



**Land Use Services Department
Building & Safety Division**

Residential Code - Plan Review Comments

Project Description:

Application #:

Site Address:

APN:

Occupancy Group:

No. Stories:

Application Date:

Construction Type:

Floor Area:

Expiration Date:

Applicant/Contact:

Applicant Phone:

Applicant Email:

Plan Check Engineer:

Phone:

Email:

1st Review:

2nd Review:

3rd Review:

Note: Plans have been reviewed for Building Codes only. Contact the County for separate review for compliance with the San Bernardino Development Code and other agencies' requirements.

The project plans were reviewed for compliance with the following codes and standard:

2022 CRC; 2022 CBC; 2022 CPC; 2022 CEC; 2022 CMC; 2022 California Energy Code; 2022 California Green Building Standards Code (CG) & San Bernardino County (County) Code of Ordinances, unless stated otherwise.

Your application for a permit, together with plans and specifications, has been examined and you are advised that the issuance of a permit is withheld for the reasons hereinafter set forth. The approval of plans and specifications does not permit the violation of any section of the building code, or other County of San Bernardino ordinances or laws.

STANDARD

- Please group all related sheets into a **single** file (i.e., Plans Package, Calcs Package) for resubmittal. Noncompliance **may** result in delays in the plan review process.
- Provide a written response indicating how each comment was resolved on the plans, reference notes and details where applicable. Be as specific as possible, especially if the revisions are not clouded. Failure to submit a detailed response letter will delay the review of your project.
- Plan Review fee includes one (1) initial review and one (1) re-submittal check. Additional **Plan Review Fees** for subsequent submittals (after 1st re-submittal) will be assessed.
- Building Plan Reviews shall expire **180 days** from the date of filing.
- Comply with all comments on the marked plans, County Development Code plan review comment list and consultant plan review comment list as listed below. Additional comments and clarifications may apply following review of the revised plans, calculations, and related documents.
- Final drawings approved for permit issuance, shall be signed by appropriate California licensed design professional(s). Electronic signatures are acceptable.

- The plan checker is available by phone or email at the phone number and email listed above. **Please contact the plan check engineer if you have any questions pertaining to the building comments.**

APPLICATION AND PERMITS

1. The plans submitted do not represent the proposed work. Please see the required revisions and.....**Add commentary.**

ARCHITECTURAL COMMENTS

GENERAL REQUIREMENTS

2. The first sheet of the plans must:
 - a. Contain the name and address of the owner and designer, site address and list all consultants (engineer, energy, soils, etc.), associated with the project. (CBC 106)
 - b. Show applicable building data including floor area, classification of each occupancy group, type of construction, area of each story, area of addition, number of stories, building height and applicable codes. Indicate if sprinklered. Provide assessor's parcel number (APN) if new area is proposed.
 - c. On the cover sheet of the plan, specify the scope of work. CRC R106.1.1
3. List the systems that are deferred submittals. Note the following on plans: "Deferred submittals shall be reviewed by architect or engineer of record prior to submittal to the Building Official."
4. If plans and calculations are prepared by or under the supervision of a registered engineer or licensed architect, the first sheet of calculations and each sheet of plans containing structural notes, plans, or details must bear the seal (including expiration or renewal date) and original signature of the responsible Engineer/Architect. (CA B&P code 5536.1)
5. Designer's contact information is required on title sheet and signature required on all sheets.
6. Identify current code years on the first sheet of the plans. 2022 CBC, CRC CMC, CPC, CEC, CGBC, 2022 T-24 Energy Standards and include the San Bernardino County Amendments.
7. Provide an index of drawings on the cover sheet of the plans.
8. Soils report is required for all new projects and additions greater than 50%. The County allows three options to show compliance with CRC Section R401.4.1.1
 - a. Soils report prepared by a California licensed Geotechnical Engineer or Soils Engineer
 - b. Site soils classified by a California licensed Geotechnical, Soils or Civil Engineer. Soil mechanical values shall be limited to Table R401.4.1 (<http://www.sbcounty.gov/Uploads/LUS/BandS/Applications/AlternateMaterialsandMethodsSoilsv2.pdf>)
 - c. Foundation designed per IB-0005
9. Submitted plans and related documents are not complete. Additional reviewing time may be necessary upon re-submittal. Please submit complete plans for review.
10. An automatic residential fire sprinkler system in accordance with NFPA 13D or Section R313.3 shall be installed in one- and two-family dwellings or townhouses including attached garages. Please note on plans (R313.1, R313.2)
11. Provide a wall legend to distinguish between new / existing/ demo walls. (R106.2)

SITE PLAN / PLOT PLAN

12. Provide complete plot plan showing yard setbacks, easements, lot dimensions, all attached or detached structures, distances between buildings, size of building, etc. (R106.2)
13. Lots shall be graded to drain surface water away from foundation walls. The grade shall fall a minimum of 6" within the first 10'. (R401.3)

EXTERIOR WALLS

14. Walls within 5 feet of the property line shall be of one-hour fire rated. Provide a construction detail with basis of approval (i.e., UL design #, G.A. file #) for the rated wall and cross reference onto the plans. CRC Table R302.1(1)
15. Openings, such as doors, windows, vents, etc., in exterior walls less than 5 feet to the property line shall conform to the following per CRC Table R302.1(1):
 - a. Openings less than three feet from the property line are not permitted.
 - b. Openings between three to five feet of the property line shall be limited to 25% of the wall area.
16. Eave projections shall conform to the following per CRC Table R302.1(1):
 - a. On the site plan, dimension the distance from the eave projections to the property line.
 - b. Projections shall be setback a minimum of two feet from the property line.
 - c. Projections between two to five feet of the property line shall be one-hour fire rated on the underside. Provide detail showing conformance.

TWO-FAMILY DWELLINGS

17. Separation between dwelling units is required. The following comments apply per CRC R302.3:
 - a. Dwelling units in two-family dwellings shall be separated from each other by wall and/or floor assemblies having not less than a 1-hour fire-resistance rating when tested in accordance with ASTM E 119 or UL 263.
 - b. Fire-resistance floor-ceiling and wall assemblies shall extend to and be tight against the exterior wall, and wall assemblies shall extend from the foundation to the underside of the roof sheathing.
 - c. Revise the plan to show a 1-hour fire-resistive assembly between the two units. Provide construction details with basis of approval (i.e., UL design #, G.A. file #).

GARAGE AND CARPORT

18. Openings shall comply with the following:
 - a. Openings between the garage and bedrooms are not permitted per CRC R302.5.1.
 - b. Specify openings between the garage and the residence to be as follows per CRC R302.5.1:
 - i. A solid wood door not less than 1-3/8" thickness,
 - ii. Or solid or honeycomb core steel doors not less than 1-3/8 inch thick,
 - iii. Or 20-minute fire-rated doors.
 - iv. And equipped self-closing and self-latching devices.
19. Walls separating the dwelling and attic from the garage shall be provided with 1/2" minimum gypsum board applied on the garage side.
20. Where habitable rooms occur above the garage, specify the following:
 - a. 5/8" minimum Type X gypsum board on the ceiling.
 - b. 1/2" minimum gypsum board on all structures supporting the floor/ceiling assemblies.

21. As the carport includes a roof cover, comply with the following per CRC R302.5 & R302.6:
 - a. Remove openings directly between the carport and the bedroom.
 - b. Other openings (doors and windows) between the carport and the dwelling shall be 20-minute fire-rated per CRC R302.5.1.

UNDER-STAIR

22. Specify enclosed usable space under the stairs to be protected with ½" gypsum board per CRC R302.7.

LIGHT AND VENTILATION

23. Revise the habitable room to meet natural light and ventilation requirements per CRC R303.1.
 - a. For natural light, the glazing shall be a minimum of 8% of the total area of the room.
 - b. For natural ventilation, the openable portion of the window shall be a minimum of 4% of the total room area.
 - c. Alternatively, update the plan to provide mechanical ventilation per the exceptions.
24. Bathrooms, water closet compartments and other similar rooms shall be provided with glazed area in windows of not less than 3 s.f., one half shall be openable. (R303.3)
 - a. Exception: The glazed areas shall not be required where artificial light and a local exhaust system are provided. The minimum local exhaust rates shall be 50 cubic feet per minute for intermittent ventilation or 20 cubic feet per minute for continuous ventilation in accordance with the California Mechanical Code, Chapter 4. Exhaust air from the space shall be exhausted directly to the outdoors.
25. Bathroom Exhaust fans: Each bathroom containing a bathtub, shower or tub/shower combination shall be mechanically ventilated for purposes of humidity control in accordance with the California Mechanical Code, Chapter 4; and the California Green Building Standards Code, Chapter 4, Division 4.5.
 - a. Note: Window operation is not a permissible method of providing bathroom exhaust for humidity control.
26. Every dwelling unit shall be provided with heating facilities capable of maintaining 68 deg. Minimum at a point 3' above the floor and 2' from exterior walls in all habitable rooms. The installation of portable space heaters shall not be used to achieve compliance. (R303.9)

ROOM AREA AND HEIGHT

27. Revise the plans to provide a minimum 7' in all horizontal directions. CRC R304.2
28. Habitable rooms are required to have a floor area of 70 square feet minimum. CRC R304
29. Specify the ceiling height in the section views. A ceiling height of 7 feet minimum is required for habitable spaces, hallways, bathrooms, and laundry rooms. CRC R305.1
30. Revise the bathrooms and laundry room to have a 6'-8" minimum ceiling height. CRC R305.1
31. Provide a section view to show the sloped ceiling complies with the following per CRC R305.1:
 - a. The sloped ceiling height is not permitted to be less than 5 feet.
 - b. Not less than 50% of the required floor area shall have a ceiling height of not less than 6'-8".

BATHROOM AND SHOWER

32. Copy the following notes onto the plans:

- a. Bathtub and shower floors and walls above bathtubs with installed shower heads and in shower compartments shall be finished with a nonabsorbent surface. Such wall surfaces shall extend to a height of not less than 6 feet above the floor. CRC R307.2
- b. Gypsum board shall not be used where there will be direct exposure to water, or in areas subject to continuous high humidity. CRC R702.3.8.1

GLAZING

- 33. On the floor plan, specify windows within 24" arc of the doors' edge, in a closed position, to be tempered glazing. CRC 308.4.2
- 34. Safety glazing (i.e., tempered glass) shall be provided in the following locations per R308.4.3:
 - a. Glazing in doors.
 - b. Glazing in enclosures for bathtub or shower.
 - c. Glazing in windows measured less than 60" from shower or bathtub.
 - d. Glazing in an individual fixed or operable panel that meets all of the following.
 - i. The exposed area of an individual pane is larger than 9 s.f.; and
 - ii. The bottom edge of the glazing is less than 18" above the floor; and
 - iii. The top edge of the glazing is more than 36" above the floor.
- 35. Provide the manufacturer, model, and ICC ESR number for skylights. CRC R308.6

EGRESS, STAIRS, AND EMERGENCY ESCAPE

- 36. At least one emergency escape and rescue openings required at every sleeping room per R310.1. Specify the following:
 - a. Openings shall have the bottom of the clear opening not greater than 44 inches, measured from the floor.
 - b. The net clear opening shall be 5.7 square feet minimum (grade floor openings may have a net clear opening of 5.0 square feet minimum)
 - c. The net clear height shall be 24" minimum.
 - d. The net clear width shall be 20" minimum.
- 37. Revise the plans to provide a clear passageway of not less than 3 feet between counter fronts and appliances or counter fronts and walls in the kitchen. CBC 1207.1
- 38. At least one egress door shall be provided at each dwelling unit. Egress door shall comply with the following per CRC R311.2:
 - a. Door shall have a minimum clear width of 32" when measured between the face of the door and the stop, with the door open at 90 degrees.
 - b. Door shall have a minimum clear height of 78", measured from the top of the threshold to the bottom of the stop.
 - c. Door shall be readily openable from the inside the dwelling without the use of a key or special knowledge or effort.
 - d. A 36-inch landing shall be provided at each side of the door. The slope of the exterior landing shall not exceed 2% slope. CRC R311.3.
 - e. Landing at the egress door shall not be more than 1-½" lower than the top of the threshold. Landing shall not be more than 7.75" lower than the top of the threshold where door does not swing over the landing. CRC R311.3.1.
- 39. Specify the landings at exterior doors to be 36" and not to be more than 7.75" below the top of the threshold. CRC R311.3.2.
- 40. Provide details for the stairway. Include the following information:
 - a. 36" Minimum stair width per CRC R311.7.1.

- b. Stair tread depth (11" or 10" minimum plus tread nosing) and riser height (7.75" maximum) per CRC R311.7.5.1
 - c. 36" Minimum landing at the top and bottom of the stairs per CRC R311.7.6.
 - d. Provide light fixture to illuminate the walking surface of the stairs per CRC R311.7.9.
41. Provide handrail at stairs per CRC R311.7.8, include the following details:
- a. Handrails are required to be 34" to 38" above the stair treads. CRC R311.7.8.1.
 - b. Handrails shall be continuous for the full length of the flight, from a point directly above the top riser to the lowest riser flight. CRC R311.7.8.2.
 - c. Handrail ends shall be returned or shall terminate in newel posts or safety terminals. CRC R311.7.8.2.
 - d. Handrails adjacent to a wall shall have a space of not less than 1-1/2" between the wall and the handrails. CRC R311.7.8.2.
 - e. Handrail shall be graspable per CRC R311.7.8.3.
 - i. Handrail shall either be circular with an outside diameter of 1-1/4" to 2",
 - ii. Or with a perimeter greater than 6-1/4 inches with graspable finger recess area on both sides of the profile.
 - f. Handrail connection shall be designed to withstand a 200-pound load applied in any direction at any point along the top of the rail.
42. Provide spiral stair detail and address the following comments per CRC R311.7.10:
- a. Specify the clear width below the handrails of the spiral stairs to be 26" minimum.
 - b. Specify The walk line radius to not be greater than 24.5".
 - c. Specify tread depth to be 6.75" minimum.
 - d. Specify the riser to be 9.5" maximum.
 - e. Specify the headroom to be 6'6" maximum.
 - f. Provide light fixture to illuminate the walking surface of the stairs per CRC R311.7.9.
 - g. 36" Minimum landing at the top and bottom of the stairs per CRC R311.7.6.
43. Provide guardrails where the elevation difference between the walkway and/or stairs to grade is 30" or more.
- a. Guardrail shall be at the same height as the handrail at the stairs or 42" minimum at the walkway. CRC R312.
 - b. The spacing of the openings at the guards to be such that a sphere, 4 inch in diameter shall not pass through. CRC R312.1.3.
 - c. Provide guardrail connection detail, include connection detail for the guards capable of resisting a 200-pound load at the top. CRC Table R301.5

SMOKE AND CARBON ALARMS

44. Smoke Alarms (R314.3): Smoke alarms shall be installed in the following locations:
- a. In each sleeping room.
 - b. Outside each separate sleeping area in the immediate vicinity of the bedroom.
 - c. On each additional story of the dwelling, including basements and habitable attics but not including crawl spaces and uninhabitable attics. In dwelling 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.
 - d. Not less than 3 feet horizontally from the door or opening of a bathroom that contains a bathtub or shower unless this would prevent placement of a smoke alarm require by this section.
 - e. In the hallway and in the room open to the hallway in dwelling units where the ceiling height of a room open to a hallway serving bedrooms exceeds that of the hallway by 24 inches or more.
 - f. Alarms shall be interconnected such that the actuation of one alarm shall activate all alarms.
 - g. Alarms shall receive their primary power from the building wiring with battery backup.

- h. Approved combined smoke alarms and carbon dioxide alarms shall be acceptable.
45. Carbon Monoxide Alarms (R315.3) – Alarm requirements (location):
- a. Outside of each separate dwelling units sleeping area in the immediate vicinity of the bedroom(s).
 - b. On every level of a dwelling unit including basements.
 - c. Where a fuel-burning appliance is located within a bedroom or its attached bathroom, a carbon monoxide alarm shall be installed within the bedroom.
 - d. Alarms shall receive their primary power from the building wiring with battery backup. (R315.6)
 - e. Alarms shall be interconnected such that the actuation of one alarm shall activate all alarms. (R315.5)
 - f. Approved combined smoke alarms and carbon dioxide alarms shall be acceptable. (R315.4)

WOOD PROTECTION AGAINST DECAY

46. Specify all wood framing members that rest on concrete exterior foundations to be 8 inches above the exposed ground per CRC R317.1.
47. Specify wood in contact with the concrete and/or weather to be decay resistant lumber or pressure treated per CRC R317.1.2
48. Minimum clearance of untreated wood members above earth is 12 in. for girders and 18 in. for joists. Show and dimension. (R317.1, Item 1)

AGING-IN-PLACE DESIGN AND FALL PROTECTION

49. Newly constructed dwelling units including detached ADUs are required to comply with Aging-In-Place requirements in accordance with CRC R327. Address the following comments:
- a. At least one bathroom on the entry level shall be provided with reinforcement (For grab bars) installed in accordance with this section. Where there is no bathroom on the entry level, at least one bathroom on the floor above shall comply with this section.
 - i. Specify the reinforcement to be solid lumber and not less than 2X8.
 - ii. Dimension the reinforcement shall be located between 32" and 39 1/4" above the finished floor.
 - iii. Specify the water closet reinforcement to be installed on both side walls of the fixture, or one side wall and the back wall.
 - iv. Where the water closet is not located adjacent to the side wall, grab bar reinforcement for a ground-mounted installation is acceptable.
 - v. Specify the shower reinforcement shall be continuous where wall framing is provided.
 - vi. Bathtub and combination bathtub/shower reinforcement shall be continuous on each end of the bathtub and the back wall. Additionally, back wall reinforcement for a lower grab bar shall be provided with the bottom edge located no more than 6" above the bathtub rim.
 - b. Note on plans: Electrical receptacle outlets, switches and controls intended to be used by occupants shall be located no more than 48" measured from the top of the outlet box and not less than 15" measured from the bottom of the outlet box above the finish floor.
 - c. Specify doorbell controls to not exceed 48" above exterior floor, measured from the top of the doorbell button assembly.

WOOD BURNING DEVICES (FIREPLACES)

50. Wood burning devices are prohibited for properties located in the South Coast Air Quality Management District (SCAQMD) or the non-desert areas (Rule 445).

NOTE: ALL wood burning devices (masonry, factory built, woodstove or pellet stove) shall comply with U.S. EPA New Source Performance Standards (NSPS) emission limits as applicable and shall have a permanent label indicating they are certified to meet the emission limits. (CGBSC 4.503.1).

OR

Wood burning devices are permitted for properties located in the Mohave Dessert Air Quality Management District (MDAQMD) or the desert areas.

NOTE: ALL wood burning devices (masonry, factory built, woodstove or pellet stove) shall comply with U.S. EPA New Source Performance Standards (NSPS) emission limits as applicable, and shall have a permanent label indicating they are certified to meet the emission limits. (CGBSC 4.503.1).

51. Specify and detail the veneer material, thickness, backing, anchorage, footings, and support over openings in accordance with Section R703.8.
52. Chimney vents shall terminate at least 2 ft above any point on the roof within 10 ft horizontally of the vent. CMC 802.5.4

CRAWLSPACE

53. On the plan, provide a crawlspace ventilation calculation to verify that the vents provided is not less than 1 square feet for each 150 square feet of area to be ventilated. CRC R408. Show vent size, number, and spacing/location on plans.
54. Specify the location of the crawlspace access. The minimum size of the crawl space access is 18"x24". Access shall be provided throughout the under-floor space. CRC R408.4

WALL ASSEMBLY AND FINISH

55. Provide wall assembly detail showing the following:
- Framing members size, spacing, height,
 - Type and thickness of the wall covering material.
 - Type of roofing membrane, as applicable.
56. Specify stucco to be three coats minimum when applied over metal lath with 2 layers of grade D paper. CRC R703.6.2 & R703.6.3.
57. Specify weep screed to be installed at the base of the stucco siding. Weep screed shall be a minimum of 2 inches above concrete slabs and 4 inches above exposed earth. CRC R703.6.2.1
58. For the balconies and all other elevated walking surfaces, provide an impervious moisture barrier.
- Provide the manufacturer and ICC ESR number for the moisture barrier. CBC 107.2.5
 - Show the balconies sloped to drain a minimum 2%.

ATTIC

59. Revise the plan to show the location of the attic access. Attic access shall not be less than 22 inches by 30 inches and shall be located in a hallway or other readily accessible location. CRC R807.1

ROOF COVERING

60. Provide manufacturer, ICC ESR number and underlayment for new roofing material and show pitch of roof. Specify the fire classification of the roofing material per CRC R902.1.
61. Roof Ventilation calculation is required on plans (R806.1). Enclosed attic and enclosed rafter spaces shall have cross ventilation for each separate attic space. A net free ventilating area of not less than 1/150 of the space ventilated. (R806.2 CRC)
- Exceptions:
- a. In Climate Zones 6,7 and 8, a Class 1 or 2 vapor retarder is installed on the warm-in-winter side of the ceiling
 - b. The net free ventilating area may be not less than 1/300 of the ventilated space provided:
 - i. At least 40% and not more than 50% of the required ventilating area is provided by ventilators located in the upper portion of attic or rafter space. Upper ventilators shall be locating not more than 3'-0" below the ridge or high point with the balance of the required ventilating area provided by eave or cornice vents.
62. Coordinate all locations of required roof and roof attic vents on roof and elevation plans.

FIRE SAFETY OVERLAY REQUIREMENTS

63. The use of paints, coatings, stains, or other surface treatments are not an approved method of protection as required in this section. (R337.3.5.3)
64. Roof covering shall be Class A as specified in Section 1505.2/R902. (R337.5.1).
65. Detail the space between the roof covering and roof decking; the spaces shall be constructed to resist the intrusion of flames and embers or provide one layer of 72 lbs. mineral-surfaced non-perforated cap sheet meeting ASTM D3909. (R337.5.2)
66. Wood-shingle and wood-shake roofs are PROHIBITED regardless of classification. (R337.5.2)
67. Valley flashings shall be not less than 0.019 in. (No. 26 galvanized sheet gage) corrosion-resistant metal installed over a 36 in. wide underlayment consisting of one layer of 72-pound mineral-surfaced non-perforated cap sheet meeting ASTM D3909 running the full length of the valley. (R337.5.3)
68. Exterior wall covering or wall assembly shall comply by meeting one of the following:
 - a. Noncombustible materials OR
 - b. Ignition resistant material OR
 - c. Fire retardant treated wood OR
 - d. Heavy timber construction OR
 - e. Log wall construction OR
 - f. Complies with SFM 12-7A-1 OR
 - g. Exterior assembly with a 1-hour fire resistance rating, rated on the exterior side in accordance with ASTM E119 or UL 263 OR
 - h. One Layer of 5/8" Type X applied behind the exterior wall covering or cladding on the exterior side of framing OR
 - i. Gypsum exterior assembly with a 1-hour fire resistance rating, rated on the exterior side in accordance with ASTM E119 or UL 263 (R337.7.3 & R337.7.4)
69. Exposed roof deck on the underside of unenclosed roof eaves shall consist of one of the following:
 - a. Noncombustible material OR
 - b. Ignition-resistant material OR
 - c. Fire retardant treated wood OR
 - d. Material approved for not less than 1 hour fire resistance on the exterior side in accordance with ASTM E119 or UL 263 OR
 - e. One layer of 5/8" Type X applied behind an exterior covering on the underside exterior of roof deck OR
 - f. Exterior portion of a 1-hr fire resistive exterior wall assembly applied to the underside of roof deck designed for exterior fire exposure per Gypsum Association Fire Resistance Design Manual. (R337.7.5)
70. Exterior glazing shall be MULTI-PANE units with a minimum of ONE TEMPERED PANE, or glass block units, or minimum 20 minimum rated or complies with SFM 12-7A-2. (R337.8.2.1)
71. Exterior doors shall meet one of the following:
 - a. Noncombustible material OR
 - b. Ignition-resistant material OR
 - c. Solid core wood having stiles and rails not less than 1 3/8 in. thick with interior panel thickness not less than 1 1/4 in. thick. OR
 - d. Minimum 20 minimum rated OR
 - e. Complies with SFM 12-7A-1. (R337.8.3)

72. Walking surface material of decks, porches, balconies, and stairs shall be constructed with one of the following materials when any portion of such surface is within 10 ft. of the building (R337.9.3):
- Material that complies with the performance requirements of Section R337.9.4 when tested in accordance with both ASTM E2632 and ASTM E2726.
 - Ignition-resistant material that complies with the performance requirements of R337.4.3 when tested in accordance with ASTM E84 or UL 723 or ASTM E2768.
 - Material that complies with the performance requirements of both SFM Standard 12-7A-4
 - Exterior fire-retardant treated wood
 - Noncombustible material
 - Any material that complies with the performance requirements of SFM Standard 12-7A-4A when attached exterior wall covering is also composed of noncombustible or ignition-resistant material.
 - Any material that complies with the performance requirements of Section R337.9.5 when tested in accordance with ASTM E2632 and when attached exterior wall covering is also composed of only noncombustible or ignition-resistant materials.
73. Off ridge and ridge vents shall comply with all of the following:
- The dimensions of the openings therein shall be a minimum of 1/16 inch (1.6 mm) and shall not exceed 1/8 inch.
 - The materials used shall be noncombustible.
 - The materials used shall be corrosion resistant. (R337.6.2.1)
74. Enclosed roof eaves and roof eave soffits. The exposed underside of enclosed roof eaves having either a boxed-in roof eave soffit with a horizontal underside or sloping rafter tails with an exterior covering applied to the underside of the rafter tails, shall be protected by one or more of the following: (R337.7.6)
- Noncombustible material.
 - Ignition-resistant material shall be labeled for exterior use and shall meet the requirements of section R337.4.2.
 - Fire retardant treated wood. The fire-retardant-treated wood shall be labeled for exterior use and shall meet the requirements of Section 2303.2 of the California Building Code.
 - Material approved for not less than 1 hour fire resistance on the exterior side in accordance with ASTM E119 or UL 263
 - One layer of 5/8-inch Type X gypsum sheathing applied behind an exterior covering on the underside of the rafter tails or soffit.
 - The exterior portion of a 1-hour fire resistive exterior wall assembly applied to the underside of the rafter tails or soffit including assemblies using the gypsum panel and sheathing products listed in the Gypsum Association Fire Resistance Design Manual.
 - Boxed-in roof eave soffit assemblies with a horizontal underside that meet the performance criteria in Section R337.7.11 when tested in accordance with the test procedures set forth in ASTM E2957.
 - Boxed-in roof eave soffit assemblies with a horizontal underside that meet the performance criteria in accordance with the test procedures set forth in SFM Standard 12-7A-3.
Exceptions: The following materials do not require protection:
 - Fascia and other architectural trim boards.

75.

CALIFORNIA MECHANICAL CODE REQUIREMENTS

76. Heating equipment located in a garage that generates a glow, spark or flame shall be installed with the pilots, burners or heating elements and switches at least 18" above the floor level unless listed as flammable vapor ignition resistant (305.1 CMC)
77. Appliances located in a garage shall be protected from mechanical damage by being installed behind protective barriers, by being elevated or by being located out of the normal path of vehicles. (305.1.1 CMC)

78. A domestic clothes dryer duct shall be of metal and a minimum of 4" in diameter. The exhaust duct shall not exceed a total combined horizontal and vertical length of 14', including two 90-degree elbows. Two feet shall be deducted for each 90-degree elbow in excess of two. (504.4.2 & 504.4.2.1 CMC)

CALIFORNIA ELECTRICAL CODE REQUIREMENTS

79. All receptacles in bathrooms, garages, accessory buildings, outdoors, crawl spaces, unfinished basements, kitchens (where receptacles serve countertop surfaces), sink, boathouse, bathtubs or shower stalls, laundry, utility, wet bar sinks (within 6' of the edge of the sink), shall have ground-fault circuit-interrupter (GFCI) protection. Show on the plans. (210.8 CEC)
80. All branch circuits supplying 120v 15-ampere and 20-ampere outlets in dwelling unit kitchen, family rooms, dining rooms, living rooms, parlors, libraries, dens, bedrooms, sunrooms, recreation rooms, closets, hallways and similar rooms or areas shall be protected by a listed arc-fault circuit interrupter (AFCI). Show on the plans. (210.12(A) CEC)
81. All wall spaces, 2' or more in width, shall have receptacles installed such that no point measured horizontally is more than 6' from a receptacle (12' maximum spacing). Show minimum receptacles on the plans. (210.52 (A) (1) & (2) CEC)
82. Show locations of receptacle outlets serving the kitchen counter. Wall spaces along the kitchen countertop shall be provided with receptacles such that no point along the wall line is more than 24 inches, measured horizontally, from a receptacle outlet in that space. CEC 210.52(C)(2).
- a. Provide a GFCI receptacle on each side of the island counter in the kitchen. CEC 210.52(C)(2).

CALIFORNIA PLUMBING CODE REQUIREMENTS

83. Note on plan the following water-conserving plumbing fixtures:
- Water closet to be 1.28 gallons per flush maximum or dual flush per CPC 411.2.
 - Kitchen faucet to be 1.8 gallons per minute, maximum, per CPC 407.2.1.1.
 - Lavatory faucet to be 1.2 gallons per minute, maximum, per CPC 407.2.1.2.
 - Showerheads to be 1.8 gallons per minute, maximum, per CPC 408.2.
84. Water closet and bidet shall have 15" to any wall or obstruction on each side of its centerline and 24" clear space in front. (402.5 CPC)
85. Shower compartments shall be not less than 1,024 sq. in. and be capable of encompassing a 30" diameter circle. (408.6 CPC)
86. Water heaters shall have straps located in the upper and lower 1/3 of its vertical dimension. Maintain 4" clearance above controls (507.2 CPC)
87. Appliances in attics shall be accessible thru at least a 22"x30" access opening. The opening shall not be more than 20' from the opening along the pathway, pathway shall have a solid floor not less than 24" wide from opening to appliance, provide a 30"x30" working platform in front of the appliance and provide a 120-volt outlet with a light fixture near the appliance with the light switch located near the opening. (508.4 CPC)

88. Water heaters located within a garage shall be installed so that all burners and ignition devices are not less than 18" above the floor unless listed as flammable vapor ignition resistant. (507.13 CPC)
89. Mechanical equipment located in a garage shall be located or protected so it is not subject to damage by a moving vehicle. (507.13.1 CPC)

CALIFORNIA GREEN CODE REQUIREMENTS

90. CAL Green mandatory measures are required for residential projects that increases the conditioned space per CGBC 301.1.1.
- a. Incorporate mandatory measures specified in Chapter 4 of the 2022 CGBC onto the plan set or download the mandatory checklist from the following link: <https://aiacalifornia.org/calgreen-checklists/>
 - b. Reproduce the residential occupancies application checklist onto the plan sheets.
91. A capillary break shall be installed in compliance with at least one of the following (4.505.2.1):
- a. A 4-inch-thick base of ½-inch or larger clean aggregate shall be provided with a vapor retarder in direct contact with concrete and a concrete mix design, which will address bleeding, shrinkage, and curling, shall be used.
 - b. Other equivalent methods approved by the enforcing agency.
 - c. A slab design specified by a licensed design professional.
92. New construction shall comply with Sections 4.106.4.1 and 4.106.4.2 to facilitate future installation and use of EV chargers. (4.106.4)
- a. *New one-and two-family dwellings and townhouses with attached private garages.* For each dwelling unit, install a listed raceway to accommodate a dedicated 208/240-volt branch circuit. (4.106.4.1)
 - i. The service panel or sub-panel circuit directory shall identify the overcurrent protective device space(s) reserved for future EV charging as "EV CAPABLE".
 - ii. The raceway termination shall be permanently and visibly marked as "EV CAPABLE".

CALIFORNIA ENERGY CODE REQUIREMENTS

93. The plans must show conformance with the latest State (2022) Title 24 Energy Standards. Energy calculations must be submitted. Forms CF-1R and MF-1R, completed and signed by the document author and the owner/designer, are to appear on the submitted plans. Show all the required insulation and other mandatory features on the plans either by notes or details. *Where calculations indicate, "HERS Verification Required," such calculations shall be registered and submitted to an approved agency (such as CalCERTS). The resulting "registered" calculations will include a registration number in the page footer and a watermark across the page. Calculation pages bearing these identification marks shall be permanently attached to the documents.*
94. Provide minimum stud/rafter sizing to accommodate insulation. Provide 1-in. minimum clearance between insulation and roof sheathing for rafter space ventilation. (R806.3)
95. Show and specify local and whole house fans, including kitchen: 100 CFM, non-recirculating, 3 zones maximum; bathroom 50 CFM; and whole house fan per calculation based on sq. ft. and number of bedrooms, continuous, labeled if switched, 1 zone maximum. Comply with ASHRAE Standard 62.2 mandatory measures.

CONSTRUCTION/STRUCTURAL REQUIREMENTS

GENERAL REQUIREMENTS

96. Buildings and structures, and all parts thereof, shall be constructed to safely support all loads as prescribed in 2022 CRC. When a building contains structural elements exceeding the limits of or not conforming to the Residential Code, these elements shall be engineered in accordance with 2022 CBC with San Bernardino County Amendments. Provide a statement to clearly identify which portion of structural design conform to the (R301.1.3) / (CBC 2308.1.1).
97. List required special inspections per CBC 1704 on the first sheet of the plans.
98. Indicate grade and species of framing lumber, glu-lam beams, treated sill plates, specifications of concrete, mortar and grout, grade of masonry units, structural steel specifications and grade of reinforcing steel. (CBC 1903&4, CBC 2203&2303) (R402.2, R502.1, R602.1)
99. Cross-reference all calculations to structural elements (joists, beams, shear walls, etc.) on framing plans or provide calculation key plan sketch.
100. Delete and/or cross out or mark "Not Used" notes and details that do not apply.
101. Reference/key/identify all sections and details as to location on plans, elevations, sections, and detail sheets.
102. Clearly show and indicate all new, existing, and removed walls and construction.
103. Provide retaining wall calculations at all configurations, including all loading conditions (seismic loading, vehicular loading, adjacent surcharge, etc.)
104. THE FOLLOWING DESIGN LOADS AND OTHER INFORMATION PERTINENT TO THE STRUCTURAL DESIGN REQUIRED BY CBC 1603.1.1 THROUGH 1603.1.8 SHALL BE INDICATED ON THE CONSTRUCTION DOCUMENTS: (CBC 1603.1)
 - a. Floor dead load and live load.
 - b. Roof dead load and live load.
 - c. Wind design data:
 - i. Basic wind speed in M.P.H.
 - ii. Wind importance factor, I, and risk category.
 - iii. Wind exposure.
 - iv. Internal pressure coefficient.
 - d. Earthquake design data:
 - i. Seismic importance factor, I, and risk category.
 - ii. Mapped spectral response accelerations, SS and S1.
 - iii. Site class.
 - iv. Spectral response coefficients, SDS and SD1.
 - v. Seismic design category.
 - vi. Basic seismic-force-resisting system(s).
 - vii. Design base shear.
 - viii. Seismic response coefficient(s), CS.
 - ix. Response modification factor(s), R.
 - x. Analysis procedure used.
 - xi. Redundancy factor used.
105. Soils report is required for all new projects and additions greater than 50%. The County allows three options to show compliance with CRC Section R401.4.1.1

- a. Soils report prepared by a California licensed Geotechnical Engineer or Soils Engineer
- b. Site soils classified by a California licensed Geotechnical, Soils or Civil Engineer. Soil mechanical values shall be limited to Table R401.4.1
(<http://www.sbcounty.gov/Uploads/LUS/BandS/Applications/AlternateMaterialsandMethods/Soilsv2.pdf>)
- c. Foundation designed per IB-0005

Foundation Requirements

- 106. The project is located in a Geologic Hazard Zone. Please address items outlined under the County's Development Code – Plan Review Comments.
- 107. The structure is located in FEMA Flood Zone ____; therefore, finish floor shall be ___ ft. above adjacent grade.
- 108. Concrete and masonry foundations and walls shall be designed in accordance with the approved Soils Report, the approved Alternate Materials and Methods of Design and Construction - Residential Foundation form, or Information Bulletin 005.
- 109. Project soils engineer/geologist to sign and stamp foundation plans and details. (When applicable)
- 110. Provide the following note on plans: "All foundation excavations must be observed and approved by the Project Engineering Geologist and/or Project Geotechnical Engineer prior to inspection of reinforcing steel."
- 111. Provide/verify by calculations that existing/proposed foundation system is adequate to support the applied vertical loads at 1,500 psf. soil bearing pressure or per soils report. (CBC 1806.2, Table 1806.2)
- 112. Specify slab-on-grade thickness, reinforcing and underlayment. (CBC 1907.1)
- 113. Provide design for foundation piers. Design/calculations are required to justify pad footings supporting posts.
- 114. Unless a soils report specifies otherwise:
 - a. Use a maximum soil bearing pressure of 1,500 psf. (CBC 1806.2, Table 1806.2)
- 115. Show foundation sections 12"/15"/18" wide, 6" thick and 12" deep and indicate below undisturbed ground surface (or engineered compacted fill and submit soils report). (CBC Table 1809.7)
- 116. Buildings/foundations must be setback from adjacent slopes per CBC Figure 1808.7.1 OR CRC Figure 403.1.7.1 and/or directed by Geotechnical Report. Show sections to verify.
- 117. Show the locations of all hold-down hardware on foundation plan per structural calculations. Note on plans: "All hold-down hardware is to be secured in place prior to foundation inspection."
- 118. Show foundation anchor bolt size and spacing on foundation plan. Note or show the following on plans:
 - a. Minimum of ½ in. diameter A.B. at SDC D or 5/8 in. at SDC E or F embedded 7 in. into footing and spaced 6 ft. o.c. (maximum). (CBC 2308.2, CRC 403.1.6)
 - b. Minimum two bolts per piece of sill plate and one located within 12 in. and not less than 7 bolt diameter or 4 ¾ in. of each end of each sill plate.
 - c. Sill bolt diameter and spacing for three-story raised floor buildings shall be specifically designed.
 - d. 3 in. x 3 in. x 0.229 in. plate washer shall be used on each anchor bolt.

119. Show detail on plan for posts or columns that are exposed to weather shall be at least 1 in. above the floor/slab or 6 in. above exposed earth and earth is covered by impervious moisture barrier. (R317.4, Ex 1 & R317.1 Item 5)
120. Foundation walls and retaining walls shall be designed to resist lateral soil loads. Soil loads specified in Table 1610.1 shall be used as the minimum design lateral soil loads unless determined otherwise by a geotechnical investigation in accordance with Section 1803. (R404.4)
121. Foundation walls and other walls in which horizontal movement is restricted at the top shall be designed for at-rest pressure. Retaining walls free to move and rotate at the top shall be permitted to be designed for active pressure. (CBC 1610.1)
122. Design lateral pressure from surcharge loads shall be added to the lateral earth pressure load. Design lateral pressure shall be increased if soils at the site are expansive. (CBC 1610.1)

Framing Requirements (Vertical Loads)

123. Include a vertical snow load of ___ psf in the design.
124. Provide design for combined loading (DL+LL+WIND) on exterior wall studs and posts spanning over 10 ft. where indicated on plan. Wall studs are to run continuous without intermediate plate (i.e., full height, balloon framing) unless calculations are provided for an alternate design. Note the use of full-length studs (balloon frame) on exterior walls of rooms with vaulted ceiling. (CBC Table 2308.5.1)
125. Prefabricated trusses: Provide truss plans, roof and floor, for all portions of the proposed structure(s). Plans shall include design for each individual truss, an overall truss layout plan and erection details. Plans shall be stamped, signed, and dated by an engineer registered in the State of California. (R802.10.2) / (CBC 2303.4.1.4.1).
126. The design for the transfer of loads and anchorage of each truss to the supporting structure is the responsibility of the registered design professional. (CBC 2303.4.4)
127. If plans are designed under the provisions of conventional construction and pre-fabricated trusses are included in the design, the bearing and connection between the pre-fabricated trusses and the conventional construction are required to be prepared by or under the supervision of a registered engineer or licensed architect, the first sheet of calculations and each sheet of plans containing structural notes, plans, or details, must bear the seal (including expiration or renewal date) and original signature of the responsible Engineer/Architect. (CA B&P code) (R301.1.3.1)/ (CBC 2303.4.4)
128. Submit design/details for trussed rafters or add the following "Deferred Submittal" note on the first sheet of the plans: "Truss calculations and layout plan will be reviewed by the Arch/Engineer of record and submitted to the Building Department prior to installation." (R802.10.1) / (CBC 2303.4.4)
129. Alterations to trusses: Truss members and components shall not be cut, notched, spliced, or otherwise altered in any way without approval of professional. Alteration resulting in the addition of load that exceed the design load for the truss shall not be permitted without verification that the truss is capable of supporting the additional loading. (R802.10.4) / (CBC 2303.4.5)
130. Provide nailing schedule per CBC table 2304.10.1 or CRC table 603.2.1.
131. For roof and floor diaphragms specify structural panel thickness, grade, span rating or panel index, nailing schedule and panel layout. (CBC Table 2306.2)

132. Specify the size, spacing and direction of roof rafters (CBC Table 2308.7.2), ceiling joists (CBC Table 2308.7.1) and/or floor joists (CBC Table 2308.4.2.1).
133. Beams, girders, doubled joists, walls, or other bearing partitions are required under parallel bearing partitions. (R502.4)
134. Solid blocking or cross bridging of floor joists exceeding a nominal 2 inch x 12 inch is required in accordance with CRC 502.7.1. Show compliance on plans.
135. Show size(s) of all headers over openings. [CRC 502.5 & Table 602.7(1)]
136. Detail lateral support for the top of interior non-bearing walls to resist the loads to which they are subjected to but not less than horizontal load of 5psf. (CBC 1607.5)
137. Where the roof slope is less than three units vertical in 12 units horizontal (25-percent slope), members supporting rafters and ceiling joists such as ridge board, hips and valleys shall be designed as beams. (R802.4.4)
138. Roof purlins may be used to reduce the span of rafters within the allowable limits. Purlins to be at minimum same size as rafters, the maximum span for 2x4/2x6 is 4 ft. /6 ft., with braced struts not over 8 ft. in unbraced length and not less than 45 degrees from horizontal to a bearing wall or partition. (R802.4.5)
139. Provide rafter ties, design and support ridge/hips/valleys as beams, or provide other design for roof support when ceiling joists are not parallel to roof rafters. (R802.4.6)
140. Positive connections shall be used for all connections to ensure against uplift and lateral displacements. Show and detail. (R502.9)
141. Specify studs size, height and spacing. [CRC R602.3.1 & Table R602.3(5)]

Framing Requirements (Lateral Loads)

142. Details: Detail all shear resistive elements on plans. Include nailing, blocking, hold-downs, shear anchors/nails, opening reinforcement, drag ties, floor/roof diaphragms, shear walls, drag ties, chord splices and continuity ties, etc. Provide calculations to verify size, spacing and force to be transferred.
143. Braced wall lines shall be supported by continuous foundations. (R403.1.2, R602.10.8.1 & R602.11.1)
144. The lateral design is to be based on the most restrictive of either the wind or seismic forces per CBC 1609 and 1613, respectively.
145. Wind analysis that does not comply with the conditions of ASCE 7-16, Section 6.4, Simplified Procedure, shall comply with the Analytical Procedure. (ASCE 7-16 6.5)
146. Seismic analysis that shall comply with the procedure of ASCE 7-16 12.14, Simplified Base Shear Design, OR with the Equivalent Lateral Force Procedure per ASCE 7-16 12.8.
147. When assuming flexible horizontal diaphragms for lateral force distribution, the base shear and lateral design shall meet the requirements of CBC 1613.6 and ASCE 7-16 12.3.1.
148. Show location of project on seismic maps to identify seismic design coefficients to be used. Alternatively, you may choose to use <https://hazards.atcouncil.org> and print out the design values and submit a copy with your resubmittal.

149. Provide overturning calculations for all shear wall panels. Detail how all overturning loads are carried down to foundation through intermediate elements.
150. Provide grade beam calculations and details where proposed or existing foundations resist overturning moments or as indicated. Justify use of existing foundation to resist overturning forces. (CBC 1604.4)
151. Provide details of the construction of wood shear walls and diaphragms:
 - a. Collector members (drag struts) shall be designed and detailed to transmit tension and compression forces into lateral resisting elements. (ASCE 7-16 12.10.2)
 - b. Perimeter members at floor/roof openings shall be detailed to distribute the shearing stresses.
 - c. Diaphragm chord and tie members shall be in the plane of the diaphragm. Detail nailing and connection of diaphragm to chord and ties.
 - d. All parts of structure shall be tied and interconnected. (ASCE 7-16 11.7.3. & 4)
 - e. Note on plans: "All diaphragm and shear wall nailing shall utilize common nails with full heads." CBC table 2304.10.1 note 9
 - f. Limit braced walls to the following height to width ratios: 2:1 wood structural panels, 2:1 gypsum wallboard and Portland cement plaster (stucco). (SDPWS Table 4.3.4)
 - g. Double sided panels and panels with allowable shear exceeding 350 plf. require 3 in. minimum framing members and staggered nailing for all members receiving edge nailing. Detail anchor bolts and sole plate nailing. (CBC 2306.3 and NDS Table 4.3A)
 - h. Specify on plans, the required nail penetration depth of sole plate nailing along lines of shear walls. Where 3 in. nominal sole plates are required, provide calculation to justify nailing. Lag screws may be required.
152. Specify on the plans all shear walls, sheathing materials (stucco, gyp. bd. and plywood) including thickness and grade and spacing of fasteners. Reference walls with key to nailing schedule. Show length of shear walls on the plans.
153. Use details and sections to show how lateral shear is transferred from diaphragms through intermediate elements to shear walls and to the foundation. All blocking, nailing and fasteners at intermediate elements shall be detailed to have a minimum capacity of the shear wall below. Note on plans: "Shear walls shall run continuously from foundation to roof/floor framing."
154. Detail how interior shear walls are connected (through the floor or ceiling/attic space) to the floor/roof diaphragm above.
155. Show the location of all upper-floor hold-down hardware on the appropriate plan(s).
156. Redundancy Factor for structures assigned to Seismic Design Category D, E, or F, ρ shall be 1.3 unless one of the two conditions is met, whereby ρ is permitted to be taken as 1. (ASCE 7-16 12.3.4.2)
157. Provide interaction details between new and existing framing to have an integral unit in resisting seismic forces unless separated structurally by a distance sufficient to avoid damaging contact per ASCE 12.12.3.
158. At discontinuities in the lateral resisting system, check-supporting beams are adequate to resist overturning, including omega factor. (ASCE 7-16 12.3.3.3)
159. Beam and connections supporting shear wall above shall be designed to resist amplified seismic force with overstrength factor. ASCE 7-16 12.3.3.3
160. Walls braced to resist wind and seismic forces shall not exceed height to width ratios of 3½:1 and 2:1 respectively for wood structural panels and 1½:1 for gypsum wallboard and Portland cement plaster (stucco). (R301.1 & CBC 2305 / AF&PA SDPWS TABLE 4.3.4-2008)