



# Land Use Services Department Building & Safety Division

## 2025 Residential Code – Plan Review Comments

**Project Description:**

**Site Address:**

**Occupancy Group:**

**Construction Type:**

**Applicant/Contact:**

**No. Stories:**

**Floor Area:**

**Application #:**

**APN:**

**Application Date:**

**Expiration Date:**

**Applicant Phone:**

**Applicant Email:**

**Plan Check Engineer:**

**Phone:**

**Email:**

**1<sup>st</sup> Review:**

**2<sup>nd</sup> Review:**

**3<sup>rd</sup> 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: 2025 CRC; 2025 CBC; 2025 CPC; 2025 CEC; 2025 CMC; 2025 California Energy Code; 2025 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.
- Please 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 may delay the review of your project. **Resubmittals will not be accepted without a response letter.**
- Plan Review fee includes one (1) initial review and one (1) re-submittal check. Additional **Plan Review Fees** for subsequent submittals (after 1<sup>st</sup> 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.**

## **APPLICATION AND PERMITS**

1. The plans submitted do not represent the proposed work. Please revise the scope of work.

## **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
    - Applicable codes.
    - Indicate if sprinklered
    - Provide assessor's parcel number (APN).
  - c. 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."
3. If plans and calculations are prepared by or under the supervision of an engineer or architect licensed in the State of California, the first sheet of calculations and each sheet of plans containing structural notes, plans, or details must bear the seal and original signature of the responsible Engineer/Architect. (CA B&P code)
4. If a project is designed per soils/geology report's recommendation, provide soils engineer or geologist's review stamp on foundation plans and details.
5. Structural observation is required for any structures in Seismic Design Category E and greater than two stories above grade plane. Note on plans. (CBC 1704.6.1, Item 3)
6. Please submit design and plans based on the 2025 CBC, CRC, CPC, CMC, CEC, and CGBC, 2025 T-24 Energy Standards and include the San Bernardino County Amendments.
7. Identify current code years on the first sheet of the plans. 2025 CBC, CRC CMC, CPC, CEC, CGBC, T-24 Energy Standards and include the San Bernardino County Amendments.
8. Provide an index of drawings on the cover sheet of the plans.
9. Please reference all applicable details on the plans and omit those that do not apply (*be specific*).
10. Comply with protection of adjoining property by giving a ten (10) day written notice (by certified mail) by attaching a letter to adjacent property owners of intent to excavate where excavation is deeper than the foundation of adjoining building and located closer to property line than the depth of excavation (CBC 3307.2.1).
11. Provide temporary shoring plans for excavations that remove the lateral support from a public way or an existing building. Excavations adjacent to a property line approval prior to issuance of building permit (CBC 3307.2.1).

## **SITE PLAN / BUILDING SITING**

12. Exterior walls of dwellings and accessory buildings less than 5 ft. (non-sprinklered) / 3 ft. (sprinklered) to the property line shall be 1 hour fire-resistance-rated construction. Provide 1 hour rated wall details and reference the details on the plan. (Table-R302.1(1) & (2))
13. No openings other than approved foundation vents shall be permitted in the exterior walls of dwellings and accessory buildings where the exterior wall is less than 3 ft. to the property line. (Table-R302.1(1) & (2))
14. The area of exterior wall openings of non-sprinklered dwellings and accessory buildings located  $\geq$  3 ft. and  $<$  5 ft. to the property line shall be limited to 25% of the wall area. The area of exterior wall openings is unlimited when exterior walls are located  $\geq$  5 ft. for non-sprinklered buildings and  $\geq$  3 ft. for sprinklered buildings. (Table-R302.1(1) & (2))
15. Projections, including eaves, are not permitted within 2 ft. from the property line, except detached garages accessory to a dwelling are permitted to have 4-in. eave. Projections located  $\geq$  2 ft. and  $<$  5 ft. (non-sprinklered) / 0 ft (sprinklered) to the property line shall be of at least 1 hour fire-resistance-rated on the underside. (R302.1, Table-R302.1(1) & (2))
  - a. Provide a section specifying eave length, distance to property line and protection detail.
  - b. Show how roof drainage will not be directed over the property line onto adjacent property.
16. Buildings adjacent to ascending or descending slopes shall maintain a setback according to the requirements of Figure R403.1.7.1. Provide sections through the slope to show how slope setback requirements are met. (R403.1.7)

Alternate: Engineer of Record may field verify requirements of Section R403.1.7. Field verification form shall be completed by the Engineer of Record and submitted to Building Inspector prior to foundation inspection.

17. Provide a Site Drainage plan of the entire site and indicate the existing and proposed contours/spot elevations to show the general site slope and drainage pattern. Provide existing and proposed contours/spot elevations to indicate general site slope and drainage pattern. (R300.2)
18. Specify finish floor elevation of first floor and elevation difference to adjacent grade at all doors.

## **ROOF COVERING**

19. Roof covering shall be a minimum Class (A, B, or C) assembly in accordance with ASTM E 108 or UL 790. Roof coverings within the Fire Safety Overlay District shall be a fire retardant roof covering that is a minimum Class A assembly in accordance with ASTM E 108 or UL 790. This shall be required in all re-roofs or additions where there is 50% or more of a roof being removed. (R902.1.2)  
Wood is not permitted to be used as a roof covering material. Provide roofing material ICC/UL number.
20. For roof covering specify:
  - a. Roof slope(s) of all areas on the roof plan. (R905)
  - b. Manufacturer and type of built-up roof. (R905.9)
    - i. Built-up roof covering materials shall comply with the standards in Table R905.9.2
    - ii. Built-up roofs shall have a minimum slope of 1/4 in. per ft. (2%) for drainage. (R905.9.1)

21. Roof slope is not adequate for the type of roof covering specified. (R905)
22. Show sizes/locations of the roof/deck drains and overflows on the plans. Roof drainage systems shall be designed in accordance with Ch. 11 of the CPC for minimum rain intensity of 3.0 in. /hour. Scupper openings used as overflows shall be a minimum of 4 in. high and have a width equal to the circumference of the roof drain required for the area served and located a minimum of 2 in. above the low point of the roof surface. (R903.4.1)
23. Specify make, model and ICC number for skylight(s). (R324.6)

### **DESIGN REQUIREMENTS**

24. An automatic residential fire sprinkler system in accordance with NFPA 13D or Section R309.3 shall be installed in one- and two-family dwellings or townhouses including attached garages. (R309.2.1)
25. For duplexes provide the following:
  - a. Floors and walls separating dwelling units in two-family dwelling shall not be of less than one-hour fire-resistance rating or ½-hour fire-resistance rating when an automatic sprinkler system NFPA 13D is installed throughout. (R302.3.2)
  - b. Provide sound transmission ratings (STC) per Section 1206.
  - c. Wall assemblies shall extend from the foundation to the underside of the roof sheathing. (R302.3.3.2)
  - d. Show draft separation for attic areas between units in a duplex. (R302.12)
26. Townhouse separation shall comply with Section R302.2.
27. Floor Plans:
  - a. Habitable rooms shall have a minimum floor area of 70-SF, except kitchens. (R312.1)
  - b. Habitable spaces shall not be less than 7 ft. in any plan dimension, except kitchens. (R312.2)
  - c. Habitable space, hallways and portions of basements containing these spaces shall have a ceiling height of not less than 7 ft. (R312.3)
  - d. Bathrooms, toilet rooms and laundry rooms shall have a ceiling height of not less than 6 ft. 8 in. (R313.1)
  - e. The ceiling height above bathroom and toilet room fixtures shall be such that the fixture is capable of being used for its intended purpose. A shower or tub equipped with a showerhead shall have a ceiling height of not less than 6 ft. 8 in. above an area of not less than 30 in. by 30 in. at the showerhead. (R313.1, Ex 2)
  - f. Portions of the basement without habitable space or hallways shall have a ceiling height of not less than 6 ft. 8 in., except 6 ft. 4 in. is allowed under beams, girders, or ducts. (R313.1, Ex 3)
  - g. Where provided in dwelling units or sleeping units, sleeping lofts shall comply with sections R315.2 through R315.5 (R315.1)
    - i. Sleeping lofts need not comply with CRC R315.2 through R315.5 if the sleeping loft depth is less than 3 feet, has a floor area less than 35 square feet, and if not provided with a permanent means of egress.
  - b. Sleeping lofts shall be less than 70 square feet and shall not exceed 7 feet in height for more than one half of the sleeping loft floor area. (R315.2)
  - c. Aggregate area of all sleeping lofts and mezzanines shall not be greater than 1/3 of the floor area of the room or space. (CRC R315.4 and R314.3)
  - d. The clear height below the sleeping loft floor constriction shall not be less than 7 feet. The ceiling height above the finished floor of the sleeping loft shall not be less than 3 feet. Spaces less than 3 feet shall not contribute to sleeping loft floor area.
  - e. Permanent egress will be required (CRC R315.5)
  - f. Ladders used as means of egress shall comply with CRC R315.5.3.1 and CRC R315.5.3.2.

28. Where the opening of an operable window is located more than 72 in. above the finished grade or surface, the clear opening of the window shall be a minimum of 24 in. above the finished floor. Specify sill height of all openable windows. (R321.2.1)
29. Tempered glazing shall be provided at hazardous locations as identified in R324.4. Note and show all required locations on plans. Hazardous locations include, but are not limited to the following:
  - a. Glazing in all doors
  - b. Glazing in bath and shower enclosures
  - c. Glazing within a 24-in. arc of a door edge
  - d. Panels over 9 sq. ft. having the lowest edge less than 18 in. above the finish floor and having a top edge greater than 36 in. above the floor
  - e. All glazing in guardrails
  - f. Glazing 5 ft. from top or bottom of stairways with bottom edge less than 60 in. above walking surface
30. Aggregate glazing area of habitable rooms must be minimum 8% of the room floor area. This is deficient in \_\_\_\_\_. (R325.1.1)
31. In order to consider any room as a portion of an adjoining room, at least 1/2 of the common wall area shall be open and unobstructed and shall provide an opening of not less than 1/10 the floor area of the interior room or 25 sq. ft., whichever is greater. Show that the common wall between \_\_\_\_\_ and \_\_\_\_\_ complies. (R325.1.3)
32. Sunrooms and patio covers next to required windows at \_\_\_\_\_ must have a minimum clear height of 7 ft. with longer side at least 40 % open and unobstructed. (R325.1.2 EX 3)
33. Minimum openable area of habitable rooms must be 4% of the floor area. (R325.1.2)
34. For light and/or ventilation purposes, the openable area between \_\_\_\_\_ and the sunroom or patio cover shall not be less than 1/10 of the floor area of the interior room or 20 sq. ft., whichever is greater. (R325.1.2 EX 4)
35. Habitable rooms using artificial light shall be capable of producing an average illumination of 6-ft. candles (65 lux) over the area of the room at a height of 30 inches above the floor level. Comply with Code requirements and clearly identify the method of compliance on the plans. (R325.1.1 EX 3)
36. The glazed area need not be openable where the opening is not required and a whole house Mechanical ventilation system is installed per the Mechanical Code. (R325.1.2 EX 2)
37. Bathrooms, water closet compartments and other similar rooms shall be provided with minimum glazing area of 3 sq. ft., one-half of which is openable. The glazed areas are not required where artificial light and mechanical ventilation of 50-CFM intermittent or 20-CFM continuous ventilation is provided. (R325.2 EX)
38. Bathrooms containing a bathtub shower, or tub/shower shall be mechanically vented for humidity control. (R325.2.1)
39. Dimension on the plans the 30 in. clear width for water closets and 24-in. clearance in front of water closet for \_\_\_\_\_ bathroom. (CPC 402.5)
40. Bathtub and shower floors, walls above bathtubs with a showerhead and shower compartments shall be finished with a nonabsorbent surface extending to a height of not less than 6 ft. above the floor. (R327.2)

41. Shower doors shall swing out. Net area of shower compartment shall be not less than 1,024 sq. in. of floor area and encompass 30 inches diameter circle. (CPC 408.7)
42. In every bedroom, habitable attic and basement provide one openable escape window meeting all of the following: (R319.2.1 & R319.2.2)
  - a. A net clear opening area of not less than 5.7 sq. ft. (except grade floor net clear opening area shall not be less than 5.0 sq. ft.).
  - b. A minimum clear height of 24 in.
  - c. A minimum clear width of 20 in.
  - d. The bottom of the clear opening not greater than 44 in. measured from the floor. (319.2.3)
  - e. Minimum of 36" x 36" opening dimensions if under decks, porches or cantilevers (319.2.4)
43. Newly constructed dwellings subject to the requirements of this code shall be designed and constructed in accordance with sections R328.1.1 through R328.1.4
  - a. Reinforcement for grab bars. At least one bathroom on the entry level shall be provided with reinforcement installed in accordance with this section. Where there is no bathroom on the entry level, at least one bathroom on the second or third floor of the dwelling shall comply with this section. (R328.1.1)
    - B. Reinforcement shall be solid lumber or other construction materials approved by the enforcing agency.
    - C. Reinforcement shall not be less than 2 by 8 inch (51 mm by 203 mm) nominal lumber. [1 1/2 inch by 7 1/4 inch (38 mm by 184 mm) actual dimension] or other construction material providing equal height and load capacity. Reinforcement shall be located between 32 inches (812.8 mm) and 39 1/4 inches (997 mm) above the finished floor flush with the wall framing.
    - D. Water closet reinforcement shall be installed on both side walls of the fixture, or one side wall and the back wall.
    - E. Shower reinforcement shall be continuous where wall framing is provided.
    - F. 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 inches (152.4 mm) above the bathtub rim.
  - b. Electrical receptacle outlet, switch and control heights. Electrical receptacle outlets, switches and controls (including controls for heating, ventilation and air conditioning) intended to be used by occupants shall be located no more than 48 inches (1219.2 mm) measured from the top of the outlet box and not less than 15 inches (381 mm) measured from the bottom of the outletbox above the finish floor. (R328.1.2)
  - c. Interior doors. Effective July 1, 2024, at least one bathroom and one bedroom on the entry level shall provide a doorway with a net clear opening of not less than 32 inches (812.8 mm), measured with the door positioned at an angle of 90 degrees from the closed position; or, in the case of a two- or three-story single family dwelling, on the second or third floor of the dwelling if a bathroom or bedroom is not located on the entry level. (R328.1.3)
  - d. Doorbell buttons. Doorbell buttons or controls, when installed, shall not exceed 48 inches (1219.2 mm) above exterior floor or landing, measured from the top of the doorbell button assembly. Where doorbell buttons integrated with other features are required to be installed above 48 inches (1219.2 mm) measured from the exterior floor or landing, a standard doorbell button or control shall also be provided at a height not exceeding 48 inches (1219.2 mm) above exterior floor or landing, measured from the top of the doorbell button or control. (R328.1.4)

44. Show location(s) of interconnected hard-wired "SMOKE ALARM" with battery backup in the following: (R310.3)
  - a. In each sleeping room.
  - b. Outside of each separate sleeping area in the immediate vicinity of the bedrooms
  - c. On each additional story of the dwelling, including basements and habitable attics, but not including crawl spaces and uninhabitable attics.
  - d. Not less than 3 ft. from a door or opening outside of a bathroom that contains a bath or shower.
  - a. 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.
  - b. In a room with a sleeping loft, in the immediate vicinity of the loft.
45. Carbon monoxide alarms in dwelling units shall be installed and maintained in accordance with the manufacturer's published instructions in the following locations: (R311.3)
  - a. Outside of each separate sleeping area in the immediate vicinity of the bedrooms.
  - b. On every level of a dwelling unit including basements.
  - c. Where fuel-burning appliances are in a bedroom or an attached bathroom, install a carbon monoxide alarm within the bedroom.
46. Where more than one carbon monoxide alarm is required to be installed within an individual dwelling unit in accordance with Section R311.5, the alarm devices shall be interconnected in such a manner that the actuation of one alarm will activate all of the alarms in the individual dwelling unit. Physical interconnection of carbon monoxide alarms shall not be required where listed wireless alarms are installed and all alarms sound upon activation of one alarm.
  - a. Battery carbon monoxide alarm is permitted in existing dwelling units built prior to January 1, 2011, where no construction is taking place.
47. Show location of 22 in. x 30 in. attic access with 30-in. minimum headroom for attic greater than 30 sq. ft. (R807.1)
48. Provide full height transverse and longitudinal building cross sections showing framing, plate heights, total heights, insulation, foundation, finish grade, etc.
49. Specify type, manufacturer and ICC number (or submit other approved testing agency report) for elastomeric weatherproof walking surface material to be used on all exterior decks and balconies over enclosed construction. Minimum slope 1/4 in./ft. is required for drainage.
50. Show location of Forced Air Unit (F.A.U.)/Water Heater on plans.
51. F.A.U. is not permitted in attic of prefabricated trusses unless required F.A.U. clearances are clearly detailed on the plans.
52. Clothes dryer moisture exhaust duct must be 4 in. in diameter and length is limited to 14 ft. with 2 elbows. The duct length shall be reduced by 2 ft. for every elbow in excess of two. (CMC 504.4.2.1)
53. Show location of the attic appliances (furnace, fan, coil, etc.) and passageway 24 in. wide of solid continuous flooring from access to equipment and its controls. Length of the passageway shall not exceed 20 ft. (CMC 304.4)
54. Heating appliances (water heater, furnace, etc.) located in garage that creates a glow, spark or flame shall be installed at least 18 in. above the finished floor. (CMC 305.1)
55. All new, replacement and existing water heaters shall be strapped to the wall in two places. One in the upper 1/3 of the tank and one in the lower 1/3 of the tank. The lower point shall be a minimum of 4 in. above the controls. (CPC 507.2)

## **EXITS AND STAIRS**

56. Provide at least one side-hinged egress door from each dwelling unit not less than 3 ft. wide and 6 ft. 6 in. in height, with a minimum clear width of 32 in. Egress doors shall be readily openable from inside without the use of a key or special knowledge or effort. (R318.2)
57. Provide a minimum of 36-in. landing at \_\_\_\_\_ . (R318.3)
58. Required egress doors at \_\_\_\_\_ shall not swing over a landing that is more than 1½-in. in height below the threshold. (R318.3.1)
59. Door may open on an exterior landing, provided the door does not swing over the exterior landing and the landing is not more than 7¾ in. below the top of the threshold. (R318.3.1 EX, R318.3.2)
60. For habitable levels or basements located more than one story above or below an egress door, the travel distance from any occupied point to a stairway or ramp shall not exceed 50 ft. (R318.4)
61. Provide section and details of interior and exterior stairway showing:
  - a. Maximum rise of 7¾-in. and minimum run (tread) of 10 in. with maximum ¾ in. variance. (R318.7.5.1 & R318.7.5.2)
  - b. Where tread depth is < 11 in. a nosing between ¾-in. & 1¼-in. shall be provided. (R318.7.5.3)
  - c. Minimum width of 36 in. (maximum 4.5 in. handrail projection is permitted on each side). (R318.7.1)
  - d. Minimum headroom of 6 ft. 8 in. (R318.7.2)
  - e. The maximum vertical rise between floor levels or landings is 12-ft 7- in. (R318.7.3)
  - f. Framing (stringer, landing, etc.) size, bracing, connections and footings. (R318.5)
  - g. Stairways shall be positively anchored to the primary structure without the use of toenails or nails subject to withdrawal. (R318.5)
  - h. Provide a note on the plans "Interior stairways shall be provided with an artificial light source, capable of illuminating treads and landings to levels of not less than 1-foot candle (11 lux) as measured at the center of treads and landings. There shall be a wall switch at each floor level to control the light source where the stairway has six or more risers." (R325.6)
  - i. Exterior stairways shall be provided with an artificial light source located at the top landing of the stairway. (R325.7)
  - j. Exterior stairways providing access to a basement from the outdoor grade level shall be provided with an artificial light source located at the bottom landing of the stairway. (R325.7)
62. Winder treads shall have a minimum tread depth of 10 in. at a point 12 in. from the narrow side and a minimum tread depth of 6 in. (R318.7.5.2.1)
63. Spiral Stairways shall meet the following:
  - a. Submit shop drawings for spiral stairway showing compliance with Section R318.7.11.1.
  - b. Provide spiral stairway column connections & footing details.
64. Handrails shall satisfy the following:
  - a. Provide a minimum of one continuous handrail on stairways with 4 or more risers and at all open sides. (R318.7.8)
  - b. Handrail height shall be 34 to 38 in. above the nosing of treads. (R320.2)
  - c. Openings between intermediate balusters shall not allow the passage of a 4 ¾-in. diameter sphere. The triangular openings formed by the riser, tread and bottom rail shall not allow the passage of a 6-in. diameter sphere. (R321.1.3 EX 1 & 2)
  - d. Handrail grips shall be either Type I or Type II specified in Section (R320.6)
  - e. Return handrail(s) to newel post or wall. (R320.5 EX 1)

65. Guards shall meet the following:
  - a. Provide guards where the open side is more than 30 in. above the floor or grade below at any point within 36 in. horizontally to the edge of the open side. (R321.1.1)
  - b. Guard height shall be a minimum of 42 in. (R321.1.2)
  - c. Required guards shall not have openings that allow passage of a sphere 4 in. in diameter. (R321.1.3)
66. Provide connection details of guardrail and/or handrail adequate to support a concentrated load of 200 pounds applied in any direction at any point along the top. (TABLE-R301.5)
67. Ramps serving the egress door shall have a slope of not more than 1:12 (8.3 percent). All other ramps shall have a maximum slope of 1:8 (12.5 percent). Provide ramp details, including slope, landings, handrail where required, etc. (R318.8.1)
68. Provide dimensions at proposed window well. Minimum width is 36 in. and horizontal area is 9 sq. ft. (R319.4.1)
69. Window well vertical depth is greater than 44 in. Provide details at required permanently affixed ladder or steps, including width (12 in. min), projection (3 in. maximum) and rung vertical spacing (18-in. maximum). (R319.4.2)
70. Window wells shall be designed for proper drainage by connecting to the building's foundation drainage systems required by Section R405.1 or by an approved alternate method. (R319.4.3)

### **VENTILATION**

71. Attic vents shall meet the following: (R806.1, R806.2)
  - a. Show ventilation type, size and location.
  - b. The net free ventilating area shall not be less than:
    - i.  $\frac{1}{150}$  of the attic space **OR**
    - ii.  $\frac{1}{300}$  provided a Class I or II vapor barrier is installed on the warm-in-winter side of the ceiling in Climate Zone 14 and 16
    - iii.  $\frac{1}{300}$  provided at least 40% and not more than 50% of the required vent area is located within 3 ft. below the ridge or highest point of the space, with the balance of the required ventilation provided by eave or cornice vents.
  - c. Openings shall have corrosion-resistant wire mesh or other approved material with  $\frac{1}{16}$ -in. minimum and  $\frac{1}{4}$ -in. maximum opening.
  - d. A minimum of 1-in. airspace shall be provided between insulation and roof sheathing. (R806.3)
  - e. Unvented attic assemblies shall meet all the conditions in Section R806.5.
72. Under-floor vents shall meet the following requirements: (R408.2)
  - a. Show ventilation type, size and location.
  - b. One ventilation opening shall be placed within 3 ft. of each corner of the building
  - c. The net free ventilating area shall not be less than  $\frac{1}{150}$  of the crawl-space area.
  - d. Openings shall have corrosion-resistant wire mesh or other approved material with  $\frac{1}{8}$  in. minimum and  $\frac{1}{4}$ -in. maximum opening.
  - e. Unvented under-floor space shall comply with Section 408.3.

### **GARAGE AND CARPORT**

73. The following is required for the separation of the private garage from the dwelling unit:
  - a. Garages or carports beneath habitable rooms shall be separated by no less than  $\frac{5}{8}$  in. Type X gypsum board. Provide minimum  $\frac{1}{2}$ -in. gypsum board on the garage side elsewhere. (Table-R302.6)

- b. Provide minimum ½-in. gypsum board on the garage side of detached garages less than 3 ft. from a dwelling unit or structural members supporting floor or ceiling assemblies. (Table-R302.6)
- c. Doors to the dwelling unit shall be solid wood or solid or honeycomb core steel and not less than 1 ¾ in. thick, or 20 minutes rated, unless the dwelling unit and the garage are protected by an automatic fire sprinkler system. Doors shall be self-closing and self-latching. (R302.5.1)
- d. Openings from a private garage directly into a room used for sleeping purposes shall not be permitted. (R302.5.1)
- e. Garage floor surfaces shall be of an approved noncombustible material and the area used to park vehicles shall be sloped to a drain or toward the main vehicle entry. (R317.1)
- f. Floors in garage/carport shall be designed to support a uniformly distributed load of 50 psf or concentrated live loads of 2,000 lbs. acting on an area of 20 sq. in. for elevated garage floors. (T-R301.5, Footnote a)

**WOOD BURNING DEVICES (FIREPLACES)**

74. 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).

- 75. **VENEER / FIREPLACE** Specify and detail the veneer material, thickness, backing, anchorage, footings and support over openings in accordance with Section R703.8.
- 76. Masonry fireplaces and chimneys shall be constructed, anchored, supported and reinforced as required per Sections R1001 and R1003.
- 77. All wood beams, joists, studs and other combustible material shall have a minimum clearance of 2 in. from the front and sides and 4 in. from the back faces of masonry fireplaces. (R1001.11)

**CALIFORNIA GREEN CODE REQUIREMENTS**

**GENERAL REQUIREMENTS**

Newly constructed low-rise and high-rise residential buildings/structures AND additions or alterations to residential buildings where the addition or alteration increases the building's conditioned area, volume or size shall comply with the following requirements. (301.2)

- 78. Comply with 2025 CBSC with San Bernardino County Amendments. Provide completed **"MANDATORY REQUIREMENTS CHECKLIST FOR RESIDENTIAL BUILDINGS"** on the plan.

79. Replace non-compliant plumbing fixtures with water-conserving plumbing fixtures prior to final inspection addition and alteration project (CGBC 4.303)
- a. Water Closets – 1.28 GPF
  - b. Wall Mount Urinals – 0.125 GPF and all other Urinals – 0.5 GPF
  - c. Single showerhead – 1.8 GPM at 80psi
  - d. Multiple showerheads – 1.8 GPM at 80psi for all combined showerheads
  - e. Lavatory faucets – 1.2 GPM at 60psi
  - f. Lavatory faucets in public use areas – 0.5 GPM at 60psi
  - g. Metering faucets – 0.20 gallons per cycle
  - h. Kitchen faucets – 1.8 GPM at 60psi

### **PLANNING AND DESIGN**

80. For future installation of electric vehicle supply equipment (EVSE) in each one- and two-family dwellings and townhouses:
- a. Show on plans that a minimum 1 in. (inside diameter) listed raceway is installed for each unit to accommodate a dedicated 208/240-volt branch circuit. The raceway shall originate at the main service or a subpanel and terminate in close proximity to the proposed location of the charging system into a listed cabinet, box or enclosure.
  - b. Add note to plans: "The panel or subpanel shall provide capacity to install a 40-ampere minimum dedicated branch circuit and space(s) reserved to permit installation of a branch circuit overcurrent protective device."
  - c. Add note to plans: "The service panel or subpanel circuit directory shall identify the overcurrent protective device space(s) reserved for future EV charging as *EV CAPABLE*. The raceway termination location shall be permanent and visibly marked *EV CAPABLE*." (4.106.4.1)

### **WATER EFFICIENCY AND CONSERVATION**

81. Provide a schedule of plumbing fixtures and fixture fittings on the plans that comply with the following flow rates (CGBC 4.303):
- a. Water Closets – 1.28 GPF
  - b. Wall Mount Urinals – 0.125 GPF and all other Urinals – 0.5 GPF
  - c. Single showerhead – 1.8 GPM at 80psi
  - d. Multiple showerheads – 1.8 GPM at 80psi for all combined showerheads
  - e. Lavatory faucets – 1.2 GPM at 60psi
  - f. Lavatory faucets in public use areas – 0.5 GPM at 60psi
  - g. Metering faucets – 0.20 gallons per cycle
  - h. Kitchen faucets – 1.8 GPM at 60psi
82. Provide automatic irrigation system controller: weather or soil moisture-based controllers prior to the final inspection. (CGBSC 4.410.1)

### **MATERIAL CONSERVATION & RESOURCE EFFICIENCY**

83. Provide a note on the floor plans indicating that annular spaces around pipes, electric cables, conduits or other openings in sole/bottom plates at exterior walls shall be protected against the passage of rodents by closing such openings with cement mortar, concrete masonry or similar methods. (CGBSC 4.406.1)
84. Provide Building Operations and Maintenance at the time of final inspection and placed in the building. (CGBSC 4.410.1)

### **ENVIRONMENTAL QUALITY (California Green Building Standards Code as the reference)**

85. Any installed gas fireplace shall be a direct-vent sealed-combustion type. Any installed woodstove or pellet stoves shall comply with US 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. Woodstoves, pellet stoves and fireplaces shall also comply with applicable local ordinances. (4.503.1).
86. Provide the following notes on the plans:
- a. At the time of rough installation, or during storage on the construction site and until final startup of the heating, cooling and ventilating equipment, all duct and other related air distribution component openings shall be covered with tape, plastic, sheet metal, or other acceptable methods to reduce the amount of water, dust and debris that may enter the system. (4.504.1)
  - b. Building materials with visible signs of water damage shall not be installed. Wall and floor framing shall not be enclosed when the framing members exceed 19% moisture content. Insulation products that are visibly wet or have high moisture content shall be replaced or allowed to dry prior to enclosure in wall or floor cavities. (4.505.3)
  - c. All mechanical exhaust fans in rooms with a bathtub or shower shall comply with the following:
    - i. Fans shall be ENERGY STAR compliant and be ducted to terminate outside the building.
    - ii. Fans must be controlled by a humidity control capable of adjustment between relative humidity ranges of  $\leq 50\%$  to a maximum of 80% unless functioning as a component of a whole house ventilation system. (4.506.1)
87. Provide the following notes on the plans regarding finish material pollutant control. Verification of compliance with these sections must be provided at the time of final inspection and shall be documented on the *Building Operations and Maintenance Manual*.
- a. Adhesives, sealants and caulks shall meet or exceed the standards outlined in Section 4.504.2.1 and comply with the VOC limits in Tables 4.504.1 and 4.504.2 as applicable. (4.504.2.1)
  - b. Paints and coatings shall meet or exceed the standards outlined in Section CGBSC 4.504.2.2 and comply with the VOC limits in Table 4.504.3. (4.504.2.2)
  - c. Aerosol paints and coatings shall meet or exceed the standards outlined in Section 4.504.2.3. (4.504.2.3)
  - d. All carpet installed in the building interior shall meet the testing and product requirements of one of the following:
    - i. Carpet and Rug Institute's Green Label Plus Program **OR**
    - ii. California Department of Public Health Standard Method for the testing of VOC Emissions (Spec 01350) **OR**
    - iii. NSF/ANSI 140 at the Gold Level **OR**
    - iv. Scientific Certifications Systems Indoor Advantage Gold (4.504.3)
  - e. All carpet cushion installed in the building interior shall meet the requirements of the Carpet and Rug Institute Green Label Program. Carpet adhesives shall not exceed a VOC limit of 50 g/L. (4.504.3.1, 4.504.3.2)
  - f. A minimum of 80% of floor area receiving resilient flooring shall comply with one or more of the following:
    - i. VOC emission limits defined in the CHPS High Performance Products Database **OR**
    - ii. Products compliant with CHPS criteria certified under the Greenguard Children & Schools program **OR**
    - iii. Certification under the RFCI Floor Score Program **OR**
    - iv. Meet the California Department of Public Health Standard Method for the Testing of VOC Emissions. (4.504.4)
  - g. Composite wood products (hardwood plywood, particleboard and MDF) installed on the interior or exterior of the building shall meet or exceed the standards outlined in Table 4.504.5. Verification of compliance with these sections must be provided at the time of inspection. (4.504.5)

## **ENERGY REQUIREMENTS**

88. The plans must show conformance with the latest State (2025) 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 of 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 CHEERS). 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.*
89. Show how dwelling is provided with comfort heating facilities capable of maintaining 68°F at 3 ft. above the floor. (R325.8)
90. Provide fluorescent lighting in bathrooms and kitchen for general lighting. Locate switch and lighting fixture to show compliance. (CEnC-150k)
91. Indicate that windows are dual glazed and labeled. Window frames shall be consistent with those indicated in the energy calculations. (U-values & SHGC factors)
92. Provide minimum stud/rafter sizing to accommodate insulation. Provide 1-in. minimum clearance between insulation and roof sheathing for rafter space ventilation. (R806.3)
93. 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**

94. Buildings and structures, and all parts thereof, shall be constructed to safely support all loads as *prescribed* in 2025 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 2025 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).
95. List required special inspections per CBC 1704 on the first sheet of the plans.
96. Structural observation is required for this project. Note on the first sheet of the plans. Specify all stages at which structural observation is to be performed, what is to be observed, when structural observation reports will be submitted. (CBC 1704.6)
97. 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)
98. Cross-reference all calculations to structural elements (joists, beams, shear walls, etc.) on framing plans or provide calculation key plan sketch.
99. Details and sections are required where indicated on plan check set.
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. Structural and architectural plans shall be consistent.
104. Provide retaining wall calculations at all configurations, including all loading conditions (seismic loading, vehicular loading, adjacent surcharge, etc.)
105. 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.

### **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.
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. Slab-on-grade 3½-in. minimum thickness, reinforcing and 6-mil vapor retarder. (1907.3, 1907.4, R506.1, R506.3.3)
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 2308.7, 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 4¾ 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. Specify size, spacing, ICC, number and manufacturer of expansion, wedge, or adhesive anchors to be used on existing footing. Provide justification for use including noting edge distance and embedment depth on plans.
120. Minimum clearance of untreated wood members above earth is 12 in. for girders and 18 in. for joists. Show and dimension. (R304.1, Item 1)
121. Exterior foundations supporting wood framing members, including columns, that rest directly on concrete or masonry exterior foundation walls and are less than 8 inches from the exposed ground. (CBC 2304.12.1.2) / (R304.1, Item 2)
122. 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. (R304.1 Item 9)
123. Provide detail for stepped footings when slope of the footing exceeds one in ten. (R403.1.5)
124. 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)
125. 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)
126. 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)**

127. Include a ground snow load of \_\_\_ psf in the design.
128. 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 2308.9.1)
129. 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).
130. 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)
131. 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)
132. 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 2303.4.3)
133. 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 exceeds 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)
134. Provide fastening schedule per CBC table 2304.10.2 or CRC table 602.3(1)
135. For roof and floor diaphragms specify structural panel thickness, grade, span rating or panel index, nailing schedule and panel layout. (CBC Table 2306.2)
136. Specify the size, spacing and direction of roof rafters (CBC Table 2308.11.2), ceiling joists (CBC Table 2308.11.1) and/or floor joists (CBC Table 2308.8.2.1) and/or header (CBC 2308.8.1.1).
137. Beams, girders, doubled joists, walls, or other bearing partitions are required under parallel bearing partitions. (R502.4)
138. 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.
139. Show size(s) of all headers over openings. [CRC 502.5 & Table 602.7(1)]
140. 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 1607.16)

141. 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)
142. 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)
143. 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. (R802.5.2)
144. Positive connections shall be used for all connections to ensure against uplift and lateral displacements. Show and detail. (R502.9)
145. Specify stud size, height and spacing. [R602.3.1 & Table R602.3(5)]

### **Framing Requirements (Lateral Loads)**

146. 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.
147. Note on the plans: Hold-downs shall be re-tightened just prior to covering the wall framing.
148. Braced wall lines shall be supported by continuous foundations. (R403.1.2, R602.10.8.1 & R602.11.1)
149. The lateral design is to be based on the most restrictive of either the wind or seismic forces per CBC 1609 and 1613, respectively.
150. Wind analysis that does not comply with the conditions of ASCE 7-22, Section 26 through 31.
151. Seismic analysis that shall comply with the procedure of ASCE 7-22 12.14, Simplified Base Shear Design, OR with the Equivalent Lateral Force Procedure per ASCE 7-22 12.8.
152. When assuming flexible horizontal diaphragms for lateral force distribution, the base shear and lateral design shall meet the requirements of CBC 1613.3 and ASCE 7-22 12.3.1.
153. Show location of project on seismic maps to identify seismic design coefficients to be used. Alternatively, you may choose to use <https://ascehazardtool.org> and print out the design values and submit a copy with your resubmittal.
154. Provide overturning calculations for all shear wall panels. Detail how all overturning loads are carried down to foundation through intermediate elements.
155. 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)
156. 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 7-22 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 7-22 12.1.3 & 4)
  - e. 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 4.3.3)
  - f. Wood frame wall capacity per (CBC 2306.3)
  - g. 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.
157. 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.
  158. 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."
  159. Detail how interior shear walls are connected (through the floor or ceiling/attic space) to the floor/roof diaphragm above.
  160. Show the location of all upper-floor hold-down hardware on the appropriate plan(s).
  161. Redundancy Factor for structures assigned to Seismic Design Category D, E, or F,  $\rho$  shall be 1.3 unless one of the two conditions is met, whereby  $\rho$  is permitted to be taken as 1. (ASCE 7-22 12.3.4.2)
  162. 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 7-22 12.12.2).
  163. At discontinuities in the lateral resisting system, check-supporting beams are adequate to resist overturning, including omega factor. (ASCE 7-22 12.3.3.4)
  164. 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 / SDPWS TABLE 4.3A-2021(table 4.3A shows shear capacities) (table 4.3.3 shows ratios))

#### **FIRE SAFETY OVERLAY ZONE:**

Building and structures hereafter constructed, modified or relocated into or within **Wildland-Urban Interface Areas** shall meet the construction requirements in accordance with chapter 5 of the California Wildland-Urban Interface Code. (CWUIC 503.1)

Paints, coatings, stains or other surface treatments are NOT AN APPROVED method of protection required in CWUIC 503.2.5

#### **ROOFING - Fire Safety Overlay Zone**

165. Roofs shall have a roof assembly that complies with a class A fire classification when tested in accordance with ASTM E108 or UL790 per CWUIC 504.2

166. Roof underlayment shall comply to CWUIC 504.2.1.2 and will be a listed and labeled roof underlayment that has been tested as part of the roof assembly in accordance with ASTM E108 or UL790 of Class A fire classification.
167. Where the roof coving is installed over a combustible deck and the roofing profile creates an airspace under the roof covering, the installation shall comply with the following and CWUIC 504.2.1.1:
  - a. A 72 lb cap sheet complying with ASTM D3909 Standard Specification for "asphalt rolled Roofing (Glass Felt) Surfaced with Mineral Granules" shall be installed over the roof deck.
  - b. Bird stops shall be used at the eaves where the profile fits, to prevent the entry of debris at the eave.
  - c. Hip and ridge caps shall be mudded in to prevent intrusion of fire or embers.
168. Wood-shingle and wood-shake roofs are PROHIBITED regardless of classification. (CWUIC 504.2) (did not find in this section)
169. Alley Flashing Shall Be Not Less Than .019 (No. 26 galvanized sheet gage) corrosion-resistant metal installed over a minimum 36-inch-wide underlayment consisting of one layer of 72-pound mineral-surfaced, nonperforated cap sheet comply with ASTM D3909 running the full length of the valley per CWUIC 504.2.2

#### **Gutters and Downspouts - Fire Safety Overlay Zone**

170. Gutters and downspouts shall be constructed of noncombustible material. Gutters shall be provided with an approved means to prevent the accumulation of leaves and debris in the gutter per CWUIC 504.4

#### **VENTS - Fire Safety Overlay Zone**

171. Vent openings for enclosed attics, gable ends, ridge ends, under eaves and cornices, enclosed eave soffit spaces, enclosed rafter spaces formed where ceiling are applied directly to the underside of roof rafters, underfloor ventilation, foundation and crawl spaces, or any other openings intended to permit ventilation, wither in a horizontal or vertical surface per CWUIC 504.10. These vents shall be fully covered with Wildfire Flame and Ember Resistant vents approved and listed by the California State Fire Marshal or WUI vents, tested in accordance with ASTM E2886 to demonstrate compliance with all the following requirements (504.10.1):
  - a. There shall be no flaming ignition of the cotton material during the ember instruction test
  - b. There shall be no flaming ignition during the integrity test portion of the flame instruction test
  - c. The maximum temperature of the exposed side of the vent shall not exceed 662 degrees Fahrenheit
  - d. Off ridge and ridge vents shall comply to the following (504.10.2):
    - B. Vents shall be covered with a mesh where the dimensions of the mesh therein shall be a minimum of 1/16 inches and shall not exceed 1/8-inch diameter
    - C. The vent and mesh martial shall be non-combustible
    - D. The vent and mesh material shall be corrosion resistant
172. Gable-end and dormer vents shall be located **NOT** less than 10 feet from lot lines. Underfloor ventilation opening shall be located as close to grade as practical. (504.10.3)

### **EXTERIOR WALLS - Fire Safety Overlay Zone**

173. Exterior wall covering or wall assembly shall comply to CWUIC 504.5 by meeting one of the following:
- a. 1-hour fire-resistance-rated construction on the exterior side **OR**
  - b. Noncombustible construction **OR**
  - c. Heavy Timber construction. Assembly of sawn lumber or glue-laminated wood with the smallest minimum nominal dimension of 4 inches. Sawn or glue-laminated planks splined, tongue-and-groove or set close together and well spiked. **OR**
  - d. Log wall construction. **OR**
  - e. Wall assemblies that have been tested in accordance with the test procedures for a 10-minute direct flame contact exposure test set forth in ASTM2707 with the conditions of acceptance shown in section CWUIC 504.9.3 **OR**
  - f. Wall assemblies that meet the performance criteria in accordance with the test procedures for a 10-minute direct flame contact exposure test set forth in SFM Standard 12-7A-1. **OR**
  - g. Wall assemblies suitable for exterior fire exposure containing one layer of 5/8 inch Type x gypsum sheathing applied behind the exterior wall covering or cladding on the exterior side of the framing. **OR**
  - h. Wall assemblies suitable for exterior fire exposure with a 1-hour fire-resistance rating, rated from the exterior side, as tested in accordance with ASTM E119 or UL 263. **OR**
  - i. Fire-retardant-treated wood labeled for exterior use and complying with section 2303.2 of the California Building Code.

### **OPEN ROOF EAVES - Fire Safety Overlay Zone**

174. Exposed roof deck on the underside of unenclosed roof eaves shall consist of one of the following per (CWUIC 504.3.1):
- a. Noncombustible material **OR**
  - b. Ignition-resistant material **OR**
  - c. Fire-retardant-treated wood labeled for exterior use and complying with Section 2303.2 of the California Building Code. **OR**
  - d. Material approved for not less than 1-hour fire-resistance-rated construction on the exterior side, as tested in accordance with ASTM E119 or UL263. **OR**
  - e. 2-inch nominal dimension lumber. **OR**
  - f. One layer of 5/8 inch type x gypsum sheathing applied behind an exterior covering on the underside of the roof deck. **OR**
  - g. The exterior portion of a 1-hour fire-resistance-rated exterior assembly, as tested in accordance with ASTM E119 or UL 263, applied to the underside of the roof deck designed for exterior fire exposure, including assemblies using the gypsum panel and sheathing product listed in the Gypsum Association Fire Resistance Design manual.

### **ENCLOSED ROOF EAVES AND ROOF EAVES SOFFITS - Fire Safety Overlay Zone**

175. Exposed underside shall be protected per (CWUIC 504.3) by one of the following:
- a. Noncombustible material **OR**
  - b. Ignition-resistant material **OR**
  - c. Materials approved for not less than 1-hour fire resistance-rated construction on the exterior side, as tested in accordance with ASTM E1119 or UL263 **OR**
  - d. 2-inch nominal dimension lumber **OR**
  - e. 1-inch nominal fire retardant-treated lumber or 3/4 inch nominal fire-retardant-treated plywood, identified for exterior use and complying with Section 2303.2 of the California Building Code. **OR**
  - f. Boxed-in roof eave soffit assemblies with an underside that meets the performance criteria in Section 504.7.2 when tested in accordance with the test procedures set forth in ASTM E2957 **OR**

- g. Boxed-in roof eave soffit assemblies with an underside that meets the performance criteria in accordance with the test procedure set forth in SRM standard 12-7A-3

**UNDER FLOOR ENCLOSURE - Fire Safety Overlay Zone (504.6)**

- a. Building or structures shall have underfloor areas enclosed to the ground with exterior wall in accordance with section CWUIC 504.5

**FLOOR PROJECTIONS - Fire Safety Overlay Zone**

- 176. Exposed underside shall be protected by one of the following per CWUIC 504.7:
  - a. Noncombustible material. **OR**
  - b. Fire-retardant-treated wood identified for exterior use and meeting the requirements of section 2303.2 of the California Building Code. **OR**
  - c. Ignition-resistant building material in accordance with Section CWUIC 503.2 **OR**
  - d. Materials approved for not less than 1-hour fire-resistance-rated construction on the exterior side, as tested in accordance with ASTM E119 or UL 263 **OR**
  - e. One layer of 5/8 inches Type X gypsum sheathing applied behind the exterior covering on the underside of the ceiling. **OR**
  - f. The exterior portion on a 1-hour fire-resistance-rated exterior assembly, as tested in accordance with ASTM E119 or UL 263, applied to the underside of the ceiling assembly, including assemblies using the gypsum panel and sheathing products listed in the Gypsum Association Fire Resistance Design manual. **OR**
  - g. The underside of a floor projection assembly that meets the performance criteria in Section 504.7.2 when tested in accordance with the test procedures set forth in ASTM E2957. **OR**
  - h. The underside of a floor projection assembly that meets the performance criteria in accordance with the test procedures set forth in SFM Standard 12-7A-3.

**UNDERFLOOR PROTECTION - Fire Safety Overlay Zone**

- 177. Exposed underside shall be protected by one of the following per CWUIC 504.7.1:
  - a. Noncombustible material. **OR**
  - b. Ignition-resistant building material in accordance with Section CWUIC 503.2 **OR**
  - c. Fire-retardant-treated wood shall be labeled for exterior use and shall meet the requirements of Section 2303.2 of the California Building Code. **OR**
  - d. Materials approved for not less than 1-hour fire-resistance-rated construction on the exterior side, as tested in accordance with ASTM E119 or UL 263 **OR**
  - e. One layer of 5/8 inches Type X gypsum sheathing applied behind the exterior covering on the underside of the ceiling (floor projection). **OR**
  - f. The exterior portion on a 1-hour fire-resistance-rated exterior assembly, as tested in accordance with ASTM E119 or UL 263, applied to the underside of the ceiling assembly (floor), including assemblies using the gypsum panel and sheathing products listed in the Gypsum Association Fire Resistance Design manual. **OR**
  - g. The underside of a floor projection assembly that meets the performance criteria in Section CWUIC 504.7.2 when tested in accordance with the test procedures set forth in ASTM E2957. **OR**
  - h. The underside of a floor projection assembly that meets the performance criteria in accordance with the test procedures set forth in SFM Standard 12-7A-3.

**EXTERIOR GLAZING - Fire Safety Overlay Zone**

- 178. Exterior windows, window walls and glazed doors, windows within exterior doors, and skylights shall be constructed of any of the following Per CWUIC 504.8.

- a. Multilayered glazed panels with at least one pane of tempered glass complying with Section 2406 of the California Building Code. **OR**
- b. Glass block. **OR**
- c. Glazing with a fire-protection rating of not less than 20 minutes when tested according to NFPA 257 or UL 9 and shall be exempt from the hose stream test. **OR**
- d. Glazing meeting the performance requirements of SFM Standards 12-7A-2.

**EXTERIOR DOORS - Fire Safety Overlay Zone**

179. Exterior doors shall be constructed in accordance with any of the following per CWUIC 504.9
- e. Noncombustible construction. **OR**
  - f. Solid-core wood not less than 1¾ inches thick. **OR**
  - g. The exterior door shall be constructed of solid core wood that complies with the following requirement:
    - a. Stiles and rails shall not be less than 1-3/8 inches thick.
    - b. Raised panels shall not be less than 1-¼ inches thick, except for the exterior perimeter of the raised panel that shall be permitted to taper to a tongue not less than 3/8 thick. **OR**
  - h. Have a fire protection rating of not less than 20 minutes when tested according to NFPA 252, UL 10B or UL 10C. **OR**
  - i. The exterior surface of cladding meeting the performance requirements of Section 504.9.3 when tested in accordance with ASTM E2707. **OR**
  - j. The exterior surface or cladding shall be tested to meet the performance requirements of SFM Standard 12-7A-1.

**DECKING - Fire Safety Overlay Zone**

180. Walking surface material of decks, porches, stairs and balconies shall be constructed with any of the following materials per section CWUIC 504.7.3.2:
- a. Material that complies with the performance requirements of Section CWUIC 504.7.3.3 when tested in accordance with both ASTM E2632 and ASTM E2726.
  - b. Ignition-resistant material that complies with the performance requirements of CWUIC 503.2.4.
  - c. Material that complies with the performance requirements of both SFM Standard 12-7A-4 and section CWUIC 503.2.4
  - d. Fire-retardant-treated wood labeled for exterior use and complies with section 2303.2 of the California Building Code.
  - e. Noncombustible material
  - f. Any material that complies with the performance requirements of SFM Standard 12-7A-4A and any attached exterior wall covering that is noncombustible or ignition-resistant building materials.
    - a. Exception: Wall material shall be permitted to be any material that otherwise complies with chapter 5 of the California Wildland-Urban Interface Code when the decking surface material complies with the performance requirements of ASTM E84 Or UL723 with a Class B flame spread index.
  - g. Any material that complies with the performance requirements of Section CWUIC 504.7.3.4 when tested in accordance with ASTM E2632 and any attached exterior wall covering that noncombustible or ignition-resistant building materials.
    - a. Exception: Wall material shall be permitted to be of any material that otherwise complies with chapter 5 of the California Wildland-Urban Interface Code when the decking surfaces material complies with the performance requirements of ASTM E84 or UL723 with a Class B flame spread index.

**ACCESSORY STRUCTURES - Fire Safety Overlay Zone**

181. When any portion of an attached or detached accessory structure (trellises, arbors, patio covers, carports, gazebos and similar structures of an accessory or miscellaneous character) lies within 50 ft. of an applicable building shall be constructed per the applicable section of the CWUIC per CWUIC 504.11.