



SINGLE FAMILY DWELLING STRUCTURAL PLAN CHECKLIST - 2013 CRC

PLANNING & BUILDING DEPARTMENT • COUNTY OF SAN LUIS OBISPO
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[2013 California Residential Code.pdf](#)

ALL REFERENCED CODE SECTIONS ARE TO THE 2013 CRC for Conventional light frame construction ONLY
NON-SINGLE-FAMILY-DWELLINGS SHALL FOLLOW CBC SECTION 2308 "CONVENTIONAL LIGHT-FRAME CONSTRUCTION." **BCCC**

Please see [braced wall calculator](#) by Simpson – it is recommended to use this software along with this checklist .

IRREGULAR STRUCTURES

BRB01

Conventional light frame construction shall not be used in irregular portions of structures in Seismic Design Categories C, D₀, D₁, and D₂. When building of otherwise conventional construction contains structural elements exceeding the limits of CRC Section R301 or otherwise not conforming to CRC, these elements shall be designed in accordance with accepted engineering practice. The extent of such design need only demonstrate compliance of nonconventional elements with other applicable provisions and shall be compatible with the performance of the conventional framed system. (R301.2.2.2.5)

Please see [Irregular Structures](#)

GENERAL STRUCTURAL DESIGN REQUIREMENTS CRC 2013

BRB02

INSTALLATION INSTRUCTIONS

Manufacturer's installation instructions, as required by CRC 2013 shall be made a part of the plans.

BRB03

MINIMUM REQUIREMENTS FOR PLANS

A grid shall be provided on the plans using Letters and Numbers. A table shall be provided referencing braced wall lines showing adjustment factors, required braced wall lengths and bracing wall lengths provided for each referenced grid

line. A plan and table shall be provided for each floor and cripple walls if applicable.

For example, please see [Braced Walls-Plan Requirements 2013 CRC](#)

BRB04

PREPARATION OF THE DRAWINGS

Identify on the drawings the project designer responsible for this project and add the designer's contact information (name, address, phone number, fax number and email).

Designer to sign the drawings prior to recheck submittal.

CONVENTIONAL CONSTRUCTION LIMITATIONS

BRB05

NUMBER OF STORIES

Wood frame residences and accessory buildings greater than two stories in height are required to be approved and stamped by a California licensed architect or engineer. All residences and accessory buildings of other than wood frame are required to be approved and stamped by a California licensed architect or engineer (R301.1.3.2)

BRB06

IRREGULARITIES

There are irregularities per CRC Section R301.2.2.2.5 present. Please eliminate the irregularities or provide structural design (for that portion) per 2013 CBC by a state licensed engineer or architect.

Please see the definition of [Irregular Structures](#)

BRB07

WALL HEIGHT

The maximum laterally unsupported bearing wall stud height shall not exceed 10 feet, in accordance with Table R602.3(5) plus a height of floor framing not to exceed 16 inches (R301.3)

Exception: The wall stud clear height used to determine the maximum permitted story height may be increased to 12 feet (3658 mm) without requiring an engineered design for the building wind and seismic force-resisting systems provided that the length of bracing required by

Table R602.10.3(1) is increased by multiplying by a factor of 1.10 and the length of bracing required by Table R602.10.3(3) is increased by multiplying by a factor of 1.20. Wall studs are still subject to the requirements of this section.

BRB08

CRIPPLE WALLS

Foundation cripple walls shall be framed of studs no smaller than the studding above. When exceeding 4 feet in height, such walls shall be framed of studs having the size required for an additional story. (R602.9)

BRB09

BEARING WALL HEIGHT

Bearing wall floor-to-floor heights shall not exceed 11 feet 7 inches. Floor framing may be greater than 16 inches in depth as long as the stud height is adjusted downward accordingly. Refer to Table R602.3(5) for Stud size, height and spacing. (R301.3)

BRB10

AVERAGE DEAD/LIVE LOADS

Average dead loads shall not exceed 15 psf for the combined roof and ceiling assemblies or 10 psf for floor assemblies. (CRC R301.2.2.2.1)
Live loads shall be determined using Table R301.5 (R301.5)

BRB11

SEISMIC DESIGN CATEGORY E

The conventional light-frame construction provisions cannot be used for buildings in Seismic Design Category E unless reclassified to a lower seismic design category in accordance with Section R301.2.2.1.2 per CRCR301.2.2.4.

CONVENTIONAL FOUNDATION SYSTEMS

Please see [Conventional Foundation Systems](#) for Tables and Details.

BRB12

SILLS

Sills on bearing concrete or masonry footings or slabs that are in direct contact with earth must be of naturally preservative treated wood. (R317.1 Item 3)

BRB13

FOUNDATION ANCHORAGE

Foundation plates or sills must be bolted or anchored to the foundation with not less than 1/2 inch diameter steel anchor bolts spaced not more than 6 feet on center or have some other approved equivalent type of anchorage (R403.1.6).

Anchor bolts must be embedded at least 7 inches into concrete or masonry (R403.1.6)

The maximum anchor bolt spacing shall be 4 feet for buildings over two stories in height. (R403.1.6.1)

BRB14

PLATE WASHERS

Plate washers, a minimum of 0.229 inch by 3 inches by 3 inches in size, shall be provided between the foundation sill plate and the nut except where approved anchor straps are used. (R602.11.1)

BRB15

INTERIOR BRACED WALLS

Interior braced wall plates shall have anchor bolts spaced at not more than 6 feet on center and located within 12 inches of the ends of each plate section when supported on a continuous foundation. (R403.1.6.1 Item 2)

BRB16

INTERIOR BEARING WALLS

Interior bearing wall sole plates shall have anchor bolts spaced at not more than 6 feet on center and located within 12 inches of the ends of each plate section when supported on a continuous foundation. (R403.1.6.1 Item 3)

BRB17

CONTINUOUS FOOTINGS

The braced wall panels at exterior walls shall be supported by continuous footings. All required interior braced wall panels in buildings with plan dimensions greater than 50 feet shall also be supported by continuous footings. (R403.1.2)

BRB18

STEPPED FOOTINGS

Do stepped footings in SDC D₀, D₁ and D₂ meet the additional requirements of CRC Section R602.11.2

1. Where the lowest floor framing rests directly on a sill bolted to a foundation not less than 8

feet in length along a line of bracing, the line shall be considered as braced. The double plate of the cripple stud wall beyond the segment of footing that extends to the lowest framed floor shall be spliced by extending the upper top plate a minimum of 4 feet along the foundation. Anchor bolts shall be located a maximum of 1 foot and 3 feet from the step in the foundation.

2. Where cripple walls occur between the top of the foundation and the lowest floor framing, the bracing requirements of Sections R602.10.11, R602.10.11.1 and R602.10.11.2 shall apply.
3. Where only the bottom of the foundation is stepped and the lowest floor framing rests directly on a sill bolted to the foundations, the requirements of Sections R403.1.6 and R602.11.1 shall apply.

BRB19

MASONRY FOUNDATION WALLS

Masonry foundation walls supporting bracing panels 48 inches or less in height and length reinforced in accordance with CRC Figure R602.10.9.

BRB20

SEISMIC REINFORCEMENT

Bottom reinforcement shall be located a minimum of 3 inches clear from the bottom of the footing. Where a construction joint is created between a concrete footing and a stem wall, a minimum of one No 4 bar shall be installed at not more than 4 feet on center. (R403.1.3)

BRB21

MINIMUM DEPTH

All exterior footings shall be placed at least 12 inches (305 mm) below the undisturbed ground surface (R403.1.4)

BRB22

SLOPE

The top surface of footings shall be level. The bottom surface of footings shall not have a slope exceeding one unit vertical in 10 units horizontal (10-percent slope). (R403.1.5)

BRB23

REINFORCEMENT

Reinforcing steel shall comply with the requirements of ASTM A 706 for low-alloy steel with a minimum yield strength of 60,000 psi (Grade 60) (414 MPa). (R404.1.2.3.7.1)

BRB24

DRAINAGE

The grade shall fall a minimum of 6 inches (152 mm) within the first 10 feet (3048 mm). (R401.3)

CONVENTIONAL WOOD FLOOR FRAMING

For drawing requirements, details and tables please see [Conventional Wood Floor Framing](#)

BRB25

ALLOWABLE JOIST SPANS

Spans for floor joists shall be in accordance with Tables R502.3.1(1) and R502.3.1(2). (R502.3)

BRB26

ALLOWABLE GIRDER SPANS

The allowable spans of girders fabricated of dimension lumber shall not exceed the values set forth in Tables R502.5(1) and R502.5(2). (R502.5)

BRB27

FASTENING

Floor framing shall be nailed in accordance with Table R602.3(1). Where posts and beam or girder construction is used to support floor framing, positive connections shall be provided to ensure against uplift and lateral displacement. (R502.9)

BRB28

LATERAL RESTRAINT

Joists shall be supported laterally at the ends by full-depth solid blocking not less than 2 inches nominal in thickness; or by attachment to a full-depth header, band or rim joist, or to an adjoining stud or shall be otherwise provided with lateral support to prevent rotation. See exceptions 1-2. (R502.7)

BRB29

BRIDGING

Joists exceeding a nominal 2 inches by 12 inches shall be supported laterally by solid blocking, diagonal bridging, or a continuous 1 inch by 3 inch strip nailed across the bottom of joists

perpendicular to joists at intervals not exceeding 8 feet. See exception. (R502.7.1)

BRB30

CUTTING, DRILLING AND NOTCHING

Cutting, drilling or notching exceeds the limitations specified in Section R502.8

BRB31

FRAMING OF OPENINGS

Openings in floor framing shall be framed with a header and trimmer joists. When the header joist span does not exceed 4 feet (1219 mm), the header joist may be a single member the same size as the floor joist. (R502.10)

BRB32

FIREBLOCKING

In combustible construction, fire-blocking shall be provided to cut off all concealed draft openings (both vertical and horizontal) and to form an effective fire barrier between stories, and between a top story and the roof space. (R502.13)

BRB33

DRAFTSTOPPING

In combustible construction where there is usable space above and below the concealed space of a floor/ceiling assembly, draftstops shall be installed so that the area concealed space does not exceed 1,000 square feet. (R502.12)

BRB34

LUMBER SHEATHING

Maximum allowable spans for lumber used as floor sheathing shall conform to Tables R503.1, R503.2.1.1(1) and R503.2.1.1(2). (R503.1)

See [Lumber Floor Sheathing.docx](#)

CONVENTIONAL WOOD WALL FRAMING

For wall framing details and tables please see [Conventional Wood Wall Framing](#)

BRB35

STUD SIZE, HEIGHT AND SPACING

The size, height and spacing of studs shall be in accordance with Table R602.3(5). (R602.3.1)

BRB36

BEARING STUDS

Where joists, trusses or rafters are spaced more than 16 inches (406 mm) on center and the bearing studs below are spaced 24 inches on center, such members shall bear within 5 inches of the studs beneath. (602.3.3)

BRB37

TOP PLATE SPLICES

Top plate lap splices detailed in accordance with CRC Table R602.3(1), Item 14; or Section R602.10.8.1 (eight 16d, each side of splice)

BRB38

HEADERS

Headers shall be provided over each opening in exterior-bearing walls. Header spans shall be in accordance with Table R502.5(1). Headers shall be provided over each opening in interior bearing partitions. Header spans for interior bearing walls in accordance with Table R502.5(2)

BRB39

NONBEARING WALL HEADER

A single flat 2-inch by 4-inch member may be used as a header in interior or exterior nonbearing walls for openings of up to 8 feet. (R602.7.3)

BRB40

BRACED WALL LINES

Braced wall lines shall be designated as straight lines in the building plan.

Please see: [Guide to Wood Wall Bracing](#)

BRB41

BRACED WALL LINE SPACING

Braced wall line spacing per CRC Table R602.10.1.3

BRB42

OFFSETS IN BRACED WALL LINES

A maximum total offset of 4 feet between wall sections making up a braced wall line is permitted. A maximum 4-foot offset to each side of the designated wall line is permitted. The designated braced wall line does not have to fall on a real wall line. (R602.10.1.2)

BRB43**SPACING FROM CORNERS**

Braced wall panels shall be located at each end of a braced wall line. See exception (R602.10.2.2.1)

BRB44**MAX SPACING FROM CORNERS**

For SDC D₀, D₁ and D₂, braced walls are required to have a braced wall panel at each end. An exception to having a braced wall panel at the end of the wall line is given for Method WSP and CS-WSP per CRC Section R602.10.4. This exception allows a braced wall panel to be located 10 feet from each end of the braced wall line, provided it complies with one of the requirements listed. (R602.10.2.2.1)

BRB45**CS-WSP CORNER REQUIREMENTS**

Minimum 24-inch bracing panel applied to both sides of corner at intersection walls and attached in accordance with CRC Figure R602.10.7 (R602.10.2.2.1)

BRB46**HOLD DOWNS REQUIRED**

A minimum 1800-lb hold-down used at the end of each braced wall panel closest to the corner per Figure R602.10.7 (R602.10.2.2.1 Item 2)

BRB47**PANEL WIDTH**

The bracing panel is not the minimum length. All buildings shall use the greater value determined from Table R602.10.3(1) or R602.10.3(3) and the applicable adjustment factors in Table R602.10.3(2) or R602.10.3(4) respectively. (R602.10.3 Item 4)

BRB48**PANEL HEIGHT**

Stud height shall be less than or equal to 12 feet, see Table R602.10.5 for methods that are limited to 10 feet. (R602.10.5)

BRB49**CONNECTION CRITERIA**

Bracing material attachment – bracing materials shall be attached with the connection criteria in accordance with CRC Table R602.10.4

BRB50**BRACED WALL ATTACHMENT**

All braced wall panels shall be properly attached top and bottom

BRB51**BRACED WALL ATTACHMENT TO FLOORS**

Connection to floors above and below braced wall panels: attached in accordance with CRC Section R602.10.8.

BRB52**BRACED WALL ATTACHED TO ROOF FRAMING**

Connection to roof framing: attached in accordance with CRC Section R602.10.8.2.

BRB53**UPLIFT LOAD REQUIREMENTS**

Connections at exterior braced walls that support roof trusses or rafters shall meet the uplift load path requirements of CRC Section R602.3.5

BRB54**FOUNDATION CONNECTION**

Braced wall lines shall be connected to foundation in accordance with CRC Section R403.1.6, except as required below: SDC D₀, D₁ and D₂ and townhouses in SDC C

BRB55**GYPSUM PANELS USED AS BRACING METHOD**

Gypsum panels, when used for bracing, should be attached with nails or screws at 7 inches on center at all edges, including top and bottom plates per CRC Table R602.10.4.

BRB56**GYPSUM BOARD APPLIED ON THE BACKSIDE OF ALL BRACED WALL PANELS**

Show gypsum board applied on the backside of all braced wall panels. It shall be nailed in accordance with CRC Table 702.3.5 for interior gypsum wall board (R602.12). If gypsum wall board is not applied, have the bracing lengths been increased in accordance with CRC Table R602.10.3(2)

BRB57**PANEL SPECS – THICKNESS AND GRADE**

Show panel grade and thickness in accordance with CRC Table R602.10.4

Panel grade and thickness do not comply with CRC Table R602.10.4

BRB58

ADJUSTMENT FACTORS

Lengths for wind and seismic bracing shall be adjusted for length in accordance with CRC Table R602.10.3(2) for wind and CRC Table R602.10.3(4) for seismic bracing.

BRB59

WALL BRACING REQUIRED LENGTH

Wall bracing present in all wall lines shall be the greater of that required in CRC Table R602.10.3(1) for wind bracing and R602.10.3(3) for seismic bracing. The length of bracing in any braced wall line shall be 48 inches or greater (R602.10.6.5.1)

BRB60

HOLDDOWNS

Bracing Methods ABW or PFH use hold downs per CRC Table R602.10.4. Show hold downs sizes and copy details with installation instructions to the plans.

BRB61

CONTINUOUS SHEATHING

Show continuous sheathing provisions (Methods CS-WSP, CS-G, CS-PF - (CRC Section R602.10.4.2) Show continuously sheathed wall braced with wood structural panel sheathing above and below openings, including gable ends. Show minimum panel lengths in accordance with length requirements for braced wall panels per CRC Table R602.10.5

BRB62

CORNER NAILING

Provide corner nailing in accordance with CRC Figure R602.10.4.4(1)

BRB63

FOUNDATIONS UNDER BRACED WALLS

Braced wall lines shall be supported by continuous foundations (R602.10.6.5).

BRB64

BRACED WALL TYPES

Braced wall lines shall be braced & nailed by one of the types of sheathing prescribed by Table R602.10.4

BRB65

ALTERNATE BRACED PANELS FOR TWO STORIES

In the first story of two-story buildings, each wall panel shall be braced in accordance with R602.10.6.

BRB66

PORTAL FRAME

Is the portal frame (Method CS-PF), if used, built in accordance with CRC Figure R602.10.6.2 or R602.10.6.3, and does it occur in a continuous wood structural panel sheathing wall line?

BRB67

DETAIL CONNECTIONS OF EXIT LANDING

Exterior landings, decks, balconies, exterior exit stairways and similar facilities shall be positively anchored to the primary structure. Such attachment shall not be accomplished by use of toenails or nails subject to withdrawal. R311.5.1

CONVENTIONAL ROOF FRAMING

For tables and details please see [Conventional Roof-Ceiling Construction.docx](#)

BRB68

RAFTERS

Rafters shall be framed to ridge board or to each other with a gusset plate as a tie (R802.3).

BRB69

RIDGES

There must be a ridge board at least 1-inch nominal thickness at ridges but not less in depth than the cut end of the rafter (R802.3).

BRB70

VALLEYS AND HIPS

At valleys and hips, there must be a single valley or hip rafter not less than 2-inch nominal thickness and not less in depth than the cut end of the rafter (R802.3).

BRB71

CEILING JOIST NAILING

Ceiling joists and rafters must be nailed to each other in accordance with CRC Table R802.5.1(9), and the assembly must be nailed to the top wall

plate in accordance with Table R602.3(1) per R802.3.1.

the building when such joists are parallel to rafters. (R802.3.1)

BRB72

CEILING JOIST CONTINUITY

Ceiling joists shall be continuous or securely joined in accordance with CRC Table R802.5.1(9) where they meet over interior partitions and fastened to adjacent rafters to provide a continuous tie across the building where the joists are parallel to the rafters (R802.3.1).

BRB76

ALLOWABLE RAFTER SPANS

Spans for rafters shall be in accordance with Tables R802.5.1(1) through R802.5.1(8). (R802.5)

BRB73

RAFTER TIES

Where ceiling joists are not parallel to rafters, rafter ties shall be installed. Rafter ties shall be a minimum of 2 inches by 4 inches, installed in accordance with the connection requirements in Table R802.5.1(9), or connections of equivalent capacities shall be provided. (CRC R802.3.1)

Where ceiling joists or rafter ties are not provided at the top of the rafter support walls, the ridge formed by these must be supported by a beam or girder designed in accordance with accepted engineering practice.

BRB77

CEILING JOIST SPANS

Spans for ceiling joists shall be in accordance with Tables R802.4(1) and R802.4(2). (R802.4)

BRB78

BEARING

The ends of each rafter or ceiling joist shall have not less than 1 1/2 inches (38 mm) of bearing on wood or metal and not less than 3 inches (76 mm) on masonry or concrete. The bearing on masonry or concrete shall be direct, or a sill plate of 2-inch (51 mm) minimum nominal thickness shall be provided under the rafter or ceiling joist. The sill plate shall provide a minimum nominal bearing area of 48 square inches (30 865 mm²). (R802.6)

BRB74

PURLINS

Purlins to support roof loads are permitted to be installed to reduce the span of rafters as shown in Figure R802.5.1. Purlins shall be sized no less than the required size of the rafter they support. The braces shall be spaced not more than 4 feet on center and the unbraced length of braces shall not exceed 8 feet (R802.5.1)

Struts or purlins cannot be smaller than 2-inch by 4-inch members. The unbraced length of struts cannot exceed 8 feet and the minimum slope of the struts cannot be less than 45 degrees.

BRB79

LATERAL SUPPORT

Roof framing members and ceiling joists having a depth to thickness ratio exceeding 5 to 1 based on nominal dimensions shall be provided with lateral support at points of bearing to prevent rotation. For roof rafters with ceiling joists attached per Table R602.3(1), the depth to thickness ratio for the total assembly shall be determined using the combined thickness of the rafter plus the attached ceiling joist. (R802.8)

BRB75

CEILING JOIST AND RAFTER CONNECTIONS

Ceiling joists and rafters shall be nailed to each other in accordance with Table R802.5.1(9), and the rafter shall be nailed to the top wall plate in accordance with Table R602.3(1). Ceiling joists shall be continuous or securely joined in accordance with Table R802.5.1(9) where they meet over interior partitions and are nailed to adjacent rafters to provide a continuous tie across

BRB80

NOTCHES ON CANTILEVERED RAFTERS

Notches on cantilevered portions of rafters are permitted provided the dimension of the remaining portion of the rafter is not less than 3 1/2 inches and the length of the cantilever does not exceed 24 inches. (R802.7.1.1)

BRB81

TAPER CUTS

Taper cuts at the ends of the ceiling joist shall not exceed one-fourth the depth of the member.
(R802.7.1.2)

BRB82

ROOF SHEATHING

Allowable spans for lumber used as roof sheathing shall conform to Table R803.1.
(R803.1)

**TABLE R803.1
MINIMUM THICKNESS OF LUMBER ROOF SHEATHING**

| RAFTER OR BEAM SPACING (inches) | MINIMUM NET THICKNESS (inches) |
|--|---|
| 24 | $\frac{5}{8}$ |
| 48 ^a | 1½ T & G |
| 60 ^b | |
| 72 ^c | |

- For SI: 1 inch = 25.4 mm.
a. Minimum 270 F_b , 340,000 E .
b. Minimum 420 F_b , 660,000 E .
c. Minimum 600 F_b , 1,150,000 E .

BRB83

REQUIRED DOCUMENTS- BY REGISTERED DESIGN PROFESSIONAL

Our review of this structure with this checklist has determined that the construction documents shall be prepared by a registered design professional. The following portions are unconventional and an engineered design shall be required:

Architect or Engineer-of-record (if applicable) to sign the structural drawings prior to recheck submittal