



# Development Services Department

300 Richards Boulevard 3rd Floor Sacramento, CA 95811

Help Line: (916) 808-5656

www.cityofsacramento.org/dsd



## RESIDENTIAL BUILDING CODE REQUIREMENTS

2007 CBC Adopted Codes  
Effective January 1<sup>st</sup>, 2008

PROJECT ADDRESS \_\_\_\_\_ DATE \_\_\_\_\_ PERMIT No. \_\_\_\_\_

These sheets, when attached to a set of plans, become part of those plans and must remain attached thereto. The approval of this plan and the specifications shall not be held to permit or approve the violation of any City ordinance or State or Federal law.

I have read and will comply with the items in this document and as marked on the plans.

\_\_\_\_\_  
Signature of:  Owner  Authorized Agent  Contractor  Architect/Engineer

Date \_\_\_\_\_

### BUILDING CODE REQUIREMENTS

- B-1 **In dwelling units, smoke alarms shall be installed** on the wall or ceiling of the area immediately outside each separate sleeping area, in each room used for sleeping purposes, and on each story within the dwelling unit. In dwellings with basements, an alarm shall be installed on each story and in the basement. In dwelling units where a story or basement is split into two or more levels and does not have an intervening door between the adjacent levels, a smoke alarm need only be installed on the upper level, except that when the lower level is less than one full story below the upper level, an alarm shall be installed on each level. Where the ceiling height of a room that opens onto a hallway serving a bedroom exceeds the height of the hallway by 24 inches, smoke alarms shall be installed in the hallway and in the adjacent room. In new construction, the required smoke alarms shall receive their primary power from a commercial source and have a battery back up. When more than one smoke alarm is being provided the alarms shall be interconnected. 2007 CBC, Section 907.2.10.1.2.
- B-2 When **alterations, repairs, or additions having a value in excess of \$1,000** are made, provide an approved **smoke alarm**. The alarm may be battery operated. 2007 CBC, Section 907.2.10.5.1.2. Repairs to the exterior surfaces of the dwelling unit are exempt from the requirements of this section.
- B-3 **Basements in dwelling units and every sleeping room** below the fourth story above grade plane shall have at least one exterior window or door opening approved for **emergency escape or rescue** that shall open directly into a public street, public way, yard, or exit court. Escape or rescue windows shall have a minimum net clear opening area of 5.7square feet, except that when escape and rescue windows on the grade-floor. Windows located on the grade-floor may be a minimum of 5 square feet in size, provided exterior grade level is no greater than 44 inches from the beginning of the clear opening. The minimum net clear opening height shall be 24 inches. The minimum net clear opening width shall be 20 inches. All emergency escape or rescue windows shall have a finished sill height not more than 44 inches above the finished floor. Basements that are less than 80 inches in height or less than 200 square feet are exempt from this requirement. 2007 CBC, Section 1026.
- B-4 **Private garages shall be separated from a dwelling unit and its attic space** by minimum ½ inch gypsum board applied on the garage side. Private garages located beneath habitable spaces shall be separated from the habitable space by means of minimum 5/8 inch gypsum board. Door openings between a private garage and a dwelling unit are required to be self-closing and self-latching and be constructed of solid wood, solid material , or honey comb core steel. The door must be 1-3/8 inch thick or have a 20 minute fire rating. A garage shall not open directly into a room used for sleeping purposes. 2007 CBC, Section 406.1.4 (1).

**Note:** All members supporting such a separation between a dwelling unit and a private garage shall be of an equivalent fire-resistive construction as per 2007 CBC, Section 711.4.

- B-5 **Ducts may pass through the walls or a ceiling separating a private garage from a dwelling unit** provided the ducts within the garage are constructed of steel having a thickness of not less than 26 gauge galvanized sheet steel and the duct has no openings into the garage. 2007 CBC, Section 406.1.4 (2).
- B-6 Provide **readily accessible natural ventilation directly to the outdoors** for all habitable rooms within a dwelling unit equal to 4 percent of the floor area ventilated. 2007 CBC, Sections 1203.4.1.
- B-7 Provide **natural or artificial light** to all habitable rooms within a dwelling unit. Natural light shall be equal to 8 percent of the floor area served. Artificial light shall have an average illumination of 10 foot-candles at a height of 30 inches above the floor level. 2007 CBC, Sections 1205.2 and 1205.3.
- B-8 **Rooms containing bathtubs, showers, spas, and similar bathing fixtures** shall be mechanically ventilated in accordance with the California Mechanical Code. 2007 CBC, Section 1203.4.2.1.
- B-9 Provide **safety glazing** for all glazing in locations specified as hazardous in the 2007 CBC, Section 2406.3.
- B-10 **Shower compartments and walls above bathtubs with installed shower heads** shall be finished with a smooth, nonabsorbent surface to a height of 70 inches above the drain inlet. 2007 CBC, Section 1210.3.
- B-11 Provide an approved **attic access** sized 20 inches by 30 inches with minimum 30 inch vertical headroom. 2007 CBC, Section 1209.2.  
**If mechanical equipment** is installed in the attic space the access must be sized so that the largest piece of equipment can be removed, but in no case smaller than 22 inch by 30 inch with 30 inch vertical headroom clearance per 2007 CMC, section 931.1, exception.
- B-12 **Enclosed usable space under interior stairways** in dwelling units shall have the walls and soffits protected on the enclosed side with ½ inch gypsum board. 2007 CBC, Section 1009.5.3, exception.
- B-13 **Private stairways** shall be constructed with a 7.75 inch maximum rise, a 10 inch minimum run, and a 36 inch minimum width. A nosing not less than ¾ inch but not more than 1-1/4 inch shall be provided on stairways with solid risers where the tread depth is less than 11 inches. The largest tread run and the greatest riser height within any flight of stairs shall not exceed the smallest by more than 3/8 inch. Maintain a continuous 6 foot 8 inch headroom clearance above the stairway. 2007 CBC, Section 1009.
- B-14 A minimum of **one handrail is required on all stairway runs with four or more risers** that serve dwelling units. The top of handrails shall be placed not less than 34 inches nor more than 38 inches above the nosing of the treads. Circular handrails shall have a minimum diameter of 1-1/4 inches and a maximum diameter of 2 inches. Ornamental handrails shall have a minimum perimeter dimension of 4 inches, a maximum perimeter dimension of 6-1/4 inches, and a maximum cross-section of 2-1/4 inches. A clear space of 1-1/2 inches is required between the handrail and the wall. The maximum projection of the handrail into the required stairway width shall be 4-1/2 inches. Openings in open **guards on stairways** shall be sized such that a 4-3/8 inch sphere will not pass through. The triangular openings formed by the riser, tread and bottom rail at the open side of a stairway shall be of a maximum size such that a sphere of 6 inches in diameter cannot pass through the opening. 2007 CBC, Section 1012.
- B-15 **Guards** are required where open-sided walking surfaces, ramps, and landings are located more than 30 inches above the floor below. These guards shall be a minimum of 42 inches in height. Openings in open guards for these areas shall be sized such that a 4-3/8 inch diameter sphere cannot pass through any opening. 2007 CBC, Section 1013.
- B-16 **On stairways, guards whose top rail also serves as a handrail** shall have a height not less than 34 inches and not more than 38 inches measured vertically from the leading edge of the stair tread nosing. 2007 CBC, Section 1013.2, exception #1.
- B-17 **Interior spaces intended for human occupancy shall be provided with heating facilities** capable of maintaining a room temperature of 68 degrees Fahrenheit at a point 3 feet above the floor in all habitable rooms. 2007 CBC, Section 1204.1.

- B-18 **Factory built chimneys and factory built fireplaces** shall be listed and installed in accordance with the terms of their listing and the manufacturer's instructions. 2007 CBC, Sections 2111.13.1. Per the Sacramento Metropolitan Air Quality Management District, Rule 417, the installation of masonry or wood-burning fireplaces is prohibited in Sacramento County. The full text of Rule 417 can be found on the SMAQMD website; [www.airquality.org](http://www.airquality.org).
- B-19 **Braced wall lines** shall consist of braced wall panels that meet the requirements for location and type of bracing as shown in figure 2308.9.3, amount specified in Table 2308.12.4 and are in line or offset from each other by not more than 4 feet. Braced wall panels shall start at not more than 8 feet from each end of a braced wall line. All braced wall panels shall be clearly indicated on the plans. 2007 CBC, Sections 2308.9.3 & 2308.12.
- B-20 Any braced wall panel required by Section 2308.9.3 may be replaced by an **alternate braced wall panel** constructed in accordance with Section 2308.9.3.1(1) for a one-story building and section 2308.9.3.1(2) for the first story of a two-story building. 2007 CBC, Section 2308.9.3.1
- B-21 **Cripple walls having a stud height exceeding 14 inches** shall be framed of studs not less in size than the studs above. Cripple walls exceeding 4 feet in height shall be framed with studs sized as required for an additional story. Cripple walls with studs less than 14 inches high shall be framed of solid blocking. 2007 CBC, Section 2309.4.
- B-22 **Stud size, height, and spacing** shall conform to 2007 CBC, Table 2308.9.1.
- B-23 **Provide under-floor access** to under-floor spaces with a minimum size of 18 inches by 24 inches. 2007 CBC, Section 1209.1.
- B-24 **Provide adequate ventilation at all under-floor spaces.** 2007 CBC, Section 1203.3.
- B-25 **Wood framing members**, including but not limited to sills, plates, sleepers, posts, columns, wood sheathing, furring strips, girder ends, wood siding, and laminated timbers **that are in direct contact with concrete or masonry** must be foundation grade redwood or treated and marked by an approved agency. 2007 CBC, Section 2306.4.
- B-26 **Foundation plates or sills shall be bolted or anchored to the foundation** with not less than ½ inch diameter steel bolts or approved anchors that are embedded a minimum of 7 inches into the concrete or masonry. Each bolt shall have a properly sized nut and washer. 2007 CBC, Section 2308.6. **The washers** must be a minimum 3 x 3 inches square and .229 inches thick. A diagonal slot is allowed of a width 3/16 inch larger than the bolt diameter and a maximum 1-3/4 in length, provided a standard cut washer is used between the nut and plate washer. 2007 CBC, Section 2308.12.8.
- B-27 **Cutting and notching** of exterior walls and bearing partitions shall not be greater than 25 percent of the stud width. Cutting or notching of studs to a depth not greater than 40 percent of the width of the stud is permitted in nonbearing partitions supporting no loads other than the weight of the partition. 2007 CBC, Section 2308.9.10.
- B-28 **A bored hole** not greater in diameter than 40 percent of the stud width is permitted. A bored hole not greater in diameter than 60 percent of the stud width is permitted in a non-bearing partition or in a wall where the bored stud is doubled provided not more than two such successive studs are bored. A minimum 5/8 inch of wood is required between the bored hole and the edge of the wood. Bored holes can not be located in the same vicinity as a cut or a notch. 2007 CBC, Section 2308.9.11.
- B-29 **Footings** shall be designed so that the allowable bearing capacity of the soil is not exceeded. Where a specific design is not provided, the size of concrete footings supporting walls of light-frame construction shall conform to the requirements of 2007 CBC, Table 1805.4.2. The minimum depth of footings shall be 12 inches below undisturbed ground. 2007 CBC, Section 1805.
- B-30 Where post and beam or girder construction is used, a **positive connection** shall be provided to ensure against uplift and lateral displacement. 2007 CBC, Section 2304.9.7.
- B-31 Where rafters are not parallel with the ceiling joist, rafters shall be tied to an equivalent **rafter tie** that is connected per Table 2308.10.4.1. The rafter ties shall be of a sufficient size and number to prevent splitting from nailing. Rafter ties shall be spaced not more than 4 feet on center. 2007 CBC, Section 2308.10.4.1. Where rafter ties are not provided at the top of the rafter support walls the design must be supported by structural calculations prepared by a licensed design professional.
- B-32 Provide adequate **ventilation to all attic spaces.** 2007 CBC, Section 1203.2.

- B-33 Provide **fireblocking and draft stopping** in concealed locations of combustible construction in accordance with the 2007 CBC, Section 717.1.
- B-34 **All gypsum board, stucco, plaster, and lath** shall be installed as per 2007 CBC, Chapter 25.  
**Note:** When lath is applied over wood base sheathing, include two layers of grade D paper.
- B-35 Provide **weather protection** on all exterior walls located above grade that are not constructed of concrete or masonry. 2007 CBC, Sections 1403.2 & 1405.2.
- B-36 On graded sites, **the top of all exterior foundations** shall extend above the elevation of the street gutter at point of discharge or inlet device a minimum of 12 inches plus 2 percent per foot (1/4 inch per linear foot measured from the gutter to the edge of the footing). Where a gutter is not present, the measurement shall be taken from the crown of road. 2007 CBC, Section 1805.3.4.

## MECHANICAL CODE REQUIREMENTS

- M-1 **Domestic clothes dryer moisture exhaust ducts** shall terminate on the outside of the building and shall be equipped with a back draft damper. Sheet metal screws or other fasteners that will obstruct the flow shall not be used. Unless otherwise permitted or required by the dryer manufacturer's installation instructions and by the building official, domestic dryer moisture exhaust ducts shall not exceed a total combined horizontal and vertical length of 14 feet including two 90° elbows. Two feet shall be deducted for each 90° elbow in excess of two. 2007 CMC, Section 504.3.
- M-2 **Make up air.** When a closet is designed for the installation of a clothes dryer, a minimum opening of 100 square inches for make up air shall be provided in the door or by other approved means. 2007 CMC, Section 504.3.2
- M-3 **Installation of a Listed Cooking Appliance or Microwave Oven above a Listed Cooking Appliance.** The installation of a listed cooking appliance or microwave oven over a listed cooking appliance shall conform to the conditions of the upper appliance's listing and the manufacturers' installation instructions. 2007 CMC, Section 916.1 (B) (3)
- M-4 **Domestic range vents.** Ducts for domestic kitchen downdraft grill-range ventilation shall be installed as per 2007 CMC, Section 504.2.
- M-5 **Fuel burning equipment** shall be assured a sufficient supply of combustion air as per Chapter 7, 2007 CMC.
- M-6 **Warm air furnaces shall not be installed** in a room used or designed to be used as a bedroom or bathroom unless direct vent type or installed in an approved closet enclosure per 2007 CMC, Section 904.1.
- M-7 **Attic furnace.** The distance from the passageway access to the furnace shall not exceed 20 feet measured along the center line of the passageway. The passageway shall be unobstructed and shall have continuous solid flooring not less than 24 inches wide from the entrance opening to the furnace. A level working platform not less than 30 inches in depth and width shall be provided in front of the entire fire box side of the warm air furnace. If the furnace temperature limit control, air filter, fuel control valve, vent collar, or air handling unit is not serviceable from the fire box side of the furnace, a continuous floor not less than 24 inches in width shall be provided from the platform in front of the fire box side of the furnace to and in front of this equipment. A permanent electric outlet and lighting fixture controlled by a switch located at the required passageway opening shall be provided at or near the furnace. 2007 CMC, Section 904.11.
- M-8 **Vent termination.** Gas vents with listed vent caps 12 inches in size or smaller shall be permitted to be terminated in accordance with Figure 8-2, provided they are located at least 8 feet from the vertical wall or similar obstruction. All other gas vents shall terminate not less than 2 feet above the highest point where they pass through the roof and at least 2 feet higher than any portion of a building within 10 feet. 2007 CMC, Section 802.6.2  
**Note:** Single wall metal pipe shall not originate in an unoccupied attic or concealed space and shall not pass through any attic, inside wall, concealed space or floor. 2007 CMC, Section 802.7.4.2.
- M-9 **Approval of Equipment.** Listed and unlisted equipment shall comply with the 2007 CMC, Section 302 provisions.

- M-10 **Ignition source.** Heating and cooling equipment located in a garage that generates a glow, spark, or flame capable of igniting flammable vapors shall be installed with sources of ignition at least 18 inches above the floor level. 2007 CMC, Section 308.1.

### ELECTRICAL CODE REQUIREMENTS

- E-1 Provide a **grounding electrode** as per 2007 CEC, Article 250.50.
- E-2 Contact **SMUD's Customer Service Department** for service location. Phone 1-888-456-SMUD (7683) or 916-732-6630
- E-3 At least **one wall switch-controlled lighting outlet** shall be installed in every habitable room, in bathrooms, hallways, stairways, attached garages, detached garages with electrical power, attics, underfloor spaces, utility rooms, basements and at outdoor entrances or exits. 2007 CEC, Article 210.70.
- E-4 Dwellings with direct grade level access shall have at least one **receptacle outlet at grade level at the front and back of the dwelling**. All 125 volt, 15 and 20 amp, receptacles installed outdoors with direct grade level access shall be G.F.C.I. protected. All receptacles installed outdoors in wet or damp locations shall be in a weatherproof enclosure as per 2007 CEC, Articles 210.52(e), 210.8(a) (3), and 406.8.
- E-5 At least one receptacle outlet, in addition to any provided for laundry equipment, shall be installed **in each basement, in each attached garage**, and in each detached garage with electric power. 2007 CEC, Article 210.52(g).
- E-6 **Provide G.F.C.I. protection to all 125 volt, 15 amp and 20 amp receptacles installed in bathrooms, garages**, outdoors, crawlspaces at or below grade, unfinished basements, receptacles to serve counter top surfaces installed in kitchens, and receptacles to serve counter top surfaces installed within 6 feet of a wet bar, laundry, or utility sinks. 2007 CEC 210-8(a)  
**Exception:** Receptacles for dedicated appliances and receptacles that are not readily accessible.
- E-7 **Receptacle outlets shall be spaced not more than 12 feet apart** and a maximum of 6 feet from the ends of walls or openings. Receptacle outlets are also required in walls 2 feet or greater. A 2007 CEC, Article 210.52(a)
- E-8 **Provide two or more 20 amp small appliance branch circuits** evenly proportioned in the kitchen, pantry, breakfast room, dining room, or similar area. Such circuits shall have no other outlets. 2007 CEC, Article 210.52(b). **Note:** One additional 20 amp branch circuit shall be provided to supply the laundry receptacle outlet(s). This circuit shall have no other outlets. 2007 CEC, Article 210.11(c)(2).
- E-9 **Fixtures installed in recessed cavities** in walls or ceilings shall comply with Sections 410.65 through 410.72, 2007 CEC.
- E-10 **Surface mounted and recessed lighting fixtures** in clothes closets shall be installed as per 2007 CEC, Article 410.8.
- E-11 **Provide fuses or approved circuit breakers** at air conditioning units and heat pumps as per 2007 CEC, Article 440). (Do not exceed maximum fuse requirements or minimum on equipment specification plate).
- E-12 **Hydro massage bathtubs and their associated electrical components** shall be protected by a ground-fault circuit interrupter (GFI) as per 2007 CEC, Article 680-71.
- E-13 **A fixture that weighs more than 6 pounds** or exceeds 16 inches in any dimension shall not be supported by the screw shell of a lamp holder. 2007 CEC, Article 410-15(a).
- E-14 **Outlet boxes** used as the sole support for ceiling fans shall be listed for this purpose and shall not support a fan weighing more than 70 lbs. 2007 CEC, Article 314.27(d).

- E-15 **Hallways of 10 feet or more in length** shall have at least one receptacle outlet. 2007 CEC, Article 210-52(h).
- E-16 **Bedrooms:** All 120 V, 15 or 20 Amp branch circuits supplying bedroom outlets shall be protected by an “**ARC FAULT**” circuit interrupter combination type. 2007 CEC 210.12 (b).

### PLUMBING CODE REQUIREMENTS

- P-1 Provide an **approved dishwasher air gap fitting** as per 2007 CPC, Section 807.4.
- P-2 Potable water outlets with hose attachments, other than water heater drains, boiler drains, and clothes washer connectors, shall be protected by a listed non-removable hose bibb type backflow preventor or a listed atmospheric vacuum breaker as per 2007 CPC, Section 603.4.7.
- P-3 **Joints.** Where a fixture comes in contact with the wall or floor, the joint between the fixture and the wall or floor shall be made watertight. 2007 CPC, Section 407.2
- P-4 No **underfloor cleanout** shall be located more than 20 feet from an access door, trap door, or crawl hole. 2007 CPC, Section 707.10.
- P-5 **Gas Water heaters located in residential garages or adjacent spaces** open to the garage that are not part of the living space shall be installed so that the pilots, burners, and burner-igniter devices are at least 18 inches above the floor unless listed as flammable vapor ignition resistant. 2007 CPC, Section 508.14(1).
- P-6 **Fuel burning water heaters** shall be installed per 2007 CPC, Section 507.0, for combustion air.
- P-7 **Water heaters that depend on the combustion** of fuel for heat shall not be installed in bedrooms or bathrooms unless installed in an approved closet or direct vent type per 2007 CPC, Section 505.1
- P-8 **Listed water heaters shall be installed in** accordance with their listing and the manufactures' instructions. **Unlisted water heaters** shall be installed with a clearance of 12" on all sides and rear. 2007 CPC, Section 505.3.1 & 505.3.2.
- P-9 Any water system containing **storage water heating equipment** shall be provided with an approved, listed, and adequately sized combination pressure and temperature relief valve. 2007 CPC, Section 608.3.
- P-10 **Relief valves located inside a building** shall be provided with a drain of galvanized steel, hard drawn copper piping and fittings, CPVC, or listed valve drain. The drain shall extend from the valve to the outside of the building with the end of the pipe not more than 2 feet nor less than 6 inches above the ground and pointing downward. 2007 CPC, Section 608.5.  
**Note:** No part of such drain pipe shall be trapped, and the terminal end of the drain pipe shall not be threaded.
- P-11 **Water heaters shall be anchored or strapped** to resist horizontal displacement due to earthquake motion. Strapping shall be at points within the upper one-third and lower one-third of its vertical dimensions. At the lower point, a minimum distance of 4 inches (101.6 mm) shall be maintained above the controls with the strapping. 2007 CPC, Section 508.2
- P-12 **Gas utilization equipment** connected to a piping system shall have an accessible approved **manual shut off valve** with a non-displaceable valve member, or a listed gas convenience outlet installed within 6' of the equipment it serves. Shut off valves serving decorative gas appliances shall be permitted to be installed in fireplaces if listed for such use. 2007 CPC, Section 1212.4
- P-13 **Showers and tub-shower combinations** in all buildings shall be provided with individual control valves of the pressure balance or the thermostatic mixing valve type. 2007 CPC, Section 418.