



Residential Building Code Requirements 2010 Adopted Codes Effective January 1st, 2011

Project Name: _____ **Permit #:** _____

Address: _____ **Date:** _____

The code requirements in this document are excerpts only and are not a comprehensive list of all requirements that may apply to a building project.

These sheets, when attached to a set of plans, become part of those plans and must remain attached thereto. The approval of these plans 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. 2010 CRC, Section R314.
- 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. 2010 CRC, Section R314.6. Repairs to the exterior surfaces of the dwelling unit are exempt from these requirements.
- B-3 **For new construction, an approved carbon monoxide alarm shall be installed** in dwelling units and in sleeping units within which fuel-burning appliances are installed and in dwelling units that have garages. 2010 CRC, Section R315.
- B-4 **Sprinklers shall be installed** to protect all areas of a new dwelling unit. Fire sprinklers shall be designed and installed per 2010 CRC, Section R313.
- B-5 **Basements, habitable attics, and every sleeping room in dwelling units** 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 5.7 square feet, except that when escape and rescue windows are on the grade-floor they can have a minimum net clear opening area of 5 square feet. All emergency escape and rescue windows shall have a finished sill height

- inches below the tallest portion of the profile. The minimum width of the handrail above the recess shall be 1-1/4 inches to a maximum of 2-3/4 inches. 2010 CRC, Section R311.7.7.
- B-18 **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. 2010 CRC, Section R312.
- B-19 **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 a line connecting the leading edge of the treads. 2010 CRC, Section 312.2 exception #2.
- B-20 **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 and 2 feet from exterior walls in all habitable rooms. 2010 CRC, Section R303.8.
- B-21 **Ceiling heights** for habitable space, hallways, bathrooms, toilet rooms, laundry rooms, and portions of basements containing these spaces shall have a ceiling height of not less than 7 feet. 2010 CRC, Section R305.1.
- B-22 **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. 2010 CRC, Sections R1004.1 & R1005.1. 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.
- B-23 **Braced wall lines** shall consist of braced wall panels that meet the requirements for location, size, spacing and type of bracing as shown in 2010 CRC, Sections R602.10.1.1, Tables R602.10.1.2(2) & R602.10.1.2(3), R602.10.1.4.1, and R602.10.3. Brace wall lines shall be in line or offset from each other by not more than 4 feet. All braced wall panels shall be clearly indicated on the plans.
- B-24 Any braced wall panel may be replaced by an **alternate braced wall panel** constructed in accordance with 2010 CRC, Section R602.10.3.2 and Table R602.10.3.2.
- B-25 **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 or shall be sheathed on at least one side with a wood structural panel that is fastened to both the top and bottom plate. All cripple walls shall be supported on a continuous foundation. 2010 CRC, Section R602.9.
- B-26 **Stud size, height, and spacing** shall conform to 2010 CRC, Table R602.3(5).
- B-27 **Provide access to all under-floor spaces.** Access provided through the floor shall be a minimum size of 18 inches by 24 inches. Access provide through the wall shall be a minimum of 16 inches by 24 inches and shall not be located under a door to the residence. 2010 CRC, Section 408.4.
- B-28 **Provide adequate ventilation at all under-floor spaces.** 2010 CRC, Section 408.
- B-29 **Wood framing members** and wood based products must be foundation grade redwood or treated and marked by an approved agency when required by 2010 CRC, section R317.
- B-30 **Foundation plates or sills shall be bolted or anchored to the foundation** with not less than ½ inch diameter steel bolts or approved anchors space a minimum of 6 feet on center for one and two story dwellings and a minimum of 4 feet on center for three or more story dwellings. There shall be at least two bolts per plate that start within 12 inches or 7 bolt diameters of the end of the plate. All foundation bolts shall be embedded a minimum of 7 inches into the concrete or masonry. Each bolt shall have a properly sized nut and washer. 2010 CRC, Section R403.1.6 & R403.1.6.1. **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. 2010 CRC, Section R602.11.1.
- B-31 **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. 2010 CRC, Section 602.6 #1.

Electrical Code Requirements

- E-1 Provide a **grounding electrode** as per 2010 CEC, Article 250.64(D) & 250.52.
- E-2 **Grounding conductors** to be provided where installing a branch circuit or feeder supplying a separate building or structure. 2010 CEC, Article 250.32(B) & 250.19.
- E-3 Contact **SMUD's Customer Service Department** for service location. Phone 1-888-456-SMUD (7683) or 916-732-6630
- E-4 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, under floor spaces, utility rooms, basements and at outdoor entrances or exits. 2010 CEC, Article 210.70.
- E-5 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 GFCI protected. All receptacles installed outdoors in wet or damp locations shall be in a weatherproof enclosure as per 2010 CEC, Articles 210.52(e), 210.8(a)(3), & 406.8.
- E-6 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. These outlets are to be GFCI protected. 2010 CEC, Article 210.52(g).
- E-7 **Provide GFCI 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. 2010 CEC, Article 210-8(a).
- Exception:** Receptacles for dedicated appliances and receptacles that are not readily accessible.
- E-8 **ARC –fault circuit interrupter** protection is required in dwellings for all 120 volt single phase 15 and 20 amp branch circuits. 2010 CEC, Article 210.12.
- E-9 **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. 2010 CEC, Article 210.52(a).
- E-10 **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. 2010 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. 2010 CEC, Article 210.11(c)(2).
- E-11 **Provide fuses or approved circuit breakers** at air conditioning units and heat pumps as per 2010 CEC, Article 440. (Do not exceed maximum fuse requirements or minimum on equipment specification plate).
- E-12 An **equipment grounding conductor** is required with all branch circuits and feeders supplying a separate building or structure. 2010 CEC, Article 250.32(B).
- E-13 Provide an **intersystem bonding termination means** that includes provisions for connecting three grounding or bonding conductors for communications systems using a #6 copper conductor. 2010 CEC, Article 250.94,
- E-14 **Equipment grounding conductors** to be provided for grounding means and effective ground-fault path by performing both grounding and bonding functions. 2010 CEC, Article 250.118
- E-15 **Equipment bonding jumpers** that connect grounding terminals of receptacles to a grounded metal box must be sized according to table 250.122 using the rating of the overcurrent device, fuse, or circuit breaker for the circuit. 2010 CEC, Article 250.146.
- E-16 **One main feeder** shall be provided for each building to supply all branch circuits, feeders, or both; associated with load profile of dwelling units. 2010 CEC, Article 310.15(B)(6).
- E-17 **Device or equipment fill in a junction box** to be calculated using twice the wire size volume if the device is wider than 2 inches. 2010 CEC, Article 314.16(B)(4).

- E-18 **Lighting junction boxes** to be designed for the purpose and listed with the capacity of holding 50 pounds. It must be marked for the purpose of holding luminaries. 2010 CEC, Article 314.27(A).
- E-19 **Armored clad cable (AC)** is acceptable for branch circuits and feeders. 2010 CEC, Article 320.10(1).
- E-20 **Metal clad cable (MC) is listed for wet locations** if provided with a corrosion-resistant jacket. 2010 CEC, Article 330.10(A)(11).
- E-21 **Flexible metal conduit** isn't permitted for use in wet locations, regardless of any conditions. 2010 CEC, Article 348.12(1).
- E-22 **Flexible metal conduit and liquid tight flexible metal conduit** may be fished within walls or concealed spaces without the need for support. 2010 CEC, Article 348.30(A).
- E-23 An **equipment disconnecting means that isn't within sight of the equipment** it serves is required to be capable of being locked open (off position) and have a means for adding a lock that must remain with the equipment whether the lock is installed or not. This is a special device that connects to the breaker. 2010 CEC, Articles 410.141, 422.31(B), & 440.14 exception #1.
- E-24 **Receptacles in wet locations.** 120 volt and 250 volt are required to be listed weather-resistant type. 2010 CEC, Article 406.8(A) & (B).
- E-25 **Tamper-resistant receptacles** in dwelling to be installed in areas specified by 210.52 shall be listed tamper-resistant type. 2010 CEC, Article 406.11.
- E-26 All **luminaires and lamp holders shall be listed.** 2010 CEC, Article 410.6.
- E-27 **Surface-mounted or clothes-rod luminaries or LED luminaries** that are listed may be used in clothes closets, including storage space. 2010 CEC, Article 410.16(A) & 410.16(C)(5).
- E-28 **Provide fuses or approved circuit breakers** at air conditioning units and heat pumps as per 2010 CEC, Article 440. (Do not exceed maximum fuse requirements or minimum on equipment specification plate).
- E-29 The **disconnecting means for pool and spa or hot tub** shall simultaneously open all ungrounded conductors. It shall be further than 5 feet from the waters edge. 2010 CEC, Article 680.12.
- E-30 **Receptacles shall be greater than 6 feet from the water edge of the pool,** fountain, spa or similar installation. It shall be GFCI protected. 2010 CEC, Articles 680.22, 680.34, 680.43, 680.62, & 680.71.
- E-31 **GFCI protection is required for all 15 & 20 amp pumps** for either 125 volt or 240 volt motors supplying pool equipment. 2010 CEC, Article 680.22.
- E-32 **Aluminum conductors** are not allowed to be used as feeders in pool areas where subject to corrosion. 2010 CEC, Article 680.25(A).
- E-33 **Equipotential bonding** will be required around pool areas. A conductor sized at a minimum of #8 copper shall be used. 2010 CEC, Article 680.26.
- E-34 **Pumps for portable pools** shall have an integral GFCI protected cord within 12 inches of the attachment plug. All 125 volt receptacles within 20 feet of a pool shall be GFCI protected. 2010 CEC, Article 680.31 & 680.32.
- E-35 **Hydro massage bathtubs** and their associated equipment must be supplied by at least one separate individual circuit. 2010 CEC, Article 680.71.

Plumbing Code Requirements

- P-1 Provide an **approved dishwasher air gap fitting** as per 2010 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 2010 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. 2010 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. 2010 CPC, Section 707.9.
- 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. 2010 CPC, Section 508.14(1).
- P-6 **Fuel burning water heaters** shall be installed per 2010 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 2010 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. 2010 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. 2010 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. 2010 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 shall be maintained above the controls with the strapping. 2010 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. 2010 CPC, Section 1212.5.
- 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. 2010 CPC, Section 418.

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. 2010 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 makeup air shall be provided in the door or by other approved means. 2010 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. 2010 CMC, Section 916.1(B)(3).
- M-4 **Domestic range vents.** Ducts for domestic kitchen downdraft grill-range ventilation shall be installed as per 2010 CMC, Section 504.2.
- M-5 **Fuel burning equipment** shall be assured a sufficient supply of combustion air as per Chapter 7, 2010 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 2010 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. 2010 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. 2010 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. 2010 CMC, Section 802.7.4.3.
- M-9 **Approval of Equipment.** Listed and unlisted equipment shall comply with the 2010 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. 2010 CMC, Section 307.1.