

City of Sonoma Building Department
One- & Two-Family Dwelling
Basic Plan Notes

Revised 1/10/17 for the 2016 CA Codes

ALL ITEMS NOTED SHALL BE INCORPORATED INTO THE WORK UNLESS MORE RESTRICTIVE REQUIREMENTS ARE SHOWN OR SPECIFIED ON THE APPROVED PLANS OR ARE OTHERWISE REQUIRED BY CODE.

GENERAL REQUIREMENTS

1. Revised plans and a Design Change Application must be submitted to and approved by the Building Department for any modifications to the approved plans, prior to installation of the modification. No inspection will be performed when unapproved modifications from the approved plans have been made. Allow sufficient time (usually at least two weeks) for review and approval of revisions by the Building Department.
2. All new LANDSCAPE PROJECTS and rehabilitated landscape projects as defined by SMC Chapter 14.32 must meet Water Efficient Landscaping Ordinance (WELO) requirements. Where landscaping is made a part of this permit, the City of Sonoma the City of Sonoma Planning Department must approve the installation and sign the Job Inspection Record Card prior to Building Department final inspection approval.
3. An automatic fire sprinkler system shall be installed under a separate fire sprinkler permit in all new buildings for which a building permit is required and in existing buildings upon a remodel or addition to a building with a valuation exceeding a permit valuation of \$100,000 [see exceptions in Sonoma Municipal; Code section 14.10.045 - 903.2]. Upgrade the domestic/fire sprinkler water service pipe size as needed to comply with water supply requirements.
4. Public improvements, including the installation of curb, gutter, sidewalks, street improvements and storm drainage are required to be provided or repaired, at the owner's expense, prior to final inspection approval for projects with a permit valuation exceeding \$40,000. Projects that are solely for reroofing, ADA upgrades and solar energy installations are exempt unless otherwise shown or specified on the approved plans.
5. If trusses are proposed, the truss design layout, truss calculations and truss connection details must be approved by the building department prior to delivery of the trusses.
6. When provided, the recommendations of the geotechnical engineer shall be followed.
7. New buildings and where an addition or alteration increases the building's conditioned area, volume, or size, must comply with the requirements of CALGreen. CALGreen does not apply to repairs or for detached "U" occupancy buildings. For new residential buildings and most additions, the Owner or the Owner's agent shall employ a qualified CALGreen Special Inspector, listed by the City of Sonoma Building Department, to perform CALGreen special inspection services to verify and certify that the project is constructed in accordance with the 2016 California Green Building Standards Code as amended by Chapter 14.10 of the Sonoma Municipal Code.
8. For all new or altered sewer laterals or changes in building use, the Sonoma County PRMD, Sanitation Division must approve the installation and sign the Building Inspection Record Card prior to final inspection approval by the Building Department.

9. Energy features shall meet or exceed the requirements of the California Energy Code.
10. When compliance with CALGreen measures is required, builder should consult with the CALGreen Special Inspector prior to Close-in inspection. The CalGreen Special Inspector must verify all CALGreen implementation measures.
11. Any deviations from the "approved" plans require the submittal of revised drawings to the building department for plan review approval. No inspections will be performed on work not authorized by approved plans.
12. A City of Sonoma Encroachment Permit shall be obtained prior to performing any work in the public right-of-way.

TITLE PAGE

13. All work shall conform to the following CODES as applicable and as amended by the Sonoma Municipal Code:
 - 2016 California Residential Code (CRC)
 - 2016 California Building Code (CBC) [as applicable]
 - 2016 California Mechanical Code (CMC)
 - 2016 California Electrical Code (CEC)
 - 2016 California Plumbing Code (CPC)
 - 2016 California Energy Code (Energy)
 - 2016 California Green Building Code (CGBC) [as applicable]
 - Title 14 of the Sonoma Municipal Code (SMC) [as applicable]
14. Fire-resistant exterior wall construction shall be provided when required by CRC section R-302.
15. When the full extent of soil disturbing activities is limited to trenching for utilities, footings, demolitions, swimming pools, or foundations for residential additions or alterations, Non-Site-Specific and Typical Erosion and Sediment Control Best Management Practices shall be met as applicable. (SMC 14.20.205).
16. For new buildings where grading or soil-disturbing activities including landscaping, excavations, trenching, or other activities where erosion or soil disturbance may occur, erosion control and storm water pollution prevention measures must be taken to control erosion and eliminate storm water pollution during construction (SMC 14.20.205). The ground adjacent to the foundation shall be sloped so that the grade shall fall a minimum of 6 inches within the first 10 feet. Impervious surfaces shall be sloped 2% min. (CRC R401.3).

FLOOR PLAN:

17. All new habitable rooms except kitchens shall be at least 70 square feet in area and shall have a width of at least 7 feet. In addition, there shall be at least one room with a minimum of 120 square feet in each dwelling (CRC R304/R305). Minimum ceiling height shall be 7 ft. (CRC R305.1) [See CRC R304 and R305 for exceptions.]
18. New or altered enclosed accessible space under stairs shall have walls, under-stair surface and any soffits protected on the enclosed side with ½" gypsum board.(CRC R302.7)

19. New or altered sleeping rooms and any basement must have at least one operable window or door approved for emergency rescue with a minimum net clear opening of 5.7 square feet, except the windows at the grade floor shall have a minimum net area of 5.0 square feet. The minimum net vertical opening dimension shall be 24 inches. The minimum net clear opening width dimension shall be 20 inches. The bottom of the clear opening shall be no more than 44 inches from the floor (CRC R 310.1).
20. Provide 22 inch x 30 inch minimum attic access opening for new attics that exceed 30 sq. ft. and have a vertical height of 30 inches or greater (CRC R807.1). In attics where an appliance is installed, an opening and passageway at least as large as the largest component of the appliance shall be required (CMC 904.10).
21. Safety glazing shall be provided for new glazing in all hazardous locations as follows (CRC R-308):
 - Glazing in all fixed and operable panels of swinging, sliding and bi-fold doors [see code exceptions].
 - Glazing in an individual fixed or operable panel adjacent to a door where the nearest vertical edge is within a 24-inch arc of the door in a closed position and whose bottom edge is less than 60 inches above the floor or walking surface [see code exceptions].
 - Glazing in an individual fixed or operable panel that meets all of the following conditions [see code exceptions]:
 - The exposed area of an individual pane is larger than 9 square; and
 - The bottom edge of the glazing is less than 18 inches above the floor; and
 - The top edge of the glazing is more than 36 inches above the floor; and
 - One or more walking surfaces are within 36 inches measured horizontally and in a straight line, of the glazing.
 - All glazing in guards and railings regardless of area or height above a walking surface. Included are structural baluster panels and nonstructural infill panels.
 - Glazing in walls, enclosures or fences facing hot tubs, spas, whirlpools, saunas, steam rooms, bathtubs and showers and indoor and outdoor swimming pools where the bottom exposed edge of the glazing is less than 60 inches measured vertically above any standing or walking surface [see exception].
 - Glazing adjacent to stairways, landings and ramps within 36 inches horizontally of a walking surface when the exposed surface of the glazing is less than 60 inches above the plane of the adjacent walking surface [see exceptions].
 - Glazing adjacent to stairways within 60 inches horizontally of the bottom tread of a stairway in any direction when the exposed surface of the glazing is less than 60 inches above the nose of the tread [see exceptions].
22. Builder shall leave the NFRC Fenestration Labels on all new doors with glazing and windows until inspected and approved by the Building Inspector.

STAIRWAYS, LANDINGS, HANDRAILS & GUARDS

23. There shall be a level landing at each side of all new or altered doors, except exterior landings may be sloped not more than 2%. The landing shall be at least as wide as the door served and 36 inches minimum length measured in the direction of travel. There may one step down of no more than 7¾ inches, provided the door does not swing over the landing. (CRC R311.3)
24. For new and altered stairways, stairway rise shall be 4 inches minimum and 7¾ inches maximum. The greatest riser height within any flight of stairs shall not exceed the smallest by more than 3/8 inch. RUN shall be 10 inches min. The greatest tread depth within any flight of stairs shall not exceed the smallest by more than 3/8 inch. Headroom shall be 80 inches min. WIDTH shall be 36 inches min. (R311.7). [See special requirements for spiral and winding stairways (CRC R311.7.5.2 and R311.7.10)]
25. The radius of curvature at the tread nosing shall be no greater than 9/16 inch. A nosing not less than 3/4 inch but not more than 1-1/4 inches shall be provided on stairways with solid risers. (R311.7.5.3)
26. There shall be a floor or landing at the top and bottom of each stairway. Width and length of landings shall be not less than the width of the stairway and shall be at least 36 inches in the direction of travel. A floor or landing is not required at the top of an interior flight of stairs, including stairs in an enclosed garage, provided a door does not swing over the stairs (CRC R311.7.6).
27. For new and altered stairways, continuous HANDRAILS shall be provided on at least one side of each continuous run of treads or flight with four or more risers. Handrail ends shall be returned or shall terminate in newel posts or safety terminals. Handrails adjacent to a wall shall have a space of not less than 1-1/2 inches between the wall and the handrails. Handrails shall be 34 – 38 inches above tread nosing (see exceptions in R311.7.8.2) with openings less than 4-3/8 inches clear (R312.3). Handrails must have a circular cross-section with an outside diameter of at least 1-1/4 inches and not greater than 2 inches or must otherwise have a grip size that meets the requirements of R311.7.8.3.
28. Guards shall be located along open sided walking surfaces, including stairs, ramps, landings, and decks, that are more than 30 inches above the floor or grade. Required guards shall be not less than 42 inches above the adjacent walking surface except that handrails may be considered as guards at stairways. Openings in guards shall not exceed 4 inches (CRC R312).
29. Window Fall Protection. Where the opening of an operable window is located more than 72 inches above the finished grade or surface below, the lowest part of the clear opening of the window shall be a minimum of 24 inches above the finished floor of the room in which the window is located. Operable sections of windows shall not permit openings that allow passage of a 4-inch-diameter sphere where such openings are located within 24 inches of the finished floor (CRC R312.2).
30. New, reconstructed or replaced wood-burning appliances (i.e. fireplaces, wood stoves, etc.) shall be 1) a pellet-fueled wood heater, 2) an EPA-certified wood heater; 3) a wood-burning appliance approved for use by the Northern Sonoma County Air Pollution Control District, or 4) a fireplace certified by the EPA, should the EPA develop a fireplace certification program(SMC 14.28.040). [See exemption in SMC 14.28.020]

GARAGES & CARPORTS

31. New or altered carports with habitable space above and attached garages shall be protected by a residential fire sprinkler system (CRC R309.6) [See exceptions for additions and alterations.]
32. Openings from a private garage directly into a room used for sleeping purposes are not permitted. Other openings between the garage and residence shall be equipped with solid wood doors not less than 1-3/8 inches in thickness, solid or honeycomb core steel doors not less than 1-3/8 inches thick, or 20-minute fire-rated doors. Doors shall be self-closing and self-latching (CRC R302.5.1). [Note see exception when fire sprinklers are installed].
33. New or altered attached garages shall be provided with ½-inch gypsum board for fire separation on walls supporting floor/ceiling assemblies, on walls adjacent to habitable space or attics or if located less than 3 feet from a dwelling on the same lot. Where habitable rooms are located above a garage or carport, 5/8-inch gypsum board shall be installed on the garage ceiling and the walls or columns supporting the ceiling assembly must be protected with ½-inch gypsum board (CRC R302.6).
34. New garage floor surfaces shall be of approved noncombustible material. The area of floor used for parking of automobiles or other vehicles shall be sloped to facilitate the movement of liquids to a drain or toward the main vehicle entry doorway (CRC R309.1).

PLUMBING and MECHANICAL

35. All hot water piping shall be insulated in accordance with CPC 609.11 and Energy Code 120.3.
36. Plumbing cleanouts in underfloor piping shall be extended to or above the floor or extended outside the building crawlspace unless installed pursuant to all of the requirements of CPC 707.9.
37. All new toilets, urinals, showerhead and interior faucets must be water conserving fixtures (i.e. 2.0 GPM max. shower heads; 1.2 GPM max lavatory faucets; 1.8 GPM max. kitchen faucets; 1.28 gal. per flush water closets).
38. All Noncompliant Existing Plumbing Fixtures as defined in CA Civil Code 1101.1-1101.8. and installed in homes built and available for use prior to January 1, 1994 must be converted to water conserving fixtures [see Noncompliant Existing Plumbing Fixtures Declaration form for exceptions and additional information].
39. Where less than 18 inches of clear height (including ducts and piping) is provided under a new floor, cleanouts shall be extended above the floor or outside of the building. No new or altered underfloor cleanout shall be located more than 20 ft. from an underfloor access door (CPC 707.9).
40. Water closets in new or altered bathrooms shall be located at least 15 inches from a side wall or obstruction and within a space not less than 30 inches in width with 24 inches minimum clearance in front of the toilet. New or altered bathroom doors should not swing into the required clear space (CPC 407.7).
41. Shower compartments and walls above bathtubs with shower heads installed shall be finished with a smooth, nonabsorbent surface to a height of not less than 72 inches above the floor (CRC R307.2). Provide curtain rod or approved enclosure.
42. Shower floor area shall be not less than 1024 sq. inches and not less than 30 inches diameter.
43. Shower control valves and showerheads shall be arranged so that the bather can adjust the valves prior to stepping into the shower spray. (CPC 408.9)

44. New or altered hose bib type faucets shall be provided with approved non-removable backflow prevention devices. (CPC 603.5.7)
45. Provide pressure relief valve with drain to outside for new or relocated water heaters (CPC 608.5). Provide seismic strapping for tank type water heaters (CPC 507.2).
46. New enclosures for gas water heater and/or furnace located within or adjacent to conditioned space shall be provided with a fully weather-stripped, 24-inch minimum width door and insulated walls. 30 inches of clear unobstructed working space is required along the entire front of the firebox for servicing of the equipment. (CMC 304.1 & Energy Code 150)
47. A gas supply of at least 200,000 Btu/hr shall be provided for all new tank type gas water heaters (Energy Code 150(n)).
48. No wood burning devices (i.e. wood heater, fireplace, etc.) may be installed in new building construction (within buildings). No fireplace or chimney alteration with a cost greater than \$15,000 shall be made unless a gas-fired, electric or EPA Certified device is installed. (BAAQMD Regulation 6 Rule 3)
49. A heating system is required to maintain 68 degrees at 3 feet above floor level and 2 feet from exterior walls in all habitable rooms (R303.9).
50. New or altered space heating, space cooling, water heating, fenestration and insulation shall be installed in accordance with the approved energy documentation and comply with the CA Energy Code.
51. Gas appliance enclosures shall be provided with COMBUSTION AIR openings in accordance with CMC Chapter 7.
52. Gas water heaters and furnaces are not allowed in an area opening into a bedroom or bathroom unless the requirements of CPC 504.1 and CMC 904.1 are met.
53. Vent dryer to the outside of the building, not to the underfloor area. New or altered dryer exhaust ducts shall not exceed a total combined horizontal and vertical length of 14 ft., including two 90-degree elbows. 2 ft. shall be deducted for each elbow in excess of two (CMC 504.4.2.1).
54. New and altered appliances installed in attics shall have the following (CMC 304.1 and CMC 904.10):
 - Approved listing for attic installation.
 - 30 inch x 30 inch attic access and passageway to equip.
 - 24-inch-wide solid catwalk from attic access to appliance.
 - 30-inch solid working platform in front of servicing locations.
 - A permanent electrical receptacle and high efficacy lighting fixture with a vacancy sensor near the appliance location. (CMC 904.10.4)
 - Water heaters and cooling units shall be provided with a water-tight corrosion-resistant 1.5 inch minimum height metal pan with a condensate drain to the exterior of the building. (CMC 312.2)
55. For newly constructed residential buildings and for additions over 1,000 square feet of conditioned floor area, show the method of required continuous, quiet mechanical whole-building ventilation to comply with ASHRAE 62.2

56. Each new or altered kitchen and bathroom must have a local ventilation exhaust fan that exhausts indoor air to the exterior. Exhaust fans in bathrooms must be controlled by a humidistat unless part of the whole-building ventilation system (CGBC 4.506.1). Window operation is not allowed as a permissible method for providing the required ventilation. (Energy -Section 150(o) and CRC R303.3.1). [See ASHRAE 62.2 for more requirements.]
57. Ducts in the garage and ducts penetrating the walls or ceilings separating the dwelling from the garage shall be constructed of a minimum No. 26 gauge sheet steel or other approved material and shall have no openings into the garage (CRC R302.5.2).
58. New or altered appliances and receptacles installed in garages and carports generating a glow, spark, or flame shall be located 18 inches min. above the floor. Provide protective bollard or other impact barrier (i.e. 3 inch dia. steel pipe filled with concrete) when subject to vehicular damage (CMC 308.1).

ELECTRICAL

59. Smoke alarms shall be installed in new residential construction or additions, alterations or repairs to residential buildings where the value of the work exceeds \$1,000. Smoke alarms shall receive their primary power from the building wiring, shall have a battery backup and shall be interconnected with all other smoke alarms to be clearly audible in all bedrooms (see exceptions in CRC R314). Smoke alarms shall be installed in the following locations (CRC R314):
 - In each sleeping room.
 - Outside each separate sleeping area in the immediate vicinity of the bedrooms.
 - On each additional story of the dwelling, including basements and habitable attics, but not including crawl spaces and uninhabitable attics. In dwellings or dwelling units with split levels and without an intervening door between the adjacent levels, a smoke alarm installed on the upper level shall suffice for the adjacent lower level provided that the lower level is less than one full story below the upper level.
60. Carbon monoxide alarms shall be installed where fuel-burning appliances are installed and in dwelling units that have attached garages in new residential construction or additions, alterations or repairs to residential buildings where the value of the work exceeds \$1,000. Carbon monoxide alarms shall receive their primary power from the building wiring, shall have a battery backup and shall be interconnected with all other carbon monoxide alarms in the individual unit (see exceptions in CRC R315). Carbon monoxide alarms shall be installed in the following locations (CRC R315):
 - Outside of each separate dwelling unit sleeping area in the immediate vicinity of the bedroom(s).
 - On every level of a dwelling unit including basements.
 - In any bedroom where a fuel burning appliance is located within the bedroom or its attached bathroom.
61. Provide separate branch circuits in the following locations: (CEC 210.10(C) & CEC 210.52)
 - One 20-Amp receptacle in laundry areas. (CEC 210.52(F))
 - A minimum of two 20-Amp kitchen or similar area small-appliance circuits.
 - One 20-Amp receptacle in a bathroom.
 - All outlets in a GARAGE. At least one receptacle outlet is required for each car space

62. Provide a 120V electrical receptacle within 3 feet from any new gas water heater (Energy Code 150(n)).
63. For new attached garages, provide a 240-volt/40-amp electric vehicle (EV) charging circuit (CGBC A4.106.8.1).
64. Exhaust fans shall be switched separately from lighting. (Energy 150.0(k)2.B)
65. For new and altered areas of a building, receptacles shall be installed so that no point measured horizontally along the floor line of any wall space is more than 6 ft. from a receptacle outlet. (CEC 210.52(A)); At least one receptacle outlet is required in the bathroom adjacent to the basin, outdoors at grade level at the front and the back of the dwelling, in laundry areas, on balconies, decks, porches and in the garage (CEC 210.52(D) and (E)).
66. Ground-Fault Circuit-Interrupter (GFCI) protection is required for all new 15- and 20-ampere receptacles installed to serve countertop surfaces in kitchens, in bathrooms, laundry rooms, in crawl spaces, in unfinished basements, outdoors, all garage outlets and within 6 feet of a sink. (CEC 210.8) All new dwellings must have at least one exterior outlet at the front and the back of the dwelling.
67. Provide a minimum of one 20-amp receptacle in new and altered laundry areas. (CEC 210.52(F))
68. New and altered kitchens and dining areas must have a minimum of two 20-amp circuits. Kitchen counter receptacles must be installed in every counter space 12 inches or wider, not greater than 4 ft. o.c. and within 24 inches of the end of any counter space. (CEC 210.52)
69. New and altered receptacles on 120-volt 15- and 20-amp circuits shall be the listed tamper-resistant type, except when located more than 76 inches above the floor or within cabinets or cupboards; or when part of a luminaire or appliance (CEC 406.12).
70. All 15- and 20-ampere, 125- and 250-volt receptacles installed in wet or damp locations shall be listed weather-resistant (CEC 406.8).
71. Arc-Fault Circuit Interrupters (AFCIs) are required for all 120- volt 15- and 20-amp circuits supplying outlets and devices in dwelling units unless exempt pursuant to CEC 210.12 (i.e. bathrooms).
72. All installed luminaires shall be high-efficacy in accordance with CA Energy Code Table 150.0-A.
73. Blank electrical boxes (with no fixture or receptacle) more than 5 feet above the floor shall not exceed the number of bedrooms and shall be controlled by a dimmer or vacancy sensor or fan speed control. (Energy 150.0(k)1.B)
74. Newly installed recessed downlight luminaires shall not contain screw based sockets. (Energy 150.0(k)1.C)
75. Screw based luminaires shall have lamps installed marked with "JA8-2016" or "JA8-2016-E". All screw based luminaires shall be controlled by dimmers or vacancy sensors. (Energy 150.0(k)1.G & 150.0(k)2.K)
76. At least one luminaire in all bathrooms, garages, laundry rooms and utility rooms controlled by a vacancy sensor. (Energy 150.0(k)2.J)
77. All outdoor lighting is high efficacy and is controlled by a motion sensor and either a photocell control, astronomical time clock or EMCS, plus a manual On/Off switch that does not override the automatic controls. (Energy 150.0(k) 3.A.)

78. New or altered light fixtures installed in wet locations (subject to saturation) or damp locations (not subject to saturation but exposed to moderate moisture) shall be listed and marked as for use in its intended location (CEC 410.10).
79. New or altered light fixtures in clothes closets shall meet the clearance requirements prescribed by CEC 410.16. Specify all required clearances.
80. Electrical subpanels, incandescent fixtures with open or partially enclosed lamps, and pendant fixtures or lampholders are not allowed in new or altered clothes closets. (CEC 240-24) Maintain a clearance of 36 inches in front of the panels. (CEC 110.26)
81. Bond all new and altered metal gas and water pipes to ground. All ground clamps must be accessible and of an approved type. (CEC 250.104)

FOUNDATION

82. Concrete shall be 3000 psi min. for foundation and retaining walls (including stem walls) and 2500 psi min. for all other concrete unless otherwise noted (CRC R404.1.2.3.1; Table R402.2)
83. Concrete foundations for stud-bearing walls **supporting one floor** shall have a 12-inch min. width footing, 6 inch min. thick footing and 12-inch min. footing depth below undisturbed soil. [Table R403.1(1)] Stem walls shall be designed and reinforced in accordance with R403.1.3 and R404.
84. Concrete foundations for stud-bearing walls **supporting two floors** shall have a 16-inch min. width footing, 6-inch min. thick footing and 12-inch min. footing depth below undisturbed soil. [Table R403.1(1)] Stem walls shall be designed and reinforced in accordance with R403.1.3 and R404.
85. Footing support shall be provided for all concentrated loads (CBC 1806.2).
86. Continuous, reinforced concrete FOOTINGS are required under exterior walls, bearing walls, at garage door openings and around any covered floor area. Footings shall be supported on undisturbed natural soil or engineered fill (CRC R403.1). Individual footing pads supporting piers and columns may be used when justified by calculations based on the tributary load and the allowable soil-bearing capacity (CRC R403.1.1).
87. Concrete foundations with stem walls shall have horizontal reinforcing with a minimum of one #4 bar within 12 inches of the top of the wall and one #4 bar located 3 to 4 inches from the bottom of the footing (CRC R403.1.3.1).
88. When the stem wall and footing are not poured monolithically, vertical reinforcement of #4 rebar shall be installed vertically at 4 ft. minimum o.c. The vertical bar shall extend to 3 inches clear from the bottom of the footing, have a standard hook, and extend a minimum of 14 inches into the stem wall (CRC R403.1.3).
89. Concrete slabs shall be a minimum of 3.5 inches thick (CRC R506.1). Slabs on ground with turned down footings shall have a minimum of one No. 4 bar at the top and the bottom of the footing (see CRC exception R403.1.3.2). Where the slab is not cast monolithically with the footing, #3 or larger vertical dowels with standard hooks on each end shall be provided at 48 inches on center.
90. Concrete slabs below heated spaces shall be separated from earth by a minimum 6 mil. polyethylene vapor retarder. (CRC R506.2.3).
91. Minimum Sill Anchor Bolting: Anchor bolts shall be minimum ½" x 10" placed at 6 ft. o.c. maximum. Embed bolts 7 inches min. Locate end bolts neither less than 3.5 inches nor more than 12 inches from ends of sill members or splices (CRC R 403.1.6). Provide 3" x 3" x 0.229" plate washers on each bolt (CRC R602.11.1).

FRAMING

92. The underfloor grade under new construction shall be cleaned of all vegetation and organic materials (CRC R408.5).
93. Provide 18 inch x 24 inch underfloor access through the floor or 16 inch x 24 inch underfloor access through the perimeter wall within 20 ft. of plumbing cleanouts. Access to underfloor cleanouts shall provide an 18 inch high by 30 inch wide unobstructed path from the underfloor access to the plumbing cleanout (CRC R408.4; CPC 707.9).
94. Floor joist sizes, grade and spacing shall be in accordance with CRC Tables R502.3.1, Table R502.5(1) and Table R502.5(2) unless otherwise justified by structural calculations.
95. Structural floor members shall not be cut, bored or notched in excess of the limitations specified in CRC R502.8.
96. At floor openings where header joist span exceeds 4 ft. show double trimmer joists and headers. Approved hangers shall be used for the header joist to trimmer joist connections when the header joist span exceeds 6 feet (CRC R502.10).
97. Minimum nail spacing for wood structural floor panels: 6 inches o.c. at edges, 12 inches o.c. in field (CRC Table R602.3(1)).
98. Bearing partitions perpendicular to joists shall not be offset from supporting girders, walls or partitions more than the joist depth or provide engineer's calculations. Joists under and parallel to bearing partitions shall be doubled (R502.4).
99. All beams, girders and headers shall be sized in accordance with CRC Table R602.7(1), Table R602.7(2) or Table R602.7(3) unless otherwise justified by structural calculations.
100. Wood structural panel sheathing shall be bonded by exterior glue (CRC R803.2). Specify minimum roof sheathing nailing per CRC Table R602.3(1) (i.e. 8d common, box or casing at 6 inches at edges and 12 inches in the field). Nail panels to blocking between rafters.
101. Structural roof members shall not be cut, bored or notched in excess of the limitations specified in CRC R802.7.
102. All girder or terminal hip-type trusses shall be supported by doubled studs placed directly under the truss.
103. Spans for roof rafters, rafter ties and ceiling joists shall be in accordance with CRC Tables R802.4(1) & (2) for ceiling joists and CRC Tables R802.5.1(1) & (2) for rafters, unless otherwise justified by structural calculations.
104. Truss design, layout plan and connection details prepared by a licensed design professional must be submitted for building department approval when trusses are ordered and prior to delivery of trusses to job site.
105. SLOPED CEILINGS shall be provided with an approved method of tying opposing rafters together, such as a rafter tie or a 1-1/4"x 18"x 20 ga. steel tie strap (Table R602.3(1))
106. Framing exposed to the weather shall be resistant or protected from decay (i.e. redwood, cedar, pressure treated, painted, etc.)
107. Wood framing shall be connected in a manner that meets not less than the minimum fastening requirements of CRC Table R602.3(1).

WALL BRACING

1. Braced Wall Lines are required and shall be sized, configured and shown in accordance with CRC section R602.10 in its entirety.
2. Sills at braced wall lines shall be anchored to concrete or masonry foundations. Plate washers a minimum of 0.229 inch by 3 inches by 3 inches in size shall be provided except where approved anchor straps are used (R602.11.1).
3. Braced panels, a portal frame wall with hold-downs, or engineered shear walls shall be provided at vehicle garage door openings in accordance with the requirements of Section R602.10.
4. Spacing between braced wall lines in each story shall not exceed 25 feet (7620 mm) on center in both the longitudinal and transverse directions except in one- and two-story buildings, spacing between two adjacent braced wall lines shall not exceed 35 feet on center in order to accommodate one single room not exceeding 900 square feet in each dwelling unit (CRC R602.10.1.3).
5. Exterior braced wall panels shall be connected to roof framing pursuant to CRC R602.10.8.2.
6. Where stone or masonry veneer is used, wall bracing shall be increased in accordance with CRC R602.10.6.5.

ROOF

7. All roofing shall be a minimum of Class C fire-resistive material, supported by solid sheathing (CRC R902.1.3).
8. Provide adequate roof slope for drainage ($\frac{1}{4}$ " per foot, min.) or submit deflection and ponding calculations.
9. Roofs using asphalt shingles with slopes less than 4:12, but not less than 2:12 must be provided with double underlayment consisting of two layers of underlayment felt layered shingle fashion in accordance with CRC R905.2.3 and R905.2.7.

EXTERIOR ELEVATIONS

10. Approved house address numbers shall be provided in an illuminated area, plainly visible and legible from the public street. Numbers shall contrast with their background and shall be a minimum of 4 inches high with a minimum stroke width of $\frac{1}{2}$ inch (CRC R319.1).
11. Exposed glu-lams shall be preservative treated or made from naturally durable wood.
12. Weatherproofing of exterior surfaces above and below grade is required (CRC R 406 and R 703).
13. All fasteners used for attachment of siding shall be corrosion-resistant (CRC R703.4). Corrosion-resistant flashing shall be provided at openings and intersections/attachments as listed in CRC R703.8.
14. Underfloor space shall have a ventilation opening area of $\frac{1}{150}$ square feet of underfloor area. If a Class I vapor retarder is used, the ratio may be reduced to $\frac{1}{1500}$. One opening shall be placed within 3 feet of each building corner. Openings shall be covered with a covering having openings no greater than $\frac{1}{4}$ inch (CRC R408.2).

SECTIONS

15. Sole plate nailing to joist or blocking shall be a minimum of 16d at 16 inches o.c. and 3-16d at 16 inches at braced wall panels (CRC Table 602.3).
16. Cripple walls less than 14 inches in height shall be fully sheathed or constructed of solid blocking (CRC R602.9).
17. Minimum sheathing nailing for wood structural panel floor, wall and roof sheathing shall be 6 inches o.c. at edges and 12 inches o.c. in field (CRC Table R602.3(1)).
18. Structural floor members, rafters and beams shall not be cut, bored or notched in excess of the limitations specified in CRC R502.8.
19. Provide naturally durable wood or preservative treated wood for the following locations (CRC R317.1):
 - Wood joists and girders closer than 18 inches or 12 inches respectively, to the exposed ground.
 - Wood framing members that rest on concrete or masonry and are less than 8 inches from the exposed ground.
 - Sills and sleepers on a concrete or masonry slab that are in direct contact with the ground, unless separated by an impervious moisture barrier.
 - The ends of wood girders entering exterior masonry or concrete walls having clearances of less than 1/2 inch on tops, sides and ends.
 - Wood siding, sheathing and wall framing on the exterior of the building having a clearance of less than 6 inches from the ground or less than 2 inches from a horizontal concrete surface.
 - Wood structural members exposed to the weather.
 - Wood furring strips or other wood attached to masonry or concrete walls below grade.
 - wood columns (see exceptions R317.1.4).
 - All wood in contact with the ground.
 - Glued-laminated timbers exposed to the weather.
 - All wood embedded in concrete that is in direct contact with the ground or exposed to weather and that supports structures intended for human occupancy.
20. Deck framing shall be positively attached to building framing at a minimum of two locations with connectors not using nails in withdrawal (CRC R507.2).
21. Deck framing, support posts and other lumber exposed to the weather shall be of preservative-treated or decay-resistant lumber (CRC R317.1). Hardware and fasteners shall be hot-dipped galvanized, stainless steel, silicon bronze, or copper (CRC R317.3.1). Spans for decking, deck framing and deck beams shall not exceed the allowable values in Tables R507.4, R507.5, R507.6 and R507.8.
22. Cantilever spans for floor joists supporting light-frame exterior bearing walls and a roof shall be in accordance with CRC Table R502.3.3(1) and shall have a backspan to cantilever span ratio of 3:1. Spans for exterior balconies shall be in accordance with CRC Table R502.3.3(2) and shall have a backspan to cantilever span ratio of 2:1.

23. Stud size, grade and spacing shall be in accordance with CRC Table R602.3(5) and R602.3.1. All studs shall be continuous from floor to roof unless otherwise braced (CRC R602.3). The maximum stud height for laterally unsupported 2x4-inch bearing walls is 10 ft. The maximum stud height for laterally unsupported 2x4-inch nonbearing walls is 14 ft. Increases in listed stud heights are permitted only when justified by structural calculations.
24. Balloon frame gable end walls or provide soft-wall bracing detail.
25. Provide one layer of 15# FELT or other approved material under exterior siding. Material shall have upper layer lapped 2 inches min. over lower layer with 6 inches min laps at joints. (CRC R703.2) Provide 2 layers of Grade D paper or equivalent between wood sheathing and stucco lath (CRC R703.6.3).
26. Drilling and notching of studs shall be in accordance with the following (CRC R602.6):
 - Notching. Any stud in an exterior wall or bearing partition may be cut or notched to a depth not exceeding 25 percent of its width. Studs in nonbearing partitions may be notched to a depth not to exceed 40 percent of a single stud width.
 - Drilling. Any stud may be bored or drilled, provided that the diameter of the resulting hole is no more than 60 percent of the stud width, the edge of the hole is no more than 5/8 inch (16 mm) to the edge of the stud, and the hole is not located in the same section as a cut or notch. Studs located in exterior walls or bearing partitions drilled over 40 percent and up to 60 percent shall also be doubled with no more than two successive doubled studs bored.
27. Double top plates shall have a minimum lap of 24 inches. Nail with eight 16d nails on each side of the joint, unless additional nailing is specified. Lap plates at intersections and corners (CRC Table R602.3).
28. Fireblocking shall be provided in concealed spaces of stud walls and partitions, including furred spaces, and parallel rows of studs or staggered studs; vertically at floor and ceiling levels, horizontally at intervals not to exceed 10 ft. (CRC R302.11).
29. Show roof rafters and ceiling joists. Spans shall be per CRC Tables R802.4(1) & (2) for joists and Tables R802.5.1(1) & (2) for rafters. Include the size, spacing and grade of all members.
30. Nail rafters to adjacent parallel ceiling joists. Where not parallel, use rafter ties at 4 ft. o.c. max (R802.3.1). Connect ties per CRC Table R802.5.1(9). Rafter ties shall use adjustment factor in footnote h for height above supporting wall and must be in lower third of attic space. Where ceiling joists or rafter ties are not provided, trusses shall be used or engineering shall be provided CRC R802.3.1.
31. Solid block all rafters and trusses at exterior walls (CRC R602.10.8.2). Nail blocking to top plate with (3) 8d toe nails per block or provide clips.
32. Trusses shall be connected to wall top plates by the use of approved connectors having a resistance to uplift of not less than that specified in CRC Table R802.11.
33. Wood structural panel sheathing shall be bonded by exterior glue (CRC R803.2.) Minimum nailing per CRC Table R602.3(1) is 6 inches at edges and 12 inches in the field, 8d common, box or casing. Nail panels to blocking between rafters.
34. Installation of PURLINS to reduce the span of rafters is permitted provided that they are continuous, sized no less than the required size of the rafters that they support and are supported by 2-inch by 4-inch braces installed to bearing walls at a slope not less than 45 degrees from the horizontal. The braces shall be spaced not more than 4 feet on center and the unbraced length of braces shall not exceed 8 feet (CRC R802.5.1).

35. Attic Ventilation: 1/150 of attic area. If a Class I or II vapor barrier is applied to warm-in winter side of ceiling, or, if 50% - 80% of the vents are at least 3' above the eaves and the remaining vents are in the eaves, then the ratio may be reduced to 1/300 (CRC R806.2). Unvented attics may be allowed if meeting the requirements of CRC R806.4. Enclosed rafter spaces shall have cross ventilation (min. 1" clear) (CRC R806.3).
36. Air infiltration and insulation shall be coordinated with the approved energy documentation and shall meet the CA Energy Code.
37. Spray-applied insulation must be provided with a thermal or ignition barrier per CRC R316. Spray-applied ignition barriers for spray-applied insulation must be inspected and verified by special inspection pursuant to CBC 1705.14

DETAILS

1. Solid block all joists at ends and over supports with full-depth solid blocking not less than 2 inches nominal thickness, or use other approved connections (CRC R502.7).
2. Fasteners for preservative-treated wood shall be of hot dipped zinc-coated galvanized steel, stainless steel, silicon bronze or copper. (See exceptions CRC R317.3.1).
3. For enclosed roof decks, provide roof and overflow drains sized in accordance with the CPC Appendix D. Overflow drains shall be located with the inlet flow line located 2 inches above the low point of the roof. Overflow scuppers, where installed, shall be three times the size of the roof drain, have a minimum height of 4 inches and be located with the inlet flow line located 2 inches above the low point of the roof (CRC R903.4.1).
4. The installation of glass unit masonry (Glass Block) shall comply with section CRC R610.
5. Where post and beam or post to concrete construction is used, connectors approved for the proposed use shall be used to ensure against uplift and lateral displacement (R502.9 and R507.8.1).