



PERMIT NO.: K20210####

DESCRIPTION:
ADDRESS:

OWNER:
DESIGNER:

DATE: 01/06/2020
OCCUPANCY:
TYPE OF CONST:
REVIEW #:

Corrections listed below are to be made on plans before permit is issued. The approval of plans and specifications does not permit the violation of any section of the Building Code or other County Ordinance or State law. The following list does not necessarily include all errors and omissions.

PLAN CHECK COUNTER HOURS:

8:00 a.m. – 10:00 a.m. & 3:00 p.m. – 5:00 p.m.

MONDAY – FRIDAY

Plans have been checked in accordance with the 2019 California Building Code (CBC), the 2019 CalGreen Code, and the Kern County Code of Building Regulations (KCCBR).

To facilitate rechecking, please identify next to each listed item below, the sheet of the plans upon which the corrections have been made. It is the applicant's responsibility to assemble and provide a complete set of plans for final approval.

The approval of plans and specifications does not permit the violation of any section of the Building Code or other County Ordinance or State law. The following list does not necessarily include all errors and omissions.

***Note: Additional time and material fees will apply after third plan review.**

GENERAL PLAN REQUIREMENTS

1. The nonstructural provisions of the CRC are applicable to this structure, NOT the CBC.
2. If the structure does not meet the prescriptive requirements of the CRC, an engineered design in accordance with the CBC is required. The prescriptive provisions of CBC Section 2308 are not acceptable.
3. Please update all notes and code sections to reflect the 2019 California Residential Code and the 2019 California Building Code where appropriate.
4. Per CRC Section R301.2.2 Structures in Seismic Design Category E shall be designed in accordance with the CBC and are required to be approved and stamped by a licensed architect or engineer.
5. The submitted plans show three stories for the proposed residence. However, three-story residences are prohibited in the Alquist-Priolo Fault Rupture Hazard Zone where this structure is to be located. **A complete plan check cannot be performed until this issue is addressed. DIRT FLOOR BASEMENT OK, FINISHED OR CONCRETE BASEMENT FLOOR COUNTS AS A STORY.**
6. Per California Business and Professions Code 5536.1, all persons preparing or being in responsible control of plans, specifications, and instruments of service for others shall sign those plans, specifications, and instruments of service. **Please include on the plans the designer's information.**
7. Please submit **three (3) sets** of plans, calculations, energy documents, and any other required documentation. **(FOR MOUNTAINS AND OUTLYING AREAS, I.E. TEHACHAPI, TAFT ETC.)**
8. Please submit separate plans and calculations for all fences, trash enclosures, pools, and retaining walls.
9. Note: Per Kern County Development Standards, one drive approach is allowed per lot.
10. Submit fully dimensioned plot plans drawn to scale and indicate North relative to the site. Show the location,

A complete plan check will be performed when the listed items are addressed.

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size, and use of all structures on the lot. Properly identify property lines, lot dimensions, and distances between buildings. Show graphically (by arrows) drainage away from the building foundation.

11. Please specify on the plans the square footage of the different uses and provide a breakdown (i.e. dwelling unit, patio, porch, garage, etc.).
12. For newly constructed residential buildings, provide on the Cover Sheet number of solar panels and capacity of photovoltaic (solar) system in kilowatts (kW).
13. Per CRC Section R302.1 **for nonsprinklered buildings**, projections 2 to 5 feet from the property line require 1 hour fire resistance on the underside, heavy timber, or fire-retardant treated wood unless fireblocking is provided from the wall top plate to the underside of the roof sheathing. Walls with no separation to the property line must be 1 hour fire resistance rated in accordance with ASTM E119, UL 263, or Section 703.3 of the CBC with exposure from both sides. Openings in walls within 3 to 5 feet from the property line may be up to 25% maximum of the wall area. Openings in walls less than 3 feet are not allowed. Please see Table R302.1(1) for nonsprinklered buildings.
14. Per CRC Section R302.1 **for sprinklered buildings**, projections 2 to 3 feet from the property line require 1 hour fire resistance on the underside, heavy timber, or fire-retardant treated wood unless fireblocking is provided from the wall top plate to the underside of the roof sheathing. Walls less than 3 feet from the property line must be 1 hour fire resistance rated in accordance with ASTM E119, UL 263, or Section 703.3 of the CBC with exposure from the outside. Openings in walls less than 3 feet are not allowed. Please see Table R302.1(2) for sprinklered buildings.
15. Provide two sets of engineering calculations with 1st page “wet” stamped and signed by a California Registered Design Professional (RDP).
16. A California Registered Design Professional is required to “wet” stamp and sign all sets of the submitted plans.
17. All sheets of Standard Plans are required to be stamped and signed by a California licensed architect or engineer.
18. Per CRC Section R301.2.2.1, please provide complete and detailed calculations showing how the Seismic Design Category (SDC) was determined. Determining the SDC from Figure R301.2(2) is not acceptable. Please specify the SDC per Table R301.2.2.1.1 of the CRC.
19. Please specify on cover sheet of plans, the following structural information:
 - Floor and roof live load.
 - Ground snow load per Section 17.06.140 of the [Kern County Code of Building Regulations](#).
 - Ultimate design wind speed in miles per hour, **and** wind exposure.
 - Seismic design category (SDC) **and** site class.
 - Flood design data, if located in flood hazard area established in Chapter 17.48 of the [Kern County Code of Building Regulations](#).
20. Please specify, on plans, material specifications for the following:
 - Wood lumber species and grade
 - Steel specifications
 - Plywood grade and panel ratings
 - Glulam beam grade
 - Concrete compressive strength
 - Other materials specified on plans
21. A grading permit is required (please see the [Grading Guidelines](#) in the Documents Section for details). The following work is exempt from a grading permit, all other work requires a grading permit:
 - Building site excavation which:
 - i. Is less than 2 feet in depth; **and**
 - ii. Does not create a cut slope grader than 5 feet in height and steeper than 1½ horizontal to 1 vertical.
 - A fill not intended to support structures and which

- i. Does not obstruct a drainage course; and
 - ii. Fill is to be placed on natural grade that has a slope flatter than 5 horizontal to 1 vertical; and
 - iii. Is less than 3 feet in depth, and does not exceed 50 cubic yards on any single lot.
22. Provide a statement of special inspections on the cover sheet, prepared by the RDP, in accordance with CBC Sec. 1704.3.
 23. Specify, on plans, special inspections per [Kern County Code of Building Regulations](#) (located in the Forms section, at the bottom of the webpage, under the Building Tab) Section 17.08.470 and CBC Sections 1705.5, 1705.11.1, and 1705.12.2 "Periodic special inspection is required for nailing, bolting, anchoring and other fastening of components within the seismic-force-resisting system, including wood shear walls, wood diaphragms, drag truss, braces, shear panels and hold-downs". In addition, special inspection is required for high load diaphragms and wood trusses spaced more than 60'. Where the fastener spacing of the sheathing is more than 4" O/C **AND** the structure is less than 3,000 sq. ft., special inspection is not required. **ONE AND TWO FAMILY DWELLINGS ONLY.**
 24. Submit a [written statement of responsibility from the contractor](#) (can be found under the Special Inspection Tab in the Forms section) to the building official and owner prior to issuance of the building permit in accordance with CBC Sec. 1704.4. If the contractor(s) is unknown prior to permit issuance, a statement shall be provided by the permit applicant on [the form provided by this department](#) (also found in same Tab). The contractor's statement shall be provided to the building official prior to commencement of work on the main wind or seismic force resisting system or components.
 25. Two kitchens are not allowed in a single family residence. Detached and attached living quarters are allowed but must conform to the definition of "guest quarters". Per the [Kern County Zoning Ordinance](#) section 19.04.323:

"Guest quarters' means an attached or detached living area which may be physically separated from the primary dwelling and is not intended to be utilized as a separate dwelling. Guest quarters shall not exceed 75 percent of the net square footage of the habitable area of the primary dwelling and, except for a sink, shall contain no kitchen facilities. Except for air conditioning and heating, including water heaters, no gas lines or 220 electrical outlets shall be provided. Full size refrigerators and gas or electric cooking ranges, and spaces designed for this purpose, shall be prohibited."
 26. Per Kern County Building Inspection Division policy, standard plans are not permitted to have hand-written corrections. Any modifications require a new set of prints. Please run new prints wherever hand-written comments are found.
 27. Due to the number and/or complexity of corrections required before approval, make corrections to originals and run new prints.

FOUNDATION REQUIREMENTS

Note: Where footings are located adjacent to a slope steeper than 1:3 (1 vertical to 3 horizontal), either at the top or the bottom, special clearances between the building and the sloping surfaces are required. Please provide clearances to ensure compliance with CRC Section R403.1.7 for protection against slope drainage, erosion and shallow failures.

1. Per the 2019 Kern County Code of Building Regulations Section 17.06.200, provide a minimum 2% slope away from building foundations a minimum of 10 feet or to an approved drainage discharge.
2. The maximum *prescriptive* value for allowable soil bearing pressure is 1500 psf if a soils investigation is not provided. Please provide a soils report for higher values or reduce the value used for allowable foundation pressure in the design calculations.
3. Per CRC Section R404.1.3.3.1, 3,000 psi concrete is required for basement and foundation walls in SDC D₀, D₁ and D₂. **(FOUNDATION WALLS ARE NOT SLAB ON GRADE FOOTINGS)**
4. Per CRC Section R403.1.6.1 and R602.11.1 / CBC 2308.3.1.1, 3"x3"x.229" steel plate washers are required on all anchor bolts in a braced wall line.
5. Add note on foundation plan: All hold downs must be tied in place prior to foundation inspection.
6. Per CRC Section R406, show how foundation walls enclosing interior spaces below grade are to be dampproofed or waterproofed.
7. Per CRC Section R317.1, wood framing members that rest on exterior foundation walls and are less than 8" from exposed earth shall be pressure treated

8. Per CRC Section R317.1, specify on the typical footing detail treated wood or naturally durable wood for framing in contact with concrete or masonry that is in direct contact with earth.
9. Per CRC Section R317.1, wood structural members supporting moisture-permeable floors or roofs that are exposed to the weather (e.g. balcony), such as concrete or masonry slabs, unless separated from such floors or roofs by an impervious moisture barrier. This barrier shall provide positive drainage of water that infiltrates the moisture-permeable floor topping.
10. Per CRC Section R317.1.2, wood embedded in concrete that is in direct contact with earth, or embedded in concrete that is exposed to the weather, or in direct contact with earth, shall be preservative treated wood
11. Per CRC Section R403.1.3 and the [Kern County Code of Building Regulations](#), all continuous footings shall have a minimum of one #4 bar at top and bottom or a single #5 bar in the middle third of the footing.
12. Per [Kern County Code of Building Regulations](#), structural plain concrete members are not permitted in Kern County except in certain circumstances. Please revise.
13. When under-floor clearances are required, the under-floor area shall be accessible through a minimum 18"x24" floor opening, or a minimum 16"x24" perimeter wall opening. Per CRC Section R408.4, all under-floor access openings shall be effectively screened or covered where the access opening opens to the exterior of the building.
14. Provide under floor ventilation per CRC Section R408. The minimum net area of ventilation openings shall not be less than 1 square foot for each 150 square feet of under-floor space area, unless the ground surface is covered by a Class 1 vapor retarder material. When a Class 1 vapor retarder material is used, the minimum net area of ventilation openings shall not be less than 1 square foot for each 1,500 square feet of under-floor space area. In either case, one such ventilation opening shall be located within 3 feet of each corner of the building. All under floor openings shall be covered as per CRC Section R408.2. Please show location and size of all vents on plans.
15. Show all pier sizes on the plans.
16. Specify maximum height of stem walls. Stem walls with pour joints shall be provided with #4 vertical rebar at 48" maximum spacing per CRC Section R403.1.3.1.
17. Specify maximum height of cripple wall. Cripple walls exceeding 4 feet in height shall be considered a story for purposes of stud sizing requirements per CRC Section R602.9.
18. Cripple wall bracing shall be in accordance with CRC Section R602.10.10.
19. Provide a step footing detail where slope exceeds 1:10 per CRC Section R403.1.5.
20. A 6-mil vapor retarder is required under all slabs in heated buildings per CRC Section R506.2.3, and in attached unheated accessory structures, including garages, per [Kern County Code of Building Regulations](#) Section 17.06.261.
21. When a vapor retarder is required, a 4 inch thick capillary break shall be installed per CALGreen Chapter 4, Division 4.5. The vapor retarder shall be in direct contact with the concrete.
22. Dimension all exterior and bearing wall foundations.
23. Provide adequate footings under all bearing walls.
24. Show size, embedment, and location of all anchor bolts, washers and hold downs on foundation plan.
25. Per CRC Section R403.1.6, Foundation anchorage shall be located in the middle third of the width of the sill plate.
26. Per CBC Section 2308.3.1.2, 5/8-inch diameter anchor bolts are required in Seismic Design Category E.
27. Provide designs and details for caissons and grade beams.
28. Special inspection is required for post-tensioned foundations. Specify prominently on the foundation plan.
29. Per Simpson specifications for HDU hold downs, the *designer* must calculate and specify the anchor bolt type, length, and embedment for the HDU when not using the standard SSTB bolts. Please specify the SSTB bolts per the Simpson catalog listing for the HDU size on the plans, OR submit calculations and specifications for alternate anchorage type, length, and embedment. **SSTB BOLTS ARE FOR HOLD DOWN ANCHORS ONLY. TYPICAL SILL BOLTS ARE COMMON J-BOLTS.**

FRAMING REQUIREMENTS

1. Per CRC Section R301.3, the story height is limited to 11 feet 7 inches (measured from top of finished floor to top of finished floor or ceiling joist) when utilizing the prescriptive provisions of the CRC.
2. Provide a complete roof-framing plan showing roof rafters, ceiling joists, trusses, bearing walls, purlins, collar ties, headers, posts, and beams.
3. On the roof plan, specify grade, size, and nailing for the roof sheathing and indicate if blocking is required.
4. Per CRC Table R602.3(3) / CBC Table 2304.6.1, minimum nominal panel thickness of 7/16" wood structural panel exterior wall sheathing with 8d nailing shall be used in areas subject to a 115 mph or greater ultimate wind speed and exposure C if using a stud spacing greater than 16 inches on center.
5. Please provide a complete floor-framing plan showing floor joists, bearing walls, posts, and beams.
6. On the floor framing plan, specify the grade, size, and fastening for the floor sheathing and indicate if blocking is required.
7. In seismic design category D, E, or F, where the design shear value exceeds 350 pounds per linear foot, framing members receiving edge nailing from abutting panels shall not be less than 3" nominal members per CBC Table 2306.3(1), footnote g.
8. Provide a typical full-height framing cross section clearly showing top plate height, rafters, joists, beams, bearing walls, firestops, posts to foundation, footings, and foundation.
9. Detail all post-to-beam, all post-to-footing and post to girder connections to show positive connections.
10. Per CRC Section R502.4, bearing walls perpendicular to joists shall not be offset from supporting girders, walls, or partitions by more than the joist depth. Provide engineering calculations to support greater offsets.
11. Per CRC Section R602.9, cripple walls having a stud height of 14" or less shall be sheathed on at least one side with wood structural panel, or the cripple walls shall be of solid blocking.
12. Per CRC Section R602.7, specify all header sizes for openings in walls.
13. Per CRC Section R602.7.5, the number of full height 'king' studs required at each end of headers must agree with CRC Table R602.7.5.
14. Per CRC Section R802.4.4, if a roof pitch is less than 3:12 (25% slope), the ridge, hips, and valleys must be designed as vertical load-carrying members (beams).
15. Per CRC Section R802.3, the depth of the cut end of the supported rafters shall not be greater than that of all ridge, hip, and valley framing. Ridge boards shall not be less than 1-inch nominal thickness
16. Per CRC Section R802.4.3, the depth of the cut end of the supported rafters shall not be greater than that of all ridge, hip, and valley framing. Hips and valleys shall not be less than 2-inch nominal thickness.
17. Per CRC Section R802.5.2, provide rafter ties to rafters where ceiling joists are perpendicular to rafters.
18. Per CRC Section R802.5.2, where the ceiling joists are installed above the bottom third of the rafter height, the ridge shall be designed as a beam.
19. Per CRC Section R802.4.5, brace ridge, purlins, hips, and valleys to interior bearing walls at a slope not less than 45 degrees from horizontal. Braces shall not be spaced more than 4 feet on center and unbraced lengths of braces shall not exceed 8 feet.
20. Please show fastening schedule in conformance with CRC Table R602.3(1) or CBC Table 2304.10.1.
21. Per CRC Section R702.7, Class I or II vapor retarders are required on the interior side of frame walls in Climate Zones 14 and 16. See Title 24, Part 6, Figure 100.1-A – California Climate Zone and 2019 Energy Code Section 150.0(g). **IN CLIMATE ZONES 14 AND 16 A 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.**

Exceptions:

1. Basement walls.
2. Below grade portions of any wall.
3. Construction where moisture or its freezing will not damage the material.

22. Per CRC Table R602.3(5), bearing walls supporting two floors, a roof, and a ceiling must be framed with 3x4 or 2x6 studs.
23. Per CRC Table R602.3(5) for bearing walls, the maximum unbraced height of laterally unsupported 2x4, 3x4, and 2x6 studs is 10'-0". Please provide engineering calculations to support greater heights.
24. Per CRC Table R602.3(5) for nonbearing walls, the maximum unbraced height of laterally unsupported 2x4 and 3x4 studs is 14'-0". Please provide engineering calculations to support greater heights.
25. Per CRC Table R602.3(5) for nonbearing walls, the maximum unbraced height of laterally unsupported 2x6 studs is 20'-0. Please provide engineering calculations to support greater heights.
26. _____ truss manufacturer is currently not a Kern County approved truss manufacturer. Please submit a copy of _____'s most current quality assurance/quality control report to Kal Haglund at the Fax number listed below to become an approved truss manufacturer.
27. In the case of Standard Plans, truss drawings and calculations may not be deferred. Please submit two copies of truss calculations that have been reviewed and approved by the Engineer or Architect of Record. The truss submittal shall be from a Kern County approved truss manufacturer.
28. Provide two complete sets of truss drawings and calculations **OR** add the following note: ***Deferred truss submittal shall conform to CBC Section 107.3.4. Deferred items shall be submitted to the RDP in responsible charge who shall review & forward them to the building official with a notation and signature indicating that the items have been reviewed and found to be in general conformance to the design of the building, PRIOR TO INSTALLATION.***
29. Provide two complete sets of truss drawings and calculations with a notation and signature by the Engineer or Architect of Record indicating that the items have been reviewed and found to be in general conformance to the design of the building.
30. Although the truss submittal *may* be deferred, a schematic of the desired layout is required. Please indicate how the Registered Design Professional would like to achieve the roof configuration on the plans. Identify direction and orientation of all truss spans **for the entire roof**. Indicate drag trusses where required to carry entire wall line load across the diaphragm into shear walls below. Identify girder trusses where they are desired, and verify that both 2x framing @ 16" o.c. and continuous footings are sufficient to carry reaction loads. Where applicable, indicate additional truss support such as 4x posts on pad footings.
31. Provide a detail for roof trusses at nonbearing walls for perpendicular and parallel orientations. Specify 1/2" clearance between trusses and nonbearing walls (i.e. truss clips).
32. Please specify truss support for all girder trusses (i.e. 4x posts).
33. Please verify that all recommendations per the engineering calculations are reflected on the plans.
34. Show support for concentrated loads at...
35. Show support for ridge/hip/valley intersections.
36. Show truss or rafter uplift connectors to provide uplift resistance per CRC Table R802.11.
37. Show rafter tie connections per CRC Table R802.5.2 / CBC Table 2308.7.3.1 unless calculations are provided to justify otherwise.
38. Provide collar ties in upper third of attic space per CRC Section R802.4.6 and connected per Table R602.3(1).
39. Prescriptive design of decks shall be in accordance with CRC Section R507.4-R507.9.
40. Deck ledgers shall be 2-inch by 8-inch nominal preservative treated and connected to the band or rim joist with 1/2" diameter hot-dipped galvanized lag screws in accordance with CRC Table R507.9.1.3(1), OR shall be designed by an engineer or architect.
41. Per CRC Section R507.9.2 decks shall be attached to the main structure with not less than two hold-down tension devices (1500 lbs./ea.) spaced within 24-inches of each end of each deck per Figure R507.9.2(1), OR at four locations per deck with a minimum allowable stress design capacity of 750 lbs./ea. per Figure R507.9.2(2), OR shall be designed by an engineer or architect.

STRUCTURAL/LATERAL REQUIREMENTS

1. If the electrical panel is to be positioned within a shear wall, engineering calculations and details must be provided. Please add the following note on the shear wall plan: The electrical panel may not be located within a

shear wall.

2. Provide shear transfer detail and design for walls that do not stack up (two-story or split level).
3. Specify on plans the nail size and spacing for all shear walls/braced wall panels. Provide a shear wall schedule including grade and thickness of panels, anchorage, capacity, and other relevant information.
4. Indicate all walls that are balloon framed in rooms with sloped ceilings and in rooms with gabled walls.
5. For shear walls, provide shear transfer connection details at roof, floors, and foundation.
6. Please provide detail for shear transfer from roof to interior shear walls.
7. Shear walls may receive lateral loads from the opposite side of the structure from where they are located. Drag connections are required to transfer the full wall line load across the entire diaphragm (end to end). Provide design and detail for all drag connections (i.e. straps, fasteners, blocking, drag trusses, etc.).
8. Provide metal straps connecting to plate lines on each side of bay windows and other flush beams where the plate line is interrupted.
9. Please comply with all framing requirements as per CRC Chapter 6.
 - a. Stud sizing, height and maximum spacing shall be in accordance with CRC Table R602.3(5).
 - b. Provide calculations clearly showing the total length of wall bracing required per CRC Tables R602.10.3(1) and R602.10.3(3) and the applicable adjustment factors in Table R602.10.3(2) and R602.10.3(4) respectively.
 - c. All braced wall panels and braced wall lines are to be clearly identified on plans.
 - d. Per CRC Table R602.10.1.3, braced wall lines shall not be spaced more than 25 feet on center and shall be in accordance with CRC Section R602.10.1.
 - e. Per CRC Section R602.10.2.2, the distance between adjacent edges of braced wall panels along a braced wall line shall be no greater than 20 feet.
 - f. Per CRC Section R602.10.2.3, braced wall lines greater than 16 feet shall have a minimum of two braced wall panels.
 - g. Per CRC Table R602.10.5, for methods DWB, WSP, SFB, PBS, PCP, and HPS, and a plate height of 10' or less, each braced wall panel shall be at least 48 inches in length. Please see the CRC for exceptions and make it clear on the plans or calculations which exceptions are being utilized.
 - h. Braced wall panels must begin at the end of the braced wall line. Wall bracing of WSP may begin no more than 10 feet from the end of the braced wall line but must comply with either condition 4 or condition 5 of Figure R602.10.7.
 - i. Braced wall panels cannot be offset out of plane from the designated braced wall line more than 4 feet in order to be considered on the same braced wall line per CRC Section R602.10.1.2.
 - j. Braced wall panel connections shall be in accordance with CRC Section R602.10.8. Clearly show or note on the plans, and provide a connection detail.
 - k. Live loads shall not exceed 40 psf for floors.
 - l. Show a typical continuous footing beneath all braced wall panels unless the plan dimension does not exceed 50 feet, then continuous foundations are only required at the exterior walls per CRC Section R403.1.2.
10. Please maintain maximum diaphragm dimension ratios for shear walls per AF&PA SDPWS Table 4.2.4. Please maintain maximum shear wall aspect ratios per AF&PA SDPWS Table 4.3.4. For walls that do not initially meet the criteria, please indicate strapping at headers and sills to modify the bracing point of the wall – continuous sheathing is not enough. **Please also address SDPWS Section 4.3.5. The minimum length of a wall pier per SDPWS Section 4.3.5.2 is 2 feet.** Typically, a detail is provided showing straps to either side of the window header and to either side of the window sill plate and vertically at either side as well. Please provide an appropriate detail.
11. Per CRC Section R602.10.4.1 item #2, mixing intermittent bracing methods with continuously sheathed bracing methods is not permitted on the same floor (in SDC D and E). Please address.
12. Per CRC Section R602.10.4.1 item #3, mixed intermittent bracing methods are not permitted within the same

braced wall line (in SDC D and E). Please address.

13. Comply with CRC wall bracing requirements OR engineering calculations per the CBC must be provided.

FIRE, SAFETY AND EXIT REQUIREMENTS

1. Please address the following SRA requirements (Items 2-18 below) for the project located in a “Very-High Hazard Area.” All SRA requirements are listed below for reference. Some may not apply to this project. A pdf of the requirements can be found [here](#) in the Documents section.
2. Roof coverings must comply with the following requirements:
 - a. Very High Hazard Area - Class A, High Hazard Area – Class B, Moderate Hazard - Class C or approved noncombustible material (metal, concrete tile, etc.).
 - b. If the roof covering has a profile that creates a space between the roof covering and decking, the space shall be firestopped or have one layer of 72 pound mineral-surfaced nonperforated cap sheet installed over the combustible decking.
3. When installed, valley flashing shall be 26 gage galvanized sheet metal installed over a minimum 36-inch-wide underlayment of one layer of 72 pound mineral-surfaced nonperforated cap sheet.
4. Attic and foundation vents must comply with the following requirements:
 - a. Not permitted on the underside of eaves, soffits, cornices, or overhanging areas unless special vents comply with ASTM E2886 and are approved by the building official.
 - b. Protected with metal wire screens with 1/16” minimum and 1/8” maximum openings.
 - c. Underfloor vents shall be as close to the ground as possible.
5. Spark arresters on chimneys must be covered with a wire mesh (12 gage minimum) with ½” maximum openings
6. Underfloor areas and decks/appendages must comply with one of the following requirements. Heavy timber columns and beams do not require protection.
 - Enclosed to the ground with approved exterior finish, or
 - The exposed underfloor shall consist of noncombustible material, or ignition-resistant material, or
 - One layer of 5/8” type X gypsum sheathing behind an exterior covering on the underside of the floor,
 - Conform to SFM Standard 12-7A-3, or
 - Conform with ASTM E2957
 - Exception: Structural columns and beams, when constructed with sawn lumber or glue laminated wood with the smallest nominal dimension of 4 inches. Sawn or glue-laminated planks splined, tongue-and-grove, or set close together and well spiked.
7. Per CRC Section R337.7.4, open roof eaves must conform to one of the following requirements. Gable end overhangs are exempt.
 - Exposed roof deck shall be noncombustible material, or ignition-resistant material, or
 - One layer of 5/8” type X gypsum sheathing behind an exterior covering on the underside exterior of the roof deck.
 - Exposed rafter tails and blocking shall be minimum 2 inch nominal.
8. Per CRC Section R337.7.5, enclosed roof eaves, soffits, and exterior porch ceilings must conform to one of the following requirements. Gable end overhangs are exempt.
 - Enclosed with noncombustible material, or ignition-resistant material, or
 - One layer of 5/8” type X gypsum sheathing behind an exterior covering on the underside of the rafter tails or porch ceiling, or
 - Conform to SFM Standard 12-7A-3, or
 - Conform with ASTM E2957
9. Per CRC Section R337.7.3, exterior walls must conform to the one of the following requirements:

- Noncombustible material, or ignition resistant material, or
 - Sawn lumber or glue-laminated wood with the smallest nominal dimension of 4 inches. Sawn or glue-laminated planks splined, tongue-and-groove, or set close together and well spiked, or
 - Log wall construction (6 inch minimum thickness), or
 - “APA 303” 19/32” plywood siding with shiplap edges (T1-11), or
 - 1x6 nominal Redwood or Western Red Cedar (shiplap, tongue and groove, or rabbeted joint) installed over 7/16” wood structural panels, or
 - Conform to SFM Standard 12-7A-1, or
 - Any material installed over one layer of 5/8” Type X gypsum sheathing.
10. Surface materials for decks, balconies, porches, and stairs must comply with of the following:
- Noncombustible material, or ignition resistant material, or
 - Exterior fire-retardant treated wood, or
 - Solid 2 inch nominal Redwood or Western Red Cedar, or
 - Conform to SFM Standard 12-7A-4A
11. Exterior windows and glazed openings in exterior doors and garage doors must conform with one of the following requirements:
- Multipanel glazing with at least one pane of tempered glass, or
 - Glass block units, or
 - Have a fire rating of at least 20 minutes, or
 - Conform to SFM Standard 12-7A-2
12. Skylights shall be protected by a noncombustible mesh screen where the dimensions of the opening in the screen shall not exceed 1/8 inch per R337.8.2.2
13. Exterior doors and garage doors must conform to one of the following:
- Stiles and rails not less than 1 3/8” thick and raised panels not less than 1 1/4” thick except the exterior perimeter may taper to a tongue not less than 3/8” thick, or
 - Noncombustible or ignition-resistant material, or
 - Have a fire-resistance rating of at least 20 minutes, or
 - Conform to SFM Standard 12-7A-1
14. Gutters and downspouts shall be provided with a means to prevent the accumulation of leaves and debris.
15. Detached accessory structures located within 50 feet of an applicable building must comply with the requirements listed herein.
16. A water tank must be supplied for fire protection. This tank shall have the following properties:
- a. Water tank with a minimum capacity of 3,500 gallons, and
 - b. Tank must be within 200 feet of the structure, and
 - c. Tank must have a 2 1/2” valved male outlet with fire hose threads (National Standard Thread) with an automatic fill device and level indicator, and
 - d. Fire vehicles must be able to drive to the hose connection on the tank, **OR**
 - i. Install a fire hydrant within 1,000 feet of the structure, and
 - ii. Minimum hydrant flow shall be 500 GPM at 20 PSIG
17. Alternatively, prove a fire department hydrant exists within 330 feet of the residence.
18. Driveway to the structure and any applicable water supply must have the following attributes:
- a. Minimum of 12 feet wide with minimum 15 feet of vertical clearance, and

- b. Maximum slope of 10%, *and*
 - c. Provide an approved turnaround when a dead-end driveway exceeds 150 feet
19. Address numbers shall be posted and visible from the street prior to construction.
 20. Please note that 4030 "sliders" (horizontal and single hung) do not meet the 5.7 square feet minimum net clear openable area requirements for egress per CRC Section R310.2.1 Please revise these windows in the sleeping rooms and/or basement areas.
 21. Per CRC Section R310 egress requirements, sleeping rooms, habitable attics and basements shall have at least one operable window or door which shall open directly onto a public street, public alley, yard, or exit court. The egress openings shall fulfill all of the following requirements:
 - a. Minimum 5.7 square feet of net clear openable area (except grade floor openings may be 5 square feet).
 - b. Minimum 24" net clear openable height
 - c. Minimum 20" net clear openable width
 - d. Bottom of the opening not more than 44" above the floor (windows only), except in replacement windows, see R310.2.5
 22. Per CRC Section R314 for new construction, graphically show on plans and specify permanently wired smoke alarms with battery backup. They are required in each sleeping room; on the ceiling or wall outside of each separate sleeping area in the immediate vicinity of bedrooms; and in each story with a dwelling unit including basement.
 23. Per CRC Section R315 for new construction where there is an attached garage or fuel burning appliance or fireplace, graphically show on plans and specify permanently wired carbon monoxide alarms with battery back-up and complying with UL 2075. They are required outside of each sleeping area in the immediate vicinity of bedrooms; and on each level of a dwelling unit, including basement; and in bedrooms or its attached bathroom where a fuel burning appliance is located.
 24. Per CRC Section R314.3.3 Smoke alarms and detectors must be a minimum of 20 feet from cooking appliance, 3 horizontal feet from bathroom door, 3 feet from air supply registers, and 3 feet from the tip of the blade of a ceiling fan.
 25. For existing buildings that undergo alterations/repair/additions, graphically show on plans and specify smoke alarms and carbon monoxide alarms and their interconnectivity as applicable per CRC Section(s) R314 and/or R315.
 26. Per CRC Section R315.5, where more than one carbon monoxide (CO) alarm is required to be installed within an individual dwelling unit in accordance with Section R315.3, the alarm devices shall be interconnected in such a manner that the activation of one alarm will activate all of the alarms in the individual dwelling unit. Physical interconnection of CO alarms shall not be required where listed wireless alarms are installed and all alarms sound upon activation of one alarm.
 27. Per CRC Section R312, graphically show 42" high protective railings for porches, balconies, and open sides of landings. Specify maximum opening between railings as required.
 28. Per CRC Section R302.11, provide horizontal firestops at 10'-0" maximum intervals, and vertical at ceiling and floor levels and elsewhere as required.
 29. Per CRC Section R311.3, specify landings at all doors. The landing shall be at least as wide as the door and a minimum of 36" in length.
 30. Per CRC Section 311.8, Ramps serving the egress door shall have a slope of not more than 1:12. All other ramps shall have a maximum slope of 1:8.
 31. Per CRC Section R311.3.1, the landing on each side of the required egress door shall not be more than 1½ inches lower than the top of the threshold, except the exterior landing shall not be more than 7¾ inches below the threshold provided the door does not swing over the landing.
 32. Per CRC Section R311.3.2, the landing on each side of doors other than the required egress door shall not be more than 7 ¾ inches below the threshold, except a landing is not required where a stairway of two or fewer risers is located at the exterior side of the door, and the door does not swing over the stairway.
 33. Per CRC Section R311.7, provide stair and landing details reflecting the following:

- a. The minimum clear width is 36" at all points above the handrail height.
 - b. The minimum headroom is 6'-8" (except spiral =78")
 - c. The rise is to be 7.75" maximum.
 - d. The run is to be at least 10".
 - e. The maximum vertical rise for a flight of stairs is 151 inches between levels or landings.
 - f. The run for winding stairs is to be at least 6" at the narrowest, and 10" at a point 12" from the narrowest.
 - g. The minimum landing depth must equal or exceed the stair width.
 - h. The handrails shall be between 34" and 38" above landings and the nosing of treads, CRC Section R311.7.8.1.
 - i. Structural details are required for top-of-stairway connections (hangers, blocking, fasteners, etc.)
 - j. Structural details are required for landing connections (hangers, blocking, fasteners, etc.)
 - k. Structural details are required for bottom-of-stairway connections (sill plate, fasteners, etc.)
 - l. Stairways within dwelling units shall have an illumination level on tread runs of not less than 1 foot-candle (11 Lux), with a wall switch at each floor level where the stairway has six or more risers, CRC Section R303.7.
 - m. Exterior stairways shall be provided with an artificial light source located at the top landing. If providing access to a basement from the outdoor grade level, an artificial light source shall be located at the bottom landing of the stairway.
 - n. Open risers are not permitted if greater than 30-inch above the floor or grade below unless the opening is small enough to prevent the passage of a 4-inch diameter sphere.
34. Per CRC Sections R311.7.11 and R311.7.12, provide alternating tread devices and ships ladders details reflecting the following:
- a. Neither ladder is permitted as a means of egress. Exception(s) must comply with both of the following:
 - i. Alternating tread devices or ships ladders are allowed to be used as an element of a means of egress for lots, mezzanines and similar areas of 200 gross square feet or less
 - ii. Where such devices do not provide exclusive access to a kitchen or bathroom.
 - b. The minimum clear width is 20" at and below the handrails for both types of ladders.
 - c. The rise is to be 9.5" maximum for both ladder types.
 - d. Alternating tread devices shall have a tread depth of not less than 5 inches, a projected tread depth of not less than 8.5 inches, and a tread width of not less than 7 inches.
 - e. Ships ladders shall have a tread depth of not less than 5 inches. The tread shall be projected such that the total of the tread depth plus the nosing projection is not less than 8.5 inches.
 - f. Alternating tread devices shall result in an angle of ascent from horizontal between 50 and 70 degrees.
 - g. The handrail height is to be uniform and not less than 30" and not more than 34" for both ladder types.
35. Per CRC Sections R311.7.8, provide handrails details with the following:
- a. The handrail projection shall not project more than 4 ½" on either side of the stairway, except in the following case:
 - b. Where nosing of landings, floors or passing flights project into the stairway reducing the clearance at passing handrails, handrails shall project not more than 6 ½" into the stairway, provided that the stair width and handrail clearance are not reduce to less than that required.
 - c. Handrails adjacent to a wall shall have a space of not less than 1 ½" between the wall and the handrails.
 - d. Handrails shall be continuous for the full length of the flight, form a point directly above the top riser of the flight to a point directly above the lowest riser of the flight. Handrail ends shall be returned or shall terminate in newel posts or safety terminals.
36. Per CRC Section R311.7.10.1, spiral stairways shall have identical treads with a 6 ¾" minimum clear tread

depth at the walkline. The walkline radius shall not be greater than 24 ½". The minimum stairway width shall be 26". Maximum rise shall be 9½" and 6'-6" minimum headroom.

37. Per CRC Section R302.7, specify ½-inch gypsum board to protect walls and soffits beneath stairs where enclosed usable space occurs below.
38. Per CRC Section R302.13 floor assemblies not required elsewhere in this code to be fire rated shall be provided with ½-inch gypsum wallboard membrane, 5/8-inch wood structural panel membrane on the *underside* of the floor framing member.
39. Per CRC Section R325, Mezzanines shall have a clear height above and below of not less than 7 feet, an aggregate area of not more than one-third of the floor area of the room in which it is located, provide a means of egress which complies with CRC Section R311, and be open and unobstructed to the room in which they are located. Exceptions to the aggregate area limitation, equipped with a fire sprinkler system in accordance with Section P2904, must meet the following:
 - a. Except for enclosed closets and bathrooms, the mezzanine is open to the room in which such mezzanine is located.
 - b. The opening to the room is unobstructed except for walls not more than 42 inches in height, columns and posts.
 - c. The exceptions to Section R325.5 ("Openness") are not applied.
40. Per CRC Section R807.1, graphically show a minimum 22"x30" rough attic access opening with 30" clear headroom clearance. For access to attic space other than above the garage, the attic access must be located within the residence.
41. Per CRC Section R308, safety glazing (tempered glass) is required for windows that are within 60" above the walking surface and either within 24" doors when within the same plane or less than 180 degrees from the plane of the door in a closed position and within 24" of the hinge of an in-swinging door. Also, specify safety glazing for doors and enclosures of hot tubs, whirlpools, saunas, steam rooms, bathtubs, and showers where the bottom exposed edge of the glazing is less than 60" above and within 60" measured horizontally in a straight line to a standing surface and drain inlet. (Note: see exceptions).

CODE REQUIREMENTS

1. Per CRC Section R313, an automatic fire sprinkler system shall be installed in every new one- and two-family dwelling unit. Please provide proof of permit from the fire department. **IF PART OF A STANDARD PLAN FIRE REQUESTS A MIRRORED ELECTRICAL PLAN FOR MIRRORED FLOOR PLANS TO MORE EASILY CHECK COMPLIANCE DURING INSPECTION. PLEASE PROVIDE. FIRE SPRINKLERS NOT REQUIRED FOR SECONDARY UNITS MEETING THE REQUIREMENTS OF [AB 2299](#). [REF]**
2. Per CRC Section R312.2.1, in dwelling units, where the top of the sill of an operable window opening is located less than 24 inches above the finished floor and greater than 72 inches above the finished grade or surface below, fall protection is required. Please see the code for information regarding openings located within 24 inches of the finished floor.
3. Please specify how the windows are to open (i.e. slider, casement, single hung, etc.).
4. Please specify all door types (i.e. solid core, French, etc.).
5. Per CRC Section R304.2, no habitable room, except a kitchen, shall be less than 7'-0" in any horizontal dimension.
6. Per CRC Section R305, provide a minimum ceiling height of 7 feet for all habitable spaces and hallways. Bathrooms, toilet rooms, and laundry rooms must provide a minimum ceiling height of 6 feet 8 inches.
7. Per CRC Section R301.2.1.1.1, Sunrooms shall comply with AAMA/NPEA/NSA 2100 and shall be identified as one of five categories by the applicant, design professional, or the property owner or owner's agent in the construction documents.
8. Per CRC Table R302.1(1), provide a minimum of 5 feet between the exterior wall of the residence and the property line, or the exterior wall must be one-hour fire resistance rated construction with exposure from both sides. Please verify the distance to the property line. Openings are prohibited if less than 3 feet from property line. Openings are limited when located between 3 feet and 5 feet from the property line.
9. Per CRC Table R302.1(2), when the building is equipped with an automatic fire sprinkler system, provide a minimum separation of 3 feet between the exterior wall of the residence and the property line, or the exterior

wall must be one-hour fire resistance rated construction. Obtain Planning Department approval if less than 5 feet from property line. Please verify the distance to the property line. Openings are prohibited if less than 3 feet from property line.

10. Per CRC 302.2.1, each Townhouse shall be separated by two 1-hour fire-resistance-rated wall assemblies.
11. Per CRC Section R303.5, mechanical and gravity outdoor air intake openings shall be located a minimum of 10 feet from any hazardous or noxious contaminants, such as chimneys, vents, plumbing vents, streets, alleys, parking lots and loading docks.
12. Per CRC Section R303.1, provide an aggregate glazing area for all habitable rooms equal to at least 8% of the room floor area. Artificial light is allowed but calculations will be required.
13. Per CRC Section R303.2, walls between ___ and ___ shall be at least 50% open to meet light and/or ventilation requirements. The opening must be at least one-tenth of the floor area served but not less than 25 square feet.
14. Per CRC Section R303.1, natural ventilation shall be through operable exterior openings must be equal to at least 4% of the room floor area. Mechanical ventilation is allowed but calculations will be required.
15. Per CRC Section R304.1, habitable rooms, except kitchens, shall have a net floor area of not less than 70 sq. ft.
16. Per CRC Section R303.10, interior habitable spaces shall be provided with heating system capable of maintaining a minimum indoor temperature of 68° F at a point of 3 feet above floor and 2 feet from exterior walls.
17. Per CRC Section R302.3, show one-hour fire resistance rated construction separating the two-family dwelling units. Provide details of listed assembly and specify how openings and penetrations are to be protected.
18. Per CBC Section 1206, include requirements for walls, partitions, and floor/ceiling assemblies separating dwelling units, by showing a minimum sound insulation rating of STC=50 for common wall assemblies and reference a tested assembly by a recognized agency.
19. Per CRC Section R703.2, specify a minimum 15# felt, attached to the studs or sheathing, behind the exterior wall veneer. **NOT REQUIRED FOR DETACHED ACCESSORY BUILDINGS.**
20. Per CRC Section R806.2, the minimum net free venting area for attics is 1/150th of the area of the space ventilated. Please show attic ventilation calculations on plans (i.e. total area to be ventilated, typical eave vent and number of eave vents required, etc.).
21. Per CRC Section R806.2, the minimum net free venting area for attics may be reduced to 1/300th of the area of the space ventilated, provided that at least 40% but not more than 50% of the required area is located in the upper portion of the space to be ventilated at least 3 feet below the ridge or highest point of the space with the balance made up in the bottom one-third of attic space (e.g. provided by eave or cornice vents), **OR** in Climate Zones 14 and 16, a Class I or Class II vapor barrier is installed on the warm-in-winter side of the ceiling. Please show attic ventilation calculations on plans (i.e. total area to be ventilated, typical eave vent and number of eave vents required, etc.), AND indicate the general location of upper ventilation (i.e. dormer vents) on the roof plan.
22. Ventilation for Exterior Balconies and elevated walkway surfaces, per CRC Section R317.1.6, enclosed framing in surfaces that are exposed to rain, snow or drainage from irrigation shall be provided with opening that provide a net free cross-ventilation area not less than 1/150 of the area of each separate space.
23. Per CRC Section R703.7.2.1, specify a weep screed a minimum 4" above earth and 2" above paved areas.
24. Per CRC Section R703.7.2, stucco shall be applied with three coat applications where applied over metal or wire lath unless proven by manufacturer or ICC report.
25. Per CRC Section R702.4.2 and CRC Table R702.4.2, specify Glass mat gypsum backing panel (ASTM C1178), Fiber-reinforced gypsum panels (ASTM C1278), Nonasbestos fiber-cement backer board (ASTM C1288 or ISO 8336, Category C), or Nonasbestos fiber mat reinforced cementitious backer units (ASTM C1325) as a base for wall tiles in tub and shower areas.
26. Per CRC Section R806.3, provide a minimum of 1 inch of air space between the insulation and the roof sheathing at vents.

CALIFORNIA ENERGY CODE REQUIREMENTS

1. Please indicate how energy compliance will be met (prescriptive Package A or performance method). Energy requirements will be checked after this has been addressed.

2. Please provide a complete copy of the 2019 Low-Rise Residential Mandatory Measures Summary. A pdf copy can be found on the California Energy Commission website [here](#). A copy of this document is required to be attached to or included as part of the plans.
3. Please verify that what is graphically shown on the plans agrees with the items listed in the Low-Rise Residential Mandatory Measures Summary.
4. Package A may require continuous insulation (foam) on exterior walls and possibly a high-performance attic.
5. Completed CF-1R forms are to clearly show the compliance option chosen, be fully signed and made a permanent part of the plans.
6. Building orientation in compliance documents must be consistent with plot plan and floor plan.
7. When continuous insulation is to be installed per CEC requirements, please show a typical ICC approved one-coat stucco system. If a typical 7/8" three-coat stucco application is proposed, please use the performance method to verify the exclusion of continuous insulation.
8. Verify the fenestration surfaces values as it does not appear that the rough opening size for French doors was used. The energy model programs include a glazing obstruction factors inherent in the program to account for sashes, mullions, frames, etc. as found on the typical window and French door. The actual glazing area plus a 2" perimeter allowance can be input when the door in question is less than 50% glass. Please address.
9. The fenestration surfaces shown on the CF-1R form should coordinate with all the rough opening sizes for glazing at the perimeter of the structure. Please verify.
10. The CF-1R must be registered with a California approved HERS provider. Please see one of the following providers:
 - a. CalCerts (<https://www.CalCERTS.com/>)
 - b. CHEERS (<http://www.CHEERS.org>)
11. Please indicate the location of the water heater on the plans.
12. Please verify the number of water heaters and coordinate with the number shown on the plans.
13. Show wall, attic, ceiling, raised floor, and/or slab perimeter insulation per the energy documentation.
14. Please modify insulation shown on the plans to comply with the following table:

Framing Type	Maximum R-value Allowed for Framing				
	2x4	2x6	2x8	2x10	2x12
Roof Rafters	–	R-15	R-21	R-25	R-30
Ceiling Joists and Trusses w/bottom chord slope \leq 3:12	R-60	R-60	R-60	R-60	R-60
Wall Studs	R-15	R-21	R-25	R-30	R-38
Floor Joists	–	R-19	R-22	R-30	R-38

15. Please specify duct insulation R-value on the plans.
16. Equipment shall meet the applicable efficiency requirements in Table 110.2-A through 110.2-K.
17. Please see CEC Table 150.0-A for more information regarding the classification of high efficacy light sources.
18. Where the U-factor or SHGC of fenestration is unknown, please use the applicable default values in Table 110.6-A and 110.6-B.
19. Per Section 110.8(b), urea formaldehyde foam insulation may only be installed on the exterior side of walls (may not be installed in a framed cavity) and may only be installed if a 4-mil-thick plastic polyethylene vapor retarder or equivalent plastic sheathing vapor retarder is installed between the insulation and the interior space in all applications.
20. Electric-resistance water heaters are no longer permitted to meet the prescriptive requirements of the California Energy Code. Please specify alternative means or provide an energy performance analysis.
21. Per CEC Section 150.1(c)12, where a whole building ventilation system is required, one or more whole house fans (WHFs) shall be installed whose total air flow CFM is listed in the CEC Directory is at least 1.5 CFM/ft² of conditioned floor area and shall have at least 1 square foot of attic vent free area for each 750 CFM of rated

whole house fan air flow CFM. Provide homeowners who have WHFs with a one page "How to operate your whole house fan" informational sheet. **This is the WHOLE HOUSE FAN REQUIREMENT**

PHOTOVOLTAIC (SOLAR) REQUIREMENTS

1. Per Section 150.1(c)14 of the Energy Code, All low-rise residential buildings shall have a photovoltaic (PV) system meeting the minimum qualification requirements as specified in Joint Appendix JA11.
2. Photovoltaic (PV, otherwise known as Solar) Systems shall be designed and installed in accordance with Sections R324.3.1 through R324.7.1 and the California Electrical Code.
3. Equipment shall be listed per CRC Section R324.3.1.
 - a. Photovoltaic (Solar) panels and modules shall be listed and labeled in accordance with UL 1703.
 - b. Inverters shall be listed and labeled in accordance with UL 1741.
 - c. Systems connected to the utility grid shall use inverters listed for utility interaction.
4. Per CRC Section 324.4.1, rooftop-mounted photovoltaic systems shall be designed to structurally support the system and withstand applicable gravity loads in accordance with Chapter 3. The roof on which these systems are installed shall be designed and constructed to support the loads imposed by such systems in accordance with Chapter 8.
5. Per CRC Section 324.4.2, fire classification of rooftop-mounted photovoltaic systems shall have the same fire classification as the roof assembly required in Section R902.
6. Per CRC Section 324.4.3, roof penetrations shall be flashed and sealed in accordance with Chapter 9.
7. Per CRC Section R324.5, buildings that intend to utilize photovoltaic systems to also serve as roof coverings shall be designed and installed in accordance with Section R905. Photovoltaic shingles shall comply with Section R905.16. These systems shall also have a fire classification in accordance with Section R902.3.
8. Per CRC Section R324.6, roof access, pathways and setback requirements shall be provided in accordance with Sections R324.6.1 through R324.6.2.1. Access and minimum spacing shall be shown graphically to provide emergency access to the roof, to provide pathways to specific areas of the roof, provide for smoke ventilation opportunity areas, and to provide emergency egress from the roof.
9. Per CRC Section 324.6.1 and R324.6.2.2, the house or structure shall comply with this Section in regard to pathways. Provide details that comply with the following:
 - a. Not fewer than two pathways, on separate roof planes from lowest roof edge to ridge and each not less than 36 inches (914 mm) wide, shall be provided on all buildings. Not fewer than one pathway shall be provided on the street or driveway side of the roof.
 - b. For each roof plane with a photovoltaic array, a pathway not less than 36 inches wide (914 mm) shall be provided from the lowest roof edge to ridge on the same roof plane as the photovoltaic array, on an adjacent roof plane, or straddling the same and adjacent roof planes.
 - c. Pathways shall be over areas capable of supporting fire fighters accessing the roof.
 - d. Pathways shall be located in areas with minimal obstructions such as vent pipes, conduit, or mechanical equipment.
 - e. Panels and modules installed on dwellings shall not be placed on the portion of a roof that is below an emergency escape and rescue opening
10. For setbacks at the ridge, Per CRC Section R324.6.2, photovoltaic arrays occupying less than 33 percent of the plan view total roof area, not less than an 18-inch (457 mm) clear setback is required on both sides of a horizontal ridge. For photovoltaic arrays occupying more than 33 percent of the plan view total roof area, not less than a 36-inch (914 mm) clear setback is required on both sides of a horizontal ridge. If a building or home has an automatic sprinkler system installed, alternate setback(s) at ridge shall comply with one of the following:
 - a. For photovoltaic arrays occupying not more than 66 percent of the plan view total roof area, not less than an 18-inch (457 mm) clear setback is required on both sides of a horizontal ridge.
 - b. For photovoltaic arrays occupying more than 66 percent of the plan view total roof area, not less than a 36-inch (914 mm) clear setback is required on both sides of a horizontal ridge.
11. Per CRC Section R324.7, Ground-mounted photovoltaic systems shall be designed and installed in accordance with Section R301. Ground-mount photovoltaic (solar) systems shall also comply with the following:

- a. Per Section R324.7.1, such systems shall be subject to fire separation distance requirements determined by the enforcing agency.
 - b. Per Section R324.7.2, Ground mounted photovoltaic arrays shall comply with this section and the California Electrical Code. Setback requirements shall not apply to ground-mounted, free-standing photovoltaic arrays. A clear, brush-free area of 10 feet (3048 mm) shall be required for ground-mounted photovoltaic arrays.
 - c. Locations of DC conductors shall comply with CRC Section R324.7.3.
12. Plans shall provide PV (solar) system on site plan, all sections and details shall be included to comply with all the sections described in this checklist and as applicable per the 2019 California Electrical, Mechanical, Energy, Building and Residential Codes. Items required, but not limited to the following:
- a. Location of main service or utility disconnect
 - b. Total number of modules, number of modules per string, and the total number of strings
 - c. Make and model of inverter(s) and/or combiner box, if used
 - d. One-line diagram of PV (solar) system
 - e. Grounding/bonding, conductor type and size, conduit type and size and number of conductors in each conduit
 - f. Equipment data sheets including inverters, modules, AC and DC disconnects and combiners
 - g. Labeling of equipment as required by CEC Sections 690 and 705
 - h. Sheets in Plans in regard to PV systems are to be signed by an appropriately licensed contractor or registered design professional. All sheets shall include both a signature and contractor license number or registered design professional stamp.
13. Per the California Energy Commission (CEC) 2019 Building Energy Efficiency Standards, Subchapter 8, All low-rise residential buildings shall have a Solar (PV) system meeting the minimum capacity requirements, with annual electrical output equal to or greater than the dwelling's annual electrical usage as determined by Equation 150.1-C:

EQUATION 150.1-C ANNUAL PHOTOVOLTAIC ELECTRICAL OUTPUT

$$kW_{PV} = (CFA \times A)/1000 + (ND_{well} \times B)$$

- kW_{PV} = kWdc size of the PV system
- CFA = Conditioned floor area
- ND_{well} = Number of dwelling units
- A = Adjustment factor from Table 150.1-C
- B = Dwelling adjustment factor from Table 150.1-C

Table 150.1-C – CFA and Dwelling adjustment Factors (for Kern County)

Climate Zone	A – CFA	B – Dwelling Units
13	0.894	1.51
14	0.741	1.26
16	0.590	1.22

14. Per the CEC 2019 Building Energy Efficiency Standards, Subchapter 9, additions and alterations to existing low-rise residential buildings shall comply with the Section 150.2. Additions and alterations are not required to have photovoltaic systems installed.

LIGHTING REQUIREMENTS

- 1. Per the California Electrical Code Section 210.70(A)(1), at least one wall switch-controlled lighting outlet shall be installed in every habitable room, kitchen and bathroom.
- 2. Per the California Electrical Code Section 210.70(A)(2)(2), at least one wall switch-controlled lighting outlet shall be installed to provide illumination on the exterior side of outdoor entrances or exits with grade level access. A vehicle door in a garage shall not be considered as an outdoor entrance or exit.
- 3. Per CEC 150.0(k)1A, All luminaires shall be high-efficacy in accordance with CEC Table 150.0-A.
- 4. Per CEC 150.0(k)1B, The number of blank electrical boxes which are more than 5 feet above the finished floor shall be no greater than the number of bedrooms. The electrical boxes must be served by a dimmer, vacancy sensor, or fan speed control.
- 5. Per CEC 150.0(k)1C, Recessed downlights shall be insulation contact rated and shall not contain screw based sockets.

6. Per CEC 150.0(k)1H, Enclosed and recessed luminaires must contain JA8 elevated temperature compliant bulbs.
7. Per CEC 150.0(k)2B, Exhaust fans shall be switched separately from lighting.
8. Per CEC 150.0(k)2I, In bathrooms, garages, laundry rooms, and utility rooms, at least one luminaire must be controlled by a vacancy sensor.
9. Per CEC 150.0(k)2J, All JA8 Luminaires must be controlled by dimmer or vacancy sensor.
10. Per CEC 150.0(k)2K, Under cabinet lighting must be switched separately from other lighting.
11. Per CEC 150.0(k)3A, All outdoor lighting must be controlled by a manual on/off switch and also one of the following:
 - a. Photocell with motion sensor
 - b. Photocontrol and automatic time switch control
 - c. Astronomical time clock
 - d. Energy management control system
12. Per CEC 150.0(k)6A, **Graphically show** all lighting in the common areas of multifamily buildings as high efficacy lighting controlled by a manual-on occupant sensor.

MECHANICAL AND ELECTRICAL REQUIREMENTS

1. Per CMC Section 304.4, access shall be provided for mechanical equipment in the attic to allow for inspection, service, repair, and replacement without removing permanent construction – specify a minimum 22"x30" opening, provided the largest piece of equipment can be removed through the opening. Per Section 304.4.1, show the access no more than 20' from the equipment.
2. Per CMC Section 304.4.2, The passageway to mechanical equipment shall be unobstructed, and have solid flooring not less than 24" wide from the entrance opening to the appliance.
3. Per CMC Section 304.4.3, for attic-installed appliance, specify an equipment platform at least 30" in depth and width, and verify increased load capacity for the ceiling framing members (i.e. double joists/trusses under platform).
4. Per CMC Section 304.4.4, A permanent 120-volt receptacle outlet and lighting fixture shall be installed near the appliance with the switch controlling the lighting fixture located at the entrance to the passageway.
5. Show the dryer vented to exterior per CMC Section 504.4.
6. Provide a 1 automatic clothes washer connection per Table 422.1 of the CPC.
7. Per CMC Section 504.4.2.1, dryer moisture exhaust duct shall not exceed a total combined horizontal and vertical length of 14 feet, including two 90-degree elbows. The location of the dryer near the ridge, combined with a minimum 10' plate height and the roof pitch, indicates that the 14' allowable exhaust duct length will be exceeded. Please address.
8. Per ASHRAE Section 5.1, please provide mechanical ventilation for bathrooms (exhaust fan with capacity of 50 CFM intermittent or 20 CFM continuous) and kitchens (exhaust fan with capacity of 100 CFM intermittent or 5 air changes per hour [ach] continuous, based on kitchen volume).
9. Per the Energy Code Section 150.0(o), all new buildings are required to meet Ventilation and Acceptable Indoor Air Quality per ASHRAE Standard 62.2-. Per CEC 150.2(a)C, All additions or conversions to existing buildings over 1,000 ft² (original building must be included in sizing the fan once addition exceeds 1,000 ft²) are required to meet Ventilation and Acceptable Indoor Air Quality per ASHRAE Standard 62.2. *Please note that local exhaust fan may also be utilized to fulfill the WBV, however when this is done, the most stringent requirements will apply.*

Air moving equipment used to meet either the whole building ventilation requirement or the local ventilation exhaust requirement shall be rated in terms of airflow and sound.

- a. *All continuously operating fans shall be rated at a maximum of 1.0 sone.*
- b. *Intermittently operated whole-building ventilation fans shall be rated at a maximum of 1.0 sone.*
- c. *Intermittently operated local exhaust fans shall be rated at a maximum of 3.0 sonas.*
- d. *Remotely located air-moving equipment (mounted outside of habitable spaces) need not meet sounds requirements if there is at least 4' of ductwork between the fan and the intake grill.*

10. Local ventilation exhaust (kitchen and bath exhaust fans) must be exhausted to the outside, with properly sized fans, and attached to properly sized ducts per Table 5.3 of ASHRAE 62.2-.
 - a. 50 CFM exhaust fan in each bathroom regardless of windows.
 - b. 100 CFM in the kitchen

Please see the examples below:

NOTE of ALL bathroom fans:

This fan is to be used for **Local Ventilation Exhaust**. Minimum 50 CFM fan tested at a static pressure of .25 wc and rated @ 3 sones or less required to be installed.

Fan must be attached to a minimum 4" duct and no longer than 56' of **flex** duct. Subtract 15' of allowed length for each elbow.

NOTE of ALL kitchen range hoods:

This fan is to be used for **Local Ventilation Exhaust**. Minimum 100 CFM fan tested at a static pressure of .25 wc and rated @ 3 sones or less required to be installed.

Fan must be attached to a minimum 5" **smooth** duct and no longer than 91'. Subtract 15' of allowed length for each elbow.

11. Whole Building Ventilation (WBV) or Indoor Air Quality (IAQ) is one fan, vented to the outside, expected to be left on at all times, uses normal on/off switch, and provides a calculated amount of air brought into the dwelling. The WBV shall be sized per equation 4.1 of ASHRAE Standard 62.2-to provide CFM ventilation for the entire house. Please see below for equation 4.1 and an example.

$$\text{Equation 4.1: } Q_{fan} = 0.03(A_{floor}) + 7.5(N_{beds} + 1)$$

Where: Q_{fan} = Required Ventilation (CFM)

A_{floor} = conditioned Floor Area (ft^2)

N_{beds} = Number of Bedrooms (must be at least 1)

Example: 2,500 ft^2 home with 5 bedrooms

$$Q_{fan} = 0.03(A_{floor}) + 7.5(N_{beds} + 1)$$

$$Q_{fan} = 0.03(2,500) + 7.5(5 + 1)$$

$$Q_{fan} = 120 \text{ CFM}$$

12. The plans shall specify which fan(s) will be used for WBV/IAQ and a note block must be provided. See an example below:

NOTE:

This fan is to be used for **Whole Building Ventilation**. Minimum 60 CFM fan tested at a static pressure of .25 wc and rated @ 1 sone or less required to be installed.

Fan must be attached to a minimum 6" duct and no longer than 91'. Subtract 15' of allowed length for each elbow.

Switch for fan must be labeled to indicate the fans required function such as "fan is to be left on to ensure indoor air quality."

13. Per CEC Section 230.79 and 230.79(C), the service panel shall have a rating not less than the calculated load to be carried, determined in accordance with Part III, IV, or V of Article 220 of the CEC and never less than 100-amperes, 3-wire.
14. Per CEC Section 210.8(A), graphically show GFCI outlets in bathrooms, kitchen countertops, garages, basements, outdoors, bathtubs or shower stalls, laundry areas and within 6' of sinks.
15. Per CEC Section 210.8(E), GFCI protection shall be provided for lighting outlets not exceeding 120 volts installed in crawl spaces.

16. Per CEC Section 210.52(D), at least one receptacle outlet shall be installed in bathrooms within 3 feet of the outside edge of each basin. The receptacle outlet shall be GFCI protected.
17. Per CEC Section 210.52(E)(3), graphically show at least one GFCI outlet installed at attached balconies, decks, and porches that are accessed from the dwelling. (20 sq. ft. or less areas are exempt.)
18. Per CEC Section 210.52(E)(1), graphically show at least one GFCI outlet installed at the front and at the back of single-family dwellings.
19. Per CEC Section 210.52(A)(1), in every kitchen, family room, dining room, living room, parlor, library, den, sunroom, bedroom, recreation room, or similar room or area of dwelling units, receptacle outlets shall be installed at a maximum of 12 feet on center along the wall.
20. Per CEC Section 210.52(C)(1), kitchen countertop and work surface outlets shall be installed at a maximum of 4 feet on center.
21. Per CEC Section 210.12(A), specify on electrical sheet: AFCI breakers are required for all dwelling unit ***kitchens***, family rooms, dining rooms, living rooms, parlors, libraries, dens, bedrooms, sunrooms, recreation rooms, closets, hallways, laundry areas and similar spaces.
22. Per CEC Section 210.11(C)(2), specify on electrical sheet: Dedicated 20-amp circuit to Laundry for appliance outlets.
23. In the San Joaquin Valley, per the San Joaquin Valley Air Pollution Control District [Rule 4901](#) Section 5.3.1, no person shall install a wood burning fireplace in a new residential development with a density greater than two (2) dwelling units per acre. If a fireplace is desired, it cannot be wood-burning (i.e. specify wood-pellet or other gas-fueled type and provide appropriate ICC documentation). Cookstoves defined by the Code of Federal Regulations 60.531 are exempt.
24. In the San Joaquin Valley, per the San Joaquin Valley Air Pollution Control District [Rule 4901](#) Section 5.3.3, no person shall install more than one wood burning fireplace or wood burning heater per dwelling unit in any new residential development with a density equal to or less than two dwelling units per acre. If a fireplace is desired, it cannot be wood-burning (i.e. specify wood-pellet or other gas-fueled type and provide appropriate ICC documentation). Cookstoves defined by the Code of Federal Regulations 60.531 are exempt.
25. In areas outside the San Joaquin Valley within Kern County, per Kern County Air Pollution Control District [Rule 416.1](#), wood burning heaters may not be installed in residential subdivisions which will consist of 10 or more dwelling units. If a wood burning heater is desired, it must be **U.S. EPA Phase II Certified** or specify wood-pellet, otherwise it cannot be wood-burning (i.e. specify other gas-fueled type and provide appropriate ICC or UL documentation). Cookstoves defined by the Code of Federal Regulations 60.531 are exempt.
26. Please specify ICC approved fireplace on the plans for all premanufactured fireplaces.
27. Please provide UL listing for wood stoves.
28. Please show chimney on elevation views, and specify a 2'-0" vertical clearance from the chimney to the nearest point 10'-0" away. Alternately, specify a direct-vent fireplace.

CALGREEN REQUIREMENTS

NOTE: Per CalGreen Section 101.3 and Section 301.1.1, the requirements listed below shall apply to the planning, design, operation, construction, use and occupancy of every newly constructed building or structure, unless otherwise indicated, throughout the state of California as well as all additions or alterations of existing residential buildings where the addition or alteration increases the building's conditioned area, volume, or size. The requirements for additions and alterations shall apply only to and/or within the specific area of the addition or alteration.

1. Please complete the [Kern County Landscape Water-Efficiency Forms](#) for this project. If (a) less than 500 sq. ft. of new landscaping, or (b) less than 2,500 sq. ft. of rehabilitated landscaping, or (c) no water using landscaping is proposed, only the first page must be filled out. The form can be found on our website on the "Bulletins/Documents/Forms" page, under the "Forms" section, in the "Green Building Standards" tab. This form is intended to be filled out on a computer. **FOR STANDARD PLANS PLEASE PROVIDE LANDSCAPE PLANS OR INDICATE ON COVER SHEET OF PLANS HOW LANDSCAPING IS TO BE ADDRESSED.**
2. Please provide a complete copy of the 2019 CALGreen Residential Mandatory Measures. A pdf copy can be found on the Housing and Community Development website [here](#). A copy of this document may be attached to or included as part of the plans.
3. Per CRC Section R300.1, projects which disturb less than one acre of soil and are not part of a larger common plan of development which in total disturbs one acre or more, shall manage storm water drainage during

construction in accordance with the California Green Building Standards Code, Chapter 4, Division 4.1.

4. Per CRC Section R300.2, construction plans shall indicate how the site grading or drainage system will manage all surface water flows to keep water from entering building in accordance with the California Green Building Standards Code, Chapter 4, Division 4.1.
5. Per CRC Section R334.1, recycle and/or salvage for reuse a minimum of **65** percent of the nonhazardous construction and demolition waste in accordance with the California Green Building Standard Code, Chapter 4, Division 4.4
6. Per CRC Section R340.1, finish materials including adhesives, sealants, caulks, paints and coatings, aerosol paints and coatings, carpet systems, carpet cushion, carpet adhesive, resilient flooring systems and composite wood products shall meet the volatile organic compound (VOC) emission limit in accordance with the California Green Building Standard Code, Chapter 4, division 4.5.
7. Per CRC Section R506.2.3.1, when a vapor retarder is required, a capillary break shall be installed in accordance with the California Green Building Standards Code, Chapter 4, Division 4.5. A 4-inch-thick ½” or larger clean aggregate with vapor retarder in direct contact with the concrete.
8. Per CRC Section R602.3.4.1, annular spaces around pipes, electric cables, conduits or other openings in bottom/sole plates at exterior walls shall be protected against the passage of rodents by closing such openings in accordance with the California Green Building Standards Code, Chapter 4, Division 4.4.
9. Per CALGreen Section 4.106.4, A 1 inch nominal listed raceway shall be provided to accommodate a 208/240-volt branch circuit. The raceway shall originate at the main service or subpanel and terminate into a listed cabinet, box or other enclosure in close proximity to the proposed location of an EV charger. The raceway is to be continuous and enclosed in inaccessible or concealed areas or spaces. The service panel or subpanel shall provide capacity to install a 40 amp minimum dedicated branch circuit and space(s) reserved to permit installation of a branch circuit overcurrent protective device. The overcurrent protective device space(s) shall be identified and clearly labeled as “EV CAPABLE”. The raceway termination shall be permanently and visibly marked as “EV CAPABLE”.
10. Per CALGreen Section 4.506.1, all bathrooms with tubs and/or showers must be ventilated with ENERGY STAR exhaust fans and, unless functioning as a component of a “whole house” ventilation system, fans must be controlled by a humidity control.
11. Per CALGreen Section 4.303.1, plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) installed in residential buildings shall comply with the prescriptive requirements of Section 4.303.1.1 through 4.303.1.4.4.
12. Per CALGreen Section 4.303.2, plumbing fixtures and fittings required in Section 4.303.1 shall be installed in accordance with the California Plumbing Code, and shall meet the applicable referenced standards.
13. Per CALGreen Section 4.503.1, any installed gas fireplace shall be a direct-vent sealed-combustion type. Any installed woodstove or pellet stove shall comply with US EPA New Source Performance Standards (NSPS) emission limits where applicable and shall have a permanent label indicating they are certified to meet the emission limits.
14. Per CALGreen Section 4.504.1, all duct openings and other related air distribution component openings shall be covered during construction.
15. The following are necessary to fulfill the requirements of the 2019 CALGreen Code. [These forms](#) can be found on the Kern County Building Inspection Department website in the “Bulletins/Documents/Forms/Archive” page in the “Forms” area under “Green Building”. These forms will be required at final inspection and must be included with your plan set. CWM Plan (first page of the forms package) must be completed and submitted at plan check for approval. If this item is to be deferred, add the following note to the cover sheet of the plans: "Construction Waste Management (CWM) compliance forms and worksheets are a deferred submittal per CBC Section 107.3.4.1. All documents, including waste-separation methods and diversion rates, CWM Acknowledgment, and finish material certificates, will be provided by the contractor prior to construction."
 - CWM Plan – Only portion that must be completed at plan check for approval
 - CWM Worksheet
 - CWM Acknowledgement
 - Worksheet WS-1 (Baseline Water Use) – If necessary
 - Worksheet WS-2 (Water Use Reduction) – If necessary

- Finish Material Certificates

GARAGE/CARPORT REQUIREMENTS

1. Per CRC Table R302.6 and the [Kern County Code of Building Regulations](#), please specify 5/8" Type "X" gypsum board from floor to roof sheathing on the garage side of common walls with the residence, or on the garage side of common walls, ceiling, and structural members supporting the ceiling. If the garage and dwelling contain an automatic fire sprinkler system, 1/2" regular gypsum board may be used on the vertical surfaces.
2. Per CRC Section R302.5.2, ducts penetrating the walls or ceilings separating the dwelling unit from the garage shall be a minimum of 26 gage steel (0.019-inch sheet steel) and shall have no opening into the garage.
3. Per CRC Section R302.5.1, please specify solid wood or solid or honeycomb core steel door not less than 1 3/8" thick, or 20 minute rated, equipped with a self-closing or automatic-closing and self-latching door between the garage and the dwelling. If the garage and dwelling contain an automatic fire sprinkler system, the door need only be self-closing or automatic-closing and self-latching.
4. Per CRC Section R302.5.1, garages are never permitted to open into rooms used for sleeping purposes. Please address.
5. Per CMC 305.1/307.1, heating and cooling equipment located in a garage and that generates a glow, spark or flame shall be installed so that the pilots and burners or heating elements and switches at least 18" above the floor level. Specify a minimum 18" platform for water heaters in the garage.
6. Per CMC 305.1.1, please specify protective barriers for appliances located in the garage that may be subject to mechanical damage. Provide a detail if necessary (i.e. bollard).
7. Per CRC Section R309.1, the area of floor used for parking of automobiles or other vehicles shall be sloped to facilitate the movement of liquids to a drain or toward the main vehicle entry doorway. Please note or graphically show with arrows, the intended garage floor slope.

FLOOD PROTECTION REQUIREMENTS

1. Plan shall identify the proposed elevation of the lowest floor (including basement) of the structure in relation to mean sea level. In areas of shallow flooding without a base flood elevation (BFE), the elevation of the lowest floor shall be referenced to the highest adjacent grade. Highest adjacent grade is the highest natural elevation of the ground surface prior to construction, upstream and next to the proposed wall of the structure. The elevation or the height above the highest adjacent grade to which the structure is to be flood protected is determined by Floodplain Management during their Flood Hazard Evaluation.
2. For an uninhabitable attached garage which is to be built below the lowest floor of the structure's habitable space, or for a detached garage or accessory structure which is to be built below the flood protection elevation established by Floodplain Management, provide details on the exterior elevation(s) clearly showing;
 - Flood resistant materials (concrete, concrete block or approved equal) will be used up to the elevation of the lowest habitable floor.
 - The structure has openings designed to automatically equalize the hydrostatic forces on the exterior walls by allowing the entry and exit of floodwater. This may be an engineered design or by providing a minimum of two openings having a total net area of not less than one square inch per square foot of enclosed area. The openings must be distributed on at least two different walls of the structure. The bottom of the openings shall not be higher than one foot above grade. Openings may be equipped with screens, louvers or other coverings or devices provided that they permit the automatic entry and exit of floodwater.
3. Mechanical equipment and utilities for the structure shall be resistant to flood damage. Water heaters, air conditioners, electrical wall outlets and openings to plumbing and sewer shall be elevated to the elevation of the lowest habitable floor. Clearly show on the appropriate plans and/or elevations.
4. Structures built on a stem wall foundation shall have the crawl space designed to automatically equalize the hydrostatic forces on the exterior walls by allowing the entry and exit of floodwater either by engineered design or by providing a minimum of two openings having a total net area of not less than one square inch per square foot of enclosed area.
5. Depth of the foundation shall be shown to comply with the minimum footing depth required for scour protection as established by the Flood Hazard Evaluation.

STORMWATER BEST MANAGEMENT PRACTICES

1. Please see the Building Inspection Department [website](#) for guidelines regarding stormwater best management practices and provide an appropriate plan for this project. See "Best Management Practices" in the Bulletins, Policies & Guidelines