Residential Code Requirements
Based Upon the 2010 California Building, Mechanical, Plumbing and Electrical Code

FOUNDATION

1. Provisions shall be made for the control and drainage of surface water around buildings. 2010 CBC Sec. 1803A.3 (See also 1805.3.4).

2. Monolithic poured foundations require a minimum of 2-#4 horizontal rebar. One is to be in the footing and one is to be in the stemwall, with a minimum 30-diameter splice. Any deviation requires additional drawings. 2010 CBC Sec. 1908.1.15(C)

3. Plain concrete shall have a minimum ultimate compressive strength at 28 days of 2,500 psi. 2010 CBC Sec 1905.1.1. (See Table 1904.2.2) (See also 1805A.4.2.1)

4. Sills shall be bolted to the foundation with a minimum 5/8" diameter steel bolt embedded 7" into concrete or masonry and spaced 6' apart. Provide a minimum of 2 bolts per piece, locate a bolt within 12" of the end of each piece. 2010 CBC Sec. 1805A.6, 2308.12.9. Foundation sills and plates shall be the kind of wood as specified in 2010 CBC Sec. 2308.6. Plate washers a minimum of 3" by 3" by 0.229" thick shall be used on each bolt. 2010 CBC Sec. 2308.12.8.

5. Foundations supporting wood shall extend at least 8" above the finish grade. 2010 CBC Sec. 2304.11.2.2.

6. Where a design is not provided, the minimum foundation requirements for stud bearing walls shall be as set forth in 2010 CBC Table 18-I-C. 2010 CBC Sec. 1805A.4.2.

7. Foundations where surface of the ground slopes more than 1 in 10 shall be level or shall be stepped so that both top and bottom of the foundation are level. 2010 CBC Sec. 1805A.1.

8. The minimum thickness of concrete floor slabs supported on the ground shall be not less than 3 1/2". 2010 CBC Sec. 1910.1.

9. Individual concrete or masonry piers shall project at least 8" above exposed ground unless the columns/posts being supported are of approved wood of natural resistance to decay or treated wood. 2010 CBC Sec. 2304.11.2.7.
FRAMING

10. All foundations, plates or sills and sleepers on concrete or masonry foundation, which is in direct contact with earth, shall be treated wood or foundation grade redwood, all marked by an approved agency. 2010 CBC Sec. 2304.11.2.4.

11. Columns and posts located on concrete floors exposed to the weather, which support structures shall be supported by concrete piers or metal pedestals. If not approved wood of natural resistance to decay or treated wood, the pedestal shall project 6” above earth and 1” above the floor. 2010 CBC Sec. 2304.11.2.7.

12. Any wood located nearer than 6” to earth shall be treated wood or wood of natural resistance to decay. 2010 CBC Sec. 2304.11.2.2

13. Provide 18” clearance under floor joists and 12” under girders. 2010 CBC Sec. 2304.11.2.1

14. Provide 18” x 24” access to underfloor area. Opening shall be screened or covered. 2010 CBC Sec. 1209.1

15. Provide 1 square foot of vent for every 150 square feet of underfloor area. Locate vents close to corners and on at least two opposite sides. Cover vents with 1/4” corrosion resistant wire mesh. 2010 CBC Sec. 1203.3.1

16. When girders are spliced over a support, an adequate tie shall be provided to connect girder to post. 2010 CBC Sec. 2308.7. Post & girders shall have positive connections. CBC Sec 2304.9.7

17. In combustible construction firestopping and draftstopping shall be installed to cut off all concealed draft openings at floors and ceilings both vertically and horizontally. CBC Sec. 717.

18. All materials to be of approved grade and identified by a grade mark. CBC Sec. 2304.

19. Minimum nailing of structural members shall be in accordance with CBC Table 2304.9.1 CBC Sec. 2304.9.1

20. Allowable spans for floor joist, ceiling joist, and rafters shall be in accordance with CBC Tables 2308.8, 2308.10, 2308.10.3

21. Floor joist shall be supported laterally at the ends and at each support by solid blocking. CBC Sec. 2320.8.6 and 2320.8.3.

22. The size, height and spacing of studs shall be in accordance with Table 2308.9.1 and CBC Sec. 2308.9.1.
23. Foundation cripple walls shall be framed of studs the same size as the studs above. Minimum length of cripple studs is 14”. Solid blocking or plywood sheathing may be used to brace cripple walls having a stud height of 14” or less. CBC Sec. 2308.9.4.

24. Studs shall be placed with their wide dimension perpendicular to the wall. 2010 CBC Sec. 2308.9.2.

25. Bearing stud walls shall have double top plates and single bottom plate the full width of the studs. 2010 CBC Sec. 2308.9.2.1.

26. All buildings to be adequately braced per Table 2308.9.7 2010 CBC Section.

27. Rafters shall be framed directly opposite each other at the ridge. CBC Sec. 2308.10.4.

28. Rafters shall be tied together with 1” x 4” ties at 48” on center when the ceiling joists are not parallel with the rafters. 2010 CBC Sec. 2308.10.4.1.

29. Rafters and ceiling joists shall be supported laterally to prevent rotation when required. 2010 CBC Sec. 2308.10.6.

30. Plywood used for roof sheathing shall be bonded by exterior glue. 2010 CBC Sec. 2304.7.2.

31. Ridge board, valley or hip rafter shall not be less in depth than the cut end of the rafter. 2010 CBC Sec. 2308.10.4.

32. Prior to the installation of trusses, engineered truss drawings with framing plan shall be submitted to the Building Department. 2010 CBC Sec. 2303.4.1.2.

33. Provide 22” x 30” attic access. Access must be located in a corridor, hallway, or other readily accessible location. Provide 30” unobstructed head room above access. CBC Sec. 1209.2.

34. Provide attic ventilation equal to 1/150 of the area of the attic. Where eave or cornice vents are installed, insulation shall not block the free flow of air. A minimum of 1 inch (25 mm) of air space shall be provided between the insulation and roof sheathing. Cover openings with corrosion resistant metal mesh with 1/4” openings. 2010 CBC Sec. 1203.2 and 1203.2.1.

GARAGE

35. Garage shall not have any openings into a room used for sleeping purposes. 2010 CBC Sec. 406.1.4 #1.

36. Floor surfaces shall be non-combustible. 2010 CBC Sec. 406.2.6.

38. In an occupancy separation between a dwelling and garage, the separation may be limited to the following:

A. The private garage shall be separated from the dwelling unit and its attic area by means of a minimum ½-inch (12.7 mm) gypsum board applied to the garage side. Garage beneath habitable rooms shall be separated from all habitable rooms above by
not less than a 5/8 – inch Type X gypsum board or equivalent. Door openings between a private garage and the dwelling unit shall be equipped with either solid wood doors or solid or honeycomb core steel doors not less than 1 3/8 inches (34.9mm) thick, or doors in compliance with Section 715.4.3. Openings from a private garage directly into a room used for sleeping purposes shall not be permitted. Doors shall be self-closing and self latching.

B. Ducts in a private garage and ducts penetrating the walls or ceilings separating the dwelling unit from the garage shall be constructed of a minimum 0.019-inch (0.48mm) sheet steel and shall have no openings into the garage.

C. A separation is not required between a Group R-3 and U carport, provided the carport is entirely open on two or more sides and there are not enclosed areas above.

D. **Openings for steel or one-hour plastic electrical outlet boxes not exceeding 16 square inches in area are permitted provided the area of such opening does not aggregate more than 100 square inches of any 100 square feet of garage fire-wall. Outlet boxes on opposite sides of walls or partitions shall be separated by a horizontal distance of 24". CBC Sec. 712.3.2**

E. Ducts used in central vacuum cleaning systems within a dwelling unit may be of schedule 40 PVC pipe. penetrations of fire walls, floor-ceiling or roof-ceiling assemblies between the garage and dwelling unit shall be copper or ferrous pipes or conduits extending from within the separation to the central vacuuming unit. **CBC Sec. 712 and Sec. 709.7. CMC Sec. 506.1 #3**

**MISCELLANEOUS**

39. Every basement in dwelling units and sleeping rooms below the fourth story shall have one operable window or door to the outside complying with the following:

   A. Minimum net clear opening height shall be 24".
   B. Minimum net clear opening width shall be 20".
   C. Total clear opening of 5.7 square feet.
   D. Bottom of clear opening shall not be more than 44" above the floor. **CBC Sec. 1026.1,2,2.1,3**

40. Showers shall be finished 70" above the drain inlet with a smooth, hard, non-absorbent surface. The materials used in the wall shall be of a type not adversely affected by moisture, except for structural elements. When gypsum is used as a base for tile or wall panels, water-resistant gypsum backing board shall be used, except in the following locations: 1. Over a vapor retarder; 2. In saunas, steam rooms or other areas subject to continuous high humidity; 3. On ceilings where the framing is more than 12" on center. **CBC Sec. 1210.3 and Sec. 2509.3**

41. Habitable spaces shall have a 7’6" ceiling height. Kitchens, halls, bathrooms, closets and utility spaces shall have a minimum 7’ ceiling height. **CBC Sec. 1208.2.**

42. Every dwelling shall have one room with 120 square feet of floor area. Minimum size of habitable rooms, except for kitchen, shall be 70 square feet with minimum width of 7’. **CBC Sec. 1208.3.**
43. Provide an approved smoke detector mounted on the ceiling or wall in every sleeping room and at a point centrally located in the corridor or area giving access to each separate sleeping area. When the dwelling unit has more than one story and in dwellings with basements, a detector 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, the smoke detector shall be installed on the upper level, except that when the lower level contains a sleeping area, a detector shall be installed on each level. When sleeping rooms are on an upper level, the detector shall be located at the ceiling of the upper level in close proximity to the stairway. In dwelling units where the ceiling height of a room open to the hallway serving the bedrooms exceeds that of the hallway by 24" or more, smoke detectors shall be installed in the hallway and in the adjacent room. Detectors shall sound an alarm audible in all sleeping areas of the dwelling unit in which they are located. Detectors shall receive power from building wiring and shall be equipped with battery backup. The detector shall emit a signal when the battery is low. Detectors shall be installed in accordance with the approved manufacturer’s instructions. CBC Sec. 907.10.1.2; 907.10.2; 907.10.3. (See Code Interpretation No. CI-9 and CI-10 available in the City Building Division.)

44. Every space intended for human occupancy shall be provided with natural light by means of exterior glazed openings or with artificial light for natural light 8% of floor area served shall be provided. Artificial light shall be sufficient to provide an average of 10 foot – candles over the area at a height of 30 inches above floor level. CBC Sec. 1205.1/1205.2/1205.3.

45. The minimum openable area for habitable areas shall be 4% of the floor area being ventilated. Bathrooms shall be mechanically vented (tubs or showers) per Table 4-4 of the CMC (Sec 1203.4, 1203.4.1, 1203.4.2.1).

46. Every dwelling shall have a kitchen sink, water closet, lavatory and either a bathtub or shower. They shall be equipped with hot and cold water. CBC Table Sec.2902.1

47. Every dwelling shall be provided with heating facilities capable of maintaining a room temperature of 68°F at a point 3' above the floor in habitable rooms. CBC Sec. 1204.1.

48. All weather-exposed surfaces shall have a weather resistive barrier to protect the interior wall cover. CBC Sec. 1403.2.

49. All platforms and open side of stairs more than 30" above grade or floor below shall have a guardrail 42" high. Provide intermediate rails so that a 4" diameter sphere cannot pass through. CBC Sec. 1013.

50. Roof covering shall be securely fastened to the supporting roof construction and shall provide weather protection. 2010 CBC Chapter 1503.1

51. Glass located in hazardous locations shall be safety glass or tempered glass. 2010 CBC Sec. 2406.3.

A. Glazing in doors.
B. Glazing in fixed and sliding panels of sliding door assemblies.
C. Glazing in doors of showers and tubs and any windows where the bottom is less than 60" above the standing surface and drain inlet.
E. Glazing in fixed or openable panels adjacent to a door where the nearest exposed edge of the glazing is within a 24" arc of either vertical edge of the door in a closed position and where the bottom exposed edge of the glazing is less than 60" above the walking surface.

52. Finish materials on walls shall have a minimum flame spread of Class III or as in Table 8-B. 2010 CBC Sec. 803.5; Table 803.5.

MASONRY FIREPLACE

53. Firebox shall be not less than 20" in depth. 2010 CBC Sec. 2111A.6.

54. Foundations shall be not less than 12" thick, extend 6" outside the fireplace wall and extend below grade a minimum of 12 inches. 2010 CBC Sec. 2111A.2.

Note: The State of California requires all designs to be shown on the approved (reviewed) plans.

55. Walls of fireboxes shall be 10" thick, unless lined with firebrick, then the wall can be 8" thick. 2010 CBC Sec. 2111A.5.

56. Combustible material:

A. Shall not be within 2" of smoke chamber or chimney wall.
B. Shall not be within 6" of opening.
C. If closer than 12" of opening, the material shall not project more than $\frac{1}{8}$" for each 1" clearance from opening. 2010 CBC Sec. 2111A.11.

57. Hearth shall be of non-combustible material, minimum 4" thick and shall be supported by non-combustible material. 2010 CBC Sec. 2111A.9 and 9.1.

58. Hearth shall extend 16" in front and 8" to the side of the opening. If opening is over 6 square feet, the extension shall be 20" in front and 12" to the side. 2010 CBC Sec. 2111A.10.

MASONRY CHIMNEYS

59. A chimney shall not support any load other than its own weight, unless designed as a support member. 2010 CBC Sec. 2113A.B.

60. Reinforce with 4-#4 rebar extended the full height of the chimney. The reinforcing bars shall have a minimum of $\frac{1}{2}$" of grout cover. Tie the vertical bars with not less than $\frac{1}{4}$" horizontal ties at 18" on center. Provide 2-#3 at each bend in vertical bars. If the chimney width is greater than 40" provide an additional 2-#4 vertical rebar for each 40" additional width. 2010 CBC Secs. 2113A3.1 and 3.2.

61. Anchor the chimney to each floor or ceiling more than 6' above grade, except if constructed inside the building. Anchor with two $\frac{3}{16}$" x 1" straps, cast 12" into the chimney with 180° bend with 6" extension around vertical rebar at outer face of chimney. Fasten strap to the frame with two $\frac{1}{2}$" bolts. Sections 2113A.4/4.1 2010 CBC
EXTERIOR PLASTER

62. Plastering with cement plaster shall not be less than three coats where applied over metal lath or wire fabric lath and not less than two coats where applied over masonry, concrete or gypsum board backing as specified in Section 2510.5. If the plaster surface is to be completely covered by veneer or other facing material, or is completely concealed by another wall, plaster application need be only two coats, provided the total thickness is as set forth in ASTM C 926 #63.

63. Provide a corrosion resistant, 26 gauge weep screed with minimum vertical attachment flange of 3\(\frac{1}{2}\)" at or below the mudsill on exterior stud walls. Place screed a minimum of 4" above grade. Weather barrier and lath shall cover and terminate on the attachment flange of the screed. **2010 CBC Sec. 2512.1.2.**

64. Metal lath shall be attached to wood supports as set forth in **CBC Tables 2507.2 and Chapter 35.**

*Note:* Stucco applied over solid sheathing (plywood) shall have two layers of grade D paper. **CBC Sec. 2510.6.**

GYPSUM WALL BOARD

65. Fasteners shall conform with CBC Table 2508.5 and shall be applied in such a manner as not to fracture the face paper with the fastener head. Fasteners shall be spaced a minimum of \(3\frac{3}{8}\)" from edges and ends. **CBC Sec. 2508.3.1.**

66. All edges and ends shall occur on the framing members, except those edges and ends which are perpendicular to the framing members. **CBC Sec. 2508.3.**

67. Single-layer fire-rated assemblies shall have joints treated (taped), except if joints occur over wood framing members. **CBC Sec. 2508.4 #2.**

STAIRWAYS, DOORS AND CORRIDORS

68. Minimum width of stairway is 36". Maximum rise is 7.75". Minimum run is 10". Maximum variation is .375" (9.5mm). **CBC Sec. 1009.3; 1009.3.2; 1009.1.**

69. Winders may be used if the required width of run is provided at a point 12" from the side of the stairway where treads are narrower, but in no case shall the width of run be less than 7.5 at any point. **2010 CBC Sec. 1009.8; 1009.3.1.**

70. Handrails are required on all stairways having four or more risers. **2010 CBC Sec. 1009.10 Exception 4.**

71. Handrails shall be placed 34" to 38" above the nosing of the treads. They shall be continuous the full length of the stairs. **2010 CBC Sec. 1012.2.**
72. Ends of handrails shall be returned. **2010 CBC Sec. 1012.5.**

73. Walls and soffits of enclosed space under stairs shall be protected on the enclosed side as required to one-hour fire resistive construction. **2010 CBC Sec. 1009.5.3.**

74. Every stairway shall have 6’8” headroom. **2010 CBC Sec. 1009.2**

75. Hallways shall have minimum width of 36”. **2010 CBC Sec. 1021.2.**

76. Provide a minimum 3’ wide x 6’8” high door to outside. **2010 CBC Sec. 1008.1.1.**

**PLUMBING**

77. Water closets shall be in a clear space 30” wide and have 24” clear space in front. **2010 CPC Sec. 407.6.**

78. Fixtures having slip-joint connections shall have a 12” x 12” minimum access panel. **2010 UPC 404.2.**

79. Showers:
   A. Shower compartments shall have a finished interior of 1,024 square inches and shall be capable of encompassing a 30” circle. this area shall be maintained to a height of 70” above the drain inlet. Only the valves, shower head, soap dish, small shelves, grab bars or rails may protrude into this space. **CPC 411.7.**
   B. Shower and tub-shower combinations shall be provided with mixing valves that are the pressure balance type or temperature limiting type. **2010 CPC 418.0**

80. All drain lines, water lines and gas lines shall be in accordance with the 2010 California Plumbing Code. The City does not allow metallic water piping, in the ground, under a concrete slab of a dwelling. **2010 CPC 609.3.6 Amended.**

81. Lawn sprinkling systems shall be equipped with an approved vacuum breaker. **2010 CPC Sec. 603.4.6.1.**

82. Water pressure shall be a minimum of 15 PSI and a maximum of 80 PSI. **2010 CPC 608.1 and 608.2.**

83. Water Heater:
   A. Combustion air for water heaters shall be supplied per **507.3; 507.4; 507.4.1 of 2010 CPC**
   B. Gas water heaters installed in a room used for sleeping purposes, bathroom, clothes closet or in any area opening into such rooms shall meet the requirement of **Sec. 505.1, 2010 CPC.**
   C. Flame to be 18” above the garage floor. **2010 CPC 508.14 (1).**
   D. Provide a minimum access to front of water heater of 24” wide. **UPC Sec. 511.**
   E. Temperature and pressure relief valve drain lines shall be an approved listed device installed per manufacturer’s specifications. **2010 CPC 505.4 and 505.5.**
F. Anchor or strap water heater at points within the upper one-third (1/3) and lower one-third (1/3) of its vertical dimensions. The lower strap must be no closer than 4” above the controls. **2010 CPC Sec. 508.2.**

**MECHANICAL**

84. Heating equipment that may generate a glow, spark or flame shall have burners or pilots 18" above the garage floor. **2010 CMC 308.1.**

85. Sufficient access shall be provided to mechanical appliances for servicing **2010 CMC Sec. 305; 305.1 UMC Sec. 307.2 Exception.**

86. Warm air furnaces installed in a room used as a bedroom, bathroom, closet or in any space with access only through such rooms shall be installed per **2010 CMC, 904.1.**

87. Approved decorative appliances and log lighters shall be installed in accordance with the fireplace listing. **2010 CMC 907.2.**

88. Low heat gas appliances shall be vented in accordance with **CMC Chapter 8.**

89. Factory made air ducts shall not be installed closer than 4" to the ground or where exposed to physical damage.  **Sec. 604.3; 604.4 20007 CMC.**

90. Ducts used for kitchen range hood ventilation and clothes dryer ventilation shall be of metal and have smooth interior surfaces. **20007 CMC Sec. 504.2 and Sec. 504.3.2.1**

91. Clothes dryer ducts shall not be put together with screws or other fasteners that extend into duct. **2010 CMC Sec. 504.3.1.**

92. When clothes dryers are located inside a compartment or space, a minimum 4” exhaust duct to the outside shall be provided. Maximum length is 24’ and 2’ shall be deducted for each 90° elbow in excess of two. **2010 CMC Sec. 504.3.2 and 504.3.2.2 and The City Installation Allowances.**

93. When AC coils are located above a living space, provide a primary and secondary condensate drain line. **CMC Sec. 310.2.**

94. Ranges shall have a vertical clearance above the cooking top of not less than 30" to unprotected combustible material. **2010 CMC Sec. 916.2.**

95. Attics containing equipment requiring access shall be provided with the following:

1. An access opening large enough to remove the largest piece of equipment, but not less than 30 inches x 22 (762 mm by 559 mm);
2. An unobstructed passageway which:
   2.1 Is large enough to remove the largest piece of equipment but not less than 30 inches (762 mm) high and 30 inches (762 mm) wide.
   2.2 Is no more than 20 feet (6096 mm) in length when measured along the center line of the passageway from the access opening to the equipment, and
2.3 Has continuous solid flooring not less than 24 inches (610 mm) wide throughout its length; and
3. A level service space at least 30 inches (762 mm) deep and 30 inches (762 mm) wide located at the front or service side of the equipment.

*Exception:* The passageway and level service space may be omitted if the equipment can be serviced and removed through the access opening. 2010 CMC 305.0; 904.11.1; 904.11.2; 904.11.3; 904.11.4

**ELECTRICAL**

96. All 125V, single phase, 15A and 20A receptacles installed in kitchens to serve counter top surfaces, within 6’ of the wet bar sinks to serve counter top surfaces, bathrooms, garages, crawl spaces, unfinished basements, and outdoor receptacles shall have GFCI protection. 2010 CEC Art. 210-8(A).

97. Habitable rooms shall have a receptacle installed so that no point along the floor line on any wall space is more than 6’ from an outlet in that space and any wall space larger than 2’. 2010 CEC Art. 210-52.

98. In kitchens, a receptacle shall be installed at each counter space wider than 12” and island counter. 2010 CEC Art. 210-52(C) (1) through (5).

99. Install additional receptacles in the following places:
   A. Bathroom next to the basin. Bathroom receptacle outlets shall be supplied by at least one 20-ampere branch circuit. Such circuits shall have no other outlets. 2010 CECC Art. 210-52(D).
   B. Outdoors. 2010 CEC Art. 210-52(E).
   C. Laundry. 2010 CEC Art. 210-52(F).
   D. In an attached garage, basement or detached garage with power. 2010 CEC Art. 210-52(G).
   E. Hallways over 10’ in length. 2010 CEC Art. 210-52(H).

100. At least one wall switch-controlled lighting outlet shall be installed in every habitable room, bathroom, hallway, stairway, attached garage, detached garage with power, and at outdoor entrances. If the stairway is 6 riser or more provide a switch at each level. 2010 CEC Art. 210-70(A).

101. For a dwelling, the service disconnecting means shall have a rating of not less than 100 Amps. 2010 CEC Art. 230-79(C).

102. Fuseholders of the Edison-Base type shall be installed only where they are made to accept type S fuses by the use of adapters. 2010 CEC Art. 240.52.

103. Bond metal water pipe and other metal piping to the service equipment enclosure. 2010 CEC Art. 250-104(A).(1).
104. Provide a grounding electrode system in accordance with 2010 CEC Art. 250-52 and 250-53.

105. Non-metallic boxes shall be permitted in dwellings. 2010 CEC Art. 314.3.

106. Switches located outside the building shall be enclosed in a weatherproof enclosure. 2010 CEC Art. 404-4.

107. No part of a hanging light fixture shall be located within a zone measured 3' horizontally and 8' vertically from the bathtub rim. 2010 CEC Art. 410-4(D).

108. For light fixtures in clothes closets see 2010 CEC Art. 410-8.

109. Light fixtures that weigh more than 50 pounds shall be supported independently of the outlet box. NEC Art. 314.27(B).


111. Electric motors disconnecting means (at least one) shall be readily accessible. 2010 CEC Art. 430-107.

112. Protect all cable from damage within 6' of the attic access. 2010 CEC Art. 334.23 and NEC Art. 320.23.

SECURITY ORDINANCE

113. Building shall comply with the City Security Code.