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Plan Review Checklist and Submittal Guide for One- and Two-Family Dwellings

Adopted Codes:

2022 California Residential Code (CRC)

2022 California Building Code (CBC)

2022 California Mechanical Code (CMC)

2022 California Electrical Code (CEC)

2022 California Plumbing Code (CPC)

2022 California Energy Code (CESC)

2022 California Green Building Standards Code (CalGreen)

The intent of this General information and Plan Review Checklist is to assist designers, contractors, and homeowners in identifying the most common code items required on building plans to identify compliance with the current Building Codes and Standards adopted and enforced by Tuolumne County.

Please keep in mind that this checklist does not list all requirements in the current California Building Standards Codes. Additional comments may be required upon completion of project reviews. Please note: all items listed in the Plan Review Checklist, to the greatest extent possible, should be provided in graphic form on the plans. While general notes are an acceptable means of providing information in some instances, it is not the intent of this guide or checklist to have information applied in text form on the plans.

GENERAL

1. Please be prepared to provide the following when applying for a Building Permit:
    a. 1 completed Land Development and Indemnification Agreement.
    b. 3 sets of complete building plans. (24”x36” Maximum Page)
    c. 3 sets of complete PLOT PLANS that show compliance with the Tuolumne County Plot Plan Check List.
    d. 2 sets of an appropriate Energy Compliance Report with appropriate registration number if applicable.
    e. 2 sets of wet stamped and signed structural calculations if applicable.
    f. 2 sets of wet stamped and signed truss calculations if applicable.
    g. A receipt or other verification from the Tuolumne County Superintendent of Schools office certifying all appropriate development fees have been satisfied.
    h. Two (2) sets of fire sprinkler plans and hydraulic calculations must be submitted or listed as deferred on the Title sheet of the plans. ***Please note submittal and approval of residential sprinkler plans is required, prior to a frame inspection. IF prepared by a C-16 contractor, plans are not required to be submitted for review. Inspections are still required, and appropriate certifications must be on site. You can find these certification documents at: https://www.tuolumnecounty.ca.gov/DocumentCenter/View/14120/Certification-of-Residential-Fire-Sprinkler-Installation***

2. All plan sheets shall be stamped and wet signed by the appropriate architect, engineer, or designer. Electronic signatures maybe acceptable if approved by the jurisdiction (B & P Codes 5536.2 or 5537).

3. The address of the building, assessor's parcel number (APN), zoning, the name, address and phone number of the owner(s) and person(s) preparing the plans are required on all sheets of the plans.

4. A complete TITLE SHEET shall be provided with all the following information:
    a. Occupancy type, type of construction and square footage of all proposed construction.
    b. Current Code Editions (2022 CRC, CBC, CEC, CMC, CPC, CGBSC and the 2022 CA Energy Code).
    c. A complete sheet index that identifies all plan sheet numbers as well as the content of each designated sheet.
    d. All Special Inspections required either by the Engineer/Architect of Record (CBC Chapter 17)
    e. All structural criteria, such as Ground Snow Load, Seismic Design Criteria and Wind Speed including Exposure. All projects with a Licensed Architect or Engineer shall include all structural information required per CBC 1603.
    f. A complete scope of work for the proposed project.
    g. Clearly identify all the required compliance measures for the proposed structure(s) from the Energy Compliance Report. This shall include all the following:
        i. Heating/Cooling source AFUE, SEER and EER.

            Please Note: Mechanical systems including heating and air-conditioning systems that supply air to habitable spaces shall have MERV 13 filters or better and be designed to accommodate the rated pressure drop of the system air filter at the designed airflow rate.

        ii. Duct insulation R-Value
        iii. Window and Door SHGC and U-Factor
        iv. Wall, floor, and roof/ceiling insulation R-Value
        v. Water heater type and efficiency requirement
        vi. Identify Radiant Barrier if applicable
        vii. Identify Cool Roof if applicable
        viii. Identify slab insulation if applicable (hydronic floor systems)
        ix. Identify all required HERS Inspections for the project
        x. Identify if any Special Features are required
        xi. Identify if CFI (California Flexible Installation) has been utilized for solar
        xii. Identify minimum efficiency requirements for solar, including tilt, azimuth, required system size in kW, minimum inverter efficiency, and annual solar access per the included energy report

5. SOLAR: All new single-family dwellings typically now require solar as part of the energy compliance for the building. The actual design of the solar system can be deferred to field inspection if the system is roof mounted and less than 15 KW in size and noted as a deferred submittal on the plans, otherwise plan review will be required.
    a. Please be advised that if CFI (California Flexible Installation) is utilized in the energy report for the solar system justification may be required from the installing solar contractor to the field inspector showing compliance with the CFI standards.

6. Provide complete FLOOR PLANS that show all dimensions and labels the use of each room as well as location, size, operation and type of windows and doors. See Plan Review Checklist for further requirements.

7. Provide a complete ELECTRICAL plan that identifies all electrical fixtures and appliances, plumbing and heating fixtures, mechanical supply and return locations as well as any required manifolds etc. See Plan Review Checklist for further requirements.

8. Provide a completely dimensioned FOUNDATION plan including exterior and interior footing locations with appropriate detail references. Identify and note the locations, type and size of anchor bolts, rebar, straps, hold-downs, connectors etc. on plans. See Plan Review Checklist for further requirements.

9. Provide complete EXTERIOR ELEVATIONS with a minimum of four (4) elevation views showing all openings, wall, and roof finish materials, original and finish grade, building height, stepped footing outline, crawl vents, attic vents and roof pitch. See Plan Review Checklist for further requirements.

10. Provide complete ROOF FRAMING plans and FLOOR FRAMING plans. Note framing members and sheathing for floor and roof plans, framing for ceiling plans, etc. Show size and spacing of joists, rafters, and beams with grade of lumber to be used. Carry all vertical and lateral loads to footings.

11. Provide appropriate CROSS SECTION details that provide true section through building showing structural elements, fireplace sections, and other sections as needed showing earth to wood clearances, floor-to-ceiling heights, roof slopes, etc.

12. Provide a complete DETAIL sheet, in which all details are referenced at applicable locations on the plans. Details should be provided for foundation, floor, and roof details, beam connections, etc., special framing and flashing details as necessary for construction. Coordinate with truss calculation requirements as appropriate.

Plan Review Checklist

Architectural Fire/Life Safety:

1. Automatic Fire Sprinkler Systems. An automatic residential fire sprinkler system designed and installed in accordance with [CRC R313.3 and/or NFPA 13D] is required for new one- and two- family dwellings and new town houses. This item may be deferred if indicated as such on the Title Sheet of the provided plans.

2. Compliance with the provisions of “Wildland Urban Interface” shall be identified on all appropriate locations of the plans. What methods are intended to be used to identify compliance shall be clearly indicated on the plans. [CRC 337].

    a) All roof finish assemblies shall be class A rated.
    b) Valley flashing shall be not less than 26 gauge over one layer of 72 pound mineral-surfaced cap sheet at least 36 inches wide.
    c) Exterior porch ceilings shall be non-combustible material, ignition resistant material, one layer of 5/8” Type exterior rated gypsum sheathing applied behind an exterior covering on the underside of the porch ceiling, or an assembly approved by the OSFM Building Materials Listing.
    d) All roof projections shall be protected with noncombustible materials, ignition resistant materials or meet the State Fire Marshal Testing Standard.
    e) All exterior siding shall be noncombustible, ignition resistant or meet the State Fire Marshal Testing standard.
    f) All exterior glazing shall have 1 minimum tempered pane or be a 20-minute rated assembly.
    g) Ventilation openings for enclosed attics, enclosed eave soffits spaces, enclosed rafters, spaces formed where ceilings are applied directly to the underside of roof rafters, and underfloor ventilation shall comply with CRC R337.6 and ASTM E2886.
    h) All gutters shall be provided with debris barriers.

i) Exterior doors shall be 20-minute assemblies, solid core with 1 3/8" thick stiles and rails & 1 ¼'' interior field panel thickness, or of noncombustible construction.

3. Smoke alarm location within dwelling units. In dwelling units, a smoke alarm shall be installed in each sleeping room and at a point centrally located in the corridor wall or ceiling giving immediate access to each separate sleeping area. For multi-story dwelling units and dwellings with basements, a smoke alarm is required in each story and in basement. When sleeping rooms are on an upper level, the smoke alarm shall be placed at the ceiling of the upper level in close proximity to the stairway. Smoke alarms shall sound an alarm audible in all sleeping areas of the dwelling unit in which they are located. In new construction required smoke alarms shall receive their primary power from a commercial source and have a battery backup. [CRC R314.4].
    a. In existing dwellings, when the cost of the permit for alterations, repairs, or additions exceeds $1000, smoke alarms shall be installed in all the appropriate locations according to CRC 314.3 but may be battery operated.

4. Carbon Monoxide Alarms. For new construction, an approved carbon monoxide alarm shall be installed in dwelling units and in sleeping units within which fuel-burning appliances are installed and in dwelling units that have attached garages. Carbon monoxide alarms shall be installed outside of each separate dwelling unit sleeping area in the immediate vicinity of the bedroom(s) and on every level of a dwelling unit including basements.
    a. Where an addition is made to an existing dwelling or fireplace is added to an existing dwelling, not previously required to be provided with carbon monoxide alarms, new carbon monoxide alarms shall be installed in accordance with section R315. [CRC R315.2.2].

5. Emergency escape and rescue, from basements in dwelling units, habitable attics and every sleeping room, shall have at least one operable window or door approved for emergency escape or rescue that shall open directly into a public way, yard, or court that opens to a public way. [CRC R310]
    a. Minimum size of Single Hung windows for Egress purposes shall be 3'x5'. All other window operations will be evaluated for appropriate clearances with a reduction of 4" in each direction.
    b. Minimum net clear opening area of 5.7 ft^2

       Exception: 5 ft^2 required for grade-floor openings, net clear opening not greater than 44-in above grade.
    c. 24-in minimum net clear opening height
    d. 20-in minimum net clear opening width, and
    e. Bottom net clear opening not greater than 44-in above the finished floor.

6. In climate zones 14 and 16, a Class I or Class II vapor retarder shall be installed on the conditioned space side of all insulation in all exterior walls, vented attics, and unvented attics with air permeable insulation. [CalEnergy 150(g)(2)].

7. A minimum 10-mil (0.010 inch, 0.254 mm) vapor retarder conforming to ASTM E1745 Class A requirements with joints lapped not less than 6 inches (152 mm) shall be placed between the concrete floor slab and the base course or the prepared subgrade where a base course does not exist.

8. All garages (U occupancies) attached to single-family dwellings (R-3 occupancies) shall be separated by a minimum of ½-in gypsum board applied to the garage side. The separation requires self-closing, tight fitting solid wood doors, or honeycomb core steel doors not less than 1 3/8-in thick, or a self-closing and self-latching 20-minute door. [CRC R302.6]

9. The underside of floor framing members, in an area intended for storage or containing a fuel fired appliance, shall be provided with a minimum ½" gypsum board or 5/8" wood structural panel. [CRC R302.13 exception 2]

10. Ducts within private garages are to be constructed of steel having a thickness not less than No. 26 gage 0.019-inch sheet steel and have no openings into the garage. [CRC R302.5.2]

11. The area of floor used for parking of automobiles or other vehicular shall be sloped to facilitate the movement of liquids to a drain or toward the main vehicle entry doorway. [CRC R309.1]

12. Natural light required for all habitable rooms at 8% minimum of the floor area served by means of exterior glazed openings. [CRC R303.1]

13. Natural ventilation required for all habitable rooms at 4% minimum of the floor area served by means of operable exterior openings. [CRC R303.1]

14. Minimum room widths for habitable spaces in any dimension other than a kitchen shall be no less than 7-ft. Kitchens. [CRC R304.2].

15. Ceiling height in habitable space, hallways and portions of basements containing these spaces shall have a ceiling height of not less than 7 feet. Bathrooms, toilet rooms and laundry rooms shall have a ceiling height of not less than 6 feet 8 inches. [CRC R305.1].

16. Safety glazing is required for all glazing located in "hazardous locations" such as: [CRC R308.4.5]
    a. Ingress and egress doors (except jalousies); fixed and sliding panels of sliding door assemblies and panels in sliding and bi-fold closet door assemblies; in swinging doors; storm doors.
    b. Glazing in doors and enclosures containing or adjacent to hot tubs, whirlpools, saunas, steam rooms, bath tubs, and showers; glazing in walls enclosing these compartments where bottom exposed edge of the glazing is less than 60-in above a standing surface and drain inlet.
    c. Fixed or operable panels adjacent to a door where the nearest exposed edge of the glazing is within a 24-in arc of either vertical edge of the door in a closed position, and where the bottom exposed edge of the glazing is less than 60-in above the walking surface.
    d. In an individual fixed or operable panel that meets all of the following: a) exposed area of individual pane is greater than 9 ft^2; b) exposed bottom edge is less than 18-in above floor; c) exposed top edge is greater than 36-in above floor; and d) one or more walking surfaces are within 36-in horizontally of the plane of the glazing.
    e. Railings, regardless of height above a walking surface, including structural baluster panels and non-structural in-fill panels.
    f. In walls and fences used as the barrier for indoor and outdoor swimming pools and spas when it meets all of the following: a) bottom edge of glazing is less than 60" above pool side of glazing, and b) glazing is within 5-ft of a swimming pool or spa water's edge.
    g. In walls enclosing stairway landings or within 5-ft of the bottom and top of stairways where the bottom edge of the glass is less than 36-in above a walking surface.

17. Under-stair protection. Enclosed space under stairs that is accessed by a door or access panel shall have walls, under-stair surface and any soffits protected on the enclosed side with ½-inch gypsum board. [CRC R302.7]

18. Stairways. Stair treads and risers shall meet these requirements. [CRC R311.7]
    a. 7 ¾ -in maximum rise [CRC R311.7.5], 10-in minimum run [CRC R311.7.5], 36-in minimum width. [CRC R311.7.1]
    b. The largest tread run and greatest riser height within any flight of stairs shall not exceed the smallest by more than 3/8-in.
    c. A nosing of not less than ¾-in and not more than 1 ¼-in shall be provided on stairways with solid risers where the tread depth is less than 11-in.
    d. Maintain 6-ft 8-in minimum headroom clearance and 151-in maximum vertical distance between landings. [CRC R311.7.2] [CRC R311.7.3]
19. Handrails are required on at least one side of each continuous run of treads or flight with four or more risers. [R311.7.8]. Handrails shall meet the following:
    a. Railing height minimum 34-in and maximum 38-in above the nosing of the treads. [CRC R311.7.8.1]
    b. Graspable rails required 1¼-in to 2-in outside diameter; minimum clearance of 1½-in between wall and rail; ends to return to wall or newel posts.
    c. Non-circular handrails shall have dimensions not to exceed 2 ¼ inches in cross sectional area and a perimeter dimension of at least 4 inches but not to exceed 6 ¼ inches. [CRC R311.7.8.5]

20. Guardrails in dwellings (R-3 and U Occupancies) are required for those portions of elevated areas of 30-inches or greater above surrounding grade or floor level within 36" horizontally (i.e., walkways, porches, balconies) shall meet the following: [CRC R312]
    a. 42-inch minimum height.
    b. Guards on open sides of stairs shall not have openings which allow passage of a sphere 4 3/8 inches in diameter. Were the guard also serves as a handrail on the open side, shall not be less than 34 inches and not more than 38 inches in height. [CRC R312.1.2]
    c. Required guards shall not have openings from the walking surface to the required guard height which allow passage of a sphere 4 inches in diameter. [CRC R312.1.3]
21. Landings at stairways and doors shall have a width of not less than the width of the door or the width of the stairway served, whichever is greater. For dwelling units and garages, landings shall have a length measured in the direction of travel of not less than 36 inches. [CRC R311.7.6]

22. Interior spaces intended for human occupancy shall be provided with heating facilities capable of maintaining a room temperature of 68° F at a point 3-ft above the floor in all habitable rooms. [CRC R303.10]

23. Wood burning stoves shall be listed for their proposed installation and shall be identified to meet EPA New Source Performance Standards (NSPS) on the plans. [CalGreen 4.503.1] Identify the appropriate listing on the plans.

24. Factory built chimneys and factory-built fireplaces shall be listed and installed in accordance with the terms of their listing and manufacturer's instructions. [CRC R1004.1] [CalGreen 4.503] any installed gas fireplace shall be a direct-vent sealed-combustion type.

25. Masonry chimneys, unless a specified design is provided, shall be constructed, reinforced, and anchored. Required clearances to combustibles materials shall be maintained. [CRC R1003]

26. Fire blocking required for combustible construction in the following concealed spaces of stud walls and partitions spaces, including furred spaces as follows: [CRC R302.11]
    a. Vertically at the ceiling and floor levels.

b. Horizontally at intervals not exceeding 10-ft.

c. Interconnections between concealed vertical stud walls and concealed horizontal spaces created by floor systems, soffits, drop ceilings, cove ceilings, and similar locations.

d. Between stair stringers at top and bottom of run.

e. Around vent openings, pipes, ducts, chimneys, fireplaces, similar openings that afford passage for fire.

27. Attic / Under-floor net free ventilation required of not less than 1 ft² for each 150 ft² of space to be ventilated. Provide calculations and identify compliance on the plans [CRC R408.2] [CRC R806.2]

    a. OR 1 ft² for each 300 ft² if 40 to 50% of venting near top

    b. AND install vapor barrier on warm side of attic insulation in Climate Zones 14 and 16.

    c. Openings for ventilation to be covered with corrosion-resistant metal mesh not exceeding ¼-in openings.

    d. Vents placed in eave locations shall be approved by the California State Fire Marshal to resist the intrusion of Flame and Embers.

    e. Allow for 1-in minimum air space between insulation and roof sheathing at eaves or cornice vents.

28. Protection of wood and wood-based products from decay shall be provided in the following locations by the use of naturally durable wood or wood that is preservative-treated in accordance with AWPA U1. [CRC R317.1]

    a) In crawl spaces or un-excavated area located within the periphery of the building foundation, wood joists or the bottom of a wood structural floor where closer than 18 inches (457 mm) to exposed ground, wood girders where closer than 12 inches (305 mm) to exposed ground, and wood columns where closer than 8 inches (204 mm) to exposed ground.

    b) Wood framing members, including columns, that rest directly on concrete or masonry exterior foundation walls and are less than 8 inches (203 mm) from the exposed ground.

    c) Sills and sleepers on a concrete or masonry slab that is in direct contact with the ground unless separated from such slab by an impervious moisture barrier.

    d) The ends of wood girders entering exterior masonry or concrete walls having clearances of less than ½ inch (12.7 mm) on tops, sides and ends.

    e) Wood siding, sheathing and wall framing on the exterior of a building having a clearance of less than 6 inches (152 mm) from the ground or less than 2 inches (51 mm) measured vertically from concrete steps, porch slabs, patio slabs and similar horizontal surfaces exposed to the weather.

    f) Wood structural members supporting moisture-permeable floors or roofs that are exposed to the weather, such as concrete or masonry slabs, unless separated from such floors or roofs by an impervious moisture barrier. The impervious moisture barrier system protecting the structure supporting floors shall provide positive drainage of water that infiltrates the moisture-permeable floor topping.

    g) Wood furring strips or other wood framing members attached directly to the interior of exterior masonry walls or concrete walls below grade except where an approved vapor retarder is applied between the wall and the furring strips or framing members.

    h) Portions of wood structural members that form the structural supports of buildings, balconies, porches, or similar permanent building appurtenances where those members are exposed to the weather without adequate protection from a roof, eave, overhang, or other covering that would prevent moisture or water accumulation on the surface or at joints between members.

        a. Exception: Sawn lumber used in buildings located in a geographical region where experience has demonstrated that climatic conditions preclude the need to use naturally durable or preservative-treated wood where the structure is exposed to the weather.

i) Wood columns in contact with basement floor slabs unless supported by concrete piers or metal pedestals projecting at least 1 inch (25 mm) above the concrete floor and separated from the concrete pier by an impervious moisture barrier.

29. Enclosed framing in exterior balconies and elevated walking surfaces that are exposed to rain, snow or drainage from irrigation shall be provided with openings that provide a net-free cross-ventilation area not less than 1/150 of the area of each separate space. [CRC R317.1.3]

30. Crawl space access opening shall be provided and be not less than 18-in x 24-in. or the size of any equipment installed in this area whichever is greater. [CRC R408.4]

31. Attic access. The rough-framed opening shall not be less than 22 inches by 30 inches, or the size of any equipment installed in the attic space, whichever is greater and shall be located in a hallway or other readily accessible location with 30-in minimum vertical headroom. [CRC R807]

    *Note: Attics with a maximum vertical height of less than 30-in need not be provided with access openings.

32. Exterior stucco application shall consist of a 3-coat system, 7/8-in minimum thick; two layers of Grade "D" building paper over sheathing; 26 Gauge galvanized weep screed at foundation plate line at least 4-in above grade (or 2-in above concrete or paving). [CRC R703.7]

33. Address shall be placed on the front-main entrance area of all new buildings that is plainly visible and legible from the street or road on which the property is addressed. Address numbers shall be permanent and contrast with their background. The numbers shall be a minimum of 4 inches in height with a minimum ½" stroke. Numbers shall be reflecting and of contrasting color. Houses further than 50' from the road shall have the numbers posted at the beginning of the driveway. [TC Ord. Code 12.12.080] [CRC R319]

34. Garage doors shall be labeled with a permanent label provided by the garage door manufacturer. The label shall identify the garage door manufacturer, the garage door model/series number, the positive and negative design wind pressure rating, the installation instruction drawing reference number, and the applicable test standard [CRC R609.4.1].

Aging-In-Place Design and Fall Prevention:

35. On the plans, please clearly identify which bathroom will comply. Please provide specific details showing compliance with the callouts requested regarding aging-in-place design and fall prevention in the plans:
    a. 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 [CRC R327.1.1].
        1. Reinforcement shall be solid lumber or other construction materials approved by the enforcing agency.
        2. Reinforcement shall not be less than 2 by 8 inch (51 mm by 203 mm) nominal lumber or other construction material providing equal height and load capacity. Reinforcement shall be located between 32 inches (812.8 mm) and 39 ¼ inches (997 mm) above the finished floor flush with the wall framing.
        3. Water closet reinforcement shall be installed on both side walls of the fixture, or one side wall and the back wall.
        4. Shower reinforcement shall be continuous where wall framing is provided.
        5. 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. Information and/or drawings identifying the location of grab bar reinforcement shall be placed in the operation and maintenance manual in accordance with the California Green Building Standards Code, Chapter 4, Division 4.4 [CRC R327.1.1.1].

c. Electrical receptacle outlets, switches, and controls (including controls for HVAC) 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 outlet box above the finish floor [CRC R327.1.2].

d. 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 [CRC R327.1.3].

e. 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 [CRC R327.1.4].

Mechanical System Requirements:

36. Domestic clothes dryer moisture exhaust ducts to be installed as follows: [CMC 504.4]
    a. Terminate on the outside of the building and be equipped with a back-draft damper.
    b. Not be connected or installed with sheet metal screws or other fasteners, which will obstruct the flow.
    c. 14-ft maximum run with two 90° bends, deduct 2-ft per 90° bend in excess of two bends as required by the manufacturer's installation instructions and approved by the building official.

37. When a closet is designed for the installation of a clothes dryer, a minimum opening of 100 in^2 for make-up air shall be provided in the door or by other approved means. [504.4.1]

38. Listed cooking appliance or microwave oven above a listed cooking appliance shall conform to the conditions of the upper appliance's listing and the manufacturer's installation instructions. [CMC 920.4.1]

39. Kitchens shall be provided with mechanical exhaust range hood capable of 100cfm (HERS Verified) or a range hood capable of 400cfm (No HERS Verification) or local exhaust of 300cfm or, for enclosed kitchens only, provide continuous mechanical ventilation providing for 5 air changes per hour. [2022 Energy Standards ASHRAE 62.2].

40. Rooms containing bathtubs, showers, spas, and similar bathing fixtures shall be provided with mechanical ventilation as per [CMC 402.5]. [CRC R303.3.1] and shall be provided a humidistat or other means of humidity control unless functioning as a Indoor Air Quality Fan. [CalGreen 4.506.1].

41. Domestic range vents, or ducts used for domestic kitchen range or cooktop ventilation, shall be of metal and have smooth interior surfaces. [CMC 504.3].
    Exception: Downdraft grill-range ventilation installed under a concrete slab floor may be of approved Schedule 40 PVC provided:

a. The under-floor trench where duct is installed is completely backfilled with sand or gravel.
b. Not more than 1-in of 6-in diameter PVC coupling may protrude above the concrete floor surface.
c. PVC pipe joints shall be solvent cemented to provide an air- and grease-tight duct.
d. Duct shall terminate above grade outside the building and be equipped with a backdraft damper.

42. All Exhaust vents shall terminate outside the building and be equipped with backdraft dampers [CMC 504.1.1]. Termination of all environmental air ducts shall be a minimum of 3-ft from any openings into the building (i.e., dryers, bath and utility fans, etc., must be 3-ft away from doors, windows, opening skylights or attic vents). [CMC 502.2.1].

43. Fuel burning equipment shall be assured a sufficient supply of combustion air as per CMC Chapter 7. Identify compliance on the plans.

44. Unvented fuel-burning room heaters shall not be installed, used, maintained, or permitted to exist in a dwelling unit. [CMC 916]

45. Appliances located in attics shall be accessible through an opening and passageway large enough to accommodate the largest piece of equipment, and in no case be less than 22-in 30-in x 30-in. Also, it shall have the following: [CMC 304.4]
    a. The distance from the passageway access to the appliance shall not exceed 20-ft when the headroom clearance is less than 6-ft and be measured along the centerline of the passageway.
    b. Passageway shall be unobstructed and shall have a continuous solid flooring not less than 24-in wide from the entrance opening to the appliance.
    c. A level working platform not less than 30-in in depth and width provided in front of the service side of the appliance.
    d. A permanent electric outlet and lighting fixture controlled by a switch located at the passageway opening shall be provided at or near the appliance.

46. Vent termination vents with listed vent caps 12-in in size or smaller shall be permitted to be terminated in accordance with Figure 802.6.1, provided they are located at least 8-ft from the vertical wall or similar obstruction. All other Type B gas vents shall terminate not less than 3-ft above the highest point where they pass through the roof and at least 2-ft higher than any portion of a building within 10-ft. [CMC 802.5.4]

    *Note: Single wall metal vent connectors shall not originate in an unoccupied attic or concealed space and shall not pass through an attic, inside wall or concealed space.[802.7.3.2]

47. Appliances in residential garages and in adjacent spaces that open to the garage and are not part of the living space of a dwelling unit shall be installed so that all burners and burner-ignition devices are located not less than 18 inches (457 mm) above the floor unless listed as flammable vapor ignition resistant. [NFPA 54:9.1.10.1]. [CMC 305.1]
48. Approval of equipment, whether listed or unlisted equipment shall comply with provisions of [CMC Section 303.

49. Vented decorative appliances, floor furnaces, vented wall furnaces, unit heaters and room heaters shall comply with the provisions of CMC Chapter 9.

50. Mechanical systems including heating and air-conditioning systems that supply air to habitable spaces shall have MERV 13 filters or better and be designed to accommodate the rated pressure drop of the system air filter at the designed airflow rate.

51. Compliance with ASHRAE 62.2 Section 4.4 (Control and Operation) shall require manual ON-OFF control switches associated with whole-dwelling unit ventilation systems (IAQ Fans) to have a label clearly displaying the following text, or equivalent text: “This switch controls the indoor air quality ventilation for the home. Leave switch in the ‘on’ position at all times unless the outdoor air quality is very poor.”

Electrical Systems Requirements:

52. A minimum 60-amp service panel is required for detached accessory structures [CEC 225.39(D)].

53. A grounding electrode shall be provided per [CEC Article 250.50].

54. Branch circuits for lighting and for appliances, including motor-operated appliances, shall be provided to supply the loads computed in accordance with CEC Article 220. In addition, branch circuits shall be provided where required elsewhere in this code and for dwelling unit loads as specified in [CEC Article 210.11(C)].

55. Provide two or more 20-amp small-appliance circuits to serve all countertop, wall and floor receptacles in the kitchen, pantry, breakfast room, dining room, or similar areas. Receptacle outlets shall be installed at each wall, island and peninsular counter space in kitchens and dining rooms per the requirements found in [CEC Article 210.52 (B) and (C)]. Such circuits shall have no other outlets.

56. At least one 20-ampere branch circuit shall be dedicated to supply bathroom receptacles. At least one receptacle is required within 3-ft of each basin. [CEC Articles 210.11(C)(3)] [CEC 210.52(D)]

57. Where the 20-ampere circuit supplies a single bathroom, outlets for other equipment within the same bathroom shall be permitted to be supplied in accordance with [CEC Article 210.23(A)(1) and (A)(2)].

58. At least one additional 20-ampere branch circuit shall be dedicated to supply laundry receptacle outlet(s) required by [CEC Articles 210.11(C)(2) & 210.52(F)]. This circuit shall have no other outlets.

59. Provide G.F.C.I. protection to all 125 volts, 15- and 20-amp receptacles serving the following: [CEC Article 210.8(A)].
    a. countertop surfaces in kitchens
    b. laundry areas
    c. outdoors
    d. sinks other than kitchen sinks–where receptacles are installed within 6 feet from the top inside edge of the bowl of the sink
    e. bathrooms
    f. unfinished portions or areas of basements
    g. garages and accessory buildings
    h. crawl spaces at or below grade.
    i. boathouses
    j. receptacles installed within 6 feet of the outside edge of the bathtub or shower stall

60. Provide G.F.C.I. protection to all appliances identified in CEC 422.5(A)(1) through (A)(7) rated 150 volts or less to ground and 60 amperes or less, single- or 3-phase, including drinking water coolers, bottle fill stations, sump pumps, and dishwashers. [CEC Article 422.5]

61. Hydro-massage bathtubs and their associated electrical components and all 125-volt single phase receptacles not exceeding 30 amperes and located within 6-ft of them shall be protected by a ground-fault circuit interrupter. [CEC Article 680.71]

62. Receptacle outlets shall be installed so that no point along the floor line in any wall space is more than 6-ft measured horizontally from an outlet in that space. Receptacle outlets are required in walls 2-ft or greater. Hallways of 10-ft or more in length shall have at least one receptacle outlet. [CEC Article 210.52(A) and (H)]

63. All 120-volt, single phase, 15- and 20-ampere *branch circuits* supplying outlets or devices installed in dwelling units' kitchens, family rooms, dining rooms, living rooms, parlors, libraries, dens, bedrooms, sunrooms, recreation rooms, closets, hallways, laundry areas or similar rooms or areas shall be protected by a listed arc-fault circuit interrupter, or a listed combination type arc-fault circuit interrupter installed to provide protection of the entire branch circuit. [CEC Article 210.12]

64. Dwellings with direct grade level access shall have at least one receptacle outlet at grade level at the front and back of the dwelling. All 125 volt, 15- and 20-amp receptacles installed outdoors shall be G.F.C.I. protected. Receptacles installed outdoors in an exterior wet location shall have an enclosure that is weatherproof with the attachment plug cap inserted or removed. [CEC Article 210.52, 406.8(B)]

65. At least one receptacle outlet, in addition to any provided for laundry equipment, shall be installed in each basement, in each attached garage, and in each detached garage with electric power. [CEC 210.52(G)]

66. Automatic garage door openers shall have a battery backup function that is designed to operate when activated because of an electrical outage. [H&S Code 19892]

67. At least one wall switch-controlled lighting outlet shall be installed in every habitable room, kitchen, in bathrooms, hallways, stairways, attached garages, detached garages with electric power, and at outdoor entrances or exits. [CEC 210.70(A)]

68. In all areas specified in 210.52 and 550.13, all 15- and 20-Ampere, 125 volt and 250 volt nonlocking-type receptacles shall be listed as tamper-resistant receptacles. [CEC 406.12]

69. Light fixtures that weight more than 6lbs or exceed 16-in in any dimension shall not be supported by the screw shell of a lamp holder. [CEC Article 410.30(A)]

70. Outlet boxes or outlet box systems used as the sole support of a ceiling-suspended (paddle) fan shall be listed and marked by the manufacturer as suitable for this purpose. The required marking shall include the maximum weight to be supported for ceiling fans that weigh more than 35-lbs. [CEC Article 314.27(C)].

71. Electric water heaters require a disconnecting means within sight from the appliance or have a rated switch or circuit breaker capable of being locked in the open position. [CEC Article 422.31(B)]

72. Provide a disconnecting means at air condition units and heat pumps with sight from and readily accessible. Provide fuses or approved circuit breakers to protect the A.C. equipment and the branch circuit serving such equipment and the unit nameplate ratings. [CEC Article 440.14, 440.52(B)]

73. An accessible 125-volt, single phase, 15 or 20 amp rated receptacle outlet shall be installed on the same level and within 25-ft of heating and air conditioning equipment. This service receptacle shall not be connected to the load side of the equipment disconnecting means. [CEC Article 210.63]

74. Receptacles shall not be installed within or directly over a bathtub or shower stall. [CEC Article 406.9(C)]

75. Cord-connected lighting fixtures, lighting tracks or ceiling-suspended (paddle) fans within 3-ft of horizontal edge and 8-ft vertical above top of tub/shower dam are prohibited. [CEC Article 410.10(D)]

76. Service or Sub-Service Electrical Panels shall not be located in the vicinity of easily ignitable material(s) such as clothes closets or located in bathrooms. [CEC Article 240.24(D), 240.24(E)].

77. All lighting must be high efficacy per Table 150.0-A of the 2022 Energy Code (150.0(k)).

78. All recessed lights must be airtight, IC rated and certified JA8-2022, or JA8-2022-E for elevated temperature and controlled by a dimmer or vacancy sensor.

79. All lighting that qualifies as high efficacy per JA8 must be controlled by a dimmer or vacancy sensor.

80. At least one light located in a bathroom, laundry room, utility room and garage must be controlled by a vacancy sensor. (Energy 150.0(k)(2)(I)).

81. Blank electrical boxes greater than 5’ above the floor must be controlled by a dimmer, vacancy sensor or fan control switch. The quantity of blank electrical boxes is limited to no more than the number of bedrooms. (Energy 150.0(k)(1)(B)).

82. Exhaust fans shall be switched separately from lighting. (Energy 150.0(k)(2)(B)).

83. All outdoor lighting permanently attached to the building must be high efficacy per Table 150.0-A of the 2022 energy code and controlled by
    i. a manual ON and OFF control switch that permits the automatic actions of items ii or iii below, AND
    ii. Controlled by a photocell and either a motion sensor or an automatic time switch control; or
    iii. Controlled by an astronomical time clock control. (Energy 150.0(k)(3)(A)).

84. Illuminated address sign shall be 5 watts or less.

85. Install minimum 1” trade size ID conduit run directly from the main or sub service panel location and terminate at an approved box, listed cabinet or other approved enclosure in an area that could accommodate an EV Charger and vehicle. The service panel shall be labeled and identify a minimum 40amp breaker or reserved space for future installation for the EV charger. [CalGreen 4.106.4.1]

86. Systems using gas or propane water heaters to serve individual dwelling units shall designate a space at least 2.5 feet by 2.5 feet wide and 7 feet tall suitable for the future installation of a heat pump water heater (HPWH) by meeting either A or B below. All electrical components shall be installed in accordance with the California Electrical Code:

a) If the designated space is **within** 3 feet from the water heater, then this space shall include the following:

   i. A dedicated 125 volt, 20 amp electrical receptacle that is connected to the electric panel with a 120/240 volt 3 conductor, 10 AWG copper branch circuit, within 3 feet from the water heater and accessible to the water heater with no obstructions; **AND**

   ii. Both ends of the unused conductor shall be labeled with the word “spare” and be electrically isolated; **AND**

   iii. A reserved single pole circuit breaker space in the electrical panel adjacent to the circuit breaker for the branch circuit in A above and labeled with the words “Future 240V Use”; **AND**

   iv. A condensate drain that is no more than 2 inches higher than the base of the installed water heater and allows natural draining without pump assistance.

b) If the designated space is **more than** 3 feet from the water heater, then this space shall include the following:

   i. A dedicated 240 volt branch circuit shall be installed within 3 feet from the designated space. The branch circuit shall be rated at 30 amps minimum. The blank cover shall be identified as “240V ready”; **AND**

   ii. The main electrical service panel shall have a reserved space to allow for the installation of a double pole circuit breaker for a future HPWH installation. The reserved space shall be permanently marked as “For Future 240V use”; **AND**

   iii. Either a dedicated cold water supply, or the cold water supply shall pass through the designated HPWH location just before reaching the gas or propane water heater; **AND**

   iv. The hot water supply pipe coming out of the gas or propane water heater shall be routed first through the designated HPWH location before serving any fixtures; **AND**

   v. The hot and cold water piping at the designated HPWH location shall be exposed and readily accessible for future installation of an HPWH; **AND**

   vi. A condensate drain that is no more than 2 inches higher than the base of the installed water heater and allows natural draining without pump assistance.

85. Systems using gas or propane furnaces, cooktops, or dryers to serve individual dwelling units shall include the following per California Energy Code sections 150.0(t), 150.0(u), and 150.0 (v):

    a) A dedicated 240 volt branch circuit wiring shall be installed within 3 feet from the furnace/cooktop/dryer and accessible to the furnace/cooktop/dryer with no obstructions. The branch circuit conductors shall be rated at 30 amps minimum (50 amps for cooktops). The blank cover shall be identified as “240V ready.” All electrical components shall be installed in accordance with the California Electrical Code.

    b) The main electrical service panel shall have a reserved space to allow for the installation of a double pole circuit breaker for a future heat pump furnace/electric cooktop/electric clothes dryer installation. The reserved space shall be permanently marked as “For Future 240V use.”

Energy Storage Systems (ESS) Ready Requirements:

86. Per the California Energy Code 150.0(s), all single family residences that include one or two dwelling units shall meet the following. All electrical components shall be installed in accordance with the California Electrical Code:

a) At least one of the following shall be provided:

1. ESS ready interconnection equipment with a minimum backed-up capacity of 60 amps and a minimum of four ESS-supplied branch circuits, or

2. A dedicated raceway from the main service to a panelboard (subpanel) that supplies the branch circuits in Section 150.0(s)(2). All branch circuits are permitted to be supplied by the main service panel prior to the installation of an ESS. The trade size of the raceway shall be not less than 1 inch. The panelboard that supplies the branch circuits (subpanel) must be labeled "Subpanel shall include all backed-up load circuits."

b) A minimum of four branch circuits shall be identified and have their source of supply collocated at a single panelboard suitable to be supplied by the ESS. At least one circuit shall supply the refrigerator, one lighting circuit shall be located near the primary egress and at least one circuit shall supply a sleeping room receptacle outlet.

c) The main panelboard shall have a minimum busbar rating of 225 amps.

d) Sufficient space shall be reserved to allow future installation of a system isolation equipment/transfer switch within 3 feet of the main panelboard. Raceways shall be installed between the panelboard and the system isolation equipment/transfer switch location to allow the connection of backup power source.

Plumbing System Requirements:

87. No under-floor cleanout shall be located more than 5-ft from an access door, trap door or crawl hole. Maintain the following clearances in front of the respective cleanouts 2" or less drain requires 12-in clearance greater than 2" drain, 18-in. [CPC 707.9]

88. Joints where a fixture meets wall or floor must be sealed and made watertight. [CPC 402.2]

89. Water heaters located in a garage (or in adjacent spaces that open to the garage), generating a glow, spark, or flame capable of igniting flammable vapors shall be installed so that all burners and burner ignition devices are located 18 inches or greater above the garage floor. If W/H is subject to mechanical damage, protect with adequate barriers (i.e., bollard) or relocate out of normal path of vehicle. [CPC 507.13]

90. Water heaters may be installed in closets of bedrooms and bathrooms provided the door of the closet is self-closing and gasketed with a sealed threshold. All combustion air shall be obtained from the outdoors and the closet shall not be used for anything other than the water heater. [CPC 504.1, NFPA 54:10.28.1]

91. Water heater strapping, or anchoring required at upper and lower 1/3 of appliance. Maintain a minimum 4" above the controls with the strapping [CPC 507.2]

92. Combustion air shall be provided for fuel burning water heaters. [CPC 506]

93. The minimum capacity of a Water Heater shall be equivalent to not less than first hour rating per CPC Table 501.1 [CPC 501]

94. Relief valves located inside a building shall be provided with a drain of galvanized, steel, hard drawn copper piping and fittings, CPVC, or listed valve drain. The drain shall extend from the valve to the outside of the building with the end of the pipe not more than 2-ft nor less than 6-in above the ground and pointing downward. [CPC 608.5]

    1. No part of such drainpipe shall be trapped, and the terminal end of the drainpipe shall not be threaded.
    2. Discharge from a relief valve into a water heater pan shall be prohibited. [CPC 608.5(7)]

95. Shut-off valves shall be installed in the fuel supply piping outside of each appliance. [ANSI Z21.24, NFPA 54:9.6.1]

96. Showers & tub-shower combinations shall be provided with individual control valves of the pressure balance or thermostatic mixing valve type with a maximum mixed water setting of 120 degrees. [CPC 408.3]

97. Showers shall be finished with a smooth, hard, nonabsorbent surface to a height not less than 6 feet above the floor. [CRC R307.2]

98. The following water lines associated with the water heating system shall be insulated as follows [CalEnergy 150.0(j) 2]

    a. All domestic hot water piping shall be insulated per CPC section 609.11.
    b. All hot water piping ≥ ¾" and less than 1" shall be fully insulated with R7.7 min.
    c. The first 5' of cold-water lines at the water heater shall be insulated with R7.7 min.
    d. All hot water pipes, less than ¾" serving the following shall be insulated to R7.7 min:
        i. From the heating source to the kitchen fixtures.
        ii. Any portion of the hot water recirculation system.
        iii. From the heating source to a storage tank or between storage tanks.
        iv. Buried below grade.

99. Domestic water heater shall provide the following per Energy Standards 150.0(n):
    a. 120v electrical outlet within 3' of any installed gas water heater
    b. A gas/LPG supply of 200,000btu (3/4" Minimum size)
    c. Category III, IV or Type B vent with a straight pipe between the outside termination and the space where the water heater is installed.
    d. A condensate drains no more than 2" higher than the base of the installed water heater and allows draining without pump assistance.

100. All Domestic hot water piping shall be insulated [CPC 609.11]. Insulation shall be equivalent to the following as a minimum:

    a. Insulation shall have a minimum wall thickness of not less than the diameter of the pipe up to 2". Pipes 2'' or larger shall have insulation a minimum of 2". Please note if higher values required by Energy Standards due to location (see plumbing note 90. Above) the higher insulation values shall govern.

101. Plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) shall comply with the following low flow requirements. [California Green Building Code]

    a. Showers 1.8gpm@80psi combined
    b. Lavatory 1.2gpm@ 60psi max. & 0.8@ 20psi min.
    c. Kitchen Faucet 1.8@ 60 max
    d. Water closet 1.28 max

102. Shower compartments, regardless of shape, shall have a minimum finished area of 1,024 in² and be capable of encompassing a 30-in circle up to 70-in. [CPC 408.6]

103. Water closets shall be located in a clear space not less than 30-in in width; clear space in front shall not be less than 24-in. [CPC 402.5]

104. Gas outlets located in a barbecue or fireplace shall be controlled by an approved operating valve located in the same room and outside the hearth but not more than 6-ft from such outlets. [NFPA 5.5.4]

105. Potable water outlets with hose attachments, other than water heater drains, boiler drains, and clothes washer connectors, shall be protected a listed non-removable hose bib type backflow prevention

devise, a non-removable hose bib type vacuum breaker or by a listed atmospheric vacuum breaker. [CPC 603.5.7]

106. Dishwasher air gap fitting required above sink flood rim. [CPC 807.3]

Structural Drawings and Information on Plans:

Please note the following items are intended to provide a list of items required to be reflected or specifically provided on plans; however due to the relative and fluid nature of structural designs, the following items do not identify specific structural design parameters and are not inclusive of all of the information that should be provided on structural plan sheets. Please see the **General** *Submittal guide for more information regarding structural drawings.*

107. All structural design criteria for the specific project shall be identified on the plans. See **General** submittal information required on the Title Sheet of the plans.

108. For projects choosing to use one of the Prescriptive Conventional Bracing methods for structural Bracing compliance, a complete Braced Wall Plan shall be provided that accurately reflects the identified method of Prescriptive Bracing as listed in CRC Chapter 6 or CBC Chapter 23 respectively. The Braced wall plan shall identify the location of all Braced Wall Lines as well as all Braced Wall Panels located in such lines to include their respective lengths and the type of Bracing method employed in such Braced Wall Line.

109. All projects provided with structural analysis, provided from a Licensed Architect or Engineer shall provide a complete Shear Wall Plan that identifies appropriate shear wall locations as well as an appropriate method of the requirements of each type of shear wall such as a Shear Wall Schedule or other clear designation.

110. Roof Framing and Floor Framing plans shall clearly identify all beam/girder sizes and lumber/member grade or design information. Additionally, all supporting members locations for such beams/members shall be clearly identified on the plans. This shall be done by either specific call out by beam/girder/member location or with appropriate reference to an appropriate structural member schedule.

111. Provide an appropriate Fastening Schedule as well as identify specific connectors on the plans. All appropriate fasteners for proprietary connectors shall be noted or specifically called out. This shall include specific connectors etc. as specified in any provided truss calculations or pre-manufactured truss or structural packages.

112. Provide a completely dimensioned FOUNDATION plan including exterior and interior footing locations with appropriate detail references. Identify and note the locations, type and size of anchor bolts, rebar, straps, hold-downs, connectors etc. on plans. See Plan Review Checklist for further requirements. Additionally, clearly identify all required vapor barriers etc. for slab on grade construction.

113. Provide complete ROOF FRAMING plans and FLOOR FRAMING plans. Note framing members and sheathing for floor and roof plans, framing for ceiling plans etc. Show size and spacing of joists, rafters, and beams with grade of lumber to be used. Carry all vertical and lateral loads to footings.

114. Provide a complete DETAIL sheet, in which all details are referenced at applicable locations on the plans. Details should be provided for foundation, floor, and roof details, beam connections, etc., special framing and flashing details as necessary for construction. Coordinate with truss calculation requirements as appropriate. Additionally, clearly identify all required vapor barriers etc. for slab on grade construction.

115. Identify on plans that all wood members identified as Pressure Treated shall have fasteners and connectors that are hot dipped zinc coated galvanized steel, stainless steel, silicon bronze, or copper.

116. Provide a plan sheet that provides appropriate structural notes. The notes included in this sheet may include various items mentioned in this list and should include but not be limited to:

    a. Required compressive strength of all proposed concrete.
    b. Allowable soil bearing pressure of a maximum of 1500psi or that allowed by a justified soils analysis.
    c. The species and grade of all proposed lumber materials.