



RESIDENTIAL KITCHEN REMODEL

Introduction

This information is intended to provide general guidance on the kitchen remodel of a single family residences.

This handout summarizes information contained in the 2016 California Residential Code (CRC) 2016 California Electrical Code (CEC) 2016 California Plumbing Code (CPC) 2016 California Energy Code (CEnC) 2016 California Green Code (CalGreen) 2016 California Mechanical Code (CMC). If conditions are encountered that are not covered, please consult the appropriate code books.

- A building permit is required when alterations to the framing, electrical, mechanical, or plumbing systems are to be done or when the cabinets are removed. At this time the kitchen is in a state that the flowing items and code sections will apply.

Before plan review approval and issuance of a building permit, applicant shall submit three (3) sets of plans (minimum size 11"x 17"), which are drawn to scale (minimum 1/4":1 ft.), readable, legible, and include the following information:

Title Sheet including the following:

- Project address, and Owner contact information.
- Contact information and signature of person preparing the plans.
- Sheet index.
- Scope of work statement.
- Building data like, type of construction, stories, square footage, and sprinkler location.
- Vicinity map.
- Site Plan/ Plot plan, specify the lot dimensions and distances from the building to property lines and projections. (For addition only)

Existing Floor Plan for a floor/story where the remodeled kitchen is located. Specify the existing use of all rooms and areas.

Proposed Kitchen Floor Plan showing type and location of proposed interior cabinetry, countertops, plumbing fixtures, etc. Include construction legend identifying and describing new work and clearly showing the difference between the existing and proposed conditions.

Electrical Plan Lighting / Reflected Ceiling Plan. (may be combined with floor plan)

Construction details for any new/reframed interior walls, interior/ exterior openings, etc.

Minimum Requirements for kitchen electrical, mechanical, and plumbing systems.

Electrical

- All receptacle outlets serving countertops in kitchens of dwelling units to be GFCI protected. [CEC 210.8(A) (6)]
- All 125volt, 15-ampere and 20-ampere receptacles shall be listed tamper resistant receptacle if under 5'6". [CEC 406.12]
- Both new and modified branch wiring circuits shall have Arc-fault circuit protection for 120-volt, single phase, 15 and 20- ampere branch circuits. [CEC 210.12(A)]
- Wall counter space: A receptacle outlet shall be installed at each wall counter space 12 inches or wider. Receptacles outlet shall be installed so that no point along the wall is more than 24 inches, measured horizontally from a receptacle outlet in the space. [CEC 210.52 (C) (1)]
- Island counter space: At least one receptacle outlet shall be installed at each island counter space with a long dimension of 24 inches or greater and a short dimension of 12 inches or greater. [CEC 210.52(C) (2)]
- Peninsular counter space: At least one receptacle outlet shall be installed at each peninsular counter space with a long dimension of 24 inches or greater and a short dimension of 12 inches or greater. A peninsular counter top is measured from the connecting edge. [CEC 210.52(C) (3)]
- Separate spaces: Counter spaces separated by range tops, refrigerators, or sinks shall be considered as separate counter spaces in applying the requirements of CEC 210.52 (C) (1) (2) (3). [CEC 210.52(C) (4)]
- Counter top receptacle outlet location: receptacle outlets shall be located not more than 20 inches above the countertop. Receptacle outlets shall not be installed in a face up position in the work surfaces or countertops. Receptacle outlets rendered not readily accessible by appliances fastened in place, appliance garages, sinks, or range tops as covered in 210.52(C)(1), Exception,

or appliances occupying dedicated space shall not be considered as these required outlets. [CEC 210.52 (B) (5)]

- Two small appliance outlet circuits, 20 amps each, are required for kitchens. Circuits shall be balanced and have no other outlets. [CEC 210.52 (B)(1), (2)]
- Individual dedicated circuits are required for all major appliances. [CEC 210.11(C) (1) & 422.10 (A)]
- Garbage disposal cord and plug connected with a flexible cord 18" to 36" long. [CEC 422.16 (B)(1)]
- Dishwasher cord 36" to 48" long. [CEC 422.16(B)(2)]
- Minimum 15 amp circuit for the dishwasher and a 15 amp circuit for the disposal. [CEC 210.23(A)]
- Provide dedicated circuit for kitchen hood. [CEC 210.52 (B) (2)]
- If using a split outlet (two circuits on the same yoke) for dishwasher/disposal, provide a listed handle tie at the two circuit breakers at the panel. [CEC 210.7]
- Range hoods shall be permitted to be cord-and-plug connect when the cord is terminated with grounding type, not less than 18 inches and not over 36", the receptacle is accessible and supplied by an individual branch circuit. [CEC 422.16 (B) (4)]
- All installed luminaires shall be high efficacy; either listed by source type or by being JA8-2016 certified and labeled.
- Screw based luminaires shall meet all of the following:
 - The luminaires shall not be recessed down light luminaires in ceilings.
 - The luminaires shall contain lamps that comply with Reference Joint Appendix JA8; and the installed lamps shall be marked with JA8-2016 or JA8-2016-E.
- Recessed light fixtures in insulated ceilings shall be approved, listed, zero-clearance insulation cover (IC) type, Certified Air Tight (ASTM E283) and sealed with a gasket or caulked between housing and ceiling, and shall be certified to comply with Section 110.9 and allow ballast maintenance and replacement to be readily accessible to building occupants from below. [CEnC 150.0(k)1C]
- Exhaust fans and under cabinet lighting shall be switched separately from lighting system. [CEnC 150.0(k)2B]
- Blank electrical boxes. All unused electrical boxes mounted above 5 feet from the finished floor shall be no more than the number of bedrooms and shall be served by dimmer or vacancy sensor control, or fan speed control.[CEnC 150.0(k)1B]
- For occupancies with a horizontal rated separation (floor/ceiling assembly), the recessed fixtures must be protected to the rating of the separation (1 hour) or be listed to the required protection. This generally applied to residential condominium construction where units are above or below other units.

Mechanical

- In kitchen specify the local exhaust system vented to outdoors shall have a minimum exhaust rate of 100 cfm. [CEnC 150(o), Exc. 5 to 152(a) & ASHRAE Std. 62.2]
- A ducted residential exhaust hood is required. A metal, smooth interior surface duct required on vent hood or down draft exhaust vent. Aluminum flex duct is not approved. Provide back draft damper. [CMC 504.2]
- Add this note to the plans: Upper cabinets shall be a minimum of 30" above cooking top or a hood is to be installed per manufacturer's requirements with clearances as required by the range/cook top manufacturer's installation instructions. Provide minimum clearances to combustible materials per [CMC 916.1.2].

Plumbing

- Faucets at kitchens shall not have a flow rate of greater than 1.8 gpm at 60 psi.
- New Gas appliances at kitchen should be specified. Provide a single line diagram of gas piping, showing pipe sizes, lengths, and BTU demand ratings for all gas appliances.
- Gas test duration shall be not less than one-half ($\frac{1}{2}$) hour for each five-hundred (500) cubic feet of pipe volume of fraction thereof. When testing a system having a volume less than ten (10) cubic feet or a system in a single-family dwelling, the test duration shall be not less than ten (10) minutes. The duration of the test shall not be required to exceed twenty four (24) hours. [NFPA 54:8.1.4.3, CPC 1214.3.3] ♦ Gas lines that run under a slab shall run through an approved, vented, gas tight conduit. [CPC 1211.1.6]
- An accessible, approved manual shutoff valve with a nondisplaceable valve member, or a listed gas convenience outlet installed within six (6) feet of the appliance it serves. Where a connector is used, the valve shall be installed upstream of the connector. A union or flanged connection shall be provided downstream from this valve to permit removal of controls. [CPC 1211.5]
- No domestic dishwashing machine shall be directly connected to a drainage system or food waste disposer without the use of an approved dishwasher airgap fitting on the discharge side of the dishwashing machine. Listed airgaps shall be installed with the flood-level (FL) marking at or above the flood level of the sink or drainboard, whichever is higher. [CPC 807.4]

Smoke & Carbon Monoxide Alarms

- Show location(s) of interconnected hard-wired "SMOKE ALARM" with battery backup in the following: [R314]
 - In each sleeping room.
 - Outside of each separate sleeping area in the immediate vicinity of the bedrooms.

- On each additional story of the dwelling, including basements and habitable attics, but not including crawl spaces and uninhabitable attics.
 - Provide a note: "SMOKE ALARM shall be interconnected hard-wired with battery backup."
 - Battery smoke alarm permitted in existing buildings where no construction is taking place.
- For buildings with fuel-burning appliances and/or attached garages, provide an approved CARBON MONOXIDE ALARM at: [R315.1].
 - Outside of each separate sleeping area in the immediate vicinity of the bedrooms
 - On every level of a dwelling unit including basements.
 - Provide a note: "CARBON MONOXIDE ALARM shall be interconnected hard-wired with battery backup."
 - Battery carbon monoxide alarm is permitted in existing dwelling units where no construction is taking place.

Windows / Doors

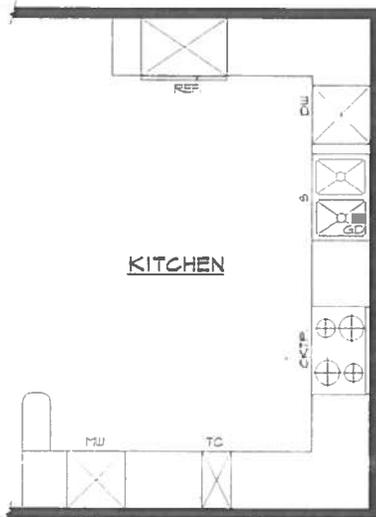
- Exterior windows/doors added and/or replaced as part of the remodeling project shall be clearly identified on the plans and shall have a fenestration U-Factor and Solar Heat Gain Coefficient SHGC of 0.25 or less. [CEnC Table 150.1-A]
- All fenestration NFRC labels shall remain available for inspection.
- All lighting attached to the residence or to other buildings on the same lot must be high efficacy, and must be controlled by a manual ON and OFF switch and one of the following automatic control types:
 - Photo control and motion sensor.
 - Photo control and automatic time switch control.
 - Astronomical time clock control that automatically turns the outdoor lighting off during daylight hours.
 - Energy Management Control System (EMCS) that provides the functionality of an astronomical time clock, does not have an override or bypass switch that allows the luminaire to be always ON, and is programmed to automatically turn the outdoor lighting off during daylight hours. Manual ON and OFF switches must not override the automatic control functions listed above, and any control that overrides the automatic controls to ON must automatically reactivate those controls within six hours.

REQUIRED CIRCUITS

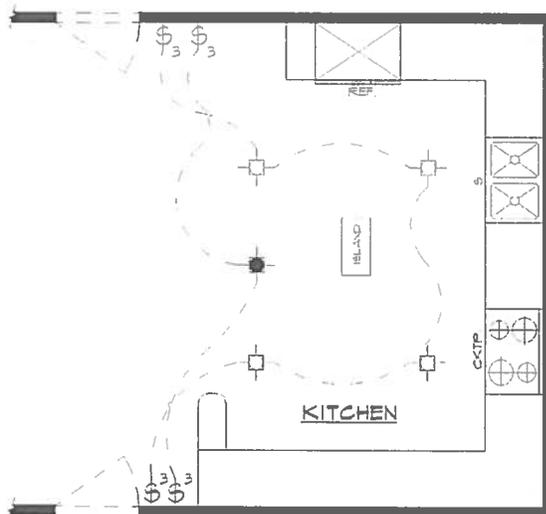
- (2) SMALL APPLIANCES BRANCH CIRCUIT
- (1) LIGHTING
- (1) GARBAGE DISPOSAL
- (1) TRASH COMPACTOR
- (1) RANGE
- (1) OVEN
- (1) DISHWASHER
- (1) WARMER DRAWER
- (1) INSTANT HOT
- (1) MICROWAVE
- (1) HOOD
- (1) REFRIGERATOR (IF BUILT IN)

ABBREVIATION

REF	REFRIGERATOR
CKTP.	COOK TOP
S	SINK
DW	DISHWASHER
GD	GARBAGE DISPOSAL
MW	MICROWAVE



SAMPLE FLOOR PLAN



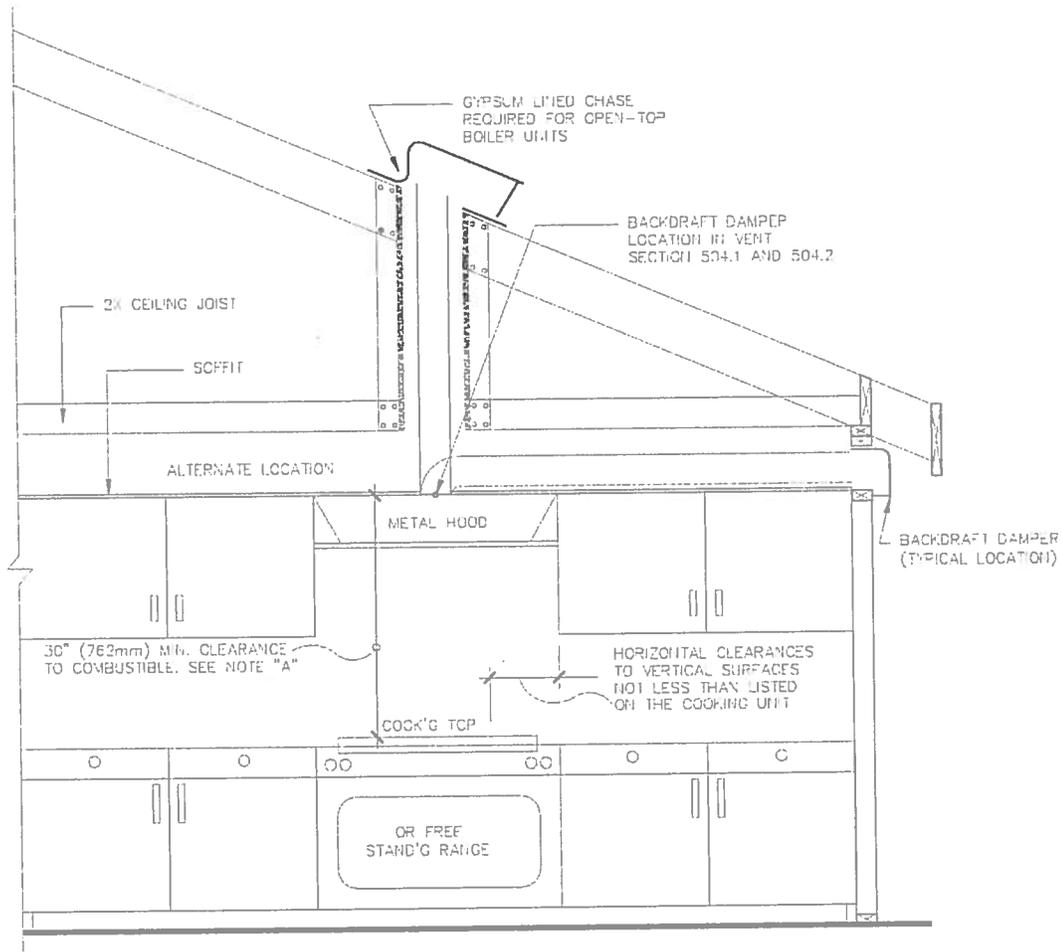
LEGEND

- 2" STUD WALL
- CABINET LINE
- 26 WATT HIGH EFFICACY FLUORESCENT
- 100 WATT INCANDESCENT
- 3 3-WAY SWITCH

ABBREVIATION

REF	REFRIGERATOR
CKTP	COOK TOP
S	SINK

SAMPLE LIGHTING FLOOR PLAN



NOTE "A"

□ CMC 916.1.2: Vertical Clearance Above Cooking Top. Household cooking appliances shall have a vertical clearance above the cooking top of not less than thirty (30) inches to combustible material or metal cabinets. A minimum clearance of twenty-four (24) inches is permitted when one of the following is installed:

- The underside of the combustible material or metal cabinet above the cooking top is protected with not less than one-fourth of inch insulating millboard covered with sheet metal not less than 0.0122 inch thick.
- A metal ventilating hood of sheet metal not less than 0.0122 inch thick is installed above the cooking top with a clearance of not less than one fourth of inch between the hood and the underside of the combustible material or metal cabinet, and the hood is at least as wide as the appliance and is centered over the appliance.
- A listed cooking appliance or microwave oven is installed over a listed cooking appliance and will conform to the terms of the upper appliance's listing and the manufacturer's instructions. [NFPA 54: 10.15.1.2]