Date: _____

County of San Diego, Planning & Development Services

RESIDENTIAL BUILDING CODE PLAN CHECK

BUILDING DIVISION

Plan check correction list for one- and two-family residences, associated garages, and other accessory structures

RECORD ID:	OWNER ON APPLICATION:

- ❑ Corrected plans may be reviewed over-the-counter by duty engineer
- ❑ Call plan reviewer listed below to schedule recheck appointment
- ❑ Corrected plans must be submitted and logged-in for recheck

Plan reviewer: _____

Phone: _____

A. GENERAL REQUIREMENTS

1. Each of the items on this list requires correction before a permit will be issued. The approval of plans and specifications does not permit the violation of any section of the building code, county ordinances, or state law. The following list does not necessarily include all errors and omissions. (See the 2016 *California Residential Code*, Section R105.4)

2. The following supplements are attached and considered part of this review:
   - ❑ Minimum construction specifications (PDS #081)
   - ❑ County of San Diego Storm Water Intake Form
   - ❑ County of San Diego Standard Project Storm Water Quality Management Plan
   - ❑ Sample stormwater BMP presentation (PDS #272)
   - ❑ Eave construction guidance document (PDS #198)
   - ❑ Special inspection summary (PDS #006)
   - ❑ List of approved special inspection agencies and construction material testing laboratories
   - ❑ Other : _____

3. **Please read your Conditions of Approval list.** We recommend **contacting the fire district early** in the project design stage to determine potential requirements. **Note: All plan approval stamps** -- e.g., this building code review, planning, fire -- **must be applied to the same two sets** to enable permit issuance; coordinate any submittals to the fire district with this in mind to minimize stamp transfers to revised sets. Additionally we recommend you retain all previously reviewed sets until permit issuance.

4. Plan revisions must be made by printing new sheets incorporating the necessary modifications. You may slip revised sheets into the complete sets as needed provided the original sheets are returned per item A.6. Revisions made with pen or pencil, by crossing out or taping on information, or by using white-out are not allowed.

5. If revised sets include **new plot plans**, County of San Diego zoning and accuracy stamps **must be transferred** by PDS staff **before resubmittal or recheck**. Stamps may not be copied.

6. The following set(s) **must** be returned with the new/revised sets at recheck:
   - ❑ Previously plan-checked and stamped set(s) dated _____.
   - ❑ Red-marked set(s) dated _____. Red marks on plans are part of this comments list.

7. **Plans will not be accepted for resubmittal** unless you submit the **original correction list** – copies not accepted – and a **complete response list** per the following:
   - ❑ Provided on separate 8-1/2-inch by 11-inch sheet(s); **do not mark** responses on original correction list
   - ❑ Clearly and specifically indicating where and how each correction item has been addressed; vague responses, such as "Done" or "See plans," are unacceptable
   - ❑ Clearly and specifically indicating **any additional changes made to project** beyond responses to correction items

8. Additional plan check fees will be required if comments are not resolved after the second plan check, if changes are made to the project, or if the previously plan-checked, stamped, and/or red-marked set is not returned.

9. Additional plan check fees required due to: ❑ insufficient progress, ❑ changes, ❑ lost red-marked set, ❑ other

B. PLAN REQUIREMENTS

1. Include **current** County of San Diego minimum construction specifications (PDS #081) **with signature** on full-size sheet in plans. An AutoCAD template of PDS #081 is available at http://www.sdcounty.ca.gov/pds/bldgforms/index.html.

2. Specify on plans the project will comply with the following building codes and associated County of San Diego amendments:
   - ❑ 2016 *California Residential Code* (CRC) and/or 2016 *California Building Code* (CBC) as applicable
   - ❑ 2016 *California Green Building Standards Code* (CalGreen)
   - ❑ 2016 *California Electrical Code* (CEC)
   - ❑ 2016 *California Mechanical Code* (CMC)
   - ❑ 2016 *California Plumbing Code* (CPC)
   - ❑ 2016 *California Fire Code* (CFC)
   - ❑ 2016 *California Building Energy Efficiency Standards* (CBEES)

3. Provide on sheet _____ an itemized "Scope of Work" describing project scope and identifying structures included on this permit.

4. Scope of work on plans does not match scope on permit application. See PDS technician to revise permit application scope.

5. Provide fully dimensioned plot plan drawn to scale and indicating the following:
   - ❑ Lot dimensions with property lines and any easements identified
   - ❑ Size and use of each structure on the lot
   - ❑ Dimensions from structures to property lines (measured at right angles to structures)
   - ❑ Dimensions between structures (measured at right angles to structures)

6. Plans are incomplete. Plan check will proceed with submittal of complete plans. Use this list as a guide in preparing plans.

7. The plans must be prepared using accepted drafting procedures and practice. We recommend you retain the services of an experienced design professional to help you prepare your plans and respond to the corrections on this list.

8. Provide on structural plans a basis of design summary per the following (CBC 1603.1, CRC R106.1):
   - ❑ If basis of design is **structural calculations**, summary shall include:
     - *Note on plans*: "Basis of design of structures is structural calculations using design parameters per California Building Code chapter 16."
     - Building risk category specified per CBC 1604.5
     - Design roof live load specified per CBC 1607.12
     - Design floor live load specified per CBC 1607.10
     - Wind design data:
       - Ultimate design wind speed specified per CBC 1609.3
       - Nominal design wind speed specified per CBC 1609.3.1
       - Exposure category specified per CBC 1609.4
     - Seismic design data:
       - Seismic importance factor specified per ASCE 7 Table 1.5-2
       - Site class specified per ASCE 7 20.3
       - Mapped spectral response acceleration parameters, S_S and S_1, specified per CBC 1613.3.1
       - Design spectral response acceleration parameters, S_{DS} and S_{D1}, specified per CBC 1613.3.4
       - Seismic design category specified per CBC 1613.3.5
       - Seismic force-resisting system type specified per ASCE 7 12.2.1
       - Seismic response coefficient, C_S, specified per ASCE 7 12.8.1.1
       - Response modification coefficient, R, specified per ASCE 7 Table 12.2-1
   - ❑ If basis of design is **conventional light-frame construction per CBC 2308**, summary shall include:
     - *Note on plans*: "Basis of design of structures is conventional light-frame construction using design parameters per California Building Code section 2308."
     - Design roof live load specified per CBC 1607.12
     - Design floor live load specified per CBC 1607.10
     - Wind design data:
       - Ultimate design wind speed specified per CBC 1609.3
       - Nominal design wind speed specified per CBC 1609.3.1
       - Exposure category specified per CBC 1609.4
     - Seismic design data:
       - Site class specified per ASCE 7 20.3
       - Mapped spectral response acceleration parameters, S_S and S_1, specified per CBC 1613.3.1
       - Design spectral response acceleration parameters, S_{DS} and S_{D1}, specified per CBC 1613.3.4
       - Seismic design category specified per CBC 1613.3.5
   - ❑ If basis of design is **conventional light-frame construction per CRC**, summary shall include:
     - *Note on plans*: "Basis of design of structures is conventional light-frame construction using design parameters per California Residential Code."
     - Design roof live load specified per CRC R301.6
     - Design floor live load specified per CRC R301.5
     - Ultimate design wind speed = 110 mph per CRC R301.2.1
     - Wind exposure category = C per CRC R301.2.1.4
       Exception: Exposure category B acceptable if justification provided demonstrating site meets code definition

- Seismic design data:
  - Site class specified per ASCE 7 20.3
  - Mapped spectral response acceleration parameters, S_S, specified per CBC 1613.3.1
  - Design spectral response acceleration parameters, S_{DS}, specified per CBC 1613.3.4
  - Seismic design category specified per CRC Table R301.2.2.1.1

9. Provide on structural plans a basis of soil design summary per the following (CBC 1603.1, CRC R106.1):
   - ❑ If basis of soil design is a **geotechnical report**, summary shall include:
     - "The basis of soil design values is geotechnical report dated _____ by (engineer/firm preparing report."
     - Allowable vertical bearing pressure specified per geotechnical report
     - Allowable lateral bearing pressure specified per geotechnical report
     - Other soil properties as applicable specified per geotechnical report
   - ❑ If basis of soil design is **CBC presumptive load-bearing values**, summary shall include:
     - *Note on plans:* "The basis of soil design values is California Building Code Table 1806.2."
     - Class of soil materials specified per CBC Table 1806.2
     - Allowable vertical bearing pressure specified per CBC Table 1806.2
       Exception: A geotechnical report may be required for assumed values greater than 1,500 psf **or** where the building official has reason to doubt soil classification or design value
     - Allowable lateral bearing pressure specified per CBC Table 1806.2
       Exception: A geotechnical report may be required for assumed values greater than 100 psf/ft **or** where the building official has reason to doubt soil classification or design value

10. Provide two sets of calculations – addressing all applicable CBC 1605 load combinations – prepared, stamped, and signed by California-licensed civil engineer, structural engineer, or architect for:
    - ❑ Vertical load supporting system
    - ❑ Lateral load (wind/seismic) resisting system
    - ❑ Retaining walls
    - ❑ Glass guardrail systems
    - ❑ Other _____

11. Each sheet of structural plans must bear the stamp and wet signature of a California-licensed civil engineer or architect.

12. Special inspection required for the following:
    - ❑ Field welding (CBC 1705.2.1)
    - ❑ High-strength bolting (CBC 1705.2.1, CBC 1705.12.1)
    - ❑ Cold-formed steel framing (CBC 1705.2.1, CBC 1705.11.2, CBC 1705.12.3)
      Exception: Projects meeting appropriate exception criteria of CBC 1705.11.2, CBC 1705.12.1, or CBC 1705.12.3
      Exception: Structural observation by California-licensed engineer allowed in lieu of special inspection
    - ❑ High-strength concrete (1705.3)
      Exception: Concrete with specified compressive strength of 3000 psi or less
    - ❑ Post-installed concrete anchors (CBC 1705.3)
    - ❑ Pre-stressed/post-tensioned slabs (CBC 1705.3)
      Exception: Non-structural pre-stressed slabs supported directly on the ground and where the effective concrete pre-stress is less than 150 psi
    - ❑ Masonry (CBC 1705.4)
      Exception: Masonry meeting prescriptive design requirements of CRC R404 or CRC R606
      Exception: Masonry with specified compressive strength of 1500 psi or less
      Exception: Masonry site retaining walls with overall height of 10 feet or less
      Exception: Structural observation by California-licensed engineer allowed in lieu of special inspection
    - ❑ Structural wood elements -- e.g., shear walls, diaphragms, drag struts, braces -- of main seismic force-resisting system (CBC 1705.12.2)
      Exception: Detached one- and two-family dwellings not exceeding two stories above grade and without horizontal and vertical irregularities in accordance with section 12.3 of ASCE 7
      Exception: Wood shear walls, shear panels, and diaphragms, including nailing, bolting, anchoring, and other fastening to other components of the seismic force-resisting system, where the fastener spacing of the sheathing is more than 4 inches on center
      Exception: Structural observation by California-licensed engineer allowed in lieu of special inspection
    - ❑ Other _____

13. Complete PDS #006 special inspection summary (or equivalent) – listing elements required per item B.8 – and make a permanent part of full-size plan sheet. **Specify certified special inspector and phone number** for each element indicated on summary as requiring special inspection.

14. Provide **large, clear** note on **plot plan**: "Special inspection required. See special inspection form on sheet _____."

15. Clearly distinguish on plans between proposed (new), as-built (non-permitted), and existing (permitted) construction.

16. Specify on plans the **location and means of access** for any as-built construction to be made accessible for inspection by a PDS Building Inspector. Otherwise **any hidden or inaccessible as-built construction will require a certification report per item B.17**. **Note**: Some elements, such as reinforced concrete, may require a combination of access (per this comment) by a PDS Building Inspector **and** a certification report (per item B.17).

17. Provide certification report(s) per the following for any as-built construction hidden from or inaccessible to a PDS Building Inspector:
    Exception: In lieu of certification report(s), the applicant may propose a **detailed** certification protocol – **subject to the plan reviewer's approval and specified in the building plans** – indicating how as-built construction will be examined, certification documentation will be submitted to PDS, and noncompliant construction will be remedied.
    - ❑ Each report shall indicate certifying parties have visited job site and list date(s) of job-site visit(s)
    - ❑ Each report shall include statement confirming the as-built construction **complies with the code(s)** applicable to the project **and matches the construction** detailed on the submitted building plans
    - ❑ Each report shall specify measures/test performed for certification with hidden construction verified by testing and/or destructive examination. **If mitigation and/or repairs are needed to achieve compliance, specify and detail on plans such mitigation and/or repairs.**
    - ❑ Each report shall include test results, photos, and other evidence supporting certification
      Exception: Any code-required plumbing or gas line tests shall be performed with a PDS Building Inspector present
    - ❑ Report(s) addressing **structural/life-safety elements** shall be produced, signed, and stamped by California-licensed Civil Engineer, Structural Engineer, or Architect
    - ❑ Report(s) addressing **electrical elements** shall be produced, signed, and stamped by California-licensed Electrical Engineer or Electrical Contractor
      Exception: A California-licensed Civil Engineer, Structural Engineer, or Architect may prepare, stamp, and sign a certification report for as-built electrical elements provided those elements have been evaluated by a California-licensed Electrical Engineer or Electrical Contractor, whose name and license number is specified in the certification report
    - ❑ Report(s) addressing **plumbing elements** shall be produced, signed, and stamped by California-licensed Plumbing Contractor
      Exception: A California-licensed Civil Engineer, Structural Engineer, or Architect may prepare, stamp, and sign a certification report for as-built plumbing elements provided those elements have been evaluated by a California-licensed Plumbing Contractor, whose name and license number is specified in the certification report
    - ❑ Report(s) addressing **mechanical elements** shall be produced, signed, and stamped by California-licensed Mechanical Engineer or Warm-Air Heating, Ventilating and Air-Conditioning Contractor
      Exception: A California-licensed Civil Engineer, Structural Engineer, or Architect may prepare, stamp, and sign a certification report for as-built mechanical elements provided those elements have been evaluated by a California-licensed Mechanical Engineer or Warm-Air Heating, Ventilating and Air-Conditioning Contractor, whose name and license number is specified in the certification report

18. Name, label, and specify on floor plans the use of all rooms and spaces.

19. Provide the following for licensed 24-hour care facility (CRC R335):
    - ❑ Specify on plans R-3.1 occupancy with data table indicating number of ambulatory, nonambulatory, bedridden, and elderly clients (**maximum 6 total**)
    - ❑ At each bedroom location on floor plans, note the number of clients and client status – ambulatory, nonambulatory, bedridden, or elderly – proposed for housing in that bedroom
    - ❑ Copy of state license indicating approved number of clients of each client status
    - ❑ Verification no restraint practiced – including locked doors preventing egress – unless building meets all requirements for I-3 occupancy

20. The following special provisions apply for R-3.1 occupancy residential care facilities:
    - ❑ **Facilities having more than 2 stories or having more than 3,000 square feet above the first story**: 1-hour-rated construction required if housing nonambulatory clients above the first story (CRC R335.3.1)
    - ❑ **Facilities housing a bedridden client:** Sleeping rooms may not be located above or below first story (CRC R335.3.1)
    - ❑ **Facilities housing nonambulatory clients**: Means of egress per CRC R335.6.3.2
    - ❑ **Facilities housing only one bedridden client**: Means of egress per CRC R335.6.3.3
    - ❑ Area and exterior wall limitations per CRC R335.3.2 and CRC R335.9
    - ❑ Changes in level per CRC R335.6.4
    - ❑ Stairways per CRC R335.6.5
    - ❑ Floor separation per CRC R335.6.6
    - ❑ Fences and gates per CRC R335.6.7
    - ❑ Basement exits per CRC R335.6.8
    - ❑ Delayed egress locks per CRC R335.6.9

21. Foundation and framing plans shall be the same orientation as floor plans.

22. Provide legend/definitions for all symbols, shaded areas, etc., used on plans.

23. Remove all "build per code" and "not for construction" notes from plans.

24. Provide sheet index coordinated with plans.

C. SITE REQUIREMENTS

1. Post site identification cards and call for site inspection. Once the site inspection has been completed, call (858) 565-5920 to confirm the results. Additional correction items may apply based on the results.

2. Project may be located in a watercourse or flood area. Department of Public Works (DPW) approval is required.

3. Project located in Alquist-Priolo Earthquake Fault Zone. Provide geotechnical report prepared, stamped, and signed by California-licensed civil engineer demonstrating proposed building(s) will not be constructed across trace of active fault.

4. Minor grading permit and rough grading approval required from PDS Building Services.

5. Rough grading approval required from PDS Land Development and DPW Private Development Construction Inspection.

6. Compaction report required (2 copies).

7. Certification form PDS #073 required (2 copies).

8. Compaction reports more than 5 years old shall include an update letter by a California-licensed civil engineer.

9. *Note on the plans:* "The inspector will recheck for expansive soils and/or grading requirements at first foundation inspection."

10. Project requires a completed County of San Diego Storm Water Intake Form including the following:
    - ❑ Project identification information and applicant's signature
    - ❑ Total new/replaced impervious area
    - ❑ Total existing impervious area
    - ❑ Total area disturbed by the project
    - ❑ Waste Discharger Identification Number (WDID) (obtained from State Water Resources Control Board and required when total area of land disturbance is 1 acre or more **or** project is part of a common development with land disturbance of 1 acre or more)
    - ❑ Project type determination: Standard Project or Priority Development Project

11. Provide on plot plan impervious surface area information per the following:
    - ❑ Dimensions of all impervious elements – including building roofs, driveways, paved walkways, patios, patio covers, and decks – and constructed pervious elements to enable calculation and verification of the surface area of each element
    - ❑ Distinguish between new/replaced impervious surface area and existing impervious surface area
    - ❑ Provide table determining cumulative new/replaced impervious surface area and cumulative existing impervious surface area on entire parcel and coordinate with totals entered on County of San Diego Storm Water Intake Form (see PDS #272 for guidance)
    - ❑ Provide table indicating surface area of each constructed pervious element (see PDS #272 for guidance)
    - ❑ For any constructed pervious elements, provide on plans **all of the following** (for more information on pervious element design and strategies, please consult the County of San Diego BMP Design Manual):
        - Manufacturer and product specifications
        - Pervious element slope and direction of slope
        - Cross-section of product assembly with complete dimensions and detailing
        - Specific maintenance program – e.g., debris removal, vacuum sweeping twice per year, re-setting pavers as needed – to ensure product assembly remains pervious
        - *Note on plans:* "Constructed pervious surfaces shall not be sealed."

12. Indicate on plot plan the location and square footage of land disturbance and coordinate with total entered on County of San Diego Storm Water Intake Form.

13. Project qualifies as a Priority Development Project (PDP) per the following criteria and **requires submittal of a PDP Storm Water Quality Management Plan (SWQMP) to PDS Land Development** for approval:
    - ❑ Project creating or replacing 10,000 square feet or more of impervious surface
    - ❑ Redevelopment project creating or replacing 5,000 square feet or more of impervious surface on a site with 10,000 square feet or more of existing impervious surface
    - ❑ New or redeveloped hillside area with minimum 25% natural slope **and** creating or replacing 5,000 square feet or more of impervious surface
    - ❑ New or redeveloped road and/or driveway creating or replacing 5,000 square feet or more of impervious surface
    - ❑ New or redevelopment project discharging directly to an Environmentally Sensitive Area (ESA) **and** creating or replacing 2,500 square feet or more of impervious surface
    - ❑ New or redevelopment project disturbing one acre or more and expected to generate pollutants post construction

14. Provide BMP plan **coordinated with PDP SWQMP approved by PDS Land Development** covering proposed scope of work and including location and detailing of any Structural BMPs.

15. **After the sets have been approved and stamped by the fire district**, PDS Building plan reviewer shall confirm proposed scope of work does not qualify as a Priority Development Project.

16. Provide **two copies** of completed County of San Diego Standard Project Storm Water Quality Management Plan (SWQMP) including the following:
    - ❑ Project identification information and applicant's signature
    - ❑ Proposed erosion control BMPs
    - ❑ Proposed energy dissipater (as needed where run-off is concentrated)
    - ❑ Proposed sediment control BMPs

- ❑ Proposed BMPs preventing off-site tracking of sediment
- ❑ Proposed site management BMPs
- ❑ Proposed source control BMPs
- ❑ Proposed site design BMPs

17. Provide BMP plan in each building set per the following (we recommend the PDS plot plan AutoCAD template with BMP legend available for download at http://www.sdcounty.ca.gov/pds/bldgforms/index.html):
    - ❑ Indicating general direction of site drainage
    - ❑ Identifying location of proposed erosion control BMPs per Standard Project SWQMP
    - ❑ Identifying location of proposed energy dissipater per Standard Project SWQMP
    - ❑ Identifying location of proposed sediment control BMPs per Standard Project SWQMP
    - ❑ Identifying location of proposed BMPs preventing off-site tracking of sediment per Standard Project SWQMP
    - ❑ Identifying location of proposed site management BMPs per Standard Project SWQMP
    - ❑ Identifying location of proposed source control BMPs per Standard Project SWQMP
    - ❑ Identifying location of proposed site design BMPs per Standard Project SWQMP
    - ❑ Including table or legend defining each BMP symbol (see PDS #272 sample plan)

18. County records indicate an existing Structural BMP on the project site. For more information on the installed Structural BMP(s), call DPW Watershed at (858) 495-5323 or email Bmp.Program@sdcounty.ca.gov. **Specify on BMP plan** the location of the following installed Structural BMP(s) to confirm no encroachment by proposed construction:
    - ❑ Biofilter
    - ❑ Detention basin
    - ❑ Hydrodynamic separator system
    - ❑ Infiltration device
    - ❑ Media filter
    - ❑ Trash rack and drain insert
    - ❑ Wet pond and constructed wetland
    - ❑ Other

D. DESIGN REQUIREMENTS

1. Provide complete dimensions on floor plans, building sections, and exterior elevations.

2. Provide dwelling room dimensions complying with the following:
    - ❑ Minimum 70 square feet of floor area for all habitable rooms (CRC R304.1)
      Exception: Kitchens
      Exception: Portions of a room with a sloping ceiling with less than 5-foot height or a furred ceiling with less than 7-foot height shall not be considered as contributing to required floor area of that room
    - ❑ Habitable rooms not less than 7 feet in any horizontal dimension (CRC R304.2)
      Exception: Kitchens

3. Provide ceiling heights complying with the following (CRC R305.1):
    - ❑ Minimum 7-foot height in habitable rooms and hallways
      Exception: In rooms with sloping ceilings, minimum 50% of required floor area at minimum 7-foot ceiling height acceptable with no portion of required floor area at less than 5-foot ceiling height
    - ❑ Minimum 6-foot-8-inch height in bathrooms, toilet rooms, and laundry rooms
    - ❑ Minimum 6-foot-8-inch height in basements without habitable rooms or hallways
      Exception: Minimum 6-foot-4-inch height acceptable beneath beams, girder, ducts, or other obstructions

4. Space labeled _____ is considered ❑ habitable room ❑ sleeping room.

5. Patio cover restricts egress, natural light, and/or natural ventilation to space labeled _____ unless reconfigured per the following (County Building Code 92.2.RAPPH):
    - ❑ Maximum one story
    - ❑ Maximum 12-foot height
    - ❑ Minimum 65% open from floor to minimum 6-foot-8-inch height above floor on **both** longest exterior side and at least one additional exterior side
      Exception: Patio cover with one fully open exterior side acceptable if width-to-depth ratio of patio cover is minimum 2-to-1
    - ❑ Any solid exterior walls located below required patio cover openings shall be maximum 2 feet, 6 inches above floor
    - ❑ Required patio cover openings may be enclosed only with insect screening or approved maximum 1/8-inch-thick translucent/transparent plastic
    - ❑ Exterior building openings serving as emergency egress or rescue openings from sleeping rooms may open to patio cover only if all required open side are fully unenclosed

6. Specify the following on floor plans at each window or on window schedule coordinated with floor plans:
    - ❑ Width
    - ❑ Height
    - ❑ Operation type (e.g., slider, casement, single-hung, awning)

7. Specify the following on floor plans at each door or on door schedule coordinated with floor plans:
    - ❑ Width

- ❑ Height
- ❑ Operation direction (e.g., swing path, slider, pocket)

8. Provide at least one of the following in each habitable room to achieve adequate lighting:
   - ❑ Glazed window and/or door area to exterior of at least 8% of room's floor area (CRC R303.1)
   - ❑ Artificial lighting specified on utility plans producing 6-foot-candle illumination over room area at 30 inches above floor (CRC R303.1)
   - ❑ Unobstructed opening to adjacent room per **all of the following** (CRC R303.2):
     - Minimum 50% of common wall area between rooms
     - Minimum 10% of floor area of interior room
     - Minimum 25 square feet
     - Adjacent room with glazed window and/or door area to exterior of at least 8% of both rooms' combined floor area

9. Provide at least one of the following in each habitable room to achieve adequate ventilation:
   - ❑ Openable window and/or door area to exterior of at least 4% of room's floor area (CRC R303.1)
   - ❑ Mechanical ventilation per CMC 403 specified on utility plans (CRC R303.1)
   - ❑ Unobstructed opening to adjacent room and complying with **all of the following** (CRC R303.2):
     - Minimum 50% of common wall between rooms
     - Minimum 10% of floor area of interior room
     - Minimum 25 square feet
     - Adjacent room with openable window and/or door area to exterior of at least 4% of both rooms' combined floor area

10. Provide the following in each bathroom, powder room, and water closet compartment:
    - ❑ Lighting
      - Artificial lighting **or** exterior window with minimum 3 s.f. of glazing (CRC R303.3)
    - ❑ Ventilation:
      - Local exhaust fan to exterior providing minimum 50 cfm intermittent ventilation **or** 20 cfm continuous ventilation (CRC R303.3, CalGreen 4.506.1, CMC Table 403.7)
        Exception: In rooms without a bathtub, shower, or similar moisture source, an exterior window with minimum 3 s.f. of glazing – at least half of which is openable – may be provided in lieu of an exhaust fan

11. Specify tempered glass at the following locations requiring safety glazing:
    - ❑ Glazing in swinging, sliding, and bi-fold doors (CRC R308.4.1)
      Exception: Glazed openings through which a 3-inch-diameter sphere is unable to pass
      Exception: Decorative glazing
    - ❑ Glazing in an individual fixed or operable panel adjacent to a door within 60 inches vertically of floor **and** meeting **either of the following** (CRC R308.4.2):
      Exception: Where intervening wall or barrier between door and glazing
      Exception: Where door accesses closet or storage area maximum 3 feet in depth
      Exception: Glazing adjacent to fixed panel of patio doors
      Exception: Decorative glazing
      - Within 24 inches of either side of the door in the plane of the door in a closed position
      - Located on a wall perpendicular to the plane of the door in a closed position and within 24 inches of the hinge side of an in-swinging door
    - ❑ Glazing within 60 inches – vertically and horizontally – of showers, bathtubs, hot tubs, swimming pools, and saunas (CRC R308.4.5)
    - ❑ Glazing adjacent to stairways, ramps, and intermediate landings within 36 inches horizontally and 36 inches vertically of the travel surfaces (CRC R308.4.6)
      Exception: Where horizontal rail installed on accessible side of glazing at minimum 34 inches and maximum 38 inches above walking surface
    - ❑ Glazing adjacent to bottom stair landings within 36 inches vertically of landing surface and within 60-inch horizontal arc less than 180 degrees from bottom tread nosing (CRC R308.4.7)
      Exception: Glazing protected by complying guard and minimum 18 inches from guard
    - ❑ Glazing per **all of the following** and within 36 inches horizontally of walking surfaces (CRC R308.4.3):
      Exception: Where horizontal rail installed on accessible side of glazing at minimum 34 inches and maximum 38 inches above walking surface
      Exception: Decorative glazing
      - Exposed area of individual pane minimum 9 square feet
      - Bottom edge of glazing within 18 inches of floor
      - Top edge of glazing more than 36 inches above floor

12. Where the top of the sill of an operable window is located less than 24 inches above the finished floor **and** greater than 72 inches above the finished grade or surface below, specify on plans **one of the following** for the operable window (CRC R312.2):
    - Window opening will not allow passage of 4-inch-diameter sphere when in largest opened position
    - Windows provided with fall prevention device or window opening limiting device meeting ASTM F 2090

E. EGRESS REQUIREMENTS

1. Door operations and dimensions shall comply with the following:
   - ❑ Doors shall be side-hinged swinging type (County Building Code 92.2.R311.2)

Exception: Sliding doors acceptable at exterior doors not required for egress and interior doors
Exception: Overhead vehicle doors acceptable as egress from garages
- ❑ Minimum 32-inch clear width (County Building Code 92.2.R311.2)
  Exception: Minimum width not applicable at exterior doors not required for egress and interior doors
- ❑ Minimum 78-inch clear height (County Building Code 92.2.R311.2)

2. Dimension on floor plans level landing per the following on each side of each door:
   Exception: Landing not required at top of interior flight of stairs if door does not swing over stairs
   Exception: Landing depth not required at exterior balconies less than 60 square feet and only accessible from door
   - ❑ Width not less than door width (County Building Code 92.2.R311.3)
   - ❑ Minimum 36-inch depth (County Building Code 92.2.R311.3)
   - ❑ Maximum 1-1/2 inches lower than top of door threshold (County Building Code 92.2.R311.3)
     Exception: Maximum 7-3/4 inches lower than top of door threshold if door does not swing over landing

3. Provide at least one route of egress complying with the following from all occupiable spaces:
   - ❑ Egress through doors complying with items E.1 and E.2 (County Building Code 92.2.R311.1)
   - ❑ Minimum 36-inch hallway width (CRC R311.6)
   - ❑ For levels more than one story above or below the grade-level exterior egress door serving that level, maximum 50-foot travel distance from any occupiable point to egress stairway or ramp (County Building Code 92.2.R311.4)
   - ❑ Egress from any occupiable space does not require travel through garage (County Building Code 92.2.R311.1)

4. Provide at least one emergency egress door or window complying with the following at each sleeping room and basement:
   - ❑ Minimum 5.7-square-foot net clear opening area (CRC R310.2.1, CRC R310.3.1)
     Exception: Minimum 5.0-square-foot clear opening area acceptable for grade-level or below-grade room
   - ❑ Minimum 24-inch net clear opening height (CRC R310.2.1, CRC R310.3.1)
   - ❑ Minimum 20-inch net clear opening width (CRC R310.2.1, CRC R310.3.1)
   - ❑ Bottom of clear opening maximum 44 inches above floor (CRC R310.2.2)
   - ❑ Opening directly to public way or yard/court opening to public way (CRC R310.1)
   - ❑ Where sill height is below grade level, window well provided per CRC R310.2.3

5. Provide stairway dimensions complying with the following on floor plans and building sections:
   - ❑ Minimum 36-inch clear width with maximum 4-1/2-inch handrail encroachment (CRC R311.7.1)
     Exception: Minimum 26-inch clear width acceptable at spiral stairways with maximum 24-1/2-inch walkline radius (CRC R311.7.10.1)
   - ❑ Minimum 6-foot-8-inch headroom (CRC R311.7.2)
     Exception: Minimum 6-foot-6-inch headroom acceptable at spiral stairways (CRC R311.7.10.1)
   - ❑ Minimum 36-inch-deep level landings at top and bottom of each stairway with width equivalent to stairway width (CRC R311.7.6)
     Exception: Non-rectangular landings allowed provided depth at walk line and total area is not less than a quarter circle with 36-inch radius
     Exception: Landing not required at top of interior flight of stairs provided door does not swing over stairs
   - ❑ Maximum 12-foot-3-inch vertical rise on one stairway flight between floors or landings (CRC R311.7.3)

6. Dimension stairway risers, level treads, and nosings complying with the following:
   - ❑ Risers (CRC R311.7.5.1):
     - o Maximum 7-3/4-inch riser height
       Exception: Maximum 9-1/2-inch riser height acceptable at spiral stairways (CRC R311.7.10.1)
     - o Vertical or sloped from underside of nosing maximum 30 degrees from vertical
     - o Any open risers not allowing passage of 4-inch-diameter sphere
       Exception: Riser openings not limited for stair openings located maximum 30 inches above floor or grade
   - ❑ Treads (CRC R311.7.5.2):
     - o Minimum 10-inch tread depth
       Exception: For winder treads, minimum 10-inch tread depth at 12 inches from inside edge and minimum 6-inch tread depth at any point within stairway clear width
       Exception: For spiral stairway treads, minimum 6-3/4-inch tread depth at 12 inches from inside edge with maximum 24-1/2-inch walkline radius (CRC R311.7.10.1)
   - ❑ Nosings (CRC R311.7.5.3):
     - o On stairways with solid risers, minimum 3/4-inch and maximum 1-1/4-inch nosing projection
       Exception: Nosings not required where tread depth is minimum 11 inches

7. Provide ramp dimensions complying with the following on floor plans and building sections:
   - ❑ Maximum 8.3% slope where serving exterior door required for egress (CRC R311.8.1)
     Exception: Maximum 12.5% where technically infeasible to comply due to site constraints
   - ❑ Maximum 12.5% slope where exterior doors not required for egress and interior doors (CRC R311.8.1)
   - ❑ Minimum 36-inch-deep landings at the following (CRC R311.8.2):
     - o Top of ramp
     - o Bottom of ramp
     - o Where door opens on to ramp
     - o Where ramp changes directions

8. Dimension and detail stairway and ramp handrails complying with the following:

- ❑ Provided on at least one side of each continuous stairway flight with four or more risers and each ramp with slope exceeding 8.3% (CRC R311.7.8, CRC R311.8.3)
- ❑ Located minimum 34 inches and maximum 38 inches vertically above sloped plane adjoining tread nosings or finished ramp surface (CRC R311.7.8.1, CRC R311.8.3.1)
- ❑ Continuous for full length of stairway flight or ramp run (CRC R311.7.8.2, CRC R311.8.3.3)
  Exception: Handrails may be interrupted by newel posts at turns
- ❑ Grip size per CRC R311.7.8.3
- ❑ Handrails adjacent to a wall shall have minimum 1-1/2-inch clearance between wall and handrail

9. Provide coordinated connection details specifying the following stairway elements designed for CRC R301.5 stair live loads:
   - ❑ Stringer sizes
   - ❑ Landing joists and beams
   - ❑ Hangers

10. Provide guard complying with the following at any open-sided walking surface – including balconies, decks, stairs, ramps, and landings – located more than 30 inches vertically above adjacent floor or grade within 36 inches horizontally of open-side edge (CRC R312.1.1):
    - ❑ Minimum 42-inches high above walking surface (CRC R312.1.2)
      Exception: Minimum 34-inch-high guard acceptable at open side of stairs
    - ❑ Openings in guard may not allow passage of 4-inch-diameter sphere (CRC R312.1.3)
      Exception: At open sides of stairs, openings in guard may not allow passage of 4-3/8-inch-diameter sphere, while triangular openings formed by riser, tread, and bottom rail of guard may not allow passage of 6-inch-diameter sphere

11. Provide coordinated connection details specifying the following for guard systems including glass:
    - ❑ Glass shall be tempered (CRC R308.4.4)
    - ❑ Glass thickness (any structural glass designed with safety of factor of 4 considering CRC R301.5 guardrail loads)
    - ❑ Member sizes designed for CRC R301.5 guardrail loads
    - ❑ Means of connection (member-to-member and guardrail to supporting structure) for CRC R301.5 guardrail loads

F. ADDITIONAL LIFE SAFETY REQUIREMENTS

1. Indicate smoke detectors – interconnected per CRC R314.4 and hard-wired with battery back-up per CRC R314.6 – in the following locations on floor plans or utility plans (CRC R314.3):
   Exception: Smoke detectors shall not be located within areas specified in CRC R314.3.3
   - ❑ Within each sleeping room
   - ❑ Outside each separate sleeping area in immediate vicinity of bedrooms
   - ❑ On each story of dwelling

2. Indicate carbon monoxide alarms – interconnected per CRC R315.7 and hard-wired with battery back-up per CRC R315.5 – in the following locations on floor plans or utility plans in dwelling units with fuel-burning appliances, fireplace, or an attached garage communicating with the dwelling unit (CRC R315):
   - ❑ Outside each separate sleeping area in immediate vicinity of bedrooms
   - ❑ On each story of dwelling
   - ❑ In any bedroom with a fuel-burning appliance located within that bedroom or its attached bathroom

3. Consult with the local fire authority to determine fire sprinkler system requirements for this project. (County Building Code 92.2.R313)

4. Dwellings and garages shall be separated per the following:
   - ❑ Minimum 1/2-inch gypsum board on garage side of assemblies separating garage from dwelling and dwelling attics (County Building Code 92.2.R302.6)
   - ❑ Minimum 5/8-inch Type X gypsum board on floors/ceilings separating garage from habitable rooms above with minimum 1/2-inch gypsum board on walls supporting such floors/ceilings (County Building Code 92.2.R302.6)
   - ❑ Where garage located within 6 feet of dwelling on same lot, minimum 1/2-inch gypsum board on interior side of garage and dwelling exterior walls (County Building Code 92.2.R302.6)
   - ❑ Self-closing and self-latching doors complying with **one of the following**:
     - Minimum 1 3/8-inch-thick solid wood (CRC R302.5.1)
     - Minimum 1 3/8-inch-thick solid or honeycomb core steel (CRC R302.5.1)
     - 20-minute fire rating (CRC R302.5.1)
       Exception: Rated door not required where garage and dwelling both sprinklered
   - ❑ Openings prohibited from garage into dwelling unit sleeping room (CRC R302.5.1)
   - ❑ Ducts in garage and ducts penetrating walls between garage and dwelling shall be minimum 26-gage sheet steel with no openings into garage (CRC R302.5.2)
   - ❑ Minimum 5-foot high corner guards or metal jacketing for fire-protected columns and posts subject to vehicular impact (CBC 704.9)

5. Specify on floor plans or foundation plans garage slabs/floors of noncombustible material with minimum 1% slope directed to drains or main vehicle entry doorway. (CRC R309.1)

6. Exterior walls with proximity to property lines shall comply with the following:
   Exception: Detached sheds, playhouses, and similar structures

- ❑ Walls (provide details specifying CBC Table 720.1(2) assembly number or alternate listed assembly) (CRC R302.1):
  - 1-hour fire rating for exposure to both sides within 3 feet of property line (sprinklers)
  - 1-hour fire rating for exposure to both sides within 5 feet of property line (without sprinklers)
- ❑ Projections (detail any rated construction) (CRC R302.1):
  - Prohibited within 2 feet of property line
  - 1-hour fire rating on the underside within 3 feet of property line (if building is sprinklered)
    Exception: Unrated roof eaves acceptable if fireblocking provided from wall top plate to underside of roof sheathing and no gable/eave vents installed in the associated wall
  - 1-hour fire rating on the underside within 5 feet of property line (if building is not sprinklered)
    Exception: Unrated roof eaves acceptable if fireblocking provided from wall top plate to underside of roof sheathing and no gable/eave vents installed in the associated wall
- ❑ Openings (CRC R302.1):
  - Prohibited within 3 feet of property line
  - Maximum 25% of wall area within 5 feet of property line (without sprinklers)
- ❑ Penetrations (specify listing number and manufacturer of fire-stopping material) (CRC R302.1):
  - 1-hour fire-rated penetrations of walls within 3 feet of property line (sprinklers)
  - 1-hour fire-rated penetrations of walls within 5 feet of property line (without sprinklers)

7. Dwelling units in two-family dwellings shall be separated per the following:
   - ❑ Walls (provide details specifying CBC Table 721.1(2) or Gypsum Association assembly):
     - 1-hour fire rating extending from foundation/floor to roof sheathing (CRC R302.3)
       Exception: 30-minute fire rating acceptable if sprinklered
       Exception: Wall assemblies need not extend through attic if ceiling is protected by minimum 5/8-inch type X gypsum board **and** walls supporting ceiling are protected by minimum 1/2-inch gypsum board **and** attic draft stop per CRC R302.12.1 provided above and along the wall assembly separating the dwellings
     - Airborne sound insulation with minimum 50 STC rating (provide details specifying Gypsum Association assembly) (CBC 1207.2)
   - ❑ Floors/ceilings (provide details specifying CBC Table 721.1(3) assembly number or alternate listed assembly):
     - 1-hour fire rating with supporting construction of equal or greater fire rating (CRC R302.3)
       Exception: 30-minute fire rating acceptable if sprinklered
     - Airborne sound insulation with minimum 50 STC rating and impact sound insulation with minimum 50 IIC rating (provide details specifying Gypsum Association assembly) (CBC 1207.2, CBC 1207.3)
   - ❑ Doors (CRC R302.3):
     - Self-closing with active latch bolt
     - 45-minute fire rating
       Exception: 20-minute fire rating acceptable if 1/2-hour wall assembly allowed (i.e., sprinklered)
   - ❑ Fire-rated penetrations (specify listing number and manufacturer of fire-stopping material) per CRC 302.4

8. Each townhouse shall be considered a separate building and separated per CRC R302.2.

G. ELECTRICAL, PLUMBING, AND MECHANICAL REQUIREMENTS

1. Note on plot plan whether or not property is connected to electrical grid. If not connected, provide complete plans for system generating electrical power and add this system to the permit scope of work.

2. Provide an electrical legend identifying all symbols used.

3. On the floor plan or electrical plan, show the location of all electrical panels (meter panels and sub panels). Provide a 30-inch-wide by 36-inch-deep workspace in front of all panels. Panels are not allowed in bathrooms. (CEC 110.26)

4. Indicate location of heating units and water heaters on floor plan. (CRC R303.9, CPC 505.1)

5. Gas-fired water heaters and furnaces located in bedrooms or bathrooms shall comply with **one of the following** (CPC 505.1, CMC 904.1):
   - ❑ Installed in dedicated closet with listed, gasketed, self-closing door with all combustion air from the outdoors
   - ❑ Water heater or furnace shall be a direct-vent appliance

6. Indicate on floor plans access openings per the following to attics housing mechanical or plumbing appliances (CMC 904.10):
   - ❑ Minimum 22 inches by 30 inches or size of largest appliance component
   - ❑ Located maximum 20 feet from appliance where attic passageway height less than 6 feet

7. Indicate on floor plans or utility plans location of dryer vent complying with **all of the following** (CMC 504.3.1.2):
   - ❑ Minimum 4-inch diameter
   - ❑ Maximum 14-foot combined horizontal and vertical length with two 90-degree elbows
   - ❑ Two feet deducted from maximum length for each elbow in excess of two

8. Note on plot plan if the property is serviced by propane (LPG) or natural gas.

9. Indicate on plot plan location and size of any propane tanks. Dimension minimum 10-foot clearance to structures and property lines for maximum 500-gallon capacity propane tanks. (CFC Table 6104.3)

10. LPG appliances not allowed in crawlspaces, pits, or basements unless provided within enclosure sealed from adjacent spaces and having louvered door enabling ventilation to exterior. (CMC 303.8.1)

11. Detail any LPG piping assemblies in or beneath slabs within the structure. (CMC 303.8.1)

12. Specify manufacturer, model, and ICC, UL, WH, or equivalent listing report number – UL and ANSI *standard* numbers are insufficient – demonstrating the following for each prefabricated fireplace, wood stove, or pellet stove:
    - ❑ Gas fireplaces are direct-vent sealed-combustion type (CalGreen 4.503.1)
    - ❑ Wood stoves and pellet stoves comply with U.S. EPA New Source Performance Standards (NSPS) and have permanent label indicating they are certified to meet emission limits (CalGreen 4.503.1)
    - ❑ Chimney shrouds are part of the approved fireplace assembly (CRC R1004.1)

13. Masonry fireplaces must be constructed per county details (make completed PDS #180 a permanent part of plans) **or** engineered design with coordinated structural details and calculations. (CRC R1001)

H. ENERGY EFFICIENCY REQUIREMENTS

1. Provide complete energy efficiency compliance documentation demonstrating design compliance with the **2016** California Building Energy Efficiency Standards (CBEES) for low-rise residential buildings. (CBEES 100.0)

2. Proposed design shall comply with energy efficiency requirements applicable to climate zone _____. (CBEES 100.1)

3. The following energy efficiency compliance forms shall be completed and made a permanent part of plans:
    - ❑ Prescriptive certificate of compliance (CBEES 10-103):
        - o CF1R-NCB-01-E (applies to newly constructed buildings and additions greater than 1000 s.f.)
        - o CF1R-ADD-01-E (applies to additions up to 1000 s.f.)
        - o CF1R-ADD-02-E (may be used for additions up to 300 s.f. with no HERS verification required)
        - o CF1R-ALT-01-E (applies to alterations)
        - o CF1R-ALT-02-E (applies to space conditioning alterations with multiple systems contained in single dwelling unit)
    - ❑ Performance certificate of compliance (CBEES 10-103):
        - o CF1R-PRF-01-E

4. Energy efficiency compliance forms shall be signed by **all of the following** (CBEES 10-103):
    - ❑ Energy efficiency documentation author
    - ❑ Project designer or owner

5. Building orientation indicated on CF1R form shall match orientation shown on plot plan. (CBEES 100.1)

6. Glazing areas indicated on CF1R form shall match floor plan. (CBEES 100.1)

7. Proposed design as indicated on CF1R form shall comply with the following glazing measures:
    - ❑ Mandatory (CBEES 150.0(q)):
        - o Maximum U-factor = 0.58
          Exception: Fenestration area of up to 10 s.f. or 0.5% of conditioned floor area – whichever is greater – is exempt
          Exception: Fenestration area of up to 30 s.f. is exempt for dual-glazed greenhouse or garden windows
    - ❑ Prescriptive (CBEES 150.1(c)3, CBEES Table 150.1-A, CBEES 150.2(a)1, CBEES 150.2(b)1):
        - o Maximum U-factor = 0.32
          Exception: Up to 3 s.f. of new glazing area in doors is exempt
          Exception: Up to 3 s.f. of new tubular skylight area with dual-pane diffusers is exempt
          Exception: Maximum U-factor of 0.55 acceptable for up to 16 s.f. of new skylight area
          Exception: Maximum U-factor of 0.40 acceptable for up to 75 s.f. of replacement glazing
          Exception: Maximum U-factor of 0.55 acceptable for replacement skylights
        - o Maximum Solar Heat Gain Coefficient (SHGC) = 0.25
          Exception: Window assemblies with built-in shading methods with SHGC calculated per CF1R-WKS-03-E worksheet
          Exception: Up to 3 s.f. of new glazing area in doors is exempt
          Exception: Up to 3 s.f. of new tubular skylight area with dual-pane diffusers is exempt
          Exception: Maximum SHGC of 0.30 acceptable for up to 16 s.f. of new skylight area
          Exception: Maximum SHGC of 0.35 acceptable for up to 75 s.f. of replacement glazing
          Exception: Maximum SHGC of 0.30 acceptable for replacement skylights
        - o Maximum total glazing area = 20% of conditioned floor area
          Exception: In additions greater than 700 s.f. and up to 1000 s.f., new glazing area may be larger of 175 s.f. or 20% of addition's conditioned area
          Exception: In additions greater than 400 s.f. and up to 700 s.f., added glazing area may be larger of 120 s.f. or 25% of addition's conditioned area
          Exception: In additions up to 400 s.f., added glazing area may be larger of 75 s.f. or 30% of addition's conditioned area
          Exception: Alterations adding maximum 75 s.f. of glazing are exempt
        - o Maximum total west-facing glazing area = 5% of conditioned floor area
          Exception: In additions greater than 700 s.f. and up to 1000 s.f., added west-facing glazing area may be 70 s.f.
          Exception: In additions up to 700 s.f., added west-facing glazing area may be 60 s.f.
          Exception: Alterations adding maximum 75 s.f. of glazing are exempt

8. Proposed design as indicated on CF1R form shall comply with the following roof/ceiling insulation measures:
   - ❑ Mandatory per **one of the following** (CBEES 150.0(a)):
     Exception: Where existing attic roof space is not large enough to accommodate required R-value, the entire accessible space shall be filled with insulation except 1-inch air space maintained between insulation and roof sheathing
     - Minimum R-22 between wood framing members (installed at ceiling level for vented attics and ceiling or roof level for unvented attics)
       Exception: Minimum R-19 between wood framing members in alterations
     - Maximum U-factor = 0.043 per applicable CBEES joint appendix table (installed at ceiling level for vented attics and ceiling or roof level for unvented attics)
       Exception: Maximum U-factor = 0.054 in alterations
   - ❑ Prescriptive (CBEES 150.1(c)1A, CBEES Table 150.1-A):
     - If **any** space conditioning equipment and ducts located in ventilated attic:
       - **Climate zone 7**: Minimum R-30 ceiling insulation between attic and conditioned space
       - **Climate zones 10, 14, and 15** per **one of the following** options:
         - Option A:
           - ❖ Minimum R-38 ceiling insulation between attic and conditioned space
           - ❖ Continuous insulation installed above roof rafters and in contact with roof deck: Minimum R-6 (with air space between roofing and roof deck) **or** minimum R-8 (no air space between roofing and roof deck)
         - Option B:
           - ❖ Minimum R-38 ceiling insulation between attic and conditioned space
           - ❖ Insulation installed between roof rafters and in contact with roof deck: Minimum R-13 (with air space between roofing and roof deck) **or** minimum R-18 (no air space between roofing and roof deck)
     - If **all** space conditioning equipment and ducts located in conditioned space and confirmed by HERS verification:
       - **Climate zones 7 and 10**: Minimum R-30 ceiling insulation between attic and conditioned space
       - **Climate zones 14 and 15**: Minimum R-38 ceiling insulation between attic and conditioned space

9. Proposed design as indicated on CF1R form shall comply with the following wall insulation measures:
   - ❑ Mandatory per **one of the following** (CBEES 150.0(c)):
     - Minimum R-13 between 2x4 wood studs
       Exception: Existing walls with minimum R-11
     - Minimum R-19 between 2x6 or larger wood studs
     - Maximum U-factor = 0.102 per applicable CBEES joint appendix table between other 2x4 framing assemblies
       Exception: Existing walls with maximum U-factor = 0.110
     - Maximum U-factor = 0.074 per applicable CBEES joint appendix table between other 2x6 or larger framing assemblies
   - ❑ Prescriptive (CBEES 150.1(c)1B, CBEES Table 150.1-A):
     Exception: Demising walls between conditioned and unconditioned space – e.g., between dwelling and garage – need only meet mandatory requirements
     - Framed walls in **climate zone 7** per **one of the following**:
       Exception: Minimum R-15 between 2x4 wood studs and minimum R-19 between 2x6 wood studs acceptable in additions 700 s.f. or less per CBEES 150.2(a)1B
       - Minimum R-13 between 2x4 wood studs at 16" o.c. **plus** minimum R-5 continuous
       - Minimum R-19 between 2x6 wood studs at 16" o.c. **plus** minimum R-2 continuous
       - Maximum U-factor = 0.065 per applicable CBEES joint appendix table
     - Framed walls in **climate zones 10, 14, and 15** per **one of the following**:
       Exception: Minimum R-15 between 2x4 wood studs and minimum R-19 between 2x6 wood studs acceptable in additions 700 s.f. or less per CBEES 150.2(a)1B
       - Minimum R-13 between 2x4 wood studs at 16" o.c. **plus** minimum R-10 continuous
       - Minimum R-19 between 2x6 wood studs at 16" o.c. **plus** minimum R-5 continuous
       - Maximum U-factor = 0.051 per applicable CBEES joint appendix table
     - Above-grade mass walls per **one of the following**:
       - Minimum R-13 installed on inside surface of wall
       - Minimum U-factor = 0.070 per applicable CBEES joint appendix table installed on inside surface of wall
       - Minimum R-8 installed on outside surface of wall
       - Minimum U-factor = 0.125 per applicable CBEES joint appendix table installed on outside surface of wall (CBEES 150.1(c)1B, CBEES Table 150.1-A)
     - Below-grade mass walls in **climate zones 7 and 10** per **one of the following**:
       - Minimum R-13 installed on inside surface of wall
       - Minimum U-factor = 0.070 per applicable CBEES joint appendix table installed on inside surface of wall
       - Minimum R-5 installed on outside surface of wall
       - Minimum U-factor = 0.200 per applicable CBEES joint appendix table installed on outside surface of wall
     - Below-grade mass walls in **climate zones 14 and 15** per **one of the following**:
       - Minimum R-13 installed on inside surface of wall
       - Minimum U-factor = 0.070 per applicable CBEES joint appendix table installed on inside surface of wall
       - Minimum R-10 installed on outside surface of wall
       - Minimum U-factor = 0.100 per applicable CBEES joint appendix table installed on outside surface of wall

10. Proposed design as indicated on CF1R form shall comply with the following raised-floor insulation measures:
    - ❑ Mandatory and prescriptive per **one of the following** (CBEES 150.0(d), CBEES 150.1(c)1C):
      - Minimum R-19 between wood framing members

- Maximum U-factor = 0.037 per applicable CBEES joint appendix table

11. Specify on building sections the R-values of the following insulation assemblies – cavity and/or continuous as applicable – as indicated on CF1R form:
    - ❑ Roof/ceiling
    - ❑ Wall
    - ❑ Raised-floor
    - ❑ Slab-perimeter (if required per performance method)

12. The following nominal framing depths will be required in order to accommodate cavity insulation as indicated on CF1R form:
    - ❑ Roof rafters: _____ nominal depth to accommodate _____ cavity insulation
    - ❑ Stud walls: _____ nominal depth to accommodate _____ cavity insulation

13. Detail on plans the following for any continuous insulation assemblies:
    - ❑ Continuous insulation of the roof deck: Structural connection of roofing material to framing considering insulation layer between
    - ❑ Continuous insulation outside exterior walls: Structural connection of exterior finish material – e.g., stucco, siding – to framing considering insulation layer between

14. *Note on building sections for **climate zone 14** projects*: "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." (CBEES 150.0(g)2)

15. Proposed design as indicated on CF1R form shall comply with the following radiant barrier measures:
    - ❑ Prescriptive (CBEES 150.1(c)2, CBEES Table 150.1-A):
      Exception: Alterations **not** proposing added radiant barrier to qualify for cool roof exception per item H.17
      - Radiant barrier shall be installed below the roof deck and on all gable-end walls
        Exception: Radiant barrier not required in **climate zone 10, 14, or 15** if complying with roof/ceiling insulation Option B per item H.8

16. For projects with radiant barrier indicated on CF1R form, *provide **large, clear** note on **roof plan or elevations***: "Radiant barrier is required."

17. Proposed design as indicated on CF1R form shall comply with the following cool roof measures:
    - ❑ Prescriptive (CBEES 150.1(c)11, CBEES 150.2(b)1H):
      Exception: Additions of 300 s.f. or less
      Exception: Alterations replacing 50% or less of roofing
      Exception: Areas with building-integrated photovoltaic panels or solar thermal panels
      Exception: Roof assemblies with minimum 25 psf thermal mass over roof membrane
      - Steep-sloped roofs (i.e., greater than 2:12 slope) on **climate zones 10, 14, and 15** projects:
        Exception: Existing/modified assemblies with R-38 roof/ceiling insulation **or** radiant barrier **or** no ducts in attic **or** existing ducts insulated and sealed with HERS verification **or** minimum R-2 insulation above roof deck **or** 1-inch air space between top of roof deck and bottom of roofing product **or** installed roofing product with rise-to-width ratio of 1:5 for 50% or more of roofing product width
        Exception: If aged solar reflectance value not available from Cool Roof Rating Council, aged value shall be determined by CBEES 110.8(i)2 equation using initial solar reflectance
        - Minimum thermal emittance = 0.75
          Exception: Roofing with minimum SRI = 16 calculated per CF1R-WKS-04-E worksheet
        - Minimum **aged** solar reflectance = 0.20
          Exception: Roofing with minimum SRI = 16 calculated per CF1R-WKS-04-E worksheet
      - Low-sloped roofs (i.e., 2:12 or less slope) on **climate zone 15** projects:
        Exception: Existing/modified assemblies with no ducts in attic **or** roof deck insulation per CBEES Tables 150.2-A
        - Minimum thermal emittance = 0.75
          Exception: Roofing with minimum SRI = 75 calculated per CF1R-WKS-04-E worksheet
        - Minimum **aged** solar reflectance = 0.63
          Exception: Roofing with minimum SRI = 75 calculated per CF1R-WKS-04-E worksheet
    - ❑ Performance (CBEES 110.8(i)):
      - Roofing products not certified by Cool Roof Rating Council shall assume the following values:
        Exception: Solar Reflectance Index (SRI) calculated per CBEES 110.8(i)3 may be used as alternative
        - Asphalt shingles: 0.75 thermal emittance, 0.08 **aged** solar reflectance
        - Other roofing products: 0.75 thermal emittance, 0.10 **aged** solar reflectance

18. For projects with cool roofing indicated on CF1R form, specify **all of the following** cool roof product information on roof plans with a **large, clear** accompanying note indicating "Cool roof required":
    - ❑ Cool Roof Rating Council (CRRC) product ID number
    - ❑ Manufacturer brand
    - ❑ Product model
    - ❑ Product color

19. Proposed design as indicated on CF1R form shall comply with the following space-conditioning equipment measures:
    - ❑ Mandatory (CBEES Tables 110.2-A through K):

- Space-conditioning equipment efficiency (CBEES 110.2(a)):
  - Gas-fired heating equipment: Minimum _____ Annual Fuel Utilization Efficiency (AFUE)
  - Heat pumps: Minimum _____ Heating Seasonal Performance Factor (HSPF)
  - Cooling systems: Minimum _____ Seasonal Energy Efficiency Rating (SEER) or minimum _____ Energy Efficiency Rating (EER)
- In cooling systems utilizing forced-air ducts or zonal controls, **HERS verification required** to confirm adequate cooling system airflow and air-handling unit fan efficacy (CBEES 150.0(m))

❑ Prescriptive (CBEES Table 150.1-A):
- Electric-resistance heating prohibited (CBEES 150.1(c)6)
- For **climate zone 10, 14, and 15** projects with cooling systems, **HERS verification required** to confirm refrigerant charge (CBEES 150.1(c)7)
- For **climate zone 10, 14, and 15** projects with cooling systems, whole-house fan required with **all of the following** specified (CBEES 150.1(c)12):
  Exception: Additions 1000 s.f. or less and alterations
  - Airflow (assuming minimum 1.5 cfm per conditioned s.f.)
  - Minimum attic vent area (assuming minimum 1 s.f. net vent area per 750 cfm airflow)

20. For projects with whole-house fan indicated on CF1R form, *provide **large, clear** note on **floor or utility plans***: "Listed whole-house fan required."

21. Proposed design as indicated on CF1R form shall comply with the following supply- and return-air duct measures:

❑ Mandatory (CBEES 150.0(m)):
- Minimum R-6 insulation
  Exception: Minimum R-4.2 for ducts enclosed entirely within directly conditioned space and confirmed by HERS verification
- **HERS verification required** to confirm adequate duct sealing
  Exception: Not required in additions and alterations where existing space-conditioning system equipment remains **and** less than 40 feet of new or replacement ducts installed in unconditioned or indirectly conditioned space
  Exception: Not required in additions and alterations with new/replacement space-conditioning equipment **and** less than 40 feet of cumulative existing and new ducts in unconditioned spaces
  Exception: Not required if ducts previously sealed with HERS verification
  Exception: Not required for existing duct systems constructed, insulated, or sealed with asbestos

❑ Prescriptive (CBEES 150.1(c)9, CBEES 150.2(a), CBEES 150.2(b)1D, CBEES Table 150.1-A):
- **Climate zone 7**: Minimum R-6 insulation
- **Climate zones 10, 14, and 15**: Minimum R-8 insulation
  Exception: Minimum R-6 for ducts enclosed entirely within directly conditioned space and confirmed by HERS verification

22. Proposed design shall comply with the following indoor air quality measures applicable to dwelling units:

❑ Mandatory (CBEES 150.0(o), ASHRAE Standard 62.2):
Exception: Additions 1000 s.f. or less and alterations
- *Note on the plans:* "A mechanical exhaust ventilation system, supply ventilation system, or combination thereof shall be installed for each dwelling unit to provide whole-building ventilation with outdoor air in compliance with ASHRAE Standard 62.2 as adopted by the California Energy Commission."
- **HERS verification required** to confirm whole-building ventilation airflow
- *Note on the plans:* "An intermittently or continuously operating local mechanical exhaust ventilation system shall be installed in each bathroom with a bathtub, shower, or similar moisture source and in each kitchen in compliance with ASHRAE Standard 62.2 as adopted by the California Energy Commission. Intermittent local exhaust ventilation airflow rates shall be 50 cfm in bathrooms and 100 cfm in kitchens. Continuous local exhaust ventilation airflow rates shall be 20 cfm in bathrooms and 5 air changes per hour in kitchens based on kitchen volume."
- *Note on the plans:* "Doors between garage and dwelling shall be gasketed or made substantially airtight with weather stripping."

23. Proposed design as indicated on CF1R form shall comply with the following water heating measures:

❑ Mandatory (CBEES 110.3(b)):
- Water heater efficiency: Minimum _____ Energy Factor (EF) per CBEES Residential Compliance Manual Table 5-4

❑ Prescriptive (CBEES 150.1(c)8, CBEES 150.2(a)1D, CBEES 150.2(b)1G):
- Newly constructed buildings shall have water heating system complying with **one of the following**:
  - Single gas or propane instantaneous water heater with input of 200,000 Btu per hour or less
  - Single gas or propane storage water heater meeting **all of the following**:
    - Maximum 55 gallons
    - Input of 105,000 Btu per hour or less
    - **HERS verification required** to confirm dwelling unit meets all Quality Insulation Installation (QII) requirements
    - **HERS verification required** to confirm installation of compact hot water distribution system **or** proper insulation of all domestic hot water piping
  - Single gas or propane storage water heater meeting **all of the following**:
    - More than 55 gallons
    - Input of 105,000 Btu per hour or less
    - **HERS verification required** to confirm installation of compact hot water distribution system **or** proper insulation of all domestic hot water piping

- A second water heater installed as part of an addition shall comply with **one of the following**:
  - Single gas or propane instantaneous water heater with input of 200,000 Btu per hour or less
  - Single gas or propane storage water heater meeting **all of the following**:
    - Maximum 55 gallons
    - Input of 105,000 Btu per hour or less
    - **HERS verification required** to confirm dwelling unit meets all Quality Insulation Installation (QII) requirements
    - **HERS verification required** to confirm installation of compact hot water distribution system **or** proper insulation of all domestic hot water piping
  - Single gas or propane storage water heater meeting **all of the following**:
    - More than 55 gallons
    - Input of 105,000 Btu per hour or less
    - **HERS verification required** to confirm installation of compact hot water distribution system **or** proper insulation of all domestic hot water piping
  - Electric water heater if no natural gas connection to building **and** energy factor meeting CBEES Residential Compliance Manual Table 5-1 **and** any recirculation distribution system shall be only demand recirculation with manual control pumps
- A replacement heater shall comply with **one of the following**:
  - Single gas or propane storage water heater with energy factor meeting CBEES Residential Compliance Manual Table 5-1
  - Single gas or propane instantaneous water heater with energy factor meeting CBEES Residential Compliance Manual Table 5-1
  - Electric water heater if no natural gas connection to building **and** energy factor meeting CBEES Residential Compliance Manual Table 5-1 **and** maximum 60-gallon storage capacity **and** any recirculation distribution system shall be only demand recirculation with manual control pumps

24. Proposed design shall comply with the following lighting measures:
    - ❑ Mandatory (CBEES 150.0(k)):
      - Provide on utility plans a complete lighting fixture schedule
      - All luminaires shall be high-efficacy in accordance with CBEES Table 150.0-A
      - All LED luminaires and lamps shall be marked "JA8-2016" and listed in the California Energy Commission database at https://cacertappliances.energy.ca.gov/Pages/ApplianceSearch.aspx
      - All recessed downlight and enclosed luminaires shall be marked "JA8-2016-E" and listed in the California Energy Commission database at https://cacertappliances.energy.ca.gov/Pages/ApplianceSearch.aspx
      - Recessed downlight luminaires in ceilings shall not be screw-based
      - Bathrooms, garages, laundry rooms, and utility rooms: At least one luminaire in each space shall be controlled by a vacancy sensor
      - All luminaires requiring "JA8-2016" or "JA8-2016-E" marking shall be controlled by a dimmer or vacancy sensor
        Exception: Closets less than 70 s.f.
        Exception: Hallways
      - Outdoor lighting permanently mounted to building shall be controlled by **one of the following**:
        - Photocontrol **and** motion sensor
        - Photocontrol **and** automatic time-switch control
        - Astronomical time clock
        - Energy management control system per CBEES 150.0(k)3Aiiic

25. Specify on plans the following special features indicated on CF1R form: _____

26. Newly constructed single-family dwellings shall comply with the following solar-ready measures (County Building Code 92.1.3112, County Building Code 92.2.R332):
    - ❑ Mandatory:
      - Dimension on roof plan dedicated solar zone area complying with **all of the following**:
        - Minimum 250 s.f. cumulative area comprised of minimum 80 s.f. areas with minimum 5-foot dimensions
          Exception: Not required for SFDs with permanently installed solar electric system with minimum 1 kW DC power rating
          Exception: Not required for SFDs with permanently installed domestic solar water-heating system with minimum 0.50 solar savings fraction
          Exception: Minimum 150 s.f. cumulative area for SFDs with three or more habitable stories **and** with total floor area of maximum 2000 square feet
          Exception: Minimum 150 s.f. cumulative area for SFDs in **climate zone 10 or 14 and** in a Wildland-Urban Interface Area **and** having a whole-house fan
          Exception: Buildings with designated solar zone area of minimum 50% of potential solar zone area per CBEES 110.10(b)1A, exception 5
          Exception: Minimum 150 s.f. cumulative area for SFDs with demand-response thermostats
          Exception: Not required for SFDs with demand-response thermostats **and** meeting the lighting provisions of CBEES 110.10(b)1A, exception 7B
        - Located between 110 and 270 degrees of true north (indicate north arrow on roof plan)
          Exception: Low-sloped (2:12 or less) roofs
        - No obstructions – including vents, chimneys, skylights, architectural features, roof-mounted equipment – located within solar zone

- Any obstruction projecting above solar zone shall be located away from solar zone at least two times the height difference between the highest point of the obstruction and the nearest point of the solar zone
  Exception: Any obstruction oriented north of all points in the solar zone
- Adequate firefighter access pathways and smoke ventilation clearances provided **adjacent to – but not within – each solar zone** per the following (CRC R331.2, CBC 311.2.2):
  - **Hip roofs**: Minimum 3-foot-wide clear access pathway provided from eave to ridge on each roof slope where solar zone(s) located
    Exception: Roofs with 2:12 slope or less
  - **Single-ridge roofs**: At least two minimum 3-foot-wide clear access pathways provided from eave to ridge on each roof slope where solar zone(s) located
    Exception: Roofs with 2:12 slope or less
  - **Roofs with hip(s) and/or valley(s)**: Solar zone(s) located minimum 18 inches from hips or valleys
    Exception: Roofs with 2:12 slope or less
    Exception: Solar zone(s) may be located directly adjacent to hip or valley where solar zone(s) located on only one side of hip or valley of equal length
  - **Roofs with ridge(s)**: Solar zone(s) located minimum 3 feet below ridges to allow fire department smoke ventilation operations

- Indicate on floor plan or utility plan the location of minimum 200-amp main electrical service panel
- *Note on floor plan or utility plan*: "The main electrical service panel shall not be of a type with a center-fed main circuit breaker and shall include reserved space allowing for installation of double-pole circuit breakers for a future solar photovoltaic system. Such reserved space shall be positioned at the opposite (load) end from the input feeder or main circuit breaker location. The reserved space shall be permanently and visibly marked as '**For Future Solar Photovoltaic**.'"
- Indicate on floor plan or utility plan **all of the following** to accommodate future installation of a roof-mounted solar photovoltaic system:
  - Approved minimum 4-inch-square electrical junction box located within 72 inches horizontally and 12 inches vertically of main electrical service panel
  - Minimum 1-inch-diameter listed electrical metallic raceway originating at readily accessible attic location with proximity to solar zone area and terminating at the required electrical junction box
  - Minimum 1-inch-diameter listed electrical metallic raceway originating at the required electrical junction box and terminating at the main electrical service panel
  - *Note on floor plan or utility plan*: "Electrical junction box and segment of metallic raceway in the attic shall be permanently and visibly marked as '**For Future Solar Photovoltaic**.'"

27. Newly constructed garages with electrical service shall comply with the following electric vehicle-ready measures (County Building Code 92.1.3112, County Building Code 92.2.R332, CalGreen 4.106.4.1):
    Exception: Newly constructed garages on lots with an existing garage including either an electric vehicle charging system or electrical conduit installed per County Building Code 92.1.3112.4.1 through 92.1.3112.4.3 to accommodate future installation of an electric vehicle charging system
    - ❑ Mandatory:
      - *Note on floor plan or utility plan:* "The main electrical service panel shall include reserved space allowing for installation of a circuit breaker for a future electric vehicle charging system. The reserved space shall be permanently and visibly marked as '**EV Capable**.'"
      - Indicate on floor plan or utility plan **all of the following** to accommodate future installation of an electric vehicle charging system:
        - Approved minimum 4-inch-square electrical junction box located on the interior of the garage at minimum 30 inches and maximum 48 inches above the garage floor
        - Minimum 1-inch-diameter listed electrical metallic raceway originating at the main electrical service panel and terminating at the required electrical junction box
        - *Note on plans*: "Electrical junction box shall be permanently and visibly marked as '**For Future Electric Vehicle Charging**.'"

28. *Provide **table or summary** on **plot plan*** indicating HERS verification required for the following energy efficiency measures (CBEES 10-103):
    - ❑ Duct sealing
    - ❑ Refrigerant charge
    - ❑ Air conditioning system airflow
    - ❑ Air conditioning unit fan efficacy
    - ❑ SEER and/or EER above minimum
    - ❑ Whole-building ventilation airflow
    - ❑ Building envelope air leakage
    - ❑ Quality insulation installation
    - ❑ Other:

29. For projects requiring HERS verification, CF1R forms must be registered with a California-approved HERS provider data registry. (CBEES 10-103)

30. *Provide **large, clear** note on **plot plan**:* "Properly completed and signed Certificates of Installation (CF2R forms) shall be provided to the inspector in the field. For projects requiring HERS verification, the CF2R forms must be registered with a California-approved HERS provider data registry." CF2R forms are available at http://www.sdcounty.ca.gov/pds/bldg/energy-stds.html. (CBEES 10-103)

31. *Provide **large, clear** note on **plot plan**:* "HERS verification required. Properly completed Certificates of Verification (CF3R forms) shall be provided to the inspector in the field. CF3R forms must be registered with a California-approved HERS provider data registry." CF3R forms are available at http://www.sdcounty.ca.gov/pds/bldg/energy-stds.html. (CBEES 10-103)

I. ROOF ASSEMBLY REQUIREMENTS

1. Specify roof material and underlayment.

2. Specify ICC, UL, or equivalent listing report number and manufacturer for roofing material (tile, metal, built-up, etc.).

3. *Note on roof plan or elevations:* "Roofing shall have a class A fire rating." (County Building Code 92.2.R902 and County Building Code 92.1.1505.1)
   Exception: Roof coverings of slate, clay, or concrete roof tile, exposed concrete roof deck, and ferrous or copper shingles or sheets may be considered as having Class A rating

4. In roof area additions or alterations involving more than 50% of a structure's existing roof area or 2,500 square feet – whichever is less – the structure's entire roof covering – new and existing – shall meet item I.3. (County Building Code 92.1.1505.1)

5. Specify roof pitch.

6. Specify on plans layer-by-layer assembly of any built-up roofing systems – include coordinated assembly number from manufacturer's listing report – to verify required fire rating achieved at roof pitch proposed.

7. Roof pitch is not adequate for roof type specified (CRC R905). Provide minimum pitch of _____.

8. Specify 1/4:12 minimum roof pitch for drainage on roof plan **or** design to support accumulated water. (CRC R903.4, CBC 1611.1, CBC 1611.2)

9. Unless roofs are sloped to drain over roof edges, detail primary and secondary (emergency overflow) roof drainage per the following with location of each roof drainage element indicated on roof plan (CRC R903.4, CPC 1101.11):
   - ❑ Primary roof drainage per **one of the following**:
     - Roof drains sized per CPC Table D 1.1 and located at low point of roof
     - Scuppers sized per CBC Table D 1.1 and placed level with roof surface in adjacent walls or parapets
   - ❑ Secondary (emergency overflow) roof drainage with same capacity as primary roof drainage per **one of the following**:
     - Roof drains with maximum height to prevent roof ponding and minimum 2 inches above low point of roof
     - Scuppers three times size of primary roof drains with minimum 4-inch opening height and installed 2 inches above low point of roof in adjacent parapet walls
   - ❑ Primary and secondary (emergency overflow) roof drainage with separate outlets

10. Indicate on plans approved waterproof decking material for balconies/decks over interior spaces. Specify manufacturer and ICC, UL, or equivalent listing report number. (CRC R903.1)

11. Indicate on roof plan location and size of attic vents per the following:
    - ❑ Minimum net vent area per the **greater of the following**:
      - Minimum 1 s.f. of net free vent area required for every 150 s.f. of attic area (**provide calculation on roof plan**) (CBC 1203.2)
        Exception: Net vent area of 1/300 attic area acceptable in **climate zone 14** with Class I or Class II vapor retarder installed on warm-in-winter side of ceiling **or** between 40% and 50% of required net free vent area located maximum 3 feet below the ridge or highest point of attic with eave or cornice vents – as allowed per item J.7 – providing balance of required net free vent area
        Exception: Unvented attics complying with CRC R806.5
      - Net vent area indicated on CF1R form for **projects with a whole-house fan** (CBEES 150.1(c)12)
    - ❑ Vents positioned to provide cross ventilation to each attic area

12. Indicate on roof plan location and sizes of skylights. Specify manufacturer and ICC, UL, or equivalent listing report number. (CRC R308.6)

J. WILDFIRE-RESISTIVE CONSTRUCTION REQUIREMENTS

Exception: This section not applicable to new or remodeled building located outside wildland-urban interface fire area as defined in County Building Code 92.1.702A
Exception: This section not applicable to greenhouses enclosed with translucent plastic or glass **and** located minimum 30 feet from other buildings and all property lines
Exception: This section not applicable to freestanding open-side shade covers, shed, gazebos, and similar accessory structures with area less than 250 square feet of projected roof area **and** located minimum 30 feet from other buildings and all property lines

1. Indicate on plan location and size of fuel modification zone per the following (County Fire Code 96.1.4907.2):
   - ❑ Dimension minimum 100-foot fuel modification zone from perimeter of each structure
   - ❑ Fuel modification zone may not cross property lines or encroach into open space easements

- ❑ If lot dimensions do not allow full 100-foot fuel modification zone, *note on plot plan*: "Entire lot is fuel modified."

2. In roof coverings where the profile creates space between the roof covering and combustible roof decking, specify one of the following means of protecting spaces at eave ends (County Building Code 92.1.705A.2):
   - ❑ Fire-stopping with approved materials (e.g., non-combustible birdstops for curved tile)
   - ❑ One layer of No. 72 ASTM cap sheet installed over combustible decking
   - ❑ Otherwise constructed to prevent intrusion of flames and embers

3. Exposed valley flashings shall be constructed with minimum 26-gauge corrosion-resistant metal installed over minimum 36-inch-wide single layer of No. 72 ASTM cap sheet running full length of valley. (County Building Code 92.1.705A.3)

4. Any roof gutters shall be provided with means to prevent accumulation of leaves and debris. (County Building Code 92.1.705A.4)

5. Skylights shall be tempered glass. (County Building Code 92.1.705A.5)

6. All vents (roof, foundation, combustion-air, etc.) shall comply with comply with the following (County Building Code 92.1.706A.1):
   - ❑ Protected by louvers and 1/8-inch noncombustible, corrosion-resistant mesh
     Exception: Approved vents resisting intrusion of flames and embers
   - ❑ Turbine attic vents equipped to allow rotation in only one direction

7. Vents prohibited in eaves, eave overhangs, soffits, or cornices. (County Building Code 92.1.706A.2)
   Exception: Approved vents resisting intrusion of flames and embers
   Exception: Gable-end vents allowed if located minimum 12 inches below lowest eave/rake projection
   Exception: As allowed by building official and local fire authority and per eave details in guidance document PDS #198

8. Detail eaves, soffits, and fascias per guidance document PDS #198. (County Building Code 92.1.706A.3)
   Exception: Detailed eaves and soffits meeting SFM Standard 12-7A-3
   Exception: Eave construction on an addition may match existing structure if addition square footage does not exceed 50% of existing structure or 2,500 square feet, whichever is less **and** any vents in new eaves meet items J.6 and J.7

9. Specify exterior wall finish complying with **one of the following** (County Building Code 92.1.707A.1):
   Exception: Livestock stables of less than 2,000 square feet of total floor area and without a restroom if located minimum 100 feet from all property lines, any open space easement, and any dwelling on the parcel
   Exception: Repair or replacement of less than 50% of an existing exterior wall may be like-for-like unless the wall covering is wood shingle or wood shake, in which case it shall be repaired or replaced with fire-retardant, pressure-treated wood shingles or wood shakes
   Exception: Repair or replacement of 50% or more of an existing exterior wall shall require the **entire** wall to meet all requirements of section J
   - ❑ Noncombustible material (stucco, cement fiber board, masonry, etc.)
     Exception: 3/4-inch wood drop siding or 3/8-inch plywood with an underlayment of 1/2-inch fire-rated gypsum sheathing that is tightly butted or taped and mudded **or** other ignition-resistant material approved by the building official
   - ❑ Ignition-resistant material
   - ❑ Log wall construction (smallest horizontal dimension minimum 6 inches)

10. Enclose underfloor areas to the ground with exterior wall construction per item J.9. (County Building Code 92.1.709A.4.2.2)

11. Specify on window and door schedules exterior windows, exterior glazed doors, glazed openings within exterior doors, and glazed openings within exterior garage doors complying with **one of the following** (County Building Code 92.1.708A.2):
    - ❑ Multi-paned glass with minimum one tempered pane (glazing frames made of vinyl materials shall have welded corners, metal reinforcement in interlock area, and be certified to ANSI/AAMA/NWWDA 101/I.S.2-97 structural requirements)
    - ❑ Glass block units
    - ❑ Minimum 20-minute fire-rated (provide listing or test report)
    - ❑ Meet performance requirements of SFM Standard 12-7A-2

12. Specify on door schedule exterior doors complying with **one of the following** (County Building Code 92.1.708A.3):
    - ❑ Exterior surface or cladding of noncombustible or ignition-resistant material
    - ❑ Solid-core wood minimum 1-3/8-inch thick
    - ❑ Minimum 20-minute fire-rated
    - ❑ Meet performance requirements of SFM Standard 12-7A-1

13. Detail patio cover, carport, and trellis construction complying with any of the following (County Building Code 92.1.709A.1):
    Exception: Freestanding trellis of less than 250 square feet in area and located minimum 30 feet from nearest structure **and** all property lines
    - ❑ Noncombustible material
    - ❑ 1-hour fire-rated material
    - ❑ Approved exterior fire-retardant treated wood
    - ❑ Modified heavy timber (minimum 2x tongue-and-groove sheathing, 4x6 rafters/beams, 6x6 posts/columns)

14. Detail deck, balcony, and exterior stair construction complying with the following (County Building Code 92.1.709A.1):

Exception: Freestanding deck of less than 250 square feet in area and located minimum 30 feet from nearest structure **and** all property lines
Exception: Detached deck meeting **all of the following**: Separated from any building by minimum 5 feet of noncombustible surface, decking surface material minimum 1-1/2-inches thick, located at or below elevation of building ground floor and not exposed to underfloor area or basement opening, skirted with noncombustible material from deck walking surface to ground, and underdeck area vented in conformance with items J.6 and M.4
Exception: Deck repair or replacement involving 50% or more of the existing deck or 1,000 square feet of deck area, whichever is less, shall require the entire deck to meet all requirements of this item

- ❑ Framing (any of the following):
  Exception: Structural supports of decks, balconies, and similar projections skirted from floor level to ground level with noncombustible material with any underdeck area vented in conformance with items J.6 and M.4
  - o Noncombustible material
  - o 1-hour fire-rated material
  - o Approved exterior fire-retardant treated wood
  - o Modified heavy timber (minimum 4x8 joists/treads, 4x10 or 6x8 beams/stringers, 6x6 posts/columns)
- ❑ Decking and tread material (any of the following):
  - o Noncombustible material
  - o 1-hour fire-rated material
  - o Approved exterior fire-retardant treated wood
  - o Approved alternative decking material meeting test requirements of County Building Code 92.1.709A.1.4

15. Paper-faced insulation prohibited in attics or other ventilated spaces. (County Building Code 92.1.711A.1)

16. Specify on plans any portion of a fence or other structure within five feet of building shall be constructed per one of the following (County Building Code 92.1.712A.1):
    Exception: Vinyl fencing as allowed by building official
    - ❑ Noncombustible material
    - ❑ Approved exterior fire-retardant treated wood
    - ❑ Material meeting same fire-resistive standards as exterior walls of building

K. VERTICAL LOAD SUPPORTING SYSTEM REQUIREMENTS

1. Provide a complete roof/floor framing plan.

2. Provide engineered design per *California Building Code* due to the following (CRC R301.1.3):
   - ❑ Structure exceeds conventional framing limits of CRC R301
   - ❑ Structure exceeds two stories
   - ❑ Structural elements of steel, concrete, masonry, structural insulated panels, or alternative systems

3. Framing shall comply with all recommendations made in engineering calculations.

4. Justify the following loads used in design (CRC R301.4, CRC R301.5, CRC R301.6):
   - ❑ Roof live load (psf)
   - ❑ Roof dead load (psf)
   - ❑ Floor live load (psf)
   - ❑ Floor live load (concentrated loads)
   - ❑ Floor dead load (psf)

5. Provide complete structural detailing for the project.

6. Cross-reference all framing details with the appropriate plans.

7. Delete all non-applicable details from plans.

8. Specify plywood grade, thickness, panel span rating, and nailing for roof/floor sheathing. (CRC Table R503.2.1.1(1))

9. *Note on plans:* "Plywood shall be continuous under California fill."

10. Specify on framing plans the size, orientation, span, and spacing as applicable for the following structural elements:
    - ❑ Rafters
    - ❑ Ceiling joists
    - ❑ Beams
    - ❑ Floor joists
    - ❑ Headers
    - ❑ Posts
    - ❑ Columns

11. Provide two complete sets of truss drawings and coordinate with roof framing plan. (CRC R802.10.1)

12. Identify trusses on roof framing plan by file/ID/sequence number or make truss layout a permanent part of plans.

13. Design trusses for bearing at perpendicular interior shear walls.

14. Detail 1/2-inch clearance between trusses and non-bearing walls.

15. Detail uplift resistance of trusses and/or rafters per CRC Table R802.11 at supporting wall assemblies.

16. Indicate on roof framing plan support for ridge/hip/valley intersections. (CRC R802.3)

17. Detail rafter-tie connections at conventionally framed areas with connection nailing per CRC Table R802.5.1(9).

18. Provide metal straps across ridge beam and rafters.

19. Specify camber requirements and combination symbol for all glue-laminated wood members on plans.

20. *Note on plans:* "A certificate of conformance for glue-laminated wood members is required prior to framing inspection."

21. Specify the make and model number of all proposed truss/beam/joist hangers.

22. Specify size and type (double stud, post, etc.) of support for beams/headers – 4x12 and larger – and girder trusses.

23. Detail all beam-to-post, post-to-beam, and post-to-footing connections.

24. Specify stud size and spacing for all walls. (CRC R602.3.1)

25. Balloon frame walls of rooms with sloping ceilings (rake walls). Specify on plans which walls are balloon framed.

26. Specify on plans fasteners – including nuts and washers -- for preservative-treated-wood (in all applications) and fire-retardant-treated-wood (in exterior applications) shall be of hot dipped zinc-coated galvanized steel, stainless steel, silicon bronze, or copper. (CRC R317.3)
    Exception: 1/2-inch or greater steel bolts exempt from preservative-treated-wood requirement
    Exception: Plain carbon fasteners in SBX/DOT and zinc borate preservative-treated wood in an interior, dry environment
    Exception: Fasteners other than nails, timber rivets, wood screws, and lag screws with mechanically deposited zinc-coated steel

L. LATERAL LOAD RESISTING SYSTEM REQUIREMENTS

1. Provide engineered lateral design per *California Building Code*. Building does not meet the following bracing requirements of CRC R602.10:
   - ❑ Story height exceeds CRC R301.3 limit of 11 feet, 7 inches
     Exception: Story height of 13 feet, 7 inches acceptable for masonry walls with limited bearing wall clear height
   - ❑ Shear walls not constructed per acceptable bracing methods of CRC R602.10.4 and CRC R602.10.6
   - ❑ Braced wall line spacing exceeds 25 feet per CRC Table 602.10.1.3
     Exception: Up to 35-foot spacing allowed for single room not exceed 900 square feet if all other braced wall spacing does not exceed 25 feet
   - ❑ Insufficient cumulative shear wall length within braced wall line(s) per CRC Table R602.10.3(1) for wind loads with adjustments per CRC Table R602.10.3(2)
     Exception: Buildings meetings simplified wall bracing criteria of CRC R602.12
   - ❑ Insufficient cumulative shear wall length within braced wall line(s) per CRC Table R602.10.3(3) for seismic loads with adjustments per CRC Table R602.10.3(4)
   - ❑ Shear wall spacing within braced wall line(s) exceeds 20 feet per CRC R602.10.2.2
   - ❑ Shear walls offset more than 4 feet from braced wall line(s) per CRC R602.10.1.2
   - ❑ Shear walls angled more 8 feet diagonally from braced wall line considered part of separate braced wall line
   - ❑ Shear walls not located at ends of each braced wall line or do not meet alternate provisions of CRC R602.10.2.2.1
   - ❑ Individual shear wall length and/or height does not comply with CRC Table R602.10.5

2. Site is located in CRC Seismic Design Category E. Provide engineered lateral design per *California Building Code*. (CRC R301.2.2.4)

3. Justify the 0.2-second spectral response acceleration, S_S, and 1-second spectral response acceleration, S_1, used in the engineering calculations. (CBC 1613.3.1)

4. Justify the response modification coefficient, R, used in the engineering calculations. (CBC 1613.1)

5. Justify the redundancy factor, ρ, used in the engineering calculations. (CBC 1613.1)

6. Justify the wind speed and exposure category used in the engineering calculations. (CBC 1609)

7. Justify the importance factor, I, used in the engineering calculations. (CBC 1613.1)

8. Shear walls and lateral load resisting elements shall comply with all recommendations made in engineering calculations.

9. Specify on framing plans location, type, and length of all shear walls and coordinate with shear-wall schedule.

10. Shear wall types proposed may not be mixed within the same braced wall line. (CRC R602.10.4.1)

11. Specify fastener size, spacing, and any required blocking for all shear walls and roof/floor diaphragms. (CBC 2306.2, CBC 2306.3)

12. The aspect ratio of roof/floor diaphragms shall not exceed the following (AF&PA SDPWS Table 4.2.4):
    - ❑ 3:1 for unblocked wood structural panel diaphragms
    - ❑ 4:1 for blocked wood structural panel diaphragms

13. The aspect ratio of shear walls and shear wall segments shall not exceed the following (AF&PA SDPWS Table 4.3.4):
    - ❑ 3.5:1 for wood structural panel shear walls with capacity reduced per SDPWS Table 4.3.4 for aspect ratios exceeding 2:1
    - ❑ 2:1 for other shear wall sheathing types

14. Provide shear-transfer connection details for shear walls at roof, floors, and foundation. Cross-reference all shear-transfer details with the appropriate plans. (CRC R602.10.8)

15. Make manufacturer‘s structural detail sheet(s) for engineered shear panels (e.g., Strong-Wall, Hardy Frame, TJ, Shear Max, etc.) a permanent part of the plans.

16. Provide details for interior shear walls indicating shear transfer from roof/floor diaphragm above.

17. Provide shear-transfer details at openings in shear walls. (CBC 2305.1.1)

18. Provide drag straps on each side of bay windows and flush beams where plate lines are interrupted.

19. Detail deck ledger connection(s) with lateral anchorage of deck to primary structure. (CRC R507.1, CRC R507.2)

20. Where shear wall forces exceed 350 pounds per foot, all framing members receiving edge nailing from abutting panels shall be minimum 3-inch nominal members or double 2-inch nominal members. (AF&PA SDPWS 4.3.7.1)

21. Detail construction of cripple walls per the following (CRC R602.9, CRC R602.10.9):
    - ❑ Framed with studs equivalent to studs above
    - ❑ If more than 4 feet high, framed with studs required for an additional story
    - ❑ If less than 14 inches high, solid block construction or sheathed/nailed on at least one side with wood structural panel
    - ❑ Supported on continuous foundations
    - ❑ Braced per provisions of CRC R602.10.9

22. Specify location/type of hold-downs on foundation plan (grade-level hold-downs) and framing plan (upper-level hold-downs).

M. FOUNDATION REQUIREMENTS

1. Provide a complete foundation plan.

2. Foundation elements shall comply with all recommendations made in soils/compaction report and engineering calculations.

3. Site inspection revealed presence of expansive soils. Provide soils report with foundation design recommendations.
   Exception: Single-story structures at locations where moderately expansive soil conditions exist may comply with the requirements for expansive soil foundation design per form PDS #065 in lieu of providing a soils report

4. Indicate on foundation plan location and size of underfloor vents per the following (CRC R408.1):
    - ❑ Minimum 1 foot of net vent area required for every 150 square feet of underfloor area (as demonstrated by calculation provided on foundation plan)
    - ❑ At least one vent located within 3 feet of each corner of building

5. Indicate on foundation plan location of minimum 16-inch by 24-inch access openings to all underfloor areas. (CRC R408.4)
   Exception: Minimum 18-inch by 24-inch opening required where access is through the floor

6. Dimension underfloor clearance off grade of 18 inches for floor joists and 12 inches for floor girders **or** specify preservative-treated wood. (CRC R317.1)

7. Dimension the following vertical clearances for wood framing, sheathing, and siding at exterior walls **or** specify preservative-treated wood (CRC R317.1):
    - ❑ Minimum 8 inches for wood sill plates above adjacent ground
      Exception: Preservative-treated wood sill plates required at slab-on-grade footings
    - ❑ Minimum 6 inches for wood studs, sheathing, and siding above adjacent ground
    - ❑ Minimum 2 inches for wood studs, sheathing, and siding above adjacent impervious surface

8. Dimension the following vertical clearances for wood posts and columns **or** specify preservative-treated wood (CRC R317.1.4):

- ❑ For posts in crawl spaces and supported by concrete piers or metal pedestals:
  - o Minimum 8 inches above adjacent ground
- ❑ For posts exposed to weather and supported by concrete piers or metal pedestals:
  - o Minimum 6 inches above adjacent ground
  - o Minimum 1 inch above concrete slab

9. Detail wall sill plate anchorage to foundations per the following (CRC R403.1.6, CRC R602.11.1, CBC 2308.12.9):
   - ❑ Minimum 1/2-inch-diameter anchor bolts
     Exception: Approved anchors or anchor straps spaced as required to provide equivalent anchorage to 1/2-inch-diameter anchor bolts
     Exception: Minimum 5/8-inch-diameter anchor bolts required in Seismic Design Category E
   - ❑ Minimum 7-inch embedment into concrete or masonry
   - ❑ Bolts spaced maximum 6 feet on center
     Exception: Maximum 4 feet on center for buildings more than two stories in height
   - ❑ Minimum two bolts per sill plate section with one bolt located maximum 12 inches and minimum seven bolt diameters from each end of each section
   - ❑ Bolts located in the middle third of the sill plate width
   - ❑ Steel plate washers per the following provided between sill plate and nut of each anchor bolt:
     - o Minimum 3 inches by 3 inches by 0.229 inch
     - o If standard cut washer placed between plate washer and nut, hole in plate washer may be diagonally slotted with maximum 3/16-inch larger width than bolt diameter and maximum 1-3/4 inch slot length

10. Provide footing details specifying all dimensions and reinforcement. Cross-reference all details with foundation plan.

11. Provide a step footing detail. (CRC R602.11.2)

12. Unless otherwise specified by soils report, dimension minimum 7-foot horizontal distance from bottom leading edge of footings to daylight.

13. Provide adequate footings under all bearing walls and shear walls. (CRC R403.1)

14. Provide adequate spread footings under posts/columns (where required due to post/column load).

15. Specify on foundation plan slab thickness, reinforcement, and moisture barrier. (CRC R506.1, CRC R506.2)

16. Provide details specifying the following for concrete or masonry wall construction:
    - ❑ Maximum overall height
    - ❑ Maximum height of any retained soil
    - ❑ Maximum stem wall height
    - ❑ Wall type (cantilevered or restrained)
    - ❑ Wall material (concrete or masonry) with required material strength
    - ❑ Wall thickness
    - ❑ Vertical and horizontal reinforcement:
      - o Bar size and spacing
      - o Bar position (edge or center) with dimension from face of wall
    - ❑ Footing/key dimensions and reinforcement
    - ❑ Means of restraint (restrained walls)
    - ❑ Drainage system behind walls retaining soil
    - ❑ Waterproofing for walls retaining soil and adjacent to usable space

N. SUPPLEMENTAL ADDITION AND ALTERATION REQUIREMENTS

1. Provide floor plan for existing rooms adjacent to addition/alteration with door sizes, window sizes, and types indicated – including doors/windows to be removed – to verify compliance with light, ventilation, and egress requirements.

2. Indicate smoke detectors and carbon monoxide alarms shall be installed – battery-powered alarms acceptable – in existing construction in locations specified items F.1 and F.2. (CRC R314.2.2, CRC R315.2.2)

3. Provide framing and/or foundation plans for existing structure at _____ to verify existing construction adequate to support proposed added loads.

4. Detail means of achieving positive connection between addition(s) and existing construction at the following:
   - ❑ Plate lines (detail on framing plans)
   - ❑ Footings and slabs (detail on foundation plans)

5. Detail installation of hold-downs and/or anchor bolts in existing foundations. Specify manufacturer and listing number of epoxy, expansion anchors, wedge anchors, etc., as applicable.

O. ADDITIONAL REQUIREMENTS