

# Residential Plan Checklist

## BPC-002

**Note: The following is only a partial list of required checklist items.  
Full compliance is required by reference to the following:**

Sonoma County Ordinances 5904 and 5905 (Building Code & Fire Code adoptions)

**Adopted Codes:**

2010 California Residential Code (CRC)  
2010 California Building Code (CBC)  
2010 California Mechanical Code (CMC)  
2010 California Electrical Code (CEC)  
2010 California Plumbing Code (CPC)  
2008 California Energy Standards

**Source Documents:**

2009 International Residential Code (IRC)  
2009 International Building Code (IBC)  
2009 Uniform Mechanical Code (UMC)  
2008 National Electrical Code (NEC)  
2009 Uniform Plumbing Code (UPC)  
Other Local and State Laws

**\*\* PLEASE NOTE \*\***

Sections 2-7 of this document are considered Life-Safety sections. They apply to all one and two family dwellings and their accessory structures as defined by CRC R202.

Sections 8-11 address building structural design and are applicable to non-engineered structures and non-engineered elements of partially engineered structures. Some residential structures in close proximity to known earthquake faults may not be eligible to use the CRC for the structural portion of their design. Resources available to assist with questions about the applicability of the CRC are: The CRC, the PRMD website, PRMD's Residential Manual, and PRMD plan check staff members.

### **1.0 – GUIDELINES FOR ALL SUBMITTALS**

Items to be considered at earliest possible stage of project development which could affect project:

1. Land use limitations – County zoning ordinances
2. Earthquake faults – Alquist/Priolo Zones
3. Geological hazards – landslides, geo-soil report
4. Flood zone – (Sonoma County Code 7B), waterways, creeks, etc.

Submit four sets of all drawings, and two sets of all supporting documentation such as structural calculations, energy compliance forms, soil reports, etc.

Preliminary review with staff is encouraged to ensure complete applications. Omission of any items in the following list may result in delay of plan check, requiring resubmission of documents or information. All documents must be signed by the person responsible for preparing them. Residences which are conventionally wood framed and up to two stories in height may not need to be prepared by a licensed design professional. Drawing sheets shall be large enough to accommodate a drawing scale of 1/4" per foot. All drawing sheets shall be the same size.

- 1.1 PLOT PLAN (or Site Plan):** Show property lines, easements and new and existing building locations. Dimension front, side and rear distances to property lines and between structures. Indicate finished and existing ground slope grades. Provide drainage information. Show other relative information such as driveways, wells, septic systems, and source of emergency water supply and access. Provide North Arrow and drawing scale. Print job title or description, address and assessor's parcel number and drawing index on the cover sheet.
- 1.2 FLOOR PLAN:** Show all dimensions and label use of each room as well as location and size of windows and doors, show electric outlets, plumbing and heating fixtures. Show location and type of all braced panels or shear walls. List floor area (itemize garage and porch areas), window sizes and furnace size on plans. Show north arrow and drawing scale on plan.
- 1.3 FOUNDATION PLAN:** Completely dimension plan including interior footings. Label and locate porches, patios, decks, garage, etc. Locate and note size and spacing of anchor bolts, straps and tie downs on plan. Note size, number and position of crawl space vents.
- 1.4 EXTERIOR ELEVATIONS:** Provide a minimum of four elevation views showing all openings, wall and roof finish materials, original and finished grades, stepped footing outline, underfloor vents and roof pitch.

- 1.5 FRAMING PLANS: Note framing members and sheathing for floor and roof & ceiling plans. Show size and spacing of joists, rafters and beams with grade of lumber to be used. Show how all gravity and lateral loads are carried to foundation.
- 1.6 WALL BRACING: Provide a diagram of all braced wall lines for non-engineered plans.
- 1.7 CROSS SECTIONS: Provide sections through building showing structural elements, and other sections as needed, including earth to wood clearances, floor to ceiling heights, roof slopes, etc. Note typical finishes; call out insulation type and value.
- 1.8 DETAILS: Submit foundation, floor and roof details, beam connections, special framing and flashing details as necessary for construction.
- 1.9 Provide engineer's design calculations for engineered plans.
- 1.10 The job address must be posted at the job site and at the county road, and the building location shall be staked prior to submitting the permit application.
- 1.12 Specific County of Sonoma Design Requirements:
  - A. Wind: Velocity is 85 mph. Most sites will be exposure C. Exposure D shall be used close to the coast and Exposure B may be used with justification.
  - B. Seismic: Seismic Design Category is site specific and will typically be D<sub>2</sub> or E.
  - C. Allowable soil bearing pressure for sites not requiring a geotech report is 1500 psf.

## **2.0 – LIGHT, VENTILATION, ROOM DIMENSIONS**

- 2.1 Required window area for light shall be not less than 8 percent of the floor area of the room served; the minimum operable area to the outdoors shall be 4 percent of the floor area being ventilated. (R303.1)
- 2.2 Every sleeping room 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". The minimum net clear opening width dimension shall be 20". The bottom of the clear opening shall be no more than 44" from the floor. (R 310.1)
- 2.3 Bathrooms, water closet compartments and similar rooms shall have window at least 3 sq feet in area, half of which must be operable, or mechanical ventilation must be provided. (R303.3)
- 2.4 Provide ventilation for products of combustion to outside air. (CMC 801.1)
- 2.5 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. (R806.2) Unvented attics may be allowed if meeting the requirements of R806.4.
- 2.6 Enclosed rafter spaces shall have cross ventilation (min. 1" clear) (R806.3)
- 2.7 Underfloor space shall have a ventilation opening area of 1/150 square feet of underfloor area. If a Class I vapor retarder is used the ratio may be reduced to 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 ¼". (R408.2)
- 2.8 Heating system is required to maintain 68 degrees at 3 ft above floor level in all habitable room (R303.8)
- 2.9 Air infiltration, insulation, space heating, space cooling, water heating, etc shall meet CA Energy Commission Standards.
- 2.10 Minimum Room Sizes: (R304/R305)

All habitable rooms except kitchens shall be at least 70 square feet in area and shall have a width of at least 7'. In addition there shall be at least one room with a minimum of 120 square feet in each dwelling. Minimum ceiling height shall be 7'. See CRC for exceptions.

### **3.0 – DOORS, STAIRWAYS AND LANDINGS (INCLUDING DECKS)**

- 3.1 Required egress door shall be side hinged and have a minimum net clear width of 32" and a minimum height of 78". (R311.2)
- 3.2 There shall be a landing at each side of all doors. The landing shall be at least as wide as the door served and 36" min length measured in the direction of travel. There may one step down of no more than 7.75" provided the door does not swing over the landing. (R311.3)
- 3.3 Stairway rise shall be 4" min and 7.75" max. Run shall be 10" min. Headroom shall be 80" min. Width shall be 36" min. Handrails shall be 34" - 38" above tread nosing with openings less than 4<sup>3</sup>/<sub>8</sub>" clear. (R 311.7 & R312.3)
- 3.4 Enclosed useable space under interior stairs shall be finished with ½" gypsum board (R302.7)
- 3.5 Fireblocking is required in concealed spaces between stair stringers at the top and bottom of the run (R302.11).
- 3.6 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" 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. (R311.7.5)
- 3.7 Guards shall be located along open sided walking surfaces, including stairs, ramps, landings, and decks, that are more than 30" above the floor or grade. Required guards shall be not less than 42" above the adjacent walking surface. Except that handrails may be considered as guards at stairways. Openings in guards shall not exceed 4". (R312)
- 3.8 Exterior deck support posts shall be cross braced in two directions for lateral stability.
- 3.9 For posts over 30" in height provide mechanical connection at post base.
- 3.10 Provide detail at junction of exterior decking, wall and interior floor framing. Show elevations, flashing, and anchorage. Deck framing shall be positively attached to building framing at a minimum of 2 locations with connectors not using nails in withdrawal. (R502.2.2)
- 3.11 Deck framing and support posts to be of preservative treated or naturally durable lumber. R317.1) Hardware and fasteners shall be hot-dipped galvanized, stainless steel, silicon bronze, or copper. (R317.3.1)

### **4.0 – WEATHER AND CORROSION DAMAGE PREVENTION MEASURES**

- 4.1 Naturally durable wood or preservative treated wood shall be required in the following locations (R317.1):
  - a. Wood joists and girders closer than 18" or 12" respectively, to the exposed ground.
  - b. Wood framing members that rest on concrete or masonry and are less than 8" from the exposed ground.
  - c. Sills and sleepers on a concrete or masonry slab that is in direct contact with the ground unless separated by an impervious moisture barrier.
  - d. Wood siding, sheathing and wall framing on the exterior of the building having a clearance of less than 6" from the ground or less than 2" from a horizontal concrete surface.
  - e. All wood in contact with the ground
  - f. 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.

- 4.2 Exposed glu-lams shall be preservative treated or made from naturally durable wood.
- 4.3 Weatherproofing of exterior surfaces above and below grade is required. (R 406 & R 703)
- 4.4 Concrete slabs shall be separated from earth by a minimum 6" vapor retarder. This may be omitted if the space above is not heated and is not likely to become heated in the future. (R506.2.3)
- 4.5 The ground adjacent to the foundation shall be sloped so that the grade shall fall a minimum of 6" within the first 10'. Hardscape may be sloped at 2%. (R401.3)
- 4.6 All fasteners used for attachment of siding shall be corrosion-resistant. (R703.4)
- 4.7 Corrosion resistant flashing shall be provided at openings and intersections/attachments as listed in R703.8.
- 4.8 Provide adequate roof slope for drainage ( $\frac{1}{4}$ " per foot, min.) or submit deflection and ponding calculations. Provide gutters or roof drains. (CPC 1101.1).

## **5.0 – GARAGE & CARPORT**

- 5.1 Common wall between garage and dwelling shall have  $\frac{1}{2}$ " gypsum board applied on the garage side. Garage ceiling with habitable space above shall have  $\frac{5}{8}$ " type X gyp board applied to the ceiling. Carports with no enclosed uses above do not need protection. (R302.6)
- 5.2 No openings may be provided between a garage and a sleeping room. Other openings shall be equipped with solid wood or steel doors  $1\frac{3}{8}$ " in thickness and shall be self-closing and self-latching. (R302.5.1)
- 5.3 Garage and carport floor surfaces shall be of approved noncombustible material. Asphaltic surfaces shall be permitted at ground level in carport. (R309)
- 5.4 Appliances and receptacles installed in garages and carports generating a glow, spark, or flame shall be located 18" min. above the floor. Provide protective bollard or other impact barrier. (CMC 307.1)

## **6.0 – ELECTRICAL**

- 6.1 Do not install electrical panels larger than 16 square inches in rated fire walls. Garage to dwelling unit separation is not a rated fire wall. (R302.4.2) Never install electrical panels in closet. Maintain a clearance of 36" in front of the panels. (CEC 110.26)
- 6.2 Provide a minimum of one 20 Amp receptacle in laundry areas. (CEC 210.52(F))
- 6.3 Kitchens and dining areas must have a minimum of two 20 Amp circuits. Kitchen counter outlets must be installed in every counter space 12" or wider, not greater than 4' o.c. and within 24" of the end of any counter space. (CEC 210.52)
- 6.4 GFCI outlets are required for all kitchen receptacles that are designed to serve countertop surfaces, in bathroom, in underfloor spaces or below grade level, in exterior outlets, and in all garage outlets not dedicated to a single device or appliance. (CEC 210.8) All dwellings must have at least one exterior outlet at the front and the back of the dwelling. (CEC 210.52(E))
- 6.5 Receptacles must be installed at 12' o.c. maximum in walls. Walls longer than 2 feet and halls longer than 10' must have a receptacle. A receptacle must be provided within 3' of bathroom sinks. (CEC 210.52)
- 6.6 Bond all metal gas and water pipes to ground. All ground clamps must be accessible and of an approved type. (CEC 250.104)
- 6.7 Furnaces installed in attics and crawl spaces must have an access platform (catwalk in attics), light, light switch, and receptacle in the space. (CMC 904.11)
- 6.8 New dwellings must have a 120V powered smoke alarm in every sleeping room, outside each sleeping room, on every story of the dwelling, including basements and habitable attics, but not including crawl

spaces or uninhabitable attics. When more than one smoke alarm is required the alarm devices shall be interconnected. (R314.3)

- 6.9** When alterations, repairs, or additions require a permit smoke alarms shall be installed where required in new dwellings. (R314.3.1)
- 6.10** For new construction & work in an existing dwelling where the value of the work exceeds \$1000 carbon monoxide alarms shall be installed in all dwelling units and in sleeping rooms within which fuel-burning appliances are installed and in dwelling units that have attached garages. (R315.1; R315.2)
- 6.11** All 120-volt 15 & 20 amp branch circuits in dwelling units except those in kitchens, bathrooms, unfinished basements, garages and outdoors shall have AFCI protection. (CEC 210.12)
- 6.12** Receptacles on 120- volt 15 & 20 amp circuits shall be listed tamper resistant. (CEC 406.11) Except when located more than 5.5' above the floor; within cabinets or cupboards; or when part of a luminaire or appliance.

## **7.0 – MISCELLANEOUS LIFE-SAFETY**

- 7.1** Provide pressure relief valve with drain to outside for water heater. (CPC 608.5) Provide seismic strapping (CPC 508.2)
- 7.2** Liquefied petroleum gas (LPG) appliances shall not be installed in a pit, basement or similar location. LPG appliances shall not be installed in an above grade underfloor space or basement unless such location is provide with an approved means for removal of unburned gas (CMC 303.7.1)
- 7.3** Provide combustion air for all gas fired appliances. (CMC Chapter 7)
- 7.4** Fuel burning water heater is not allowed in bedroom or bathroom unless direct vent type or complying with CPC 505.1.
- 7.5** Vent dryer to outside of building (not to underfloor area). Vent length shall be 14' maximum or vent size shall be increased. (CMC 504.3)
- 7.6** Water closet shall be located in a space not less than 30" in width with 24" minimum clearance in front. (CPC 407.5)
- 7.7** Showers and tubs with showers require a non-absorbent surface up to 72" above the floor. (R307.2). Provide curtain rod or approved enclosure material.
- 7.8** Provide anti-siphon valves on all hose bibs. (CPC 603.4.7)
- 7.9** Safety glazing shall be required within 24" of a door edge or within 36" of a stairway, landing or ramp when the bottom edge of the glazing is less than 60" from the floor or walking surface. (R308.4)
- 7.10** Safety glazing is required in all fixed and operable panels of swinging, sliding and bifold doors. (R308.4)
- 7.11** Safety glazing is required in enclosures and walls facing hot tubs, saunas, steam rooms, showers and tubs where the bottom edge of the glazing is less than 60" from any standing or walking surface. (R308.4)
- 7.12** Wood burning appliances shall be EPA phase II certified. (Sonoma County Ordinance)
- 7.13** Provide 18" x 24" foundation access within 20' of plumbing cleanout.(R408.4; CPC 707.9)
- 7.14** 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'. (R302.11)
- 7.15** Show minimum 22" x 30" access opening to attic. (R807.1) In attics which an appliance is installed, an opening and passageway at least as large as the largest component of the appliance shall be required. (CMC 904.11)
- 7.16** Roof construction and covering shall comply with R905 and local ordinance. All roofing shall be of Class A fire resistive material, supported by solid sheathing (Chapter 7 Sonoma County Code).

## **8.0 - FOUNDATIONS AND CONCRETE**

**8.1** Concrete shall be 3000 psi min for foundation and retaining walls (including stem walls) and 2500 psi min for all other concrete (R404.1.2.3.1; Table R402.2)

**8.2** Conventional Residential Foundation Requirements (R404.1.4.2; Table R403.1)

### **Foundations for Stud Bearing Walls – Min. Requirements**

No. of stories	Thickness of stem wall concrete *	Width of footing	Thickness of footing	Depth below undisturbed ground surface
1	6.0"	12"	6"	12"
2	6.0"	15"	6"	12"

\* Foundation walls exceeding 4'6" shall be minimum 7.5" thick.

**8.3** Horizontal reinforcing at footing and stem wall: one number 4 rebar within top 12" of stem wall and one number 4 rebar 3-4 inches from bottom of footing (R403.1.3.1)

**8.4** When the stem wall and footing are not poured monolithically a number 4 rebar shall be installed vertically at 4' o.c. The vertical bar shall extend to 3" clear from the bottom of the footing, have a standard hook, and extend a minimum of 14 inches into the stem wall. (R403.1.3)

**8.5** Stepped footings shall be used when slope of footing bottom is greater than 10:1 (H:V) Step footing detail shall be shown on building elevations and foundation plan. (R403.1.5)

**8.6** Concrete slabs shall be minimum 3.5" thick (R506.1).

**8.7** Provide setbacks from slopes greater than 33% (R403.1.7).

**8.8** Anchor bolts shall be minimum ½" x 10" placed at 6' o.c. maximum. Embed bolts 7" min. Locate end bolts neither less than 3.5" nor more than 12" from ends of sill members. (R 403.1.6) Provide 3" x 3" x 0.229" plate washers on each bolt. (R602.11.1)

## **9.0 – FLOORS**

**9.1** Floor joist size, spacing and grade shall conform to Table R502.3.1; or shall be designed by a licensed professional.

**9.2** Joists under and parallel to bearing partitions shall be doubled. (R502.4)

**9.3** Bearing partitions perpendicular to joists shall not be offset from supporting girders, walls or partitions more than the joist depth. (R502.4)

**9.4** Girders for single-story construction or supporting one floor shall be 4" x 6" for spans 6' or less, with girders spaced at 8" o.c. For other sizes and spans see Table R502.5(1) & Table R502.5(2).

**9.5** Nail spacing for floor plywood sheathing: 6" o.c. at edges, 12" o.c. in field (unless closer nailing is specified). Table R602.3(1)

**9.6** Provide detail of connection of floor girder at foundation wall.

**9.7** Solid block all joists at ends and intermediate supports with full-depth solid blocking not less than 2" nominal thickness. (R502.7)

**9.8** At floor openings where header joist span exceeds 4' 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'. (R502.10)

## **10.0 – Walls**

- 10.1** Show stud size, height, grade and spacing. (Table R602.3(5)) Exterior and interior studs shall be continuous floor to roof unless braced at ceiling.
- 10.2** Balloon frame gable end walls or provide softwall bracing detail.
- 10.3** Minimum header sizes shall be according to Table R502.5.
- 10.4** Double top plates shall have a minimum lap of 24". Nail with eight 16d nails on each side of the joint, unless additional nailing is specified. Lap plates at intersections and corners. (Table R602.3)
- 10.5** Sole plate to joist or blocking shall be 16d at 16" o.c. and 3-16d at 16" at braced wall panels. (Table 602.3)
- 10.6** Foundation cripple walls shall be framed of studs not less in size than the studs of the wall above. Cripple walls exceeding 4' in height shall be framed of studs as required for an additional story. Cripple walls shall be sheathed per R602.10.9 & R602.10.9.1. Cripple walls less than 14" in height shall be fully sheathed or constructed of solid blocking. (602.9)
- 10.7** Minimum wood structural panel sheathing nailing: 6" o.c. at edges and 12" o.c. in field. (Table R602.3) Nailing shall be inspected prior to covering.
- 10.8** Provide one layer of 15# felt or other approved material under exterior siding. Material shall have upper layer lapped 2" min over lower layer with 6" min laps at joints. (R703.2) Provide 2 layers of Grade D paper or equivalent between wood sheathing and stucco lath. (R703.6.3)
- 10.9** Braced wall lines shall be sized and configured in accordance with section R602.10 in its entirety. Provide and label a layout of all braced wall lines complete with required values for wind and seismic for the specified wall type.
- 10.10** Spacing of braced wall lines shall not exceed 25' (interior & exterior) unless complying with the exception of R602.10.5.

## **11.0 – ROOF**

- 11.1** Show roof rafters and ceiling joists. Spans shall be per 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.
- 11.2** Nail rafters to adjacent parallel ceiling joists. Where not parallel, use rafter ties at 4' o.c. max. (R802.3.1) Connect ties per 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.
- 11.3** Where ceiling joists or rafter ties are not provided trusses shall be used or engineering shall be provided. R802.3.1
- 11.4** Solid block all rafters and trusses at exterior walls. (R602.10.6.2) Nail blocking to top plate with (3) 8d toe nails per block or provide clips.
- 11.5** For roofs shallower than 3:12 ridges, hips and valleys shall require engineering. (R802.2)
- 11.6** Wood structural panel sheathing shall be bonded by exterior glue. (R803.2) Minimum nailing per Table R602.3(1) is 6" at edges and 12" in the field, 8d common, box or casing. Nail panels to blocking between rafters.