

# 2010 CRC - R-3 (SINGLE FAMILY AND DUPLEX) PLAN CHECK CORRECTION LIST

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(With 2008 Energy Code)

County of Orange

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714.667.8885

The 2010 California Residential Code (CRC) shall apply to detached One- and Two-family Dwellings and townhouses not more than three stories above the grade plane in height with separate means of egress and their accessory structures.

The construction documents shall be of sufficient clarity to indicate the location, nature and extent of the work proposed and show in detail that it will conform to the provisions of this code and relevant laws, ordinances, rules and regulations. [CRC R106.1.1]

# A. PLAN REQUIREMENTS

- A1. Specify on plans that the governing codes for this project are the 2010 California Residential (CRC), Electrical (CEC), Mechanical (CMC), and Plumbing (CPC), 2008 California Energy Standards Code (CESC) Codes with local amendments.
- A2. Change valuation on permit application to \_\_\_\_\_\_ in accordance with attached County of Orange Building Valuation Analysis Sheet and pay associated fees prior to resubmission of plans. [CRC R108.3]
- A3. Indicate a job address on all sheets of the plans. [CRC R106.1.1]
- A4. The name and address of the owner, architect, and engineer or person who prepared the plans shall be indicated on the front sheet of the plans. [CBC R106.1]
- A5. Permit application for this project is deemed to have been expired 180 days after the date of filing. Contact City/County Building Department to obtain written 180-day extension(s). [CRC R105.3.2]
- A6. List all deferred submittals on cover sheet. [CRC R106.3.3]
- A7. A grid system should be provided on the plans to facilitate reference to the plans. Also, cross-referencing calculations to the grid system is encouraged to facilitate the plan review process. [CRC R106.1.1]
- A8. Indicate building type of construction (Type V-B, Type V-A, etc.), number of stories, area, and number of units, on the first sheet of the plans. [CRC R106.1.1]
- A9. There shall be no trenches or excavations 5 feet or more in depth into which a person is required to descend; or obtain a necessary permit from State of California, Division of Industrial Safety prior to the issuance of a Building or Grading Permit.
- A10. Drawing Requirements [CRC R106.1.1]:
  - a) Label all drawings (floor & framing plans, elevations, etc.) and provide an index of drawings.
  - b) Indicate drawing scales.
  - c) Key in sections and details to plans.
- A11. Provide a completely dimensioned Plot Plan showing [CRC R106.1.1 & R106.2]:
  - a) Existing grades, structures, surface features and utilities.

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- b) Lot dimensions (bearings & distances); easements and setbacks (front, rear, & side yards).
- c) Adjacent buildings (within 15 feet), streets, alleys, sidewalks, parkways, curbs, etc.
- d) Indicate elevations of finished pad, property corners and center line of street.
- e) North Arrow.
- f) Site drainage to public way.
- g) Show 5% drainage around/away from building for a minimum distance of 10 ft. Alternately, swales with slope of 2% shall be located within 10 ft. of building foundation [CRC R401.3]
- h) Finish grade elevations at lot corners, building corners, and elevation changes.
- i) Provisions for controlling drainage of surface water around building per Section CRC R401.3 or provide engineer's hydraulic calculations to demonstrate compliance.
- j) Show location of sewer line and elevation of next upstream manhole.
- k) Indicate invert elevation of sewer line.
- 1) Show routing of sewer line from structure to lateral, including slopes.
- m) Location of sewer lateral, power poles, wire utility supply lines & meters.
- n) Where applicable the construction to be demolished and the location and size of the existing structures(s) and construction that is to remain.
- A12. Final plans and calculations are to be stamped and wet signed by an architect or civil/structural engineer licensed by the State of California. [CRC R301.1.3.1]
- A13. Revise sheet \_\_\_to indicate a minimum set back from top of the slope of \_\_\_feet per CRC Figure R403.1.7.1] and County of Orange Grading Code [CRC R403.1.7.1]
- A14. Revise sheet \_\_\_\_ to indicate a minimum set back from toe of the slope of \_\_\_\_ feet per CRC Figure R403.1.7.2] and County of Orange Grading Code [CRC R403.1.7.2]
- A15. Revise the street fronting building elevation to show a property address to comply with section CRC R319. [CRC R319.1]

# **B. GENERAL CONSTRUCTION REQUIREMENTS**

- B1. New townhouses, one- and two-family dwellings shall have an automatic fire sprinkler system installed in accordance with CRC Section R313.3 or NFPA 13D. Submit 3 sets of automatic fire sprinkler plans to OCFA for approval (714) 573-6100 [CRC R313]
- B2. Private garage shall be separated from the residence and its attic, structure(s) supporting floor/ceiling assemblies used for separation required by CRC Section R302.6, and garages located less than 3' from a dwelling unit on the same lot shall be protected by a minimum ½ -in gypsum board applied to the garage side. Garages beneath habitable rooms shall be separated from all habitable rooms above by not less than a 5/8-in type X gypsum board. [CRC R302.6]
- B3. Doors between the garage and private residence shall be self-closing and self-latching. [CRC R302.5.1]
- B4. Provide the minimum 1-3/8 inch solid-core wood door, a solid or honeycomb core steel door not less than 1-3/8 inch thick, or a 20-minute fire rated door between the garage and residence unless both are protected by an automatic residential fire sprinkler system. [CRC R302.5.1]

- B5. Projections of dwelling units and accessory buildings without an automatic residential fire sprinkler protection are not permitted less than 2 feet to the property line and are required to be 1 hour fire rated on the underside with a fire separation distance between 2 feet and 5 feet. [CRC Table R302.1 (1)]
- B6. Projections of dwelling units and accessory buildings with an automatic residential fire sprinkler protection are not permitted less than 2 feet to the property line and are required to be 1 hour fire rated on the underside with a fire separation distance between 2 feet and 3 feet. [CRC Table R302.1 (2)]
- B7. Walls of dwelling units and accessory buildings <u>without</u> an automatic residential fire sprinkler protection with a fire separation distance less than 5 feet are required to have a full one hour rating. [CRC Table R302.1 (1)]
- B8. Walls of dwelling units and accessory buildings with an automatic residential fire sprinkler protection with a fire separation distance less than 3 feet are required to have a full one hour rating. [CRC Table R302.1 (2)]
- B9. Detached garage accessory to a dwelling located within 2 feet of a lot line shall have a roof eave projection not to exceed 4 inches. [CRC R302.1]
- B10. Openings are not permitted less than 3 feet to the property line. In dwelling units and accessory buildings without an automatic residential fire sprinkler protection openings are limited to 25 percent the wall area when fire separation distance is greater than 3' and less than 5'. [CRC R302.1 (1)]
- B11. Exterior wall penetrations less than 5' in dwelling units and accessory buildings <u>without</u> an automatic residential fire sprinkler protection, or less than 3' in dwelling units and accessory buildings <u>with</u> an automatic residential fire sprinkler protection shall comply with CRC Section R302.4.
- B12. Parapets shall be constructed in accordance with Section CRC R302.2.3 for townhouses as an extension of exterior walls or common walls in accordance with CRC R302.2.2.
- B13. Townhouse units shall be separated by a common 1 hour fire-resistance-rated wall assembly and shall extend to and be tight against exterior walls and the underside of the roof sheathing. [CRC R302.2 Exception]
- B14. Note on plans that a townhouse common wall cavity shall not contain plumbing or mechanical equipment, ducts, and vents. [CRC R302.2 Exception]
- B15. A townhouse common wall shall be continuous from the foundation to the underside of the roof sheathing, deck or slab and extend the full length of the wall, including wall extensions through and separating attached enclosed accessory structures. [CRC R302.2.1]
- B16. Townhouse parapets shall be constructed on exterior walls and common walls in accordance with CRC R302.2.3. [CRC R302.2.2]
- B17. Duplex units shall be separated by a one hour fire-resistance wall and/or floor assemblies (1/2 hour in a sprinklered building) and shall extend to and be tight against exterior walls and the underside of the roof sheathing. [CRC R302.3]
- B18. The supporting construction of floor assemblies with fire resistance rated by section R302.3 shall have its of equal or greater fire-resistance rating than the fire-rated assembly being supported. [CRC R302.3]
- B19. Through penetrations of fire-resistance-rated construction shall be in accordance with CRC Section R302.4.1.1 or R302.4.1.2.

- B20. Membrane penetrations of fire-resistance-rated construction shall be in accordance with CRC Section R302.4.1 and R302.4.2.
- B21. Penetrations of electrical outlet boxes in a townhouse common wall shall be in accordance with CRC Section R302.4. [CRC R302.2 Exception]
- B22. Fireblocking is required in concealed spaces 10° o.c. horizontal, vertically at the ceiling and floor levels, connections between horizontal and vertical spaces, concealed spaces between stair and landing, openings around vents, pipes, ducts, cables, wires, chimneys and fireplaces. [CRC R302.11]
- B23. Provide details of the deck/balcony and specify method of waterproofing. List ICC approval number for decking material. Show two percent minimum slope. [CRC R905.10.1]
- B24. Add note to window schedule: The load resistance of glass under uniform load shall be determined in accordance with ASTM E 1300.
- B25. The minimum net area of under-floor space ventilation shall not be less than the floor area/150. [CRC R408.1]
- B26. Access shall be provided to all under-floor spaces. The floor access shall be a minimum 18" by 24" and openings through a perimeter wall shall be not less than 16" by 24". [CRC R408.4]
- B27. Wood joists or the bottom of a wood structural floor closer than 18" or wood girders closer than 12" to the exposed crawl space shall be pressure treated or naturally durable to decay. [CRC R317.1 (1)]
- B28. All wood framing members that rest on concrete or masonry exterior foundation walls and are less than 8" to the exposed ground shall be pressure treated or naturally durable to decay. [CRC R317.1 (2)]]
- B29. Sills and sleepers in direct contact with concrete or masonry that is in direct contact with the ground and girders with less than ½" clearance to masonry and concrete shall be pressure treated or naturally durable to decay. [CRC R317.1 (3&4)]]
- B30. Note on plans that "Field-cutting ends, notches and drilled holes of preservative-treated wood shall be treated in the field in accordance with AWPA M4". [CRC R317-1.1]

## C. OCCUPANCY REQUIREMENTS

- C1. A garage shall not be open into any room used for sleeping. [CRC R302.5]
- C2. Sleeping rooms must have a window or exterior door for an emergency exit, sill height not more than 44 inches above the floor, 5.7 square feet of openable area, 24 inches clear opening height, 20 inches clear opening width and shall open directly into a public street, alley, yard, or exit court.. Windows \_\_\_\_\_\_ do not comply. [CRC R310.1-R310.1.3]
- C6. Window wells are not permitted to be located within 3 feet of property line. [CRC Table R302.1 (1) & (2)]
- C7. Window wells shall comply with section CRC R310.2
- C8. Specify window size and type (how it opens) for both existing and new windows for bedroom(s) adjacent to new addition so that emergency egress requirements may be verified.

C9. Wall between and should be unobstructed and provides an opening of not less than 8% of the floor area of the interior room or 25 square feet whichever is greater to meet ventilation requirements in these rooms. [CRC R303.2]
C10. Minimum window area shall be 8 % of the floor area and 50 % openable at room. [CRC R303.1]
C11. Wall between and should be 50 % open and unobstructed and provides an opening of not less than 1/10 of the floor area of the interior room or 25 square feet whichever is greater to meet natural light requirements in these rooms. [CRC R303.2]
C12. Net window opening for ventilation at room shall be a minimum of 4 % of the floor area. [CRC R303.1]
C13. Where openable windows are not provided provide a mechanical ventilation system capable of producing 0.35 air change per hour in the room. [CRC R303.1 (1)]
C14. Specify window size and type (how it opens) for both new and existing windows at rooms adjacent to new addition so that minimum light and ventilation requirements may be verified. Minimum window area shall be 8 % of the floor area square and 50% openable. [CRC R303.1]
C15. Where windows are not provided provide a mechanical ventilation system capable of producing 0.35 air change per hour in the room and artificial light producing 6 foot-candles (65 lux) at 30" in height. [CRC R303.1 (2)]
C16. Bathroom or service room minimum window areas shall not be less than 3 square feet and 50 % openable or, provide a mechanical ventilation system exhausted to the outside capable of providing 50 cubic feet per minute for intermittent ventilation 25 cubic feet per minute for continuous ventilation. [CRC R303.3]
C17. Show 30-inch clear width for water closet compartments and 24-inch clearance in front of a water closet.
C18. Show a 7' minimum ceiling height for habitable rooms, hallways, bathrooms, toilet & laundry rooms, and basements containing these spaces. [CRC R305.1]
C19 For sloped ceilings at least 50% of the required floor area (70 sq feet) of the room must have a ceiling heigh of at least 7' and no portion of the required floor area may have a ceiling height of less than 5'. [CRC R305.1 Exception (1)]
C20. Bathroom shall have a minimum ceiling height of 6'8" at the center of the front clearance area for fixtures. [CRC 305.1 Exception (2)]
C21. Show a 6'-8" minimum ceiling height for non habitable basements. [CRC 305.1.1]
C22. Exterior openings that open into porches and sunrooms areas used for light and ventilation shall have 40% of the exterior walls are open and the enclosure shall comply with CRC Appendix H. [CRC R303.1 Exception (3)]
C23. Show location of heating equipment on the plans. [CRC R303.8]
C24. Revise plans to show UL 217 rated smoke alarms:

a) In alterations, repairs and additions smoke alarms are required in each sleeping room, outside each separate sleeping area in the immediate vicinity of the bedrooms, and at each additional floor or basement level. Smoke alarms may be battery operated and not interconnected. [CRC R314.3.1]

- b) Smoke alarms shall be provided in all new construction located in each sleeping room, outside each separate sleeping area in the immediate vicinity of the bedrooms, and at each additional floor or basement level. [CRC R314.3]
- c) In new buildings, smoke alarms shall be interconnected and hardwired. [CRC R314.4 & R314.5]

C25. Revise plans to show UL 2034/2075 rated Carbon monoxide alarms:

- a) In alterations, repairs and additions of existing dwellings exceeding \$1000 carbon monoxide alarms are required in the specific permitted dwellings or sleeping units that have attached garages or fuel burning appliances. The carbon monoxide alarms may be battery operated and not interconnected. [CRC R314.3.1]
- b) Carbon monoxide alarms shall be provided in all new construction located in each sleeping room containing a fuel-burning appliance and in dwelling units that have an attached garage. [CRC R315]
- c) In new buildings, carbon monoxide alarms shall be interconnected and hardwired. [CRC R315.1.1 & R315.1.2]

# **D. FINISHES**

- D1. Provide specifications and details for stone and masonry veneer in compliance with CRC Section R703.7.
- D2. Submit an interior finish schedule (specify fasteners, fastener spacing, coating thickness, number of coats, etc) complying with the requirements of CRC R702.
- D3. Indicate vertical supports for anchored veneer and air spacing in accordance with CRC Section R703.7.

- D4. Provide specifications for lath, plaster and drywall to conform to the requirements of CRC Chapter 7.
- D5. Show exterior wall construction assembly. A minimum of one layer of No. 15 asphalt felt, free from holes and breaks, complying with ASTM D 226 for Type 1 felt shall be applied over study of all exterior walls. Specify that two layers of Grade D or 60 minute Grade D paper shall be applied over all wood base sheathing. [CRC R703.2]
- D6. Specify a minimum 0.019" (No. 26 galvanized sheet gage) corrosion-resistant or plastic weep screed located below foundation plate line and 4 inches above grade on all exterior stud walls or 2-inches above paved areas. [CRC R703.6.2.1]

#### E. GLAZING

- E1. Note on plan "Each pane of safety glazing installed in hazardous locations shall be identified (acid etched, sand blasted, ceramic fired, etc) by a manufacturer's designation, the manufacturer or installer and the safety glazing standard which it complies. Multi-pane assemblies shall be identified per CRC R308.1. [CRC R308.1]
- E2. Glazing in swinging, sliding, and bifold doors 9 square feet or less shall be a minimum category classification of I (CPSC 16 CFR 1201) and II (CPSC 16 CFR 1201) when more than 9 square feet or sliding. [Table R308.3.1 (1), R308.3 (1)]
- E3. Glazing within 24" arc of either vertical edge of the door and less than 5' from the walking surface shall **be** safety glazed. [CRC R308.4 (2)]
- E4. Glazing over 9 square feet in area with bottom edge less than 18" above the floor and exposed top edge greater than 36" above the floor shall **be safety glazed**. [CRC R308.4 (3)]
- E5. Glass used in handrails and guards shall be safety glazed. [CRC 308.4(4)]
- E6. Glazing in door and enclosures for hot tubs, whirlpools, saunas, steam rooms, bathrooms, showers less than 5' above the standing surface shall have a minimum category classification of II (CPSC 16 CFR 1201). [CRC TR308.3.1 (1) & 308.4(5)]
- E7. Glazing in walls and fences enclosing indoor and outdoor swimming pools, hot tubs and spas when the bottom edge of the glazing is less than 5' above a walking surface and it is within 5' horizontally of the water's edge shall have a minimum category classification of I (CPSC 16 CFR 1201) or B (ANSI Z97.1) when 9 square feet or less in area and II (CPSC 16 CFR 1201) or A (ANSI Z97.1) when more than 9 square feet.. [CRC 308.4(6) & T R308.4.1 (1) & (2)]
- E8. Glazing adjacent to stairway, landings and ramps within 3' horizontally and 5' vertically of a walking surface shall have a minimum category classification of II (CPSC 16 CFR 1201) or A (ANSI Z97.1) when more than 9 square feet. [CRC R308.4 (7) & Table R308.4.1 (1) & (2)]
- E9. Glazing adjacent to stairways within 5' horizontally and 5' vertically of a walking surface shall **be safety glazing**. [CRC 308.4(8)]
- E6. Glass block shall have a minimum face thickness of 3/16", original units, polyvinyl butyral coated, and comply with R610. [CRC R610.2]
- E.7 Louvered windows and jalousies shall be a minimum 3/16" thick, maximum 48" in length, and have smooth edges. [CRC R308.2]

## F. SKYLIGHTS

- F1. Specify manufacturer's name and ICC approval number for skylights. [CRC R308.6.9]
- F2. Specify glazing material shall be fully tempered, heat-strengthened, wired, approved rigid plastic, or laminated in accordance with CRC R308.6.2.
- F3. Screens shall be provided to glazing that is not fully tempered meeting the requirements listed in R308.6.5. [CRC R308.6.3 & R308.6.5]
- F4. Provide skylight details to show flashing and 4-inch minimum mounting height. [CRC 308.6.8]
- F5. Submit calculations, specifications, and construction details for skylights that are not third party approved.

#### G. FIREPLACES

- G1. Provide details of masonry firebox and chimney construction in accordance with CRC R1003 & R1001.
- G2. Provide 2 inch minimum (1 inch for exterior chimneys) clear air space between chimney and wood construction from the front faces and sides and 4 inch from the back face. [CRC R1001.11]
- G3. Provide details of the fireplace, indicate chimney lining, reinforcing, ties to building, etc. [CRC R1003 & R1001]
- G4. Call out make, model and ICC, UL or third party approval number for the prefabricated metal fireplace and chimney. [CRC R1004.1 & R1005.1]
- G5. Fireboxes that burn solid fuel shall be provided with a chimney spark arrester. [CRC 1003.9.1]
- G6. Show height of the chimney to be two feet above roof level within 10 feet of chimney, and not less than three feet from point where chimney passes through roof. [CRC R1003.9.1]
- G7. Provide Seismic reinforcing for section [CRC R1003]
- G8. Provide anchoring detail or masonry heart to foundation. [CRC 1002.4]

# H. EXITING REQUIREMENTS

- H1. Every residence and dwelling unit shall have at least one continuous and unobstructed path of vertical and horizontal egress travel from all portions of the building without requiring travel through a garage. [CRC 311.1]
- H2. The third floor shall have a maximum 50' travel distance from any occupied point to an egress stairway or ramp. [CRC R311.4]
- H3. The minimum width of hallways shall not be less than 36". [CRC R311.6]
- H4. Basements shall have at least one exterior emergency escape and rescue opening that shall open directly into a public street, alley, yard, or exit court. Each sleeping room at basement shall have its emergency egress and rescue opening. Escape windows with a finished sill height below adjacent ground elevation shall have a window well and ladder per CRC R310.2. [CRC310.1]
- H5. Specify that bars, grilles or similar devices if placed over any sleeping room door or window shall be releasable and removable from the inside without the use of a key, tool, or any special knowledge or effort. [CRC R310.4]
- H6. Every dwelling unit shall have at least one swinging exit door, minimum clear height of 6'-6", and minimum clear width of 32". [CRC 311.2]
- H7. Revise plans to indicate that a landing, with a width not less than the width of door and length in the direction of travel of not less than 36 inches, will be provided on each side of doors. The elevation of landing shall not exceed 1½ inch difference than the threshold of the doorway (7 3/4 inch if door does not swing over the landing or steps) in each direction. Revise plans at door from \_\_\_\_\_\_\_ to show compliance. [CRC R311.3.1]
- H8. Specify that the maximum slope of any landing shall not exceed ¼ inch per foot. [CRC R311.3]
- **H9.** Indicate that the corridor/hall to \_\_\_\_\_ room shall be 36 inches minimum clear width. [CBC R311.6]
- H10. The minimum clear width of stairways is clear 36" above the handrail. Handrails shall not project more than 4.5" on either side of the stairway and the minimum clear width of the stairway at and below the handrail height shall be 31.5" and 27" when installed on one side and both sides, respectively. [CRC R311.7.1]
- H11. Provide a section of stairway showing a maximum rise of 7.75 inches and a minimum run width of 10 inches for straight stairways. The maximum difference between the stair risers and treads shall not be greater than 3/8". [CRC R311.7.4]
- H12. Provide details of the winding tread walk line 12" clear from the inside turn. [CRC R311.7.3]

- H13. Provide detail of spiral stairways that show compliance with CRC R311.7.9.1.
  - a) Minimum clear width at and below the handrail is 26".
  - b) Have a minimum tread depth of 7 1/2" at 12" from the narrow edge.
  - c) All treads are identical with a maximum rise of 9 1/2".
  - d) Minimum headroom of 6'-6" shall be provided.
- H14. Handrails are required on at least one side of a continuous run of treads or flight with four or more risers. [CRC R311.7.7]
- H15. Provide dimensioned details of handrail grips showing a minimum edges radius of 0.01 inch and shall have a one of the following:
  - a) Circular cross sectional diameter shall be between 1 ½" and 2". Non-circular handrails shall have a perimeter dimension between 4 and 6 ¼ inches with a maximum cross section of dimension of 2 ¼ inches. [CRC R311.7.7.3 (1)]
  - b) Handrails with a perimeter dimension > 6 \(^{1}\)4 inches shall have a graspable finger on both sides of the profile between 1 1/4" to 2 \(^{3}\)4" beginning within \(^{3}\)4" from the top of the profile and achieve a minimum 5/16" depth within 7/8" below the widest profile point and shall continue a minimum 3/8" to a level not less than 1\(^{3}\)4" below the tallest portion of the profile. [CRC R311.7.7.3 (2)]
- H16. Handrails shall be continuous except at a turn they are permitted to be interrupted by a newel post and have a minimum clear distance between the wall and handrail grip of 1 ½ inches. [CRC R311.7.7.2]
- H17. Where guards are used as handrails at the sides of stairs they shall have a height between 34-38 inches. [CRC R312.2.7]
- H18. Provide a 42 inch high guardrail at balconies landing and decks located more than 30" vertically to the floor or grade below. [CRC R312.1 & R312.2]
- H19. Provide a detail of the guard (including a handrail on open sides of the stairway) showing that a 4 3/4" diameter sphere may not pass through the open space between intermediate rails and pickets. The open space between the riser tread and bottom rail of the guard shall not allow a 6-inch diameter sphere to pass through. [CRC R312.3]
- H20. Show a ½ inch gypsum board at enclosed space under the stairway. [CRC R302.7]
- H21. Provide a stairway cross-section showing minimum clear headroom of 6'-8". [CRC R311.3.2]
- H22. There shall be not more than 12 feet vertically between landings. [CRC R311.7.5]
- H23. Dimension landings at top and bottom of stairs measured in the direction of travel not less than the stair width. [CRC R311.7.5]

# I ROOF CONSTRUCTION AND COVERING

- I1. Provide detail of roof construction assembly. [CRC 902.1]
- I2. Specify ICC approval number for tile and special roof coverings. [CRC R905.3.4 and R905.3.5]

- I3. For each enclosed attic space with a maximum vertical height greater than 30 inches, provide a minimum of 22 x 30 inches attic access. [CRC R807.1]
- I4. Provide cross ventilation for attic and each enclosed rafter space as specified in CRC Section R806. The total net free ventilating area shall not be less than 1/150 or 1/300 when a Class I or II vapor barrier is installed on the warm-in-winter side of the ceiling. [CRC R806.2]
- I4.1 Unvented attic assemblies shall comply with CRC R806.4.
- I5. Provide detail at eave vents to show a minimum 1" space between the insulation and bottom of the roof sheathing. [CRC R806.3]
- I6. Roof and deck area drains to be designed for a \_\_\_\_ hour rainfall per Table 11-1. [CPC 1105]
- I7. Provide details of roof drain and overflow. Overflow drains shall have separate independent piping and have an inlet flow line locate 2" above the low point of the roof. Overflow scuppers shall have an area 3 times the roof drain, a minimum opening height of 4", and have an inlet flow line located 2" above the low point of the roof. [CRC R903.4.1]
- I8. Draftstops shall be provided in any concealed space where there is usable space both above and below the concealed space. The concealed space shall not exceed 1,000 square feet. [CRC R302.12]
- I9. Exposed attic floor insulation shall have a critical radiant flux of not less than 0.12 watt per square centimeter per ASTM E 970.

#### J. NOISE CONTROL

J1. Detail the sound attenuation (minimum STC & IIC rating of 45) between units and public space. Attach noise installation standards to the plans. [CRC AK 02 & AK103]

# K. ENERGY CONSERVATION (2008 California Energy Standards Code, which is 2010 California Energy Code)

- K1. Note: All plans submitted for plan check on or after January 1, 2010 are to be based on the 2008 California Energy Code.
- K2. Submit a complete energy compliance package complying with 2008 CESC Section 150. [T24-1-10.103
- K3. For new construction use prescriptive package D or provide a complete performance analysis. [2008 CESC 152(a)]
- K4. Additions and alterations are required to comply with 2008 CESC Section 152. Submit an energy compliance package showing compliance with package D or a complete performance analysis. [T24-1-10.103]
- K5. Additions to existing buildings using the **prescriptive approach** shall meet the following requirements. [2008 CESC 152(a) 1]:
  - a) Additions up to 100 square feet shall not exceed 50 square feet of glazing. The glazing U-factor shall not exceed 0.40, and the glazing Solar Heat Gain Coefficient shall not exceed the value specified in Alternative Component Package D and applicable parts of Table 151-C;
  - b) Additions up to 1000 square feet shall meet all the requirements of Package D [Section 151(f) and applicable parts of Table 151-C]. The total glazing area at addition is limited to the maximum allowed in

- Package D plus the glazing area that was removed by the addition. The wall insulation value need not exceed R-13.
- c) Additions of 1000 square feet or greater shall meet all the requirements of Package D [Section 151(f) and applicable parts of Table 151-C]
- K6. Additions to existing buildings using **performance approach** shall meet the requirements of Section 151(a) through (e), pursuant to either of the following [2008 CESC 152(a) 2]:
  - a) For additions alone, the addition complies if the addition meets the combined water-heating and space conditioning energy budgets as specified in Section 151(b).
  - b) For existing plus addition plus alteration compliance. The energy use of the combination of the altered existing building plus the proposed addition shall be equal to or less than the energy use of the existing building with all alterations meeting the requirements of Section 152(b) 2, plus the standard energy budget of an addition that complies with Sections 151(a) through (e). When determining the standard design, the fenestration area shall be the smaller of the sum of the installed fenestration area up to 20 percent of the conditioned floor area of the addition plus glass removed from the existing building as a result of the construction of the addition or the proposed glass area in the addition.

- K7. Alterations to existing buildings using the Prescriptive approach shall meet the applicable requirements of Sections 110 through 119, and 150(a) through (p) (for the altered area and new equipment); [2008 CESC 152(b)] AND
  - a) Alterations that add fenestration area to a building shall be limited to a maximum 0.40 U-factor and the Solar Heat Gain Coefficient for new fenestration product as specified in Alternative component Package D. [Tables 151-C]

**EXCEPTION to Section 152(b) 1A**: Alterations that add fenestration area of up to 50 square feet shall not be required to meet the total fenestration area and west-facing fenestration area requirements of Sections 151(f) 3B and C. The existing west-facing fenestration area shall not be increased by more than 50 square feet.

b) Replacement fenestration, where existing glazing is replaced with a new manufactured fenestration product in the same orientation and tilt, shall meet the U-factor and Solar Heat Gain Coefficient requirements of Package D (Sections 151(f) 3A and 151(f) 4 and Table 151-C).

**NOTE:** Glass replaced in an existing sash and frame, or replacement of a single sash in a multi-sash fenestration product are considered repairs

- c) New or replacement space-conditioning systems shall:
  - i. Meet the requirements of Section 150(h), 150(i), 150(j)2, 151(f)6, 151(f)7, 151(f)9, and 151(f)11; AND
  - ii. Be limited to natural gas, liquefied petroleum gas, or the existing fuel type unless it can be demonstrated that the TDV energy use of the new system is more efficient than the existing system.
- d) When more than 40 feet of new or replacement space-conditioning ducts are installed in unconditioned space, the new ducts shall meet the requirements of Section 150(m) and the duct insulation requirements of Package D Section 151(f) 10. If ducts are installed in climate zones 2, 9, 10, 11, 12, 13, 14, 15 or 16, the duct system shall be sealed, as confirmed through field verification and diagnostic testing in accordance with procedures for duct sealing of existing duct systems as specified in the Reference Residential Appendix RA3, to meet one of the following requirements.
  - i. If the new ducts form an entirely new duct system directly connected to the air handler, the measured duct leakage shall be less than 6 percent of fan flow and meet the airflow requirements of Reference Residential Appendix RA3: OR

- ii. If the new ducts are an extension of an existing duct system, the combined new and existing duct system shall meet one of the following requirements.
- iii. The measured duct leakage shall be less than 15 percent of system fan flow; OR
- iv. The measured duct leakage to outside shall be less then 10 percent of system fan flow; OR
- v. The duct leakage shall be reduced by more than 60 percent relative to the leakage prior to the installation of the new ducts and a visual inspection, including a smoke test; shall demonstrate that all accessible leaks have been sealed; OR
- vi. If it is not possible to meet the duct sealing requirements of subsection a, b, or c, all accessible leaks shall be sealed and verified through a visual inspection and a smoke test by a certified HERS rater.

**EXCEPTION to Section 152(b) 1Dii:** Existing duct systems that are extended, which are constructed, insulated or sealed with asbestos.

- K8. Alterations to existing buildings using the Performance approach shall meet the applicable requirements of Sections 110 through 118 and 150 (for the altered area and new equipment). [2008 CESC 152(b) 2]; AND
  - a) Either the permitted space alone, which shall be a minimum of the square footage of the room in which the alteration is made, shall comply with Section 151; OR
  - b) The energy efficiency of the existing building shall be improved so that the building meets with the energy budget in Section 151 that would apply if the existing building was unchanged and the permitted space alone complied with the above item. The permitted space shall be a minimum of the square footage of the room in which alteration is made.
- K.9 Fenestration products repaired or replaced, not as part of an alteration, need not comply with U-factor and Solar Heat Gain Coefficient requirements applicable to alterations. [2008 CESC 152(b) 1]
- K10. The CF-1R form is to be signed by the Document Author and Building Designer and incorporated into the plans. [T24-1-10.103(a) 2A]
- K11. The Mandatory Measures Checklist (MF-1R) form, showing compliance with 2008 CESC Section 150, is to be incorporated into the plans. [T24-1-10.103(a) 2A]
- K12. Indicate all compliance measures from the energy compliance documentation on the plans. (i.e. Insulation for sections, U-factors SHGC). Revise door and window schedule or floor plans to show compliance. [T24-1-10.111]
- K13. All new windows and doors shall have a label indicating the U-factor and SHGU. Comply with energy documentation requirements.
- K14. The maximum U-factor for glazing is 0.40 for Climate Zones 6 thru10 for Package D. Revise plans to show compliance.
- K15. The minimum Solar Heat Gain Coefficient (SHGC) is 0.4 for Climate Zones 6 thru 10 for Package D.
- K16. The maximum U-factor is \_\_\_\_\_ based on information on plans. See Table 151-B or -C
- K17. The maximum Solar Heat Gain Coefficient (SHGC) is \_\_\_\_\_\_ based on information on the plans. See Table 151-B or C

- K18. Provide documentation to show that the proposed heating/cooling equipment complies with 2008 CESC Sections 150(h).
- K19. Indicate mechanical equipment on plans, specify the make, model, capacities, and minimum efficiencies for both heating and cooling, and provide evidence of 2008 CESC certification. [2008 CESC 112 & 150(h)]
- K20. Indicate water heater insulation requirements on the CF-1R form. Minimum external insulation is R-12 or internal insulation of R-16. [2008 CESC 150(j)]
- K21. Revise framing plans to indicate insulation for walls R=13, ceiling R=30, and raise floor R=19 climate zones 6 and 8. [2008 CESC 150]
- K22. Revise framing plans. Wall R=19, ceiling R=38, raised floor R=19, climate zones 11 thru 16. [2008 CESC 150]
- K23. Insulation shown on the plans does not agree with CF-1R form; revise framing plans. Wall R=\_\_\_\_, ceiling R=\_\_\_\_, raised floor R=\_\_\_\_.
- K24. Revise framing plans to provide a radiant barrier at roof for Climate Zones 8 when using the prescriptive approach. [2008 CESC 151(f) 2]
- K25. Provide specification for roof and wall insulations.
- K26. Provide data for aged solar reflectance and thermal emittance values used on roofing products for steep slopes with a weight of 5 psf or more using the Prescriptive Method OR use default values used in Section 118i. [2008 CESC 151(f) 12]
- K27. The energy analysis specifies a U-factor for the west facing glazing. Provide specification or notes to show compliance. [2008 CESC 151]
- K28. High efficacy luminaries for residential lighting shall contain only high efficacy lamps shall not contain a medium screw base socket (E24/E26). A high efficacy lamp has a lamp efficacy that is no lower than efficacies contained in Table 150-C. Ballasts for lamps rated 13 watts or greater shall be electronic and shall have an output frequency no less than 20 kHz.
- K29. Note all high efficacy luminaries (including recessed can fixtures) shall contain pin-based sockets unless specifically approved by the Energy Commission. [2008 CESC 150(k) 1]
- K30. Permanently installed luminaries in:
  - a) Kitchens shall be at least 50% of high efficacy luminaries with separated circuit.
  - b) Bathrooms, garage, laundry rooms, and utility rooms shall be high efficacy luminaries, OR controlled by an occupant sensor.
  - c) Other than in kitchens, bathrooms, garages, laundry rooms, and utility rooms shall be high efficacy luminaries, OR controlled by a dimmer switch, OR controlled by an occupant sensor.
  - d) Outdoor lighting mounted to the building shall be high efficacy OR controlled by a photo control/motion sensor.
  - e) Common areas of multifamily buildings shall be either high efficacy OR controlled by an occupant sensor.

- K31. All new HVAC equipment must have an efficiency rating of EER 13. [2008 CESC 112]
- K32. Piping in unconditioned space, leading to and from water heater shall be insulated with an installed thermal resistance of at least R-4 for the 5 feet of pipe closest to the water heater or whatever shorter length is in the unconditioned space. [2008 CESC 150(j) 2]
- K33. All heating systems shall have an automatic thermostat with a clock mechanism which the building occupant can manually program to automatically set back the thermostat set points at least 4 periods within 24 hours. [2008 CESC 150(i)]
- K34. The air handling duct system shall be constructed, installed, and sealed as provided in Sections 601, 603, 604 & 605 of the California Mechanical Code. [2008 CESC 150(m)]
- K35. Building cavities, support platforms for air handlers, and plenums constructed with materials other than sealed sheet metal, duct board or flexible duct shall not be used for conveying conditioned air. [CBC 150 (m)]
- K36. Solar heat gain coefficients for interior shading devices used with fenestration products shall be 0.68 for vertical fenestration products and 1.0 for non-vertical fenestration products. [2008 CESC 151 (e) 5]
- K37. All supply ducts shall either be in conditioned space or be insulated to a minimum installed level of R-4.2 and meet requirements of 2008 CESC 150(m). All duct systems shall be sealed as confirmed through field verification and diagnostic testing per ACM manual.
- K38. If a masonry or factory-built fireplace is installed, it shall have the following: [2008 CESC 150(e)]
  - a) Closeable metal or glass doors covering the entire opening of the firebox;
  - b) A combustion air intake to draw air from the outside of the building directly into the firebox, which is at least six square inches in area and is equipped with a readily accessible, operable, and tight-fitting damper or combustion-air control device; AND.
    - **EXCEPTION:** An outside combustion-air intake is not required if the fireplace will be installed over concrete slab flooring and the fireplace will not be located on an exterior wall.
  - c) A flue damper with a readily accessible control.
    - **EXCEPTION:** When a gas log, log lighter, or decorate gas appliance is installed in a fireplace, the flue damper shall be blocked open if required by the manufacturer=s installation instructions or the California Mechanical Code.
- K39. For fireplaces, decorative gas appliances and gas logs -- continuous burning pilot lights and the use of indoor air for cooling a firebox jacket, when that indoor air is vented to the outside of the building are prohibited.[2008 CESC150(e)2]

## L. MECHANICAL

- L1. Provide protection from auto impact for furnace and water heater. [CMC 307]
- L2. Provide anchorage details for FAU units. [CMC 303.4]

- L3. Provide combustion air for a water heater and/or an FAU located within 12 inches of top and bottom of the compartment. [CMC 701.10(4&6) & 701.3]
- L4. Provide a 3-inch clearance on all sides, back and top and 6 inches in front of the furnace and water heater. [CMC 904.2]
- L5. Enclosures housing an FAU or water heater cannot open into bedrooms, closets, or bathrooms unless enclosed in a fire rated enclosure. [CMC 904.1]
- L6. For an FAU located in the attic provide a minimum access of 22 x 30 inches, a 24-inch wide walkway, a 30-inch deep work platform, and electric light outlet adjacent to the furnace and switched by the opening. [CMC 904.11 & 305]
- L7. Show 22 x 30 inch clear access to the furnace. Provide a maximum of 20 feet from opening to furnace. [CMC 904]
- L8. Revise plans to indicate how separate combustion air is provided for FAU located in attic. [CMC 701.3]
- L9. Show exhaust hood and exhaust vent above cooking appliances at the kitchen. [CMC 504.2]
- L10. Show how the dryer will be vented to the outside air. [CMC 504.3]
- L11. The maximum length of a dryer vent is 14 feet with two bends. Two feet shall be decreased for each bend more than two, unless approved by the Building Official. [CMC 504.3.2.2]
- L12. A dryer compartment shall be provided with a minimum opening of 100 square inches for makeup air in the door or by other approved means. [CMC 504.3.2]

# M. PLUMBING

- M1. Minimum slope of sewer line and drainage piping is 2% [CPC 708]
- M2. Provide complete routing plans for sewer drainage piping from the furthest most fixtures to sewer lateral. Revise plan to indicate slopes and cleanouts.
- M3. Note on the plans: "An approved backwater valve is required for drainage piping serving fixtures located below the elevation of the next upstream manhole cover. Fixtures above such elevation shall not discharge through the backwater valve. Clean outs for drains that pass through a back water valve shall be clearly identified with a permanent label stating "backwater valve downstream"." [CPC 710.1]
- M4. The finished floor is below the invert elevation of the public sewer. Provide complete plans and calculations for the sewer ejector system to show compliance with CPC 710.3.
- M5. Basements and floors below the street flow line are required to have a drainage sump, pumps, and backwater valve. [CPC 1101.6 & 1101.5.5]
- M6. Bathtub and shower floors and walls above bathtubs with installed shower head and in shower compartments shall be finished with a nonabsorbent surface. Such wall surface shall extend to a height of not less than 6' above the floor. [CRC R307.2]
- M7. Water heater enclosures cannot open into bedrooms, closets, or bathrooms. [CPC 505.1]

- M8. Show minimum shower area of 1024 square inches finished dimension and ability to encompass a 30-inch diameter circle. [CPC 411.7]
- M9. All hose bibs must be protected by an anti siphon device. [CPC 603.1]
- M10. Provide a minimum of 18 inches high platform for water heater and FAU or other gas appliance located in the garage. [CMC 307.1]
- M11. Provide protection from auto impact for water heaters located in the garage. [CMC 307]
- M12. Provide water heater anchor straps within the upper and lower 1/3. [CPC 508.2]
- M13. Indicate location and type of landscape irrigation system backflow prevention devices. [CPC 603.4.6]
- M14. Bathtubs and whirlpool baths shall be provided with a trap door or access within 20 feet of the pump. [CPC 414.1]

## N. ELECTRICAL

- N1. Specify that Ground Circuit Interrupter (GFI) outlets shall be provided in bathrooms, garages, basements, crawl spaces, outside, and at all kitchen counters and islands. [CEC 210.8(A)]
- N2. Provide an electrical floor plan showing location of receptacle and lighting outlets. [CEC 210.52(A-H) & 210.70]
- N3. Provide receptacles within 2 feet of kitchen sink and at 4 feet on-center at counters (12" or more in width) and islands. [CEC 210.52(C)]
- N4. Provide at least one outlet for island or peninsular counter space. [CEC 210.52(C) 2&3]
- N5. Provide panel schedule and load calculations in accordance with CEC Article 220.
- N6. A minimum 100 amp service panel is required for all new dwellings. [CEC 230.79(C)]
- N7. A minimum 60 amp service panel is required for each dwelling unit. [CEC 230.79(D)]
- N8. Revise electrical plans to show receptacle outlets so that no point along the wall is further than 6 feet from an outlet. [CEC 210.52(A)]
- N9. All power and lighting outlets in family rooms, parlors, libraries, dens, bedrooms, sunrooms, recreation rooms, hallways and similar areas are to be protected by a "combination AFCI breaker". Kitchens, bathrooms, and basements are exempt from this requirement. [CEC 210.12(B)]
- N10. Bathrooms and powder rooms are required to have at least one GFI receptacle outlet within 36 inches of each lavatory. [CEC 210.52(D)]
- N11. At least one outlet to be installed at the front and rear of each dwelling unit. [CEC 210.52(E)]
- N.12 An accessible receptacle outlet is required on balconies, decks, or porches of dwelling units above grade level. [CEC 210.52(E) 3]
- N12. Hallways longer than 10 feet are required to have at least one receptacle outlet. [CEC 210.52(H)]
- N13. Lighting outlets are required in habitable rooms, bathroom, hallways, garages, and at exterior doors. Revise plans to show compliance. [CEC 210.70(A)]

- N14. Revise plans to show locations of light switches at both top and bottom of stairways. [CEC 210.70(A)]
- N15. Provide an exterior light at all exterior doors switched by the door. [CEC 210.70(A)]
- N16. All 15- and 20- ampere, 125- and 250-volt non-locking receptacles that are installed on the exterior of a dwelling unit and located in damp or wet locations, shall be listed as weather-resistant type. [CEC 406.8(A) (B)]
- N17. Family dwelling guidelines:
  - a) Electronic ballasts if 13 watts or more.
  - b) Recessed cans in insulated ceilings "IC" type & certified airtight.
  - c) Switch all high-efficacy lights separately from low-efficacy lights.
  - d) All lights shall be high efficacy (15 watts or less provide 40 lumen per watt, 15-40 watts provide 50 lumens per watt, and over 40 watts provide 60 lumens per watt) unless:
    - i. In kitchens up to 50% of hardwired watts may be low-efficacy.
    - ii. In bathrooms, garages, laundry & utility rooms have a manual switch for ON and a vacancy-sensor for OFF.
    - iii. All other rooms (halls, stairs, dining, bedrooms) have a manual switch for ON and a vacancy-sensor for OFF OR have electric dimmer switches.
    - iv. Outdoor building lights have a motion sensor ON and photo-cell sensor OFF.
- N18. Electrical panels or other over current devices, other than supplementary overcorrect protection, shall not be located in bathrooms or in the vicinity of easily ignitable material such as clothes closets. [CEC 230.70(A) & 240.24D&E]
- N19. Any fixed appliance such as disposal, dishwasher, clothes washer, dryer, built-in heaters, or any other fixed appliance with 1/4 H.P. motor or larger, shall be on a separate #12 AWG wire branch circuit. Each dwelling unit shall have installed therein an individual disposal circuit supplied with minimum #12 AWG wire and a 15 AMP indicating-type switch. [CEC 210.23 & 220]
- N20. There shall be a distribution panel in, and for, each apartment. Feeders for sub panels shall be enclosed in an approved raceway. [CEC 230.71]
- N21. There shall be no more than six disconnecting means per service grouped in any one location without a main disconnect. [CEC 230.71]
- N22. Show a concrete encased electrode (UFER ground) on the foundation plan, sized in accordance with Article 250.52A (3).
- N23. Show location of bonding wire to metal water supply system, or ground rods. [CEC 250.52A (1) & (5)]