000 Btu/h (293 W) of the aggregate input rating of all fuel-burning appliances installed in that space.

**CONTAMINATION** – An impairment of the quality of the potable water which creates an actual hazard to the public health through poisoning or through the spread of disease by sewage, industrial fluids or waste. Also defined as High Hazard.

**CONTINUOUS DIMMING** 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.

**CONTINUOUS VENT** – A vertical vent that is a continuation of the drain to which it connects

**CONTINUOUS WASTE** – A drain connecting the compartments of a set of fixtures to a trap or connecting other permitted fixtures to a common trap.

**CONTROLLED VENTILATION CRAWL SPACE (CVC)** is a crawl space in a residential building where the side walls of the crawlspace are insulated rather than the floor above the crawlspace. A CVC has automatically controlled crawl space vents. Credit for a CVC is permitted for low-rise residential buildings that use the performance approach to compliance.

**COOL ROOF** is a roofing material with high thermal emittance and high solar reflectance, or lower thermal emittance and exceptionally high

solar reflectance as specified in Section 118 (i), that reduces heat gain through the roof.

**COOL ROOF RATING COUNCIL (CRRC)** is a not-for-profit organization designated by the Commission as the Supervisory Entity with responsibility to rate and label the reflectance and emittance of roof products.

**COOLING** is air cooling to provide a room or space temperature of 68°F (20°C) or above.

**COOLING LOAD** is the rate at which heat must be extracted from a space to maintain a desired room condition.

**COOLING LOAD TEMPERATURE DIFFERENCE (CLTD)** is an equivalent temperature difference used for calculating the instantaneous external cooling loads across a wall or roof. The cooling load is the CLTD x U-factor x Area.

**COOLING SYSTEM** is all of that equipment, including associated refrigeration, intended or installed for the purpose of cooling air by mechanical means and discharging such air into any room or space. This definition shall not include any evaporative cooler.

**COOLING UNIT** is a self-contained refrigeration system which has been factory assembled and tested, installed with or without conditioned air ducts and without connecting any refrigerant-containing parts. This definition shall not include a portable cooling unit or an absorption unit.

**COP** See Coefficient of Performance

**COVERED MULTIFAMILY DWELLING** – [For HCD 1/AC] See Section 101.11 (under “HCD 1/AC”) of this code.

**CRITICAL LEVEL** – The critical level (C-L or C/L) marking on a backflow prevention device or vacuum breaker is a point conforming to approved standards and established by the testing laboratory (usually stamped on the device by the manufacturer) which determines the minimum elevation above the flood level rim of the fixture or receptor served at which the device may be installed. When a backflow prevention device does not bear a critical level marking, the bottom of the vacuum breaker, combination valve, or the bottom of any such

approved device shall constitute the critical level.

**CROSS - CONNECTION** – Any connection or arrangement, physical or otherwise, between a potable water supply system and any plumbing fixture or any tank, receptor, equipment or device, through which it may be possible for non-potable, used, unclean, polluted and contaminated water, or other substances, to enter into any part of such potable water system under any condition.

**CRRC** See Cool Roof Rating Council.

**CTI** is the Cooling Tower Institute.

**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.2 x °F). It is not the same as K-value or K-factor.

**DAMPERS** shall be defined as follows:

**Fire Damper** is an automatic-closing metal assembly of one or more louvers, blades, slats or vanes complying with recognized standards.

**Smoke Damper** is a damper arranged to seal off air flow automatically through a part of an air duct system so as to restrict the passage of smoke. **Volume Damper** is any device which when installed will restrict, retard or direct the flow of air in any duct, or the products of combustion in any heat-producing equipment, its vent connector, vent or chimney therefrom.

**DAYLIT AREA** is the floor area that is illuminated by daylight through vertical glazing or skylights as specified in Section 131(c).

**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.

**DEMISING PARTITIONS** are barriers that separate conditioned space from enclosed unconditioned space.

**DEMISING WALL** is a wall that is a demising partition.

**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, highrise 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.

**DEVELOPED LENGTH** – The length along the center line of a pipe and fittings

**DIRECT GAS-FIRED MAKEUP AIR HEATER** is a heater in which all the products of combustion generated by the gas-burning device are released into the outside airstream being heated.

**DIRECT VENT APPLIANCE** is an appliance which is constructed and installed so that all air for combustion is derived from the outside atmosphere and all flue gases are discharged to the outside atmosphere.

**DIRECTLY CONDITIONED SPACE** 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 and 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 unless the space-conditioning system is 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.

**DISTRICT HEATING PLANT** is a power boiler plant designed to distribute hot water or steam to users located off the premises.

**DOMESTIC SEWAGE** – The liquid and water-borne wastes derived from the ordinary living processes, free from industrial wastes, and of such character as to permit satisfactory disposal, without special treatment, into the public sewer or by means of a private sewage disposal system.

**DOWNSPOUT** – The rain leader from the roof to the building storm drain, combined building sewer, or other means of disposal located outside of the building. See Conductor and Leader.

**DRAFT HOOD** is a device built into an appliance or made a part of the vent connector from an appliance, which is designed to:

1. Assure the ready escape of the flue gases in the event of no draft, back draft or stoppage beyond the draft hood.
2. Prevent a back draft from entering the appliance.
3. Neutralize the effect of stack action of the chimney or gas vent upon the operation of the appliance.

**DRAIN** – Any pipe which carries waste or water-borne wastes in a building drainage system.

**DRAINAGE SYSTEM** – Includes all the piping within public or private premises, which conveys sewage or other liquid wastes to a legal point of disposal, but does not include the mains of a public sewer system or a public sewage treatment or disposal plant.

**DUCT** is any tube or conduit for transmission of air. This definition shall not include:

1. A vent, a vent connector or a chimney connector.
2. Any tube or conduit wherein the pressure of the air exceeds one (1) pound per square inch.
3. The air passages of listed self-contained systems.

**DUCT FURNACE** is a warm air furnace normally installed in an air-distribution duct to supply warm air for heating. This definition shall apply only to a Warm air heating appliance which depends for air circulation on a blower not furnished as part of the furnace.



**DUCT LOSSES** is heat transfer into or out of a space conditioning system duct through conduction or leakage.

**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 Residential and Nonresidential ACM Approval Manuals.

**DUCT SYSTEM** includes all ducts, duct fittings, plenums and fans assembled to form a continuous passageway for the distribution of air.

**DWELLING UNIT** [Not adopted by HCD] is a building or portion thereof which contains living facilities, including provisions for sleeping, eating, cooking and sanitation, as required by this code, for not more than one family.

**ECONOMIZER, AIR** is a ducting arrangement and 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.

**EER** See Energy Efficiency Ratio.

**EFFECTIVE APERTURE (EA)** is the extent that vertical glazing or skylights are effective for providing daylighting. The effective aperture for vertical glazing is specified in Exception 1 to Section 131(c). The effective aperture for skylights is specified in Section 146 (a) 4 F.

**EFFECTIVE OPENING** – The minimum cross-sectional area at the point of water supply discharge measured or expressed in terms of:  
(1) diameter of a circle, or  
(2) if the opening is not circular, or the diameter of a circle of equivalent cross-sectional area.  
(This is applicable also to airgap.)

**EFFICACY, LAMP** is the quotient of rated initial lamp lumens divided by the rated lamp power (watts), without including auxiliaries such as ballasts, measured at 25°C according to IESNA and ANSI Standards.

**EFFICACY, LIGHTING SYSTEM** is the quotient of rated initial lamp lumens measured at 25°C according to IESNA and ANSI Standards, times the ballast factor, divided by the input power (watts) to the ballast or other auxiliary device (e.g. transformer); expressed in lumens per watt.

**ELECTRIC HEATING APPLIANCE** is a device which produces heat energy to create a warm environment by the application of electric power to resistance elements, refrigerant compressors or dissimilar material junctions.

**ELECTRICAL CODE** [Not adopted by HCD] is the National Electrical Code promulgated by the National Fire Protection Association, as adopted by this jurisdiction. Exception: [For HCD 1 & HCD 2] Whenever the term “Electrical Code” is used in this code, it shall mean the California Electrical Code, Title 24, Part 3.

**ELECTRIC RESISTANCE HEATING** is a heating system that converts electric energy directly into heat energy by passing a current through an electric resistance. Electric resistance heat is inherently less efficient than gas as a heating energy source because it must account for losses associated with generation from depletable fossil fuels and transmission to the building site.

**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.

**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. ACM Joint Appendix I - Glossary  
2005 Joint Appendices Page I-14

**ENERGY EFFICIENCY RATIO (EER)** is the ratio of net cooling capacity (in Btu/hr.) to total rate of electrical energy (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)** is the ratio of energy output to energy consumption of a water heater, expressed in equivalent units, under designated operating conditions over a 24-hour use cycle, as determined using the applicable test method in the Appliance Efficiency Regulations.

**ENFORCING AGENCY** [FOR HCD 1 & 2, SFM, DSA/SS, OSHPD 1, 2, 3 & 4] is the designated department or agency as specified in statutes to enforce the specific building standards promulgated or adopted by the specified state agency.

**EVAPORATIVE COOLER** is a device used for reducing the sensible heat of air for cooling by the process of evaporation of water into an airstream .

**EVAPORATIVE COOLING SYSTEM** is all of that equipment intended or installed for the purpose of environmental cooling by an evaporative cooler from which the conditioned air is distributed through ducts or plenums to the conditioned area.

**EVAPORATOR** is that part of a refrigeration system in which liquid refrigerant is vaporized to produce refrigeration.

**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.

**EXPOSED THERMAL MASS** is mass that is directly exposed (uncovered) to the conditioned space of the building. Concrete floors that are covered by carpet are not considered exposed thermal mass.

**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 AREA** is the area of fenestration products (i.e., windows, skylights and glass doors) in exterior openings, including the sash or frame area. The nominal area (from nominal dimensions such as 4040) or rough opening is also acceptable. Where the term "glazing area" is used in the standards it is the entire fenestration area, not just the area of glazing, unless stated otherwise. See Fenestration Product, Glazing Area and Shading.

**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 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.

ACM Joint Appendix I - Glossary  
2005 Joint Appendices Page I-16

#### **FIELD-FABRICATED FENESTRATION PRODUCT OR EXTERIOR DOOR**

is a fenestration product or 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 sitebuilt fenestration with a label certificate or products required to have temporary or permanent labels.

**FIRE CODE** [Not adopted by HCD] is the fire code adopted by this jurisdiction.

**FIREPLACE STOVE** is a chimney- connected, solid-fuel-burning stove (appliance) having part of its fire chamber open to the room.

**FIRE-RESISTIVE CONSTRUCTION** is construction complying with the requirements of the Building Code for the time period specified.

**FIXTURE BRANCH** – A water supply pipe between the fixture supply pipe and the water distributing pipe.

**FIXTURE DRAIN** – The drain from the trap of a fixture to the junction of that drain with any other drain pipe.

**FIXTURE SUPPLY** – A water supply pipe connecting the fixture with the fixture branch.

**FIXTURE UNIT** – A quantity in terms of which the load-producing effects on the plumbing system of different kinds of plumbing fixtures are expressed on some arbitrarily chosen scale.

**FLOOD LEVEL** – See Flooded.

**FLOOD LEVEL RIM** – The top edge of a receptor from which water overflows.

**FLOOR FURNACE** is a completely self-contained furnace suspended from the floor of the space being heated, taking air for combustion from outside such space and with means for observing flames and lighting the appliance from such space.

**FLUSH TANK** – A tank located above or integral with water closets, urinals, or similar fixtures for the purpose of flushing the usable portion of the fixture.

**FLUSH VALVE** – A valve located at the bottom of a tank for the purpose of flushing water closets and similar fixtures.

**FLUSHOMETER TANK** – A tank integrated within an air accumulator vessel which is designed to discharge a predetermined quantity of water to fixtures for flushing purposes.

**FLUSHOMETER VALVE** – A valve which discharges a predetermined quantity of water to fixtures for flushing purposes and is actuated by direct water pressure.

**FLUX** is the rate of the energy flow per unit area.

**FOOD ESTABLISHMENT** [FOR DHS] – Any room, building, place or portion thereof, maintained, used or operated for the purpose of storing, preparing, serving, packaging, transporting, salvaging or otherwise handling food at the retail level.

**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.

**FORCED AIR-TYPE CENTRAL FURNACE** is a central furnace equipped with a fan or blower which provides the primary means for circulation of air.

**HORIZONTAL-TYPE CENTRAL FURNACE** is a furnace designed for low headroom installations with airflow through the appliance in a horizontal path.

**U P F L O W-TYPE CENTRAL FURNACE** is a furnace designed with air flow essentially in a vertical path, discharging air at or near the top of the furnace.

**D O W N F L O W-TYPE CENTRAL FURNACE** is a furnace designed with air flow essentially in a vertical path, discharging air at or near the bottom of the furnace.

**ENCLOSED FURNACE** is a specific heating or heating and ventilating furnace incorporating an integral total enclosure and using only outside air for combustion.

**FRACTIONATION** is a change in composition of a blend by preferential evaporation of the more volatile component or condensation of the less volatile component.

**FUSIBLE PLUG** is a device arranged to relieve pressure by operation of a fusible member at a predetermined temperature.

**GAP WIDTH** is the distance between glazings in multi-glazed systems. This is typically measured

from inside surface to inside surface, though some manufacturers may report “overall” IG width, which is measured from outside surface to outside surface.

**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 INFILLS** are air, argon, krypton, CO<sub>2</sub>, SF<sub>6</sub>, or a mixture of these gasses between the panes of glass in insulated glass units.

**GEOHERMAL HEAT PUMP** See Ground Source Heat Pump.

**GLAZING** See Fenestration Product.

**GLAZING AREA** See Fenestration Area.

**GRAVITY HEATING SYSTEM** is any heating system consisting of a gravity-type warm air furnace, together with all air ducts or pipes and accessory apparatus installed in connection therewith.

**GRAVITY-TYPE WARM AIR FURNACE** is a warm air furnace depending primarily on circulation of air through the furnace by gravity. This definition also shall include any furnace approved with a booster-type fan which does not materially restrict free circulation of air through the furnace when the fan is not in operation.

**GREASE INTERCEPTOR** – An interceptor of at least 750 gallon (2839 L) capacity to serve one (1) or more fixtures and which shall be remotely located.

**GREASE TRAP** – A device designed to retain grease from one (1) to a maximum of four (4) fixtures.

**GREENHOUSE WINDOW** is a type of fenestration product which adds conditioned volume but no conditioned floor area to a building.

**GRILLES** See Dividers.

**GROUND SOURCE HEAT PUMP** is a heat pump that uses the earth as a source of energy for heating and a sink for energy when cooling. Some systems pump water from an aquifer in the ground and return the water to the ground after transferring heat from or to the water. A few systems use refrigerant directly in a loop of piping buried in the ground. Those heat pumps that use either a water loop or pump water from an aquifer have efficiency test methods that are accepted by the Energy Commission. These efficiency values are certified to the Energy Commission by the manufacturer and are expressed in terms of heating Coefficient of Performance (COP) and cooling Energy Efficiency Ratio (EER).

**HARD COAT** is a low emissivity metallic coating applied to the glass, which will be installed in a fenestration product, through a pyrolytic process (at or near the melting point of the glass so that it bonds with the surface layer of glass). Hard coatings are less susceptible to oxidation and scratching as compared to soft coats. Hard coatings generally do not have as low emissivity as soft coats.

**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 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.

**HEAT (ENERGY) RECOVERY VENTILATOR** is a device intended to remove air from buildings, replace it with outside air, and in the process transfer heat from the warmer to the colder airstreams.

**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 is sometimes referred to as radiant slab floors or radiant heating.

**HEATING DEGREE DAY** 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 (18°C), there exist as many degree days as there are Fahrenheit degrees difference in temperature between meantemperature for the day and 65°F (18°C).

**HEATING EQUIPMENT** includes all warm air furnaces, warm air heaters, combustion products vents, heating air-distribution ducts and fans, all steam and hot water piping, together with all control devices and accessories installed as part of, or in connection with, any environmental heating system or appliance regulated by this code.

**HEATING SEASONAL PERFORMANCE FACTOR (HSPF)**

is the total heating output of a central air-conditioning heat pump during its normal usage period for heating, divided by the total electrical energy input in watt-hours during the same period, as determined using the applicable test method the Appliance Efficiency Regulations. ACM Joint Appendix I - Glossary 2005 Joint Appendices Page I-19

**HEATING SYSTEM** is a warm air heating plant consisting of a heat exchanger enclosed in a casing, from which the heated air is distributed through ducts to various rooms and areas. A heating system includes the outside air, return air and supply air system and all accessory apparatus and equipment installed in connection therewith.

**HEATING, VENTILATING AND AIR CONDITIONING (HVAC) SYSTEM**

is the mechanical heating, ventilating and air conditioning system of the building, also known as the HVAC system. The standards use various measures of equipment efficiency defined according to the type of equipment installed. Gas (fossil fuel) heating equipment is rated by the Annual Fuel Utilization Efficiency (AFUE). The heating efficiency of electric heat pumps with less than 65,000 Btu/h cooling capacity is rated by the Heating Seasonal Performance Factor (HSPF). The heating efficiency of heat pumps with cooling capacity of 65,000 Btu/h or more is rated by the Coefficient of Performance (COP). Electric resistance heating is rated by HSPF or COP. All electric cooling equipment

(including heat pump cooling equipment) with less than 65,000 Btu/h output capacity is rated by the Seasonal Energy Efficiency Ratio (SEER) (equipment of this size may also be rated by the EER). Electric cooling equipment (including heat pump cooling equipment) with an output capacity of 65,000 Btu/h or more is rated by the Energy Efficiency Ratio (EER).

**HERS PROVIDER** see Home Energy Rating System Provider.

**HERS RATER** See Home Energy Rating System Rater.

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

**HOME ENERGY RATING SYSTEM**

**PROVIDER** is an organization that the Commission has approved to administer a home energy rating system program, certify raters and maintain quality control over field verification and diagnostic testing required for compliance with the Energy Efficiency Standards.

**HOME ENERGY RATING SYSTEM RATER** is a person certified by a Commission approved HERS Provider to perform the field verification and diagnostic testing required for demonstrating compliance with the Energy Efficiency Standards.

**HOOD** is an air intake device connected to a

mechanical exhaust system for collecting vapors, fumes, smoke, dust, steam, heat or odors from, at or near the equipment, place or area where generated, produced or released.

**HVAC SYSTEM** See HVAC, See Space Conditioning System.

**HYDRONIC COOLING SYSTEM** is any cooling system which uses water or a water solution as a source of cooling or heat rejection, including chilled water systems (both air and water-cooled) as well as water-cooled or evaporatively cooled direct expansion systems, such as water source (water-to-air) heat pumps.

**HYDRONIC SPACE HEATING SYSTEM** is a system that uses water-heating equipment, such as a storage tank water heater or a boiler, to provide space heating. Hydronic space heating systems include both radiant floor systems and convective or fan coil systems. See Combined Hydronic Space/Water Heating System

**INDIRECTLY CONDITIONED SPACE** 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.

**INDIRECT WASTE PIPE** – A pipe that does not connect directly with the drainage system but conveys liquid wastes by discharging into a plumbing fixture, interceptor, or receptacle which is directly connected to the drainage system.

**INDUSTRIAL HEATING EQUIPMENT** includes appliances, devices or equipment used, or intended to be used, in an industrial, manufacturing or commercial occupancy for applying heat to any material being processed, but shall not include water heaters, boilers, or portable equipment used by artisans in pursuit of a trade.

**INFILTRATION CONTROLS** are measures taken to control the infiltration of air. Mandatory Infiltration control measures include weatherstripping, caulking, and sealing in and around all exterior joints and openings.

**INSTALLATION CERTIFICATE (CF-6R)** is a document with information required by the Commission that is prepared by the builder or installer verifying that the measure was installed to meet the requirements of the standards.

**INSULATING GLASS UNIT** is a self-contained unit, including the glazings, spacer(s), films (if any), gas infills, and edge caulking, that is installed in fenestration products. It does not include the frame.

**INSULATION** Insulation is a material that limits heat transfer. Insulating material of the types and forms listed in Section 118(a) of the Standards, may be installed only if the manufacturer has certified that the insulation complies with the Standards for Insulating Material, Title 24, Part 12, Chapter 12-13 of the California Code of Regulations. Insulation must be placed within or contiguous with a wall, ceiling or floor, or over the surface of any appliance or its intake or outtake mechanism for the purpose of reducing heat transfer or reducing adverse temperature fluctuations of the building, room or appliance. Insulation may be installed in wall, ceiling/roof and raised floor assemblies and at the edge of a slab-on-grade. Movable insulation is designed to cover windows and other glazed openings part of the time to reduce heat loss and heat gain.

**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. ACM Joint Appendix I – Glossary 2005 Joint Appendices Page I-22

**ISOLATION DEVICE** is a device that prevents the conditioning of a zone or group of zones in a building while other zones of the building are being conditioned.

**INVERT** – The lowest portion of the inside of a horizontal pipe.

**LAVATORY** [For HCD 1, HCD 2 & DSA/AC] – A plumbing fixture used for washing the hands, arms, face and head.

**LAVATORIES IN SETS** – Two (2) or three (3) lavatories that are served by one (1) trap.

**LEADER** – An exterior vertical drainage pipe for conveying storm water from roof or gutter drains. See Downspout.

**LIQUID LINE** is the refrigerant line that leads from the condenser to the evaporator in a split system air conditioner or heat pump. The refrigerant in this line is in a liquid state and is at an elevated temperature. This line should not be insulated.

**LOW-E COATING** is a low emissivity metallic coating applied to glazing in fenestration products.  
See Soft Coat and Hard Coat.

**LIQUID LINE** is the refrigerant line that leads from the condenser to the evaporator in a split system air conditioner or heat pump. The refrigerant in this line is in a liquid state and is at an elevated temperature. This line should not be insulated.

**LOW-E COATING** is a low emissivity metallic coating applied to glazing in fenestration products.  
See Soft Coat and Hard Coat.

**LOW PRESSURE HOT WATER-HEATING BOILER** is a boiler furnishing hot water at pressures not exceeding 160 pounds per square inch (1102.4 kPa) and at temperatures not exceeding 250°F (121°C).

**LOW PRESSURE STEAM-HEATING BOILER** is a boiler furnishing steam at pressures not exceeding fifteen (15) pounds per square inch (103.4 kPa).

**LOW-RISE RESIDENTIAL BUILDING** is a building, other than a hotel/motel that is of Occupancy Group R, Division 1, and is three stories or less, or that is of Occupancy Group R, Division 3.

**LOW SIDE** refers to the parts of a refrigeration system subjected to approximate evaporator pressure.

**LOW-SLOPED ROOF** is a roof that has a ratio of rise to run of 2:12 or less.  
LPG is Liquefied Petroleum Gas. Propane is one type of LPG.

**LUMENS/WATT** is the amount of light available from a given light source (lumens) divided by the power requirement for that light source (watts). The more usable light that a light source provides per watt, the greater its efficacy.  
See Efficacy.

**LUMINAIRE** is a complete lighting unit consisting of a lamp and the parts

designed to distribute the light, to position and protect the lamp, and to connect the lamp to the power supply; commonly referred to as "lighting fixtures" or "instruments."

**MACERATING TOILET SYSTEM** – A system comprised of a sump with macerating pump and with connections for a water closet and other plumbing fixtures, which is designed to accept, grind and pump wastes to an approved point of discharge.

**MAIN** – The principal artery of any system of continuous piping to which branches may be connected.

**MAIN SEWER** – See Public Sewer.

**MAIN VENT** – The principal artery of the venting system to which vent branches may be connected.

**MANDATORY MEASURES CHECKLIST (MF-1R)** is a form used by the building plan checker and field inspector to verify compliance of the building with the prescribed list of mandatory features, equipment efficiencies and product certification requirements. The documentation author indicates compliance by initialing, checking, or marking N/A (for features not applicable) in the boxes or spaces provided for the designer.

**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.

**MOBILE HOME PARK SEWER** – That part of the horizontal piping of a drainage system which begins two (2) feet (610 mm) downstream from the last mobile home site and conveys it to a

public sewer, private sewer, private sewage disposal system, or other point of disposal

**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, or occupant sensing device.

**MULLION** is a vertical framing member separating adjoining window or door sections. See Dividers

**MULTI-FAMILY DWELLING UNIT** is a dwelling unit of occupancy type R, as defined by the CBC, sharing a common wall and/or ceiling/floor with at least one other dwelling unit.

ACM Joint Appendix I - Glossary  
2005 Joint Appendices Page I-25

**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 DIMMING SYSTEM** is a lighting control device that has the capability of setting light levels throughout a continuous range, and that has preestablished settings within the range. NFRC is the National Fenestration Rating Council. This is a national organization of fenestration product manufacturers, glazing manufacturers, manufacturers of related materials, utilities, state energy offices, laboratories, home builders, specifiers (architects), and public interest groups. This organization is designated by the Commission as the Supervisory Entity, which is responsible for rating the U-factors and solar heat gain coefficients of manufactured fenestration products (i.e., windows, skylights, glazed doors) that must be used in compliance calculations.

See also Fenestration Area and Fenestration Product.

**NONCARRIAGE TOILET FACILITY** [For DSA/SS] – A toilet facility not connected to a sewer.

**NONRESIDENTIAL BUILDING** is any building which is a Group A, B, E, F, H, M, or S

Occupancy

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

**NONRESIDENTIAL 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.

**OCCUPANCY TYPE** is one of the following:

**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.

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

**Classroom, lecture, or training** 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** are assembly rooms, areas, or buildings 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.

ACM Joint Appendix I - Glossary  
2005 Joint Appendices Page I-27

**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** room is a room in which the building's electrical switchbox or control



panels, 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 transaction** 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

**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.

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

**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.

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

**Lobby, 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 room, area, or building that 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 works of artistic, historical, or scientific value are cared for and exhibited.

**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, often with walls on one or more sides. Parking garages may have fences or rails 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.

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

**Religious worship** is a room, area, or building for 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 predominately classrooms and that is used by an organization that provides instruction to students.

**Senior housing** is housing other than Occupancy Group I that is specifically for habitation by seniors, including but not limited to independent living quarters, and assisted living quarters. Commons areas may include dining, reading, study, library or other community spaces and/or medical treatment or hospice facilities.

**Stairs, active/inactive**, is a series of steps providing passage from one level of a building to another.

**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.

**Theater, 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 marine terminal.

**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.

## OCCUPANCY CLASSIFICATION

**Group A Occupancies** Group A Occupancies include the use of a building or structure, or a portion thereof, for the gathering together of fifty (50) or more persons for purposes such as civic, social or religious functions, recreation, education or instruction, food or drink consumption, or awaiting transportation. A room or space used for assembly purposes by less than fifty (50) persons and accessory to another occupancy shall be included as a part of that major occupancy. Assembly occupancies shall include the following:

**Division 1** . A building or portion of a building having an assembly room with an occupant load of 1,000 or more and a legitimate stage.

**Division 2** . A building or portion of a building having an assembly room with an occupant load of less than 1,000 and a legitimate stage.

**Division 2.1**. A building or portion of a building having an assembly room with an occupant load of 300 or more without a legitimate stage, including such buildings used for educational

purposes and not classed as a Group B or E Occupancy.

**Division 3** . A building or portion of a building having an assembly room with an occupant load of less than 300 without a legitimate stage, including such buildings used for educational purposes and not classed as a Group B or E Occupancy.

**Division 4**. Stadiums, reviewing stands and amusement park structures not included within other Group A Occupancies. Specific and general requirements for grandstands, bleachers and reviewing stands are in the Building Code .

**Exception** : Amusement buildings, or portions thereof, which are without walls or a roof and constructed to prevent the accumulation of smoke in assembly areas.

**Group B Occupancies** Group B Occupancies shall include buildings, structures, or portions thereof, for office, professional or service-type transactions, which are not classified as Group H Occupancies. Such occupancies include occupancies for the storage of records and accounts and eating and drinking establishments with an occupant load of less than fifty (50).

### **Group C Occupancies: [For SFM] 1.**

Organized Camp is a site with program and facilities for the primary purposes of providing an outdoor group living experience with social, spiritual, educational or recreational objectives for five days or more during one or more seasons per year. (see Section 18897 of the Health and Safety Code.)

### **Group E Occupancies**

**Division 1**. Any building used for educational purposes through the 12<sup>th</sup> grade by fifty (50) or more persons for more than twelve (12) hours per week or four hours in any one day.

**Division 2**. Any building used for educational purposes through the 12<sup>th</sup> grade by less than fifty (50) persons for more than twelve (12) hours per week or four hours in any one day.

**Division 3**. Any building or portion thereof used for day-care purposes for more than six persons.

**Group F Occupancies** Group F Occupancies shall include the use of a building or structure, or a portion thereof, for assembling, disassembling, fabricating, finishing, manufacturing, packaging, repair or processing operations that are not classified as Group H Occupancies.

**Division 1.** Moderate-hazard factory and industrial occupancies shall include factory and industrial uses which are not classified as Group F, Division 2 Occupancies.

**Division 2.** Low-hazard factory and industrial occupancies shall include facilities producing noncombustible or non-explosive materials which, during finishing, packing or processing, do not involve a significant fire hazard.

**Group H Occupancies** Group H Occupancies shall include buildings or structures, or portions thereof, that involve the manufacturing, processing, generation or storage of materials that constitute a high fire, explosion or health hazard. For definitions, identification and control of hazardous materials and pesticides, and the display of nonflammable solid and nonflammable or noncombustible liquid hazardous materials in Group B, F, M or S Occupancies, see the Fire Code.

**Division 1.** Occupancies with a quantity of material in the building in excess of those listed in the Building Code, which present a high explosion hazard.

**Division 2.** Occupancies where combustible dust is manufactured, used or generated in such a manner that concentrations and conditions create a fire or explosion potential.

Occupancies with a quantity of material in the building in excess of those listed in the Building Code, which present a moderate explosion hazard or a hazard from accelerated burning.

**Division 3.** Occupancies where flammable solids, other than combustible dust, are manufactured, used or generated.

**Division 4.** Repair garages not classified as Group S, Division 3 Occupancies.

**Division 5.** Aircraft repair hangars and heliports not classified as Group S, Division 5 Occupancies.

**Division 6 .** Semiconductor fabrication facilities and comparable research and development areas in which hazardous production materials (HPM) are used and the aggregate quantity of materials is in excess of those listed in the Building Code.

**Division 7.** Occupancies having quantities of materials in excess of those listed in the Building Code, which are health hazards.

**Division 8.** Laboratories and similar areas used for scientific experimentation or research having quantities of materials not in excess of those listed in Tables 3-D.1 and 3- E, California Building Code, and not otherwise classified as Group B, Division 2 Occupancies. Such

laboratories may be classified as Group B, Division 2

Occupancies when the quantities of materials are not in excess of those listed in Tables 3-D and 3-E, California Building Code. Laboratories having quantities of materials in excess of those listed in Table 3-E, California Building Code, and which are located below the fourth story may be classified as a Group H, Division 7 Occupancy .

### **Group I Occupancies**

**Division 1.1.** Nurseries for the full-time care of children under the age of six (each accommodating more than five children) **[For SFM six children]**. Hospitals, sanitariums, nursing homes **[For SFM, OSHPD 1, 2 & 3]** and homes for the aged with non-ambulatory patients, protective social-care facilities or homes with nonambulatory guests, and similar buildings (each accommodating more than five patients or six patients, as required by the office of the State Fire Marshal).

**Division 1.2.** Health care centers for ambulatory patients receiving outpatient medical care which may render the patient incapable of unassisted self-preservation (each tenant space accommodating more than five such patients).

**Division 2.** Nursing homes for ambulatory patients **[for SFM]** where medical care is provided, homes for ambulatory children six years of age or over where medical care is provided, or homes with ambulatory guests where medical care is provided, and similar buildings and honor farms and conservation camps housing inmates who are not restrained (each accommodating more than five patients or children **[for SFM]** six patients or children).

**Division 3.** Mental hospitals, mental sanitariums, jails, prisons, reformatories and buildings where personal liberties of inmates are similarly restrained.

**Group M Occupancies** Group M Occupancies shall include buildings, structures, or portions thereof, used for the display and sale of merchandise, and involving stocks of goods, wares or merchandise, incidental to such purposes and accessible to the public.

### **Group R Occupancies**

**Division 1.** Hotels and apartment houses. Congregate residences (each accommodating more than ten (10) persons).

**Division 2.** Not used.

**Division 2.1. [For SFM]** Residentially - based, licensed facilities accommodating more than six nonambulatory clients. This division may include ambulatory clients. Licensing categories that may use this classification include, but are not limited to: Adult Residential Facilities, Congregate Living Health Facilities, Residential Care Facilities for the Elderly, Group Homes and Residential Care Facilities for the Chronically III.

**Division 2.1.1. [For SFM]** Residentially - based, licensed facilities accommodating six or less nonambulatory clients. This division may include ambulatory clients. Licensing categories that may use this classification include, but are not limited to: Adult Residential Facilities, Congregate Living Health Facilities, Foster Family Homes, Intermediate Care Facilities for the Developmentally Disabled Habilitative, Intermediate Care Facilities for the Developmentally Disabled Nursing, nurseries for the full-time care of children under the age of six, but not including "infants" as defined in Section 210; Residential Care Facilities for the Elderly, Small Family Homes and Residential Care Facilities for the Chronically III.

**Division 2.2. [For SFM]** Residentially - based, licensed facilities accommodating more than six ambulatory clients. This division may include nonambulatory clients and shall not exceed six nonambulatory clients. Licensing categories that may use this classification include, but are limited to: Adult Residential Facilities, Residential Care Facilities for the Elderly, Group Homes, Community Treatment Facilities and Social Rehabilitation Facilities.

**Division 2.2.1. [For SFM]** Residentially -based, licensed facilities accommodating six or less ambulatory clients. This division may include a maximum of two nonambulatory clients. Licensing categories that may use this classification include, but are not limited to: Adult Residential Facilities, Intermediate Care Facilities for the Developmentally Disabled Habilitative, Intermediate Care Facilities for the Developmentally Disabled Nursing, Nursing Homes, Residential Care Facilities for the Elderly, Foster Family Homes, Group Homes, Small Family Homes, Community Treatment Facilities and Social Rehabilitation Facilities.

**Division 2.3. [For SFM]** Residentially - based, licensed facilities providing hospice care throughout accommodating more than six bedridden clients. Licensing categories that may use this classification are limited to: Congregate Living Health Facilities for the Terminally III and Residential Care Facilities for the Chronically

III.

**Division 2.3.1. [For SFM]** Residentially - based facilities providing hospice care throughout accommodating six or less bedridden clients.

Licensing categories that may use this classification are limited to: Congregate Living Health Facilities for the Terminally III and Residential Care Facilities for the Chronically III.

**Division 3 DWELLINGS [F or SFM]** Dwellings used for large family day-care homes (as defined in Chapter 2, Section 205) and lodging houses. Licensing categories that may use this classification include, but are not limited to: Adult Daycare Facilities, Family Day-care Homes, Adult Day-support Center, Day-care Center for Mildly III Children, Infant Care Center and School Age Child Day-care Center. Congregate residences (each accommodating ten (10) persons or less).

**Division 6 OCCUPANCIES** shall be residential group care facilities which provide care and/or supervisory services. Restraint shall not be practiced in these facilities. Such residential group care facilities are limited to halfway houses such as community correctional centers, community correction reentry centers, community treatment programs, work furlough programs, and alcoholism or drug abuse recovery or treatment facilities.

**Division 6.1 OCCUPANCIES** are those Division 6 Occupancies with more than six nonambulatory residents.

**Division 6.2 OCCUPANCIES** are those Division 6 Occupancies with more than six ambulatory residents

**Division 6.1.1 OCCUPANCIES** are those Division 6 Occupancies with six or less nonambulatory residents.

**Division 6.2.1 OCCUPANCIES** are those Division 6 Occupancies with six or less ambulatory residents.

**Group S Occupancies** Group S Occupancies shall include the use of a building or structure, or a portion thereof, for storage not classified as a hazardous occupancy.

**Division 1. Moderate-hazard storage** occupancies shall include buildings or portions of buildings used for storage of combustible materials that are not classified as Group S, Division 2 or Group H Occupancies.

**Division 2. Low-hazard storage** occupancies shall include buildings, structures, or portions thereof, used for storage of noncombustible materials such as products on wood pallets or in paper cartons with or without single-thickness

divisions, or in paper wrappings, and shall include ice plants, power plants and pumping plants.

**Division 3.** Division 3 Occupancies shall include repair garages where work is limited to exchange of parts and maintenance requiring no open flame or welding, motor vehicle fuel-dispensing stations, and parking garages not classed as Group S, Division 4 open parking garages or Group U private garages.

**Division 4.** Open parking garages.

**Division 5.** Aircraft hangars where work is limited to exchange of parts and maintenance requiring no open flame or welding, and helistops.

### **Group U Occupancies**

**Division 1.** Private garages, carports, sheds and agricultural buildings.

**Division 2.** Fences over six feet (1829 mm) high, tanks and towers

**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 interior lighting systems, but can be used interchangeably with occupancy sensor, occupant sensing device, and motion sensor.

**OIL INTERCEPTOR** – See Interceptor.

**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.

**ORNAMENTAL CHANDELIERS** are ceiling-mounted, close-to-ceiling, or suspended decorative luminaires that use glass, crystal, ornamental metals, or other decorative material and that typically are used in hotel/motels, restaurants, or churches as a significant element in the interior architecture.

**ORNAMENTAL LIGHTING** See Outdoor Lighting

**OUTDOOR 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 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.

**Hardscape** is an improvement to a site that is paved and 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 the ground or paving; mounted on the ground; 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. is a permanent lighting system consisting of one or more rows of many small lights attached to a canopy.

ACM Joint Appendix I - Glossary  
2005 Joint Appendices Page I-31

**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.

**Vehicle service station** is a gasoline or diesel dispensing station.

**OUTSIDE AIR** See Outdoor Air

**OVERALL HEAT GAIN** is the total heat gain through all portions of the building envelope calculated as specified in Section 143 (b) 2 for determining compliance with the Overall Envelope Approach.

**OVERALL HEAT LOSS** is the total heat loss through all portions of the building envelope calculated as specified in Section 143 (b) 1 for determining compliance with the Overall Envelope Approach.

**PACKAGED AIR CONDITIONER OR HEAT PUMP** is an air conditioner or heat pump that combines both the condenser and air handling capabilities in a single enclosure or package.

**PERSONAL SERVICE ROOM** [For DSA/SS] – A room which is not directly connected with the production or service function performed by the establishment. Such rooms may include, but are not limited to, first aid or medical rooms, toilet rooms, change rooms, wash rooms, shower rooms, kitchens and lunch rooms.

**PEX.** Cross-linked Polyethylene.

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

**PIPING** is the pipe or tube mains for interconnecting the various parts of a system. Piping includes pipe, tube, flanges, bolting, gaskets, valves, fittings, the pressure-containing parts of other components such as expansion joints, strainers and devices which serve such purposes as mixing, separating, snubbing, distributing, metering or controlling flow, pipe supporting fixtures and structural attachments.

**PLENUM** is an air compartment or chamber including uninhabited crawl spaces, areas above a ceiling or below a floor, including air spaces below raised floors of computer/data processing centers, or attic spaces, to which one or more ducts are connected and which forms part of either the supply air, return air or exhaust air system, other than the occupied space being conditioned.

**PLUMBING** – The business, trade, or work having to do with the installation, removal, alteration, or repair of plumbing systems or parts thereof.

**PLUMBING APPLIANCE** – Any one of a special class of device or equipment which is intended to perform a special plumbing function. Its operation and/or control may be dependent upon one or more energized components, such as motors, controls, heating elements, or pressure or temperature-sensing elements. Such device or equipment may operate automatically through one or more of the following actions: a time cycle, a temperature range, a pressure range, a measured volume or weight; or the device or equipment may be manually adjusted or controlled by the user or operator.

**PLUMBING APPURTENANCE** – A manufactured device, or a prefabricated assembly, or an on-the-job assembly of component parts, and which is an adjunct to the basic piping system and plumbing fixtures. An appurtenance demands no additional water supply, nor does it add any discharge load to a fixture or the drainage system. It performs some useful function in the operation, maintenance,

servicing, economy, or safety of the plumbing system.

**PLUMBING CODE** [Not adopted by HCD] is the Uniform Plumbing Code promulgated by the International Association of Plumbing and Mechanical Officials as adopted by this jurisdiction. **Exception:** [For HCD 1 & 2] Whenever the term "Plumbing Code" is used in this code, it shall mean the California Plumbing Code, Title 24, Part 6.

**PLUMBING FIXTURE** – An approved type installed receptacle, device, or appliance which is supplied with water or which receives liquid or liquid-borne wastes and discharges such wastes into the drainage system to which it may be directly or indirectly connected. Industrial or commercial tanks, vats, and similar processing equipment are not plumbing fixtures, but may be connected to or discharged into approved traps or plumbing fixtures when and as otherwise provided for elsewhere in this Code.

**PLUMBING SYSTEM** – Includes all potable water building supply and distribution pipes, all plumbing fixtures and traps, all drainage and vent pipe(s), and all building drains and building sewers, including their respective joints and connection, devices, receptors, and appurtenances within the property lines of the premises and shall include potable water piping, potable water treating or using equipment, medical gas and medical vacuum systems, fuel gas piping, water heaters and vents for same.

**POLLUTION** – An impairment of the quality of the potable water to a degree which does not create a hazard to the public health but which does adversely and unreasonably affect the aesthetic qualities of such potable waters for domestic use. Also defined as Low Hazard.

**PORTABLE COOLING UNIT** is a self-contained refrigerating system, not over three horsepower rating, which has been factory-assembled and tested, installed without supply air ducts and without connecting any refrigerant-containing parts. This definition shall not include an absorption unit.

**PORTABLE EVAPORATIVE COOLER** is an evaporative cooler which discharges the conditioned air directly into the conditioned area

without the use of ducts and can be readily transported from place to place without dismantling any portion thereof.

**PORTABLE HEATING APPLIANCE** is a heating appliance designed for environmental heating which may have a self-contained fuel supply and is not secured or attached to a building by any means other than by a factory-installed power supply cord.

**PORTABLE VENTILATING EQUIPMENT** is ventilating equipment that can be readily transported from place to place without dismantling a portion thereof and which is not connected to a duct.

**POSITIVE DISPLACEMENT COMPRESSOR** is a compressor in which increase in pressure is attained by changing the internal volume of the compression chamber.

**POTABLE WATER** – Water which is satisfactory for drinking, culinary, and domestic purposes and meets the requirements of the health authority having jurisdiction.

**POWER BOILER PLANT.** One or more power steam boilers or power hot water boilers and connecting piping and vessels within the same premises.

**P R E S S U R E** – The normal force exerted by a homogeneous liquid or gas, per unit of area, on the wall of the container.

(1) **Static Pressure** – The pressure existing without any flow.

(2) **Residual Pressure** – The pressure available at the fixture or water outlet after allowance is made for pressure drop due to friction loss, head, meter, and other losses in the system during maximum demand periods.

**PRESSURE BALANCING VALVE** – A mixing valve which senses incoming hot and cold water pressures and compensates for fluctuations in either, to stabilize outlet temperature.

**PRESSURE, DESIGN** is the maximum working pressure for which a specific part of a refrigeration system is designed.

**PRIVATE SEWAGE DISPOSAL SYSTEM** – A septic tank with the effluent discharging into a

subsurface disposal field, into one or more seepage pits or into a combination of subsurface disposal field and seepage pit or of such other facilities as may be permitted under the procedures set forth elsewhere in this Code.

**PRIVATE SEWER** – A building sewer which receives the discharge from more than one (1) building drain and conveys it to a public sewer, private sewage disposal system, or other point of disposal.

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

**PUBLIC SEWER** – A common sewer directly controlled by public authority.

**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, as specified by Section 151(f)2.

**RADIANT HEATER** is a heater designed to transfer heat primarily by direct radiation

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

**RECEPTOR** – An approved plumbing fixture or device of such material, shape, and capacity as to adequately receive the discharge from indirect waste pipes, so constructed and located as to be readily cleaned.

**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 mechanically 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.

**RECOVERY EFFICIENCY** is one measure of the efficiency of water heaters. It is required for water heating energy calculations for some types of water heaters. It is a measure of the

percentage of heat from combustion of gas or oil which is transferred to the water. For non-storage type water heaters, the recovery efficiency is really a thermal efficiency.

**REDUCED FLICKER OPERATION** is the operation of a light, in which the light has a visual flicker less than 30% for frequency and modulation.

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

**REFRIGERANT CHARGE** is to the amount of refrigerant that is installed or “charged” into an air conditioner or heat pump. The refrigerant is the working fluid. It is compressed and becomes a liquid as it enters the condenser. The hot liquid is cooled in the condenser and flows to the evaporator where it released through the expansion valve. When the pressure is released, the refrigerant expands into a gas and cools. Air is passed over the evaporator to provide the space cooling. When an air conditioner or heat pump has too much refrigerant (overcharged) the compressor may be damaged. When an air conditioner has too little refrigerant (undercharged), the efficiency of the unit is reduced. A thermostatic expansion valve (TXV) can mitigate the impact of improper refrigerant charge. heat primarily by direct radiation.

**REFRIGERATION MACHINERY ROOM** is a space that is designed to safely house compressors and pressure vessels.

**REFRIGERATION SYSTEM, ABSORPTION** is a heat-operated closed-refrigeration cycle in which a secondary fluid, the absorbent, absorbs a primary fluid, the refrigerant that has been vaporized in the evaporator.

**REFRIGERATION SYSTEM, MECHANICAL** is a combination of interconnected refrigerant containing parts constituting one closed refrigerant circuit in which a refrigerant is circulated for the purpose of extracting heat and in which a compressor is used for compressing the refrigerant vapor.

**REFRIGERATION SYSTEM, SELF CONTAINED** is a complete factory-assembled and tested system that is shipped in one or more sections and has no refrigerant-containing parts



that are joined in the field by other than companion or block valves.

**REFRIGERATION ROOM or SPACE** is a room or space in which an evaporator or brine coil is located for the purpose of reducing or controlling the temperature within the room or space to below 68°F (20°C).

**REGULATING EQUIPMENT** – Includes all valves and controls used in a plumbing system which are required to be accessible or readily accessible.

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

**RELIEF VENT** – A vent, the primary function of which is to provide circulation of air between drainage and vent systems or to act as an auxiliary vent on a specially designed system.

**RESIDENTIAL BUILDING** See High-Rise Residential Building and Low-Rise Residential Building.

**RESIDENTIAL 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.

**R I S E R** – A water supply pipe which extends vertically one (1) full story or more to convey water to branches or fixtures.

**RISER HEAT PIPE** is a duct which extends at an angle of more than forty-five (45) degrees (0.79 rad) from the horizontal. This definition shall not include any boot connection.

**ROOF DRAIN** – A drain installed to receive water collecting on the surface of a roof and to discharge it into a leader, downspout, or conductor.

**ROOM HEATER** is a freestanding, nonrecessed, environmental heating appliance installed in the space being heated and not connected to ducts.

**ROUGHING - IN** – The installation of all parts of the plumbing system which can be completed prior to the installation of fixtures. This includes drainage, water supply, gas piping, and vent piping and the necessary fixture supports.

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

**R-VALUE** is the measure of the thermal resistance of insulation or any material or building component expressed in ft<sup>2</sup>-hr °F/Btu. See Thermal Resistance

**SAND INTERCEPTOR** – See Interceptor.

**SEASONAL ENERGY EFFICIENCY RATIO (SEER)** is the total cooling output of a central 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.

**SEEPAGE PIT** – A lined excavation in the ground which receives the discharge of a septic tank so designed as to permit the effluent from the septic tank to seep through its bottom and sides.

**SEPTIC TANK** – A watertight receptacle which receives the discharge of a drainage system or part thereof, designed and constructed so as to retain solids, digest organic matter through a period of detention and allow the liquids to discharge into the soil outside of the tank through a system of open joint piping or a seepage pit meeting the requirements of this Code.

**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.

**SEWAGE** – Any liquid waste containing animal or vegetable matter in suspension or solution and may include liquids containing chemicals in solution.

**SEWAGE EJECTOR** – A device for lifting sewage by entraining it in a high-velocity jet of steam, air or water.

**SEWAGE PUMP** – A permanently installed mechanical device, other than an ejector, for removing sewage or liquid waste from a sump

**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. See also Solar Heat Gain Coefficient.

**SHIELDED COUPLING** – An approved elastomeric sealing gasket with an approved outer shield and a tightening mechanism.

**SHOCK ARRESTOR** – See Water Hammer Arrestor.

**SIDE FINS** are vertical shading elements mounted on either side of a glazed opening that can protect the glazing from lateral low angle sun penetration.

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

**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.

**SINGLE FAMILY DWELLING** [Not adopted by HCD] – A building designed to be used as a home by the owner of such building, which shall be the only dwelling located on a parcel of ground with the usual accessory buildings.

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

**SMOKE DETECTOR** is an approved device that senses visible or invisible particles of combustion.

**STATE BUILDING CODE** [For OSHPD 1, 2, 3 & 4] is the most recent edition of the California Building Code.

**SOIL PIPE** – Any pipe which conveys the discharge of water closets, urinals, clinic sinks or fixtures having similar functions of collection and removal of domestic sewage, with or without the discharge from other fixtures to the building drain or building sewer.

**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 REFLECTANCE** See Reflectance.

**SPACE CONDITIONING SYSTEM** is a system that provides either collectively or individually heating, ventilating, or cooling within or associated with conditioned spaces in a building. The system may operate alone or in conjunction with other systems. See Heating, Ventilating and Air Conditioning.

**SPECIAL WASTES** – Wastes which require some special method of handling such as the use of indirect waste piping and receptors, corrosion resistant piping, sand, oil or grease interceptors, condensers, or other pretreatment facilities.

**SPECIALTY EVENT CENTERS** [For DSA/AC] – An open arena used for rallies, concerts, exhibits, etc., with no permanent structure for purpose of assembly.

**SPECIFIC HEAT** is the quantity of heat that must be added to a unit mass of a material to increase its temperature by one degree. Typical units are Btu/°F-lb.

**SPLIT SYSTEM AIR CONDITIONER OR HEAT PUMP** is an air conditioner or heat pump that has physically separate condenser and air handling units that work together as a single cooling system.

**STACK VENT** – The extension of a soil or waste stack above the highest horizontal drain connected to the stack.

**STANDBY LOSS, BTU/HR** is the heat lost per hour from the stored water above room temperature. It is one of the measures of efficiency of water heaters required for water heating energy calculations for some types of water heaters. This standby loss is expressed as Btu/hr.

**STANDBY LOSS, PERCENT** is the ratio of heat lost per hour to the heat content of the stored water above room temperature. It is one of the measures of efficiency of water heaters required for water heating energy calculations for some types of water heaters. Standby loss is expressed as a percentage.

**STEPPED DIMMING** 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.

**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.

**STORM DRAIN** – See Building Drain (Storm).

**STORM SEWER** – A sewer used for conveying rainwater, surface water, condensate, cooling water, or similar liquid wastes.

**SUBSOIL DRAIN** – A drain which collects subsurface or seepage water and conveys it to a place of disposal.

**SUCTION LINE** is the refrigerant line that leads from the evaporator to the condenser in a split system air conditioner or heat pump. This line is insulated since it carries refrigerant at a low temperature.

**SUMP** – An approved tank or pit which receives

sewage or liquid waste and which is located below the normal grade of the gravity system and which must be emptied by mechanical means.

**SUSPENDED FILMS** are low-e coated plastic films stretched between the elements of the spacers between panes of glazing; acts as a reflector to slow the loss of heat from the interior to the exterior.

**TAILPIECE** – The pipe or tubing that connects the outlet of a plumbing fixture to a trap.

**TDV ENERGY** See Time Dependent Valuation (TDV) Energy.

**THERMAL BREAK WINDOW FRAME** is metal fenestration frames that are not solid metal from the inside to the outside, but are separated in the middle by a material, usually urethane, with a lower conductivity.

**THERMAL CONDUCTIVITY** is the quantity of heat that will flow through a unit area of the material per hour when the temperature difference through the material is one degree.

**THERMAL EMITTANCE** See Emittance.

**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.

**THERMOSTATIC VALVE** – A mixing valve which senses outlet temperature and compensates for fluctuations in incoming hot or cold water temperatures.

**TOILET ROOM [For DSA/AC]** – A room within or on the premises containing water closets, urinals and other required facilities.

**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 at by the building to provide space conditioning and water heating and for specified buildings lighting, accounting 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.

**TITLE 24** is all of the building standards and associated administrative regulations published in Title 24 of the California Code of Regulations. The Building Energy Efficiency Standards are contained in Part 6. Part 1 contains the administrative regulations for the building standards.

**TRAP** – A fitting or device so designed and constructed as to provide, when properly vented, a liquid seal which will prevent the back passage of air without materially affecting the flow of sewage or waste water through it.

**TRAP ARM** – That portion of a fixture drain between a trap and the vent.

**TRAP PRIMER** – A device and system of piping that maintains a water seal in a remote trap.

**TRAP SEAL** – The vertical distance between the crown weir and the top dip of the trap.

**CROWN WEIR (Trap Weir)** –the lowest point in the cross section of the horizontal waterway at the exit of the trap.

**TOP DIP (of Trap)** – the highest point in the internal cross section of the trap at the lowest part of the bend (inverted siphon). By contrast, the bottom dip is the lowest point in the internal cross section.

**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-VALUE** See U-factor.

**UMC** [For HCD 1 & 2, SFM, DSA/SS, OSHPD 1, 2, 3 & 4] is the most recent edition of the

Uniform Mechanical Code published by the International Association of Plumbing and Mechanical Officials.

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

**UNCONFINED SPACE** is a room or space having a volume equal to at least fifty (50) cubic feet (1.42 m<sup>3</sup>) per 1000 Btu/h (0.293 kW) of the aggregate input rating of all fuel-burning appliances installed in that space. Rooms communicating directly with the space in which the appliances are installed, through openings not furnished with doors, are considered a part of the unconfined space.

**UNIT HEATER** is a heating appliance designed for nonresidential space heating and equipped with an integral means for circulation of air.

**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. See also Thermal Mass.

**UNSANITARY (Insanitary)** – See Insanitary.

**UNUSUALLY TIGHT CONSTRUCTION** is construction where:

1. Walls and ceilings exposed to the outside atmosphere have a continuous water vapor retarder with a rating of one perm or less with any openings gasketed or sealed;
2. Weatherstripping is on openable windows and doors; and
3. Caulking or sealants are applied to areas such as joints around window and door frames, between sole plates and floors, between wall-ceiling joints, between wall panels and at penetrations for plumbing, electrical and gas lines and at other openings.

**U.P.C.** [For HCD 1 & HCD 2, DSA/AC, SFM, DHS, DSA/SS, OSHPD 1, 2, 3 & 4] – The latest edition of the Uniform Plumbing Code, published by the International Association of Plumbing and Mechanical Officials.

**VACUUM BREAKER** – See Backflow Preventer.

**VACUUM RELIEF VALVE** – A device that prevents excessive vacuum in a pressure vessel.

**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 conditioned air to the zones served.

**VENT** – Any pipe provided to ventilate a plumbing system, to prevent trap siphonage and back pressure, or to equalize the air pressure within the drainage system.

**Type B Gas Vent** is a factory-made gas vent listed by a nationally recognized testing agency for venting listed or approved appliances equipped to burn only gas.

**Type BW Gas Vent** is a factory-made gas vent listed by a nationally recognized testing agency for venting listed or approved gas-fired vented wall furnaces.

**Type L** is a venting system consisting of listed vent piping and fittings for use with oil-burning appliances listed for use with Type L or with listed gas appliances.

**VENT CONNECTOR, GAS** is that portion of a gas-venting system which connects a listed gas appliance to a gas vent and is installed within the space or area in which the appliance is located.

**VENT PIPE** – See Vent.

**VENT STACK** – The vertical vent pipe installed primarily for the purpose of providing circulation of air to and from any part of the drainage system.

**VENT SYSTEM** – A pipe or pipes installed to provide a flow of air to or from a drainage system or to provide a circulation of air within such system to protect trap seals from siphonage and back- pressure.

## **VENTED APPLIANCE CATEGORIES**

**Category I** is an appliance which operates with a non-positive vent static pressure and with a vent gas temperature that avoids excessive condensate production in the vent.

**Category II** is an appliance which operates with a non-positive vent static pressure and with a vent gas temperature that may cause excessive condensate production in the vent.

**Category III** is an appliance which operates with a positive vent static pressure and with a vent gas temperature that avoids excessive condensate production in the vent.

**Category IV** is an appliance which operates with a positive vent static pressure and with a vent gas temperature that may cause excessive condensate production in the vent.

**VENTED DECORATIVE APPLIANCE** is a vented appliance whose only function is providing an esthetic effect of flames.

**VENTED WALL FURNACE** is a vented environmental heating appliance designed for incorporation in, or permanent attachment to, a wall, floor, ceiling or partition and arranged to furnish heated air by gravity or by a fan. This definition shall not include floor furnaces, unit heaters and room heaters.

**VENTILATING CEILING** is a suspended ceiling containing many small apertures through which air, at low pressure, is forced downward from an overhead plenum dimensioned by the concealed

space between the suspended ceiling and the floor or roof above.

**VENTILATION AIR** is that portion of supply air which comes from outside plus any recirculated air that has been treated to maintain the desired quality of air within a designated space. See also Outside Air.

**VENTILATION SYSTEM** is all of that equipment intended or installed for the purpose of supplying air to, or removing air from, any room or space by mechanical means, other than equipment which is a portion of an environmental heating, cooling, absorption or evaporative cooling system.

**VENTING SYSTEM** is the vent or chimney and its connectors, assembled to form a continuous

open passageway from an appliance to the outside atmosphere for the purpose of removing products of combustion. This definition also shall include a venting assembly which is an integral part of an appliance.

**VENTING SYSTEM—GRAVITY-TYPE** is a system which depends entirely on the heat from the fuel being used to provide the energy required to vent an appliance.

**VENTING SYSTEM—POWER-TYPE** is a system which depends on a mechanical device to provide a positive draft within the venting system.

**VERTICAL PIPE** – Any pipe or fitting which is installed in a vertical position or which makes an angle of not more than forty-five (45) degrees with the vertical.

**VINYL WINDOW FRAME** is a fenestration frame constructed with a polyvinyl chloride (PVC) which has a lower conductivity than metal and a similar conductivity to wood.

**VISIBLE LIGHT TRANSMITTANCE (VLT)** is the ratio (expressed as a decimal) of visible light that is transmitted through a glazing material to the light that strikes the material.

**WALL HEATER.** See VENTED WALL FURNACE.

**WALL-HUNG WATER CLOSET** – A water closet installed in such a way that no part of the water closet touches the floor.

**WARM AIR FURNACE** is an environmental heating appliance designed or arranged to discharge heated air through any duct or ducts. This definition shall not include a unit heater.

**WASTE PIPE** – A pipe which conveys only liquid waste, free of fecal matter.

**WATER CLOSET** [For HCD 1 & HCD 2, DSA/AC] – A plumbing fixture (which may be used for both defecation or urination) in which the waste matter is removed by flushing with water.

**WATER CONDITIONING OR TREATING DEVICE** – A device which conditions or treats a

water supply so as to change its chemical content or remove suspended solids by filtration.

**WATER-DISTRIBUTING PIPE** – In a building or premises, a pipe which conveys potable water from the building supply pipe to the plumbing fixtures and other water outlets.

**WATER HAMMER ARRESTOR** – A device to absorb hydraulic shock, either of the air chamber or mechanical device design.

**WATER HEATER or HOT WATER-HEATING BOILER** is an appliance designed primarily to supply hot water and is equipped with automatic controls limiting water temperature to a maximum of 210°F (99°C).

**WATER MAIN (STREET MAIN)** – A water-supply pipe for public or community use.

**WATER SUPPLY SYSTEM** – The building supply pipe, the water distributing pipes and the necessary connecting pipes, fittings, control valves, backflow prevention devices and all appurtenances carrying or supplying potable water in or adjacent to the building or premises.

**WET VENT** – A vent which also serves as a drain.

**WHIRLPOOL BATH TUB** – A bathtub fixture equipped and fitted with a circulating piping system designed to accept, circulate and discharge bathtub water upon each use.

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

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

**YOKE VENT** – A pipe connecting upward from a soil or waste stack to a vent stack for the purpose of preventing pressure changes in the stacks.

**ZONAL CONTROL** is the practice of dividing a residence into separately controlled HVAC zones. This may be done by installing multiple HVAC systems that condition a specific part of the building, or by installing one HVAC system with a specially designed distribution system that permits zonal control. The Energy Commission has approved an alternative calculation method for analyzing the energy impact of zonally

controlled space heating and cooling systems.  
To qualify for compliance credit for zonal control, specific eligibility criteria specified in the Residential ACM Manual must be met.

**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 for each zone.

Sources:

California Building Standards Commission, 2001 California Plumbing Code

California Building Standards Commission, 2001 California Mechanical Code

California Energy Commission, 2005 Energy Efficiency Standards for Residential and Nonresidential Buildings