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:**
RESULT:	
Plan reviewer:	Phone/email:

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 2022 California Residential Code, Section R105.4)

2. The following supplements are attached and considered part of this review. Compliance with these items must be obtained prior to permit issuance:
    a. Minimum construction specifications (PDS #081)
    b. County of San Diego Storm Water Intake Form
    c. County of San Diego Standard Project Storm Water Quality Management Plan (SWQMP)
    d. Sample Stormwater Best Management Practices (BMP) presentation (PDS #272)
    e. Eave construction guidance document (PDS #198)
    f. Special inspection summary (PDS #006)
    g. List of approved special inspection agencies and construction material testing laboratories
    h. Other :

3. **Please read your Conditions of Approval list.** Conditions may include items such as: Fire District Approval, DPW Flood Control, DPW Driveway Review, etc. We recommend reviewing these conditions **early** in the project design stage to determine potential requirements. We also advise satisfying the "Structural Approval" (i.e., this building code review) and "Planner Approval" conditions (if required) **before** submitting your plans to the fire district for approval stamps. 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. Please slip revised sheets into the complete sets as needed provided the original sheets are returned. Revisions made with pen or pencil, by crossing out or taping on information, or by using white-out are not allowed.

5. Changes to scope of work such as square footage, addition/removal of structures, etc. may require a plan change. Please see a PDS Permit Technician to determine any requirements; you may need approval from Zoning/Engineering and updated documents (e.g., agency clearance letter, fire mitigation, etc.).

6. The following set(s) **must** be returned with the new/revised sets at recheck:
    a. Previously plan-checked and stamped set(s) dated _____ .
    b. Red-marked set(s) dated _____ . Red marks on plans are part of this comments list.
    a. Provided item-by-item responses on separate **8-1/2-inch by 11-inch** sheet(s); **do not mark** responses on the original correction list.
    b. Clearly and specifically indicating **where and how** each correction item has been addressed (vague responses, such as "Done" or "See plans," are unacceptable)
    c. Clearly and specifically indicating **any additional changes made to project** beyond responses to correction items

8. If plan check result is shown as "recheck by appointment", the intention is to sign off and approve the plan check at this appointment. The appointment is for a design professional, not a permit expediter, and a response list must be carefully prepared with this objective in mind. Also see Comment A.9.

9. Plans may be required to be submitted and logged-in for recheck due to:
    a. Insufficient progress
    b. Changes
    c. Lost red-marked set, or lack of a response letter
    d. Other :

10. A second opinion is available on any interpretation or correction provided and will not affect the level of customer service you receive. **We ask you to provide your interpretation of the code, along with any health or safety concerns that the interpretation may cause, and how this will affect your project.** The second opinion will come from one of our senior staff or a supervisor who will have a chance to take a deeper look at supporting documentation on both sides of the issue. This may occur at the counter or require a few days for proper research and understanding of the intent of the code in question. After the second opinion you can always follow up with our Building Official for a final opinion.

11. For your information, this **plancheck expires** on _____.

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 that the **"project will comply with the following building codes and associated County of San Diego amendments"**, and also list the following codes:
    a. 2022 California Residential Code (CRC) and/or 2022 California Building Code (CBC) as applicable
    b. 2022 California Green Building Standards Code (CalGreen)
    c. 2022 California Electrical Code (CEC)
    d. 2022 California Mechanical Code (CMC)
    e. 2022 California Plumbing Code (CPC)
    f. 2022 California Fire Code (CFC)
    g. 2022 California Building Energy Efficiency Standards (CBEES)

3. Provide / revise "**Scope of Work**" describing the project and identifying structures included on this permit.

4. Scope of work in County permit system is_____. Plans do not match this scope of work. Please see a PDS Permit Technician to determine any requirements; you may need approval from Zoning/Engineering and updated documents (e.g., agency clearance letter, fire mitigation, etc.).

5. Provide fully **dimensioned plot plan** drawn to scale and **indicating the following**:
    a. Lot dimensions with property lines and any easements identified
    b. Size and use of each structure on the lot
    c. Dimensions from structures to property lines (measured at right angles to structures)
    d. 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 structural design summary** per the following (CBC 1603.1, CRC R106.1):
    a. 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 and ASCE 7."
        ○ Specify Building risk category per CBC 1604.5
        ○ Specify design roof live load per CBC 1607.12
        ○ Specify design floor live load per CBC 1607.10
        ○ Wind design data:

- Specify basic design wind speed per CBC 1609.3
- Specify ASD design wind speed per CBC 1609.3.1
- Specify exposure category per CBC 1609.4

○ Seismic design data:

- Specify seismic importance factor per ASCE 7 Table 1.5-2
- Specify site class per ASCE 7 20.3
- Specify mapped spectral response acceleration parameters, S_S and S_1, per CBC 1613.3.1
- Specify design spectral response acceleration parameters, S_{DS} and S_{D1}, per CBC 1613.3.4
- Specify seismic design category per CBC 1613.3.5
- Specify seismic force-resisting system type per ASCE 7 12.2.1
- Specify seismic response coefficient, C_S, per ASCE 7 12.8.1.1
- Specify response modification coefficient, R, per ASCE 7 Table 12.2-1

b. 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."

○ Specify design roof live load per CBC 1607.12

○ Specify design floor live load per CBC 1607.10

○ Wind design data:

- Specify basic design wind speed per CBC 1609.3
- Specify ASD design wind speed per CBC 1609.3.1
- Specify exposure category per CBC 1609.4

○ Seismic design data:

- Specify site class per ASCE 7 20.3
- Specify mapped spectral response acceleration parameters, S_S and S_1, per CBC 1613.3.1
- Specify design spectral response acceleration parameters, S_{DS} and S_{D1}, per CBC 1613.3.4
- Specify seismic design category per CBC 1613.3.5

c. 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."

○ Specify design roof live load per CRC R301.6

○ Specify design floor live load per CRC R301.5

○ Specify ultimate wind speed = 110 mph per CRC R301.2.1

○ Specify 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:

- Specify site class per ASCE 7 20.3
- Specify mapped spectral response acceleration parameters, S_S, per CBC 1613.3.1
- Specify design spectral response acceleration parameters, S_{DS}, per CBC 1613.3.4
- Specify seismic design category 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):

a. If basis of design is a **geotechnical report**, summary shall include:

○ *Note on plans:* "The basis of soil design values is geotechnical report dated _____ by (engineer/firm preparing report)."

○ Specify allowable vertical bearing pressure per geotechnical report

○ Specify allowable lateral bearing pressure per geotechnical report

○ Specify other soil properties, such as retaining walls design parameters, per geotechnical report as applicable.

b. If basis of 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."

○ Specify class of soil materials per CBC Table 1806.2

○ Specify allowable vertical bearing pressure 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.

○ Specify allowable lateral bearing pressure 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 **structural calculations** -- addressing all applicable CBC 1605 load combinations -- prepared, stamped, and signed by California-licensed civil engineer, structural engineer, or architect for:
    a. Vertical load supporting system
    b. Lateral load (wind/seismic) resisting system
    c. Retaining walls
    d. Glass guardrail systems
    e. Other:

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

12. **Special inspection** required for the following:
    a. Field welding (CBC 1705.2.1)
    b. High-strength bolting (CBC 1705.2.1, CBC 1705.12.1)
    c. 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.

    d. High-strength concrete (1705.3)
        Exception: Concrete with specified compressive strength of 3000 psi or less
    e. Post-installed concrete anchors (CBC 1705.3)
    f. 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
    g. 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

    h. 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.

    i. Other:

13. Specify special inspector name/firm and phone number (as approved by the City of San Diego). Complete PDS #006 **special inspection summary** and make a permanent part of the plans. As an alternative to PDS #006, a statement of special inspection may be used if equivalent information is provided.

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

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

16. Note on plans: "As-built construction shall be made accessible for inspection by a PDS Building Inspector. Some elements, such as reinforced concrete, may require a combination of access and a certification report." Specify on plans the **location and means of access for inspection. See item B.17 for certification report requirements.**

17. Provide **certification report(s)** per the following:
        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
    a. Each report shall include:

○ Test results, photos, and other evidence supporting certification. Specify measures/test performed for certification with hidden construction verified by testing and/or destructive examination.

Exception: Any code-required **plumbing or gas line tests shall be performed** with a PDS Building Inspector present

○ 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 indicate **if mitigation and/or repairs are needed to achieve compliance. Specify and detail on plans such mitigation and/or repairs.**

b. Report(s) addressing **structural/life-safety elements** shall be produced, signed, and stamped by California-licensed Civil Engineer, Structural Engineer, or Architect

c. 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 per item B.17.c by a California-licensed Electrical Engineer or Electrical Contractor, whose name and license number is specified in the certification report

d. Report addressing **plumbing elements** 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 per item B.17.d by a California-licensed Plumbing Contractor, whose name and license number is specified in the certification report

e. Report addressing **mechanical elements** 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 per item B.17.e 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):
    a. Specify on plans R-3.1 occupancy with data table indicating number of ambulatory, nonambulatory, bedridden, and elderly clients **(maximum 6 total)**
    b. 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
    c. Provide documentation indicating approved number of clients for each client status type. Documentation shall be either a copy of the state license or completed application with confirmation from the state that application has been received.
    d. 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:
    a. **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)
    b. **Facilities housing a bedridden client:** Sleeping rooms may not be located above or below first story (CRC R335.3.1)
    c. **Facilities housing nonambulatory clients:** Means of egress per CRC R335.6.3.2
    d. **Facilities housing only one bedridden client:** Means of egress per CRC R335.6.3.3
    e. Area and exterior wall limitations per CRC R335.3.2 and CRC R335.9
    f. Changes in level per CRC R335.6.4
    g. Stairways per CRC R335.6.5
    h. Floor separation per CRC R335.6.6
    i. Fences and gates per CRC R335.6.7
    j. Basement exits per CRC R335.6.8
    k. 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.

25. Additional special provisions apply for the following:
    a. Tiny houses. CRC Appendix Q
    b. Light straw-clay construction. CRC Appendix R
    c. Straw bale construction. CRC Appendix S
    d. Emergency housing (emergency sleeping cabins, emergency transportable housing units, membrane structures, and tents). CRC Appendix X
    e. Intermodal shipping containers. CBC 3115, CRC R301.1.4

C. SITE REQUIREMENTS

1. **Post** site identification cards **and call** for initial **SITE INSPECTION per your CONDITIONS OF APPROVAL. Additional correction items may apply based on the results.**

2. 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.

3. **Minor grading permit** and rough grading approval required from PDS Building Services. Provide the following documentation:
    a. Pass rough grading inspection.
    b. Compaction Report (2 copies). Compaction reports more than 5 years old shall include an update letter by a California-licensed civil engineer.
    c. Minor Grading Certification Form PDS #073 (2 copies)

4. **Rough grading approval** required from PDS Land Development and DPW Private Development Construction Inspection. Provide the following documentation:
    a. DPW Grading Inspection Results
    b. Compaction Report (2 copies). Compaction reports more than 5 years old shall include an update letter by a California-licensed civil engineer.

5. **Compaction report** required (2 copies). Compaction reports more than 5 years old shall include an update letter by a California-licensed civil engineer.

6. Note on cover sheet or plot plan: "All proposed buildings, structures, additions, modifications to buildings/structures must comply with the approved location, as shown on the County approved Plot Plan. At the discretion of the County, the property owner may be required to provide proof of current placement of each on the parcel. This may include a stamped and signed **setback certificate** prepared by a California licensed surveyor or civil engineer. (County Building Code 91.1.107.2)"

7. *Note on cover sheet or plot plan:* **“Per Site Inspection, compaction report required at first inspection”**

8. Note on cover sheet or plot plan: “Per LD pre-review form, This project gains access from a County maintained road and an **application** for a **Right of Way (ROW) permit** was created prior to the issuance of the building permit. Begin processing the ROW **permit** 8 weeks prior to anticipated Final Inspection Approval**.** Coordinate with the land development counter at **rowpermitcounter@sdcounty.ca.gov**.
    Applicant Signature: _____"

9. Completely fill out a **stormwater INTAKE form** (1 copy)
    a. Project identification information and applicant’s signature
    b. Total new/replaced impervious area
    c. Total existing impervious area
    d. Total area disturbed by the project
    e. 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)
    f. Project type determination: Standard Project or Priority Development Project

10. Provide on stormwater Best Management Practices (BMP) plan or plot plan **impervious surface area information** per the following:
    a. Dimensions of all **impervious** elements – including building roofs, driveways, paved walkways, patios, patio covers, and decks – to enable calculation and verification of the surface area of each element

b. Distinguish between new/replaced **impervious** surface area and existing **impervious** surface area
c. **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)
d. Provide table indicating surface area of each constructed **pervious** element (see PDS #272 for guidance)

e. 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."

11. Indicate on stormwater Best Management Practices (BMP) plan or plot plan the location and square footage of land **area disturbed**, and **coordinate** with total entered on County of San Diego Storm Water **Intake Form**.

12. Project qualifies as a **Priority Development Project (PDP)** per the criteria below. For your convenience and information, the attached PDP compliance handout includes some options that would not require the signature of an engineer and that may possibly reduce the PDP Storm Water Quality Management Plan (SWQMP) requirements. Share this information with your stormwater engineer for consideration of options. Submittal of a PDP SWQMP to **PDS Land Development** is required as follows: ***A typical PDP SWQMP submittal package through PDS Land Development would require two copies of the site plan, two copies of the PDP SWQMP, a Financially Responsible Party application, and a financial deposit. All of these requirements have to be verified and/or determined at the PDS Land Development counter.***

    a. Project creating or replacing 10,000 square feet or more of impervious surface
    b. 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
    c. New or redeveloped hillside area with minimum 25% natural slope and creating or replacing 5,000 square feet or more of impervious surface
    d. New or redeveloped driveway and/or road creating or replacing 5,000 square feet or more of impervious surface

    e. 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
    f. Total land disturbance exceeds 1 acre (43,560 sf), and you must also obtain a Waste Discharger Identification Number (WDID) directly from the State Water Resources Board.
    g. County records indicate project site is PDP-NOT-SATISFIED: This parcel is part of a larger stormwater Priority Development Project (PDP) for multiple parcels, including this parcel. It is already established that the individual parcels are a PDP, such that the regular stormwater INTAKE and STANDARD forms do not apply in this case. The term "NOT-SATISFIED" means that, until now, there was not enough information to establish compliance of the individual parcels. Now, submittal of a parcel-specific PDP SWQMP is required per the description above.

13. Provide stormwater Best Management Practices (BMP) plan **coordinated** with Priority Development Project Storm Water Quality Management Plan (PDP SWQMP) approved by PDS Land Development covering proposed scope of work and including location and detailing of any Structural BMPs.
    a. If a PDP SWQMP under a related Land Development Referral (LDREFL) record type, **include the BMP Plan and Drainage Management Areas (DMA) plan** from the approved PDP SWQMP document stamped by PDS Land Development. This BMP Plan must show all structural BMP's, construction BMP's, and post-construction (source control and site design) BMP's, and must be coordinated with the rest of the approved PDP SWQMP document. The BMP Plan must already cover the proposed scope of work under this building permit.

    b. If any other stormwater record types, once available, you only need to bring a **photocopy of the PDP SWQMP cover sheet** that has the approval stamp and signature.

14. **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.

15. Completely fill out a **stormwater STANDARD form**. (2 copies) Pay extra attention to filling out all parts of Tables 1 and 3 of the form, including checking off appropriate boxes indicating the stormwater Best Management Practices (BMP) designations that apply, such as SD-G, SD-B, SD-D, SS-6, SS-8 as examples.

a. Project identification information and applicant's signature
b. Proposed erosion control BMPs per Table 3
c. Proposed energy dissipater (as needed where run-off is concentrated) per Table 3
d. Proposed sediment control BMPs per Table 3
e. Proposed BMPs preventing off-site tracking of sediment per Table 3
f. Proposed site management BMPs per Table 3
g. Proposed source control BMPs per Table 2
h. Proposed site design BMPs per Table 1

16. Provide a **stormwater Best Management Practices (BMP) Plan** with current legend.
    a. Indicating general direction of site drainage
    b. Identifying location of proposed erosion control BMPs per Standard Project SWQMP
    c. Identifying location of proposed energy dissipater per Standard Project SWQMP
    d. Identifying location of proposed sediment control BMPs per Standard Project SWQMP
    e. Identifying location of proposed BMPs preventing off-site tracking of sediment per Standard Project SWQMP
    f. Identifying location of proposed site management BMPs per Standard Project SWQMP
    g. Identifying location of proposed source control BMPs per Standard Project SWQMP
    h. Identifying location of proposed site design BMPs per Standard Project SWQMP
    i. Coordinate between the stormwater BMP's indicated in the STANDARD form (particularly those in Tables 1 and 3 of the STANDARD form), and those to be shown on the BMP Plan with current legend.

17. County records indicate an **existing Structural Best Management Practices (Structural BMP)** - e.g., bioretention areas, infiltration areas, biofiltration areas - on the project site. **Specify on BMP plan** the location of the installed Structural BMP(s) to confirm no encroachment by proposed construction.
    For more information on the installed Structural BMP(s), email BMP.Program@sdcounty.ca.gov or visit our website at https://www.sandiegocounty.gov/stormwater and then go to "Maintaining My Structural BMP".

D. DESIGN REQUIREMENTS

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

2. Provide **dwelling room dimensions** complying with the following:
    a. 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.
    b. 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):
    a. 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.
    b. Minimum 6-foot-8-inch height in bathrooms, toilet rooms, and laundry rooms
    c. 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:
    a. Habitable room
    b. Sleeping room

5. **Patio cover, or other exterior covered area:** If the presence of any exterior covered area restricts the adjacent building's natural **light** or **ventilation** per comments D.8 and D.9, or restricts its required **egress or emergency egress**, then the following "covered patio" parameters must be met: (County Building Code 92.2.RAPPH)
    a. Maximum one story. *(Based on prescriptive requirements if no calculations.)*
    b. Maximum 12-foot height. *(Based on prescriptive requirements if no calculations.)*
    c. 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.

d. Any solid exterior walls located below required patio cover openings shall be maximum 2 feet, 6 inches above floor.
e. Required patio cover openings may be enclosed only with insect screening or approved maximum 1/8-inch-thick translucent/transparent plastic.
f. Exterior building openings serving as emergency egress or rescue openings from sleeping rooms may open to patio cover only if all required open sides are fully unenclosed.

6. Specify the following **on floor plans** at each window, **or on window schedule** coordinated with floor plans:
   a. Width
   b. Height
   c. 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:
   a. Width
   b. Height
   c. Operation direction (e.g., swing path, slider, pocket)

8. Provide **at least one** of the following in each habitable room to achieve **adequate lighting**:
   a. Glazed window and/or door area to exterior of at least 8% of room's floor area (CRC R303.1)
   b. Artificial lighting specified on utility plans producing 6-foot-candle illumination over room area at 30 inches above floor (CRC R303.1)
   c. Unobstructed opening to adjacent room and complying with **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**:
   a. Openable window and/or door area to exterior of at least 4% of room's floor area (CRC R303.1)
   b. Mechanical ventilation providing outdoor air per CMC 403 specified on utility plans (CRC R303.1)
   c. 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:
    a. **Lighting**
       ○ Artificial lighting or exterior window with minimum 3 s.f. of glazing (CRC R303.3)
    b. **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:
    a. 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.
    b. 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.
       ○ 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.
    c. Glazing within 60 inches – vertically and horizontally – of showers, bathtubs, hot tubs, swimming pools, and saunas (CRC R308.4.5)

d. 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.

e. 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.

f. 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.

13. Requirements for newly constructed dwellings. Please note on plans the following **Aging-in-Place and Fall Prevention Design**:
    a. **Reinforcement for grab bars:** At least one bathroom on the entry level shall be provided with reinforcement installed in accordance with section R327.1.1. Reinforcement shall be minimum 2x8 solid lumber, located between 32" and 39-¼" above the finished floor flush with wall framing on both side walls of the fixture.

    b. **Electrical outlets, switch, and control heights** shall be located no more than 48" measured from the top of the outlet box and not less than 15" measured from the bottom of the outlet box above the finished floor (Section R327.1.2). Show dimension on elevation.
    c. **Doorbell buttons** shall not exceed 48" above exterior floor or landing. (Section R327.1.4). Show dimension on elevation.
    d. **Interior Doors:** Effective July 1, 2024, at least one bathroom and one bedroom on the entry level shall provide a doorway with a net clear opening of not less than 32 inches, measured with the door positioned at an angle of 90 degrees from the close position; or, in the case of a two- or three-story single family dwelling, on the second or third floor of the dwelling if a bathroom or bedroom is not located on the entry level.

E. EGRESS REQUIREMENTS

1. **Door operations and dimensions** shall comply with the following:
    a. 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.
    b. 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.

    c. 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**:
    a. Width not less than door width (County Building Code 92.2.R311.3)
    b. Minimum 36-inch depth (County Building Code 92.2.R311.3)

    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.
    c. 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 (County Building Code 92.2.R311.4, CRC R311.6):
    a. Egress through doors complying with items E.1 and E.2 (County Building Code 92.2.R311.1)

b. Minimum 36-inch hallway width (CRC R311.6)
c. 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)

d. Egress from any occupiable space does not require travel through garage (County Building Code 92.2.R311.1)

4. Provide door or window at sleeping rooms and basements for **emergency escape and rescue openings** complying with the items below. Also refer to CRC section R310 for additional requirements and exceptions for openings at basements and openings installed under decks/porches (CRC R310).
    a. Minimum 5.7-square-foot net clear opening area (CRC R310.2.1, CRC R310.3.1)
        Exception: Minimum 5.0-square-foot net clear opening area acceptable for grade-level or below-grade room
    b. Minimum 24-inch net clear opening height (CRC R310.2.1, CRC R310.3.1)
    c. Minimum 20-inch net clear opening width (CRC R310.2.1, CRC R310.3.1)
    d. Bottom of clear opening maximum 44 inches above floor (CRC R310.2.2)
    e. Opening directly to public way or yard/court opening to public way (CRC R310.1)
    f. Where sill height is below grade level, window well provided per CRC R310.2.3

5. Provide **stairway design** complying with the following on floor plans and building sections:
    a. 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).
    b. 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)
    c. 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.

    d. Maximum 12-foot-7-inch vertical rise on one stairway flight between floors or landings (CRC R311.7.3)
    e. Enclosed accessible space beneath stairs shall have walls, under-stair surface, and any soffits protected with 1/2-inch gypsum board on the enclosed side (CRC R302.7)

6. Provide stairway **risers, level treads, and nosings** complying with the following:
    a. Risers (CRC R311.7.5.1):
        ○ Maximum 7-3/4-inch riser height.
            Exception: Maximum 9-1/2-inch riser height acceptable at spiral stairways (CRC R311.7.10.1).

        ○ Vertical or sloped from underside of nosing maximum 30 degrees from vertical.
        ○ 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.
    b. Treads (CRC R311.7.5.2):
        ○ 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).
    c. Nosings (CRC R311.7.5.3):
        ○ 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 design** complying with the following on floor plans and building sections:
    a. 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.
    b. Maximum 12.5% slope where exterior doors not required for egress and interior doors (CRC R311.8.1)
    c. Minimum 36-inch-deep landings at the following (CRC R311.8.2):
        ○ Top of ramp
        ○ Bottom of ramp
        ○ Where door opens on to ramp

- Where ramp changes directions

8. Provide stairway and ramp **handrails** complying with the following:
    a. 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)
    b. 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)
    c. 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.
    d. 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:
    a. Stringer sizes
    b. Landing joists and beams
    c. Hangers

10 Provide **guard** complying with the following at any open-sided walking surface – including floors, 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, R301.5):
    a. Minimum 42-inches high above walking surface (CRC R312.1.2)
        Exception: Minimum 34-inch-high guard acceptable at open side of stairs
    b. 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 glass **guard systems**:
    a. Glass shall be tempered (CRC R308.4.4)
    b. Glass thickness (any structural glass designed with safety of factor of 4 considering CRC R301.5 guardrail loads)
    c. Member sizes designed for CRC R301.5 guardrail loads
    d. 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 alarms** – 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 alarms shall not be located within areas specified in CRC R314.3.4.
    a. Within each sleeping room
    b. Outside each separate sleeping area in immediate vicinity of bedrooms
    c. On each story of dwelling

2. Indicate **carbon monoxide alarms** – interconnected per CRC R315.1.7 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):
    a. Outside each separate sleeping area in immediate vicinity of bedrooms
    b. On each story of dwelling
    c. In any bedroom with a fuel-burning appliance located within that bedroom or its attached bathroom

3. **Dwellings and garages shall be separated** per the following:
    a. Minimum 1/2-inch gypsum board on garage side of **walls** separating the garage from dwelling. Extend gypsum board to **roof sheathing**, OR install additional 1/2-inch gypsum board on garage side of **ceilings** separating garage from attics, with minimum 1/2-inch gypsum board on walls/columns/posts supporting such ceilings. (County Building Code 92.2.R302.6)
    b. 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/columns/posts supporting such floors/ceilings (County Building Code 92.2.R302.6)
    c. Where garage located within 6 feet of dwelling on same lot, minimum 1/2-inch gypsum board on interior side of exterior walls (County Building Code 92.2.R302.6)
    d. 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: Openings need only be self-closing/self-latching where garage and dwelling both sprinklered.

e. Openings prohibited from garage into dwelling unit sleeping room (CRC R302.5.1)
f. 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)
g. Columns and posts require minimum 1/2-inch gypsum board due to support of floors/ceilings above. Provide minimum 5-foot high corner guards or metal jacketing for columns and posts subject to vehicular impact (CBC 704.9)

4. 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)

5. Exterior walls with **proximity to property lines, or to imaginary lines for fire separation distance**, shall comply with the following:

   Exception: Detached sheds, playhouses, and similar structures.

   a. 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)

   b. 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.

   c. Openings (CRC R302.1):
      - Prohibited within 3 feet of property line
      - Maximum 25% of wall area within 5 feet of property line (without sprinklers)

   d. 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)

6. Dwelling units in two-family dwellings, including **duplexes and attached accessory dwelling units**, shall be separated per the following:

   a. 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)

   b. 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)

   c. 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).

   d. Fire-rated penetrations (specify listing number and manufacturer of fire-stopping material) per CRC 302.4

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

G. ELECTRICAL, PLUMBING, AND MECHANICAL REQUIREMENTS

1. Note on cover sheet or plot plan whether or not **property is connected to electrical grid**. If not connected, provide complete plans for system generating electrical power. See PDS Technician to 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)**, whether proposed or existing. 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. Coordinate with your energy compliance documents. (CRC R303.9, CPC 505.1)

5. Gas-fired water heaters and furnaces **located in bedrooms, or in bathrooms <u>containing</u>** a shower, a tub, and/or a tub shower, shall comply with **<u>one of the following</u>** (CPC 505.1, CMC 904.1):
    a. Installed in dedicated closet with listed, gasketed, self-closing door with all combustion air from the outdoors

    b. 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 304.4):
    a. Minimum 22 inches by 30 inches or size of largest appliance component
    b. 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 **<u>all of the following</u>** (CMC 504.4.2.1):
    a. Minimum 4-inch diameter
    b. Maximum 14-foot combined horizontal and vertical length with two 90-degree elbows
    c. Two feet deducted from maximum length for each elbow in excess of two

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

9. Indicate on cover sheet or 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 (propane) 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 303.7.1)

11. Note on cover sheet or plot plan: "LPG (propane) piping assemblies in or beneath slabs within the structure to be approved by the Building Inspector." (CMC 303.7.1)

12. For each prefabricated fireplace, wood stove, or pellet stove:
    a. **Note on plans: "Gas fireplaces** are required to be listed and must be direct-vent sealed-combustion type (applies to new buildings only) (CalGreen 4.503.1)"
    b. **Note on plans: "Wood stoves and pellet stoves** are required to be listed and must 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)"
    c. **Note on plans: "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. Listed masonry type products shall comply with the requirements of the listing report. (CRC R1001)

H. ENERGY EFFICIENCY REQUIREMENTS

1. Provide complete energy efficiency compliance documentation demonstrating design compliance with the **2022 California Building Energy Efficiency Standards (CBEES)** for low-rise residential buildings. Design shall be coordinated with the building plans. (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:
    a. **Prescriptive** certificate of compliance (CBEES 10-103):
        ○ CF1R-NCB-01-E (applies to newly constructed buildings and additions greater than 1000 s.f.)

- ○ CF1R-ADD-01-E (applies to additions up to 1000 s.f.)
- ○ CF1R-ADD-02-E (may be used for additions up to 300 s.f. with no HERS verification required)
- ○ CF1R-ALT-01-E (applies to alterations)
- ○ CF1R-ALT-02-E (applies to space conditioning alterations with multiple systems contained in single dwelling unit)

b. **Performance** certificate of compliance (CBEES 10-103):
- ○ CF1R-PRF-01-E

4. Make energy efficiency **Mandatory Requirements Sheets** a permanent part of plans. Regardless of whether Prescriptive or Performance compliance approach is used, Mandatory requirements apply. (CBEES 100.0(e)(2)(D)(ii))

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

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

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

8. Proposed design as indicated on CF1R form shall comply with the following **glazing measures:**
   a. Mandatory per one of the following (CBEES 150.0(q)):
   - ○ Maximum U-factor (average for both frame and glass) = 0.45
     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
   - ○ Maximum U-factor (All glass, including skylights) = 0.45

   b. Prescriptive (CBEES 150.1(c)3, CBEES Table 150.1-A, CBEES 150.2(a)1, CBEES 150.2(b)1):
   - ○ Maximum U-factor = 0.30
     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
   - ○ Maximum Solar Heat Gain Coefficient (SHGC) = 0.23
     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
   - ○ Maximum total glazing area = 20% of conditioned floor area
     Exception: In additions greater than 700 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
   - ○ Maximum total west-facing glazing area = 5% of conditioned floor area
     Exception: In additions greater than 700 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

9. Proposed design as indicated on CF1R form shall comply with the following **roof decks, ceiling, and rafter roof insulation :**
   a. Mandatory (CBEES 150.0(a)):
   - ▪ Climate zones 10, 14, and 15: Roof decks maximum U-factor = 0.184 per applicable CBEES joint appendix table (installed at roof level for unvented attics)
   - ▪ 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

b. 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 both of the following**:

^ Minimum R-38 ceiling insulation between attic and conditioned space

^ Minimum R-19 insulation installed between roof rafters and in contact with roof deck: (with air space between roofing and roof deck)

○ If all space conditioning equipment and ducts located in conditioned space and confirmed by HERS verification:

▪ **Climate zone 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

10. Proposed design as indicated on CF1R form shall comply with the following **wall insulation measures:**

a. 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-20 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 = 0.071 per applicable CBEES joint appendix table between other 2x6 or larger framing assemblies

b. 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-21 between 2x6 wood studs acceptable in additions 700 s.f. or less per CBEES 150.2(a)1B

▪ Minimum R-15 between 2x4 wood studs at 16" o.c. **plus** minimum R-4 continuous

▪ Minimum R-25 between 2x6 wood studs at 16" o.c.

▪ 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-21 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-25 between 2x6 wood studs at 16" o.c. plus minimum R-4 continuous

▪ Maximum U-factor = 0.048 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 = 0.077 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

○ 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 = 0.077 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 = 0.077 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

11. Proposed design as indicated on CF1R form shall comply with the following **raised-floor insulation measures:**
    a. 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

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

13. The following **nominal framing depths** will be required in order to accommodate cavity insulation as indicated on CF1R form:
    a. Roof rafters: _____ nominal depth to accommodate _____ cavity insulation
    b. Stud walls: _____ nominal depth to accommodate _____ cavity insulation

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

15. *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)

16. Proposed design as indicated on CF1R form shall comply with the following **radiant barrier measures:**
    a. 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.18.
        ○ 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.

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

18. Proposed design as indicated on CF1R form shall comply with the following **cool roof measures:**
    a. 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 construction with a weight of at least 25 psf
        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
        ○ 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** in climate zones 10 and 14, no ducts in attic **or** minimum R-2 continuous insulation above or below roof deck.
            ▪ 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 zones 7, 10, 14, and 15** projects:
            ▪ Minimum thermal emittance = 0.75 **or** roofing with minimum SRI=75 calculated per CF1R-WKS-04-E worksheet
            ▪ Minimum **aged** solar reflectance = 0.63, **or** roofing with minimum SRI = 75 calculated per CF1R-WKS-04-E worksheet.

Exception: Using insulation per Aged Solar Reflectance Insulation Trade-Off Table (CBEES Table 150.2-B)

▪ Roofs in climate zones 10, 14, and 15 shall be insulated with R-14 continuous insulation or roof assembly U-factor of 0.039.

Exception: Existing roofs with R-10 or greater continuous insulation above or below the roof deck, or in climate zone 10, existing roofs with R-19 between the rafters and in contact with the roof deck, or in climate zone 10, existing roofs with an assembly U-factor of 0.056 or less or continuous insulation may be reduced to R-4 where conditions are met for mechanical equipment, parapet walls, and side walls per CBEES 150.2(b)1.I.ii.b

b. 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

19. 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"**:
    a. Cool Roof Rating Council (CRRC) product ID number
    b. Manufacturer brand
    c. Product model
    d. Product color

20. Proposed design as indicated on CF1R form shall comply with the following **space-conditioning equipment measures**:

    a. 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))

21. For projects with **whole-house fan** indicated on CF1R form, add a note or specification indicating the fan is listed.

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

    a. Mandatory (CBEES 150.0(m)):
       ○ Minimum R-6 insulation
       Exception: Ducts may not require insulation provided certain conditions are met.
       ○ **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.

23. Proposed design shall comply with the following **indoor air quality (IAQ) measures** applicable to dwelling units:
    a. Mandatory (CBEES 150.0(o), ASHRAE Standard 62.2):
       ○ *Note on the plans for whole building mechanical ventilation:* "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."
       Exception: Additions 1000 s.f. or less and alterations:

○ *Note on the plans for local mechanical exhaust:* "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. Ventilation rates to be per Section 150.0 (o) G.iii.b and Tables 150.0-E, 150-F, 150.0-G, and 150.0-H"

○ *Note on the plans:* "Doors between garage and dwelling shall be gasketed or made substantially airtight with weather stripping."

24. Proposed design as indicated on CF1R form shall comply with the following **water heating measures:**
    a. Mandatory (CBEES 110.3(b)):
        ○ Water heater efficiency: Minimum _____ Energy Factor (EF) per CBEES Residential Compliance Manual Table 5-4

25. For **Water Heating Systems, Heat Pump Space Heaters, Cooktop, or Clothes Dryers**, indicate on plans electric, gas, or propane for each.
    a. Mandatory (CBEES 150.0(n), (t), (u), and (v)):
        ○ Note on plans the following if using gas or propane **water heaters**:

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

A. If the designated space is within 3 feet from the water heater, then this space shall include the following:

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

ii. Both ends of the unused conductor shall be labeled with the word "spare" and be electrically isolated; and

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

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

B. If the designated space is more than 3 feet from the water heater, then this space shall include the following:

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

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

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

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

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

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

○ Note on plans the following if using gas or propane **heat pumps**:

Systems using gas or propane furnace to serve individual dwelling units shall include the following:

1. A dedicated 240 volt branch circuit wiring shall be installed within 3 feet from the furnace and accessible to the furnace with no obstructions. The branch circuit conductors shall be rated at 30 amps minimum. The blank cover shall be identified as '240V ready.' All electrical components shall be installed in accordance with the California Electrical Code.

2. The main electrical service panel shall have a reserved space to allow for the installation of a double pole circuit breaker for a future heat pump space heater installation. The reserved space shall be permanently marked as 'For Future 240V use.'

○ Note on plans the following if using gas or propane **cooktops**:

Systems using gas or propane cooktop to serve individual dwelling units shall include the following:
1. A dedicated 240 volt branch circuit wiring shall be installed within 3 feet from the cooktop and accessible to the cooktop with no obstructions. The branch circuit conductors shall be rated at 50 amps minimum. The blank cover shall be identified as '240V ready.' All electrical components shall be installed in accordance with the California Electrical Code.
2. The main electrical service panel shall have a reserved space to allow for the installation of a double pole circuit breaker for a future electric cooktop installation. The reserved space shall be permanently marked as 'For Future 240V use.'

○ Note on plans the following if using gas or propane **clothes dryers**:

Clothes dryer locations with gas or propane plumbing to serve individual dwelling units shall include the following:
1. A dedicated 240 volt branch circuit wiring shall be installed within 3 feet from the clothes dryer location and accessible to the clothes dryer location with no obstructions. The branch circuit conductors shall be rated at 30 amps minimum. The blank cover shall be identified as '240V ready.' All electrical components shall be installed in accordance with the California Electrical Code.
2. The main electrical service panel shall have a reserved space to allow for the installation of a double pole circuit breaker for a future electric clothes dryer installation. The reserved space shall be permanently marked as 'For Future 240V use.'

26. **Energy Storage Systems (ESS)** ready. Applies to all single-family residences that include one or two dwelling units.

a. Mandatory (CBEES 150.0(s)):
○ Note on plans the following:
Energy Storage Systems (ESS) shall meet the following:
1. At least one of the following shall be provided:
A. ESS ready interconnection equipment with a minimum backed-up capacity of 60 amps and a minimum of four ESS-supplied branch circuits, or
B. A dedicated raceway from the main service to a panelboard (subpanel) that supplies the branch circuits in Section 150.0(s)(2). All branch circuits are permitted to be supplied by the main service panel prior to the installation of an ESS. The trade size of the raceway shall be not less than one inch. The panelboard that supplies the branch circuits (subpanel) must be labeled “Subpanel shall include all backed-up load circuits.”
2. A minimum of four branch circuits shall be identified and have their source of supply collocated at a single panelboard suitable to be supplied by the ESS. At least one circuit shall supply the refrigerator, one lighting circuit shall be located near the primary egress, and at least one circuit shall supply a sleeping room receptacle outlet.
3. The main panelboard shall have a minimum busbar rating of 225 amps.
4. Sufficient space shall be reserved to allow future installation of a system isolation equipment/transfer switch within 3 feet of the main panelboard. Raceways shall be installed between the panelboard and the system isolation equipment/transfer switch location to allow the connection of backup power source.

27. Proposed design shall comply with the following **lighting measures**:
a. Mandatory (CBEES 150.0(k)):
○ Provide on utility plans a complete lighting fixture schedule
○ All installed luminaires shall meet the requirements in Table 150.0-A
○ Screw-based luminaires shall contain lamps that comply with Reference Joint Appendix JA8
○ All recessed downlight and enclosed luminaires shall be marked “JA8-2022-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 regardless of the lamp type
○ Bathrooms, garages, laundry rooms, and utility rooms: At least one luminaire in each space shall be controlled by a vacancy sensor
○ All luminaires requiring “JA8-2022” or “JA8-2022-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

28. **Solar PV Installation and Solar Capable Measures**: Newly constructed single-family dwellings (SFD), including Accessory Dwelling Units (ADUs) when required per energy compliance documentation, shall comply with **solar PV installation requirements** and **solar-capable measures**, per the following: (County Building Code 92.1.3120, County Building Code 92.2.R332):
    a. Prescriptive or performance:
        - ○ Solar PV Installation required per energy compliance documentation. Note on cover sheet or plot plan: "Provide Solar PV system under separate permit. System size to comply with energy compliance documentation." For exceptions, refer to CBEES Section 150.1(c)14 and Reference Appendix JA11.

    b. Mandatory:
        - ○ Indicate on floor plan or utility plan the location of minimum 200-amp electrical panel with 225 amp busing.

    c. Mandatory when PV system not required per energy compliance documentation or otherwise exempted:
        - ○ Dimension on roof plan designated solar zone area (when no photovoltaic system is provided due to exceptions) complying with all of the following:
            - ▪ Minimum 250 s.f. cumulative of areas that have no dimension less than 5-feet and are no less than 80 s.f. each for buildings with roof areas less than or equal to 10,000 s.f., and no less than 160 s.f. each for buildings with roof areas greater than 10,000 s.f.
                Exception: For exceptions, refer to section 110.10(b)1. The exceptions allow for some alternative efficiency measures.
            - ▪ Located between 90 and 300 degrees of true north (indicate north arrow on roof plan)
                Exception: Low-sloped (2:12 or less) roofs
            - ▪ No shading obstructions – including vents, chimneys, skylights, architectural features, roof-mounted equipment – located within solar zone
            - ▪ Any shading 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 provided **adjacent to – but not within – each solar zone** per the following (CRC R324.6, CBC 3111.2):
                Exception: Roofs with 2:12 slope or less
                Exception: Detached, nonhabitable accessory structures
                - At least two minimum 36-inch-wide pathways – each on a separate roof plane – with at least one pathway on the street or driveway side of roof
                - At least one minimum 36-inch-wide pathway on each roof plane with a photovoltaic array **or** on an adjacent roof plane **or** straddling the same and adjacent roof planes
                - Pathways extend from lowest roof edge to ridge
                - Pathways free of obstructions, such as vent pipes, conduit, or mechanical equipment
            - ▪ Adequate smoke ventilation setback at ridges **adjacent to – but not within – each solar zone** per the following (CRC R324.6, CBC 3111.2):
                Exception: Roofs with 2:12 slope or less
                Exception: Detached, nonhabitable accessory structures
                - **Sprinklered buildings with photovoltaic arrays occupying not more than 66% of total roof area in plan view**: Minimum 18-inch clear set back required on both sides of horizontal ridge
                - **Sprinklered buildings with photovoltaic arrays occupying more than 66% of total roof area in plan view:** Minimum 36-inch clear set back required on both sides of horizontal ridge
                - **Unsprinklered buildings with photovoltaic arrays occupying not more than 33% of total roof area in plan view:** Minimum 18-inch clear set back required on both sides of horizontal ridge
                - **Unsprinklered buildings with photovoltaic arrays occupying more than 33% of total roof area in plan view:** Minimum 36-inch clear set back required on both sides of horizontal ridge

▪ Adequate emergency escape and rescue opening pathway **adjacent to – but not within – each solar zone** per the following (CRC R324.6, CBC 3111.2):

- Minimum 36-inch-wide pathway from each required emergency escape and rescue opening.

○ *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. 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**.'"

29. Newly constructed garages with electrical service shall comply with the following **electric vehicle capable measures** (County Building Code 92.1.3120, 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 92.1.3120.4.1 through 92.1.3120.4.3 to accommodate future installation of an electric vehicle charging system.

a. Mandatory (CBEES 110.10):

○ *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**.'"

30. Specify on **cover sheet or plot plan** the **REQUIRED SPECIAL FEATURES** indicated on the CF1R form.

31. *Provide **table or summary** on **cover sheet or plot plan*** of the **HERS FEATURE SUMMARY** indicated on the CF1R form (CBEES 10-103).

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

33. *Provide **large, clear** note on **cover sheet or 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 shall 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)

34. *Provide **large, clear** note on **cover sheet or plot plan*** : "**Properly completed Certificates of Verification (CF3R forms) shall be provided to the inspector in the field for items requiring HERS verification. CF3R forms shall 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)

35. For projects utilizing the **Green Building Incentive Program**, comply with one of the following:
    a. Note on cover sheet or plot plan: "Recycled content to be used for compliance with Green Building Incentive Program."
    b. Plans demonstrate use of straw bale construction
    c. Note on cover sheet or plot plan: "Graywater system (permitted through the Department of Health and Quality) to be
    d. Energy efficiency documentation exceeds standards by 15%.

I. ROOF ASSEMBLY REQUIREMENTS

1. Specify roof material and underlayment.
2. Specify ICC, UL, or equivalent listing report number, manufacturer, and model 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)
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 **System 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 1101.12):

    a. Detail **primary** roof drainage per **one of the following**:
        - ○ Roof drains sized per CPC Table D 101.1 and located at low point of roof
        - ○ Scuppers sized per CPC Table D 101.1 and placed level with roof surface in adjacent walls or parapets

    b. Detail **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 roof drains with minimum 4-inch opening height and installed 2 inches above low point of roof in adjacent parapet walls

    c. Detail of **separate drain and overflow outlets** required.

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:
    a. 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**) (CRC R806.2)

            Exception: Net vent area of 1/300 attic area acceptable provided **BOTH of the following** conditions are met (as applicable):
            - • Install a Class I or Class II vapor retarder on the warm-in-winter side of ceiling In climate zone 14 and 16.
            - • Install between 40% and 50% of the required net free vent area a maximum of 3 feet below the ridge or the highest point of the space (measured vertically), and install the balance of the required ventilation in the bottom one-third of the attic space.

            Exception: Unvented attics complying with CRC R806.5.
        - ○ For projects with a whole-house fan, **provide calculation on roof plan** of Net free vent area using cfm value from CF1R form (assuming minimum 1 s.f. net free vent area per 750 cfm airflow). Applies to the isolated attic space where the whole-house fan is located. (CBEES 150.1(c)12)

    b. 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 definitions**.**
Exception: This section not applicable to greenhouses enclosed with translucent plastic or glass and located minimum 50 feet from other buildings and all property lines. (County Building Code 92.1.701A exceptions.)
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 50 feet from other buildings and all property lines. (County Building Code 92.1.701A exceptions.)

1. Indicate on plan **fuel modification zone** per the following (County Fire Code 96.1.4907.2):
    a. Dimension minimum 100-foot fuel modification zone from perimeter of each structure
    b. Fuel modification zone may not cross property lines or encroach into open space easements
    c. Where none of the sides of the structure allow 100-foot fuel modification zone, note on plot plan: “Entire lot is fuel modified.”

2. Note on plans: 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):

    a. Fire-stopping with approved materials (e.g., non-combustible birdstops for curved tile)
    b. One layer of 72 pound (32.4 kg) mineral-surfaced nonperforated cap sheet complying with ASTM D 3909 installed over the combustible decking.
    c. Otherwise constructed to prevent intrusion of flames and embers

3. Note on plans: **Exposed valley flashings** shall be constructed with not less than 0.019-inch (No. 26 galvanized sheet gage) corrosion-resistant metal installed over a minimum 36-inch-wide underlayment consisting of one layer of No. 72 ASTM cap sheet running the full length of the valley. (County Building Code 92.1.705A.3)

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

5. Note on plans: **Skylights/solar tubes** shall be tempered glass per listing report or modified subject to field inspection. (County Building Code 92.1.705A.5)

6. Note on plans: **All vents** (roof, foundation, combustion-air, etc.) shall resist the intrusion of flames and embers. (County Building Code 92.1.706A.1)

7. Specify vent manufacturer on plans: **Ventilation openings** for enclosed attics, eave soffit spaces, enclosed rafter spaces formed where ceilings are applied directly to the underside of roof rafters, underfloor ventilation openings, and vent openings in exterior walls and exterior doors shall be listed to ASTM E 2886 and comply with all of the following: (County Building code 92.1.706A.2, 92.1.707A5)
    a. There shall be no flaming ignition of the cotton material during the Ember Intrusion Test.
    b. There shall be no flaming ignition during the Integrity Test portion of the Flame Intrusion Test.
    c. The maximum temperature of the unexposed side of the vent shall not exceed 662 degrees Fahrenheit (350 degrees Celsius).

8. **Detail eaves, soffits, and fascias** either per guidance document PDS #198 or per exception if applicable. (County Building Code 92.1.706A.3)
    Eaves and soffits shall meet the requirements of SFM 12-7A-3 or shall be protected by noncombustible construction or approved exterior fire-retardant treated wood on the exposed underside.
    Exception: The building official may allow eaves and soffits to be constructed of different materials that provide the same or greater degree of protection against fire, as provided in guidance documents.
    Exception: Eave construction on an addition may match the existing structure provided that the square footage of the addition does not exceed 50% of the existing structure or 2,500 square feet, whichever is less. Any vents in these eaves, however, shall comply with comments J.6 and J.7 above as applicable.

9. Specify **exterior wall finish** complying with **<u>one of the following</u>** (County Building Code 92.1.707A.1):
    Exception: Around door and window openings, maximum 3/4-inch thick combustible trim with an underlayment of noncombustible construction or approved exterior fire-retardant treated wood.

Exception: Exterior wall covering on an addition may match the existing structure provided that the square footage of the addition does not exceed 50% of the existing structure or 2,500 square feet, whichever is less, unless the exterior wall covering is wood shingle or shake, in which case the exterior wall covering on the addition shall be fire-retardant, pressure-treated wood shingles or shakes. All other provisions of this section shall apply to the addition.

Exception: Repair or replacement of 50% or more of an existing exterior wall shall require **the entire wall** to meet all wildfire requirements.

a. Noncombustible material (stucco, cement fiber board, masonry, etc.)
   1. Stucco and cement plaster used as an exterior wall covering shall be minimum 7/8-inch thick.
   2. **Shake Material**: Noncombustible or fire-retardant-treated wood shake used as an exterior wall covering shall have an underlayment of minimum 1/2-inch fire-rated gypsum sheathing that is tightly butted, or taped and mudded, or an underlayment of other ignition-resistant material approved by the building official.

b. Approved exterior fire-retardant treated wood:
   1.Shake Material: Fire-retardant-treated wood shake used as an exterior wall covering shall have an underlayment of minimum 1/2-inch fire-rated gypsum sheathing that is tightly butted, or taped and mudded, or an underlayment of other ignition-resistant material approved by the building official.

c. Log wall construction (smallest horizontal dimension minimum 6 inches)

10. **Enclose underfloor areas** to the ground with exterior wall construction per item J.9 as applicable. (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, glazed openings within exterior garage doors, and exterior structural glass veneer complying with **one of the following** (County Building Code 92.1.708A.2):
    a. Multi-pane glazing with a **minimum of one tempered pane** meeting the requirements of Section 2406 Safety Glazing, and where any **glazing frames made of vinyl materials shall have** welded corners, metal reinforcement in interlock area, and be certified to AAMA/WDMA/CSA 101/I.S.2/A440.
    b. Glass block units
    c. Minimum 20-minute fire-resistance-rated (provide listing or test report)
    d. 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):
    a. Exterior surface or cladding of noncombustible or approved exterior fire-retardant treated wood.
    b. Solid-core wood minimum 1 -3/8 inches thick complying with the following:
       1. Stiles and rails minimum 1-3/8 inches thick.
       2. Raised panels minimum 1-1/4 inches thick.

       Exception: Exterior perimeter of raised panel may taper to a tongue minimum 3/8 inches thick.
    c. Minimum 20-minute fire-resistance-rated when tested per NFPA 252.
    d. Meet performance requirements of SFM Standard 12-7A-1

13. Note on plans: **Exterior garage doors** shall resist the intrusion of embers into the garage by limiting the size of any gaps at the bottom, sides, and top of the door to 1/8 inch or less using one of the following methods: (CRC R337.8.4, CBC 708A.4)
    a. Weather-stripping products with tensile strength and flammability rating per CBC 708A.4.
    b. Door overlaps onto jambs and headers.
    c. Garage door jambs and headers covered with metal flashing.

14. **Detail patio cover, carport, and trellis construction,** with all exposed elements 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
    a. Noncombustible material
    b. 1-hour fire-rated material
    c. Approved exterior fire-retardant treated wood
    d. Modified heavy timber (minimum 2x exterior grade tongue-and-groove sheathing, 4x6 rafters/beams, 6x6 posts/columns, 3x blocking)

15. **Detail deck, balcony, and exterior stair construction,** with all exposed elements 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.5 as applicable.

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

a. 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.5

- ○ Noncombustible material
- ○ 1-hour fire-rated material
- ○ Approved exterior fire-retardant treated wood
- ○ Modified heavy timber (minimum 4x8 joists/treads, 4x10 or 6x8 beams/stringers, 6x6 posts/columns, 4x stair treads with steel angles, 3x blocking)

b. Decking and tread material (any of the following):

- ○ Noncombustible material
- ○ 1-hour fire-rated material
- ○ Approved exterior fire-retardant treated wood
- ○ Approved alternative decking material meeting test requirements of County Building Code 92.1.709A.1.4

16. Note on plans: **Paper-faced insulation prohibited** in attics or other ventilated spaces. (County Building Code 92.1.711A.1)

17. Note 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

a. Noncombustible material
b. Approved exterior fire-retardant treated wood
c. Material meeting same fire-resistive standards as exterior walls of building

18. Note on plans: Paints, coatings, stains, or other surface treatments **are not acceptable means** of compliance with any wildfire-resistive construction requirement. (County Building Code 92.1.703.4)

K. VERTICAL DESIGN 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):
   a. Structure exceeds conventional framing limits of CRC R301
   b. Structure exceeds two stories
   c. Structural elements of steel, concrete, masonry, structural insulated panels, or alternative systems

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

4. Vertical design calculations appear to be inaccurate as follows:
   a.
   b.
   c.
   d.
   e.

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**:
    a. Rafters
    b. Ceiling joists
    c. Beams
    d. Floor joists
    e. Headers
    f. Posts
    g. 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 R802.5.2.
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). Identify on plans any balloon-framed walls.

L. LATERAL DESIGN REQUIREMENTS

1. Provide on framing plans labeled **grid lines** to identify location of each shear wall.
2. Specify on framing plans type and length of all **shear walls** and coordinate with shear-wall schedule.
3. Provide engineered lateral design per California Building Code. Building does not meet the following **bracing requirements** of CRC R602.10:
    a. 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
    a. Shear walls not constructed per acceptable bracing methods of CRC R602.10.4 and CRC R602.10.6
    b. 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
    c. 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)
    d. 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)
        Exception: Buildings meetings simplified wall bracing criteria of CRC R602.12
    e. Shear wall spacing within braced wall line(s) exceeds 20 feet per CRC R602.10.2.2
    f. Shear walls offset more than 4 feet from braced wall line(s) per CRC R602.10.1.2

g. Shear walls angled more 8 feet diagonally from braced wall line considered part of separate braced wall line

h. Shear walls not located at ends of each braced wall line or do not meet alternate provisions of CRC R602.10.2.2.1

i. Individual shear wall length and/or height does not comply with CRC Table R602.10.5

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

5. Lateral design calculations appear to be inaccurate as follows:
   a.
   b.
   c.
   d.
   e.

6. Vertical Shear Distribution: Lateral design at lower level to account for shear loading from above.

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

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

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

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

11. The aspect ratio of **shear walls and shear wall segments** shall not exceed the following (AF&PA SDPWS Table 4.3.4):

    a. 3.5:1 for wood structural panel shear walls with capacity reduced per SDPWS Table 4.3.4 for aspect ratios exceeding 2:1
    b. 2:1 for other shear wall sheathing types

12. Provide **shear-transfer** connection details for shear walls at roof, floors, and foundation. Cross-reference all shear-transfer details with the appropriate plans. (CRC R602.10.6)

13. 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.

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

15. Provide **shear-transfer** details at **openings in shear walls** (force transfer, perforated, etc.) (CBC 2305.1.1)

16. Provide **drag straps** on each side of bay windows, flush beams, or other locations where plate lines are interrupted.

17. Detail **ledger connection(s)** with lateral anchorage to primary structure at locations such as decks. (CRC R507.1, CRC R507.2)

18. Where shear wall **nail spacing 2 inches on center or less or shear wall forces exceed 350 pounds per foot**, all framing members receiving edge nailing from adjoining panel edges shall be minimum 3-inch nominal members or double 2-inch nominal members. (AF&PA SDPWS 4.3.7.1)

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

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

M. FOUNDATION DESIGN REQUIREMENTS

1. Provide a complete **foundation plan**.

2. **Foundation elements** (e.g., footings, slab thickness, reinforcement, moisture barrier, etc.) shall comply with all recommendations made in soils/compaction report and engineering calculations.

3. Foundation design calculations appear to be inaccurate as follows:
    a.
    b.
    c.
    d.
    e.

4. 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

5. Indicate on foundation/framing plan location and size of underfloor vents or elevated walking surface vents per the following (CRC R317.1.6, CRC R408.1):
    a. Minimum 1 foot of net vent area required for every 150 square feet of underfloor area (as demonstrated by calculation provided on foundation plan)
    b. At least one vent located within 3 feet of each corner of building

6. 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

7. 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)

8. Dimension the following **vertical clearances** for wood framing, sheathing, and siding at exterior walls **or** specify preservative-treated wood (CRC R317.1):
    a. Minimum 8 inches for wood sill plates above adjacent ground

        Exception: Preservative-treated wood sill plates required at slab-on-grade footings
    b. Minimum 6 inches for wood studs, sheathing, and siding above adjacent ground
    c. Minimum 2 inches for wood studs, sheathing, and siding above adjacent impervious surface

9. Specify preservative-treated wood posts and columns at the following locations (CRC R317.1):
    a. For posts in crawl spaces and supported by concrete piers or metal pedestals:

        Exception: Minimum 8 inches above adjacent ground
    b. For posts and columns exposed to weather

10. Indicate wall **sill plate anchorage** to foundations per required County of San Diego minimum construction specifications (PDS #081) (CRC R403.1.6, CRC R602.11.1, CBC 2308.12.9):
    a. 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
    b. Minimum 7-inch embedment into concrete or masonry
    c. Bolts spaced maximum 6 feet on center

        Exception: Maximum 4 feet on center for buildings more than two stories in height
    d. 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
    e. Bolts located in the middle third of the sill plate width
    f. Steel plate washers per the following provided between sill plate and nut of each anchor bolt:
        - ○ Minimum 3 inches by 3 inches by 0.229 inch
        - ○ 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

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

12. Provide a **step footing** detail. (CRC R602.11.2)

13. Unless otherwise specified by soils report, dimension on building sections or foundation details **minimum 7-foot horizontal distance** from bottom leading edge of footings face of slope (i.e., distance to daylight).

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

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

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

17. Provide coordinated details specifications for the following elements of **concrete or masonry wall design**:
    a. Maximum overall height
    b. Maximum height of any retained soil
    c. Maximum stem wall height
    d. Wall type (cantilevered or restrained)
    e Wall material (concrete or masonry) with required material strength
    f. Wall thickness
    g. Vertical and horizontal reinforcement:
        ○ Bar size and spacing
        ○ Bar position (edge or center) with dimension from face of wall
    h. Footing/key dimensions and reinforcement
    i. Means of restraint (restrained walls)
    j. Drainage system behind walls retaining soil
    k. 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 alarms and carbon monoxide alarms** shall be installed – battery-powered alarms acceptable – **in existing** construction in locations as follows:_____(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:
    a. Plate lines (detail on framing plans)
    b. 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.