



RESIDENTIAL REMODELS

Applicable Codes:

For permit applications after January 1, 2020, the applicable codes are the 2019 editions of the California Residential Code (CRC), Electrical Code (CEC), Plumbing Code (CPC), Mechanical Code (CMC), Energy Code (CNC), and Green Building Standards Code (GRN).

Permits:

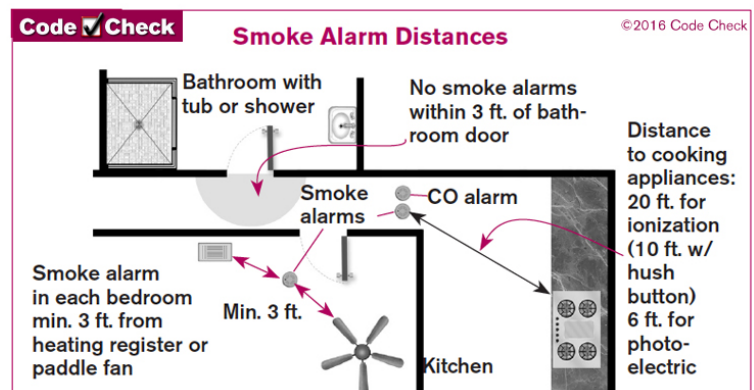
- A permit is required for any added or new building, electrical, plumbing, or mechanical work.
Exceptions: a) No mechanical permit is required for replacement of a recirculating hood/fan that does not have an outside air vent.
b) No electrical permit is required for replacement of existing receptacles, switch devices or cord connected appliances in the same locations.
c) No building permit is required for re-facing of existing cabinets.
- A building permit is required if lower cabinets or more than 32 square feet of wall and/or ceiling finishes are removed and replaced.
- An Electrical permit is required for receptacle alterations if the removal and replacement of cabinets and countertops is a change of the existing layout.
- A Plumbing Fixtures Certificate of Compliance is required.

Submittal Requirements

- A complete, written scope of work.
- An existing floor plan and a proposed floor plan, which include the layout of cabinets, electrical receptacles, light fixtures, plumbing fixtures, fans, and built-in appliances.

Smoke and Carbon Monoxide Alarms

- **Smoke alarms** must be located in the same areas that are required for new dwellings – in each sleeping room, outside each sleeping area (e.g., hallways), and on each story. [CRC 314.3]. In dwellings with split levels without an intervening door the upper level alarm shall suffice for the lower level provided the lower level is less than one full story below the upper level. Smoke alarms must be at least 3 feet from the door or opening of a bathroom that contains a tub or shower unless this would prevent placement of a required smoke alarm. Distances to cooking appliances shall be as in the figure above.
- **Carbon Monoxide Alarms** are required in dwellings equipped with gas appliances or a fireplace or an attached garage. They must be located outside each sleeping area (e.g., hallways) and on each floor level. If a fuel-burning appliance is installed in a bedroom, a carbon monoxide alarm must also be installed in that bedroom. [CRC 315.2.2 & 315.3]
- Alarms require a *hardwired power source with battery backup* and *interconnection* so that if one alarm activates all are activated. New hardwired alarms must be on a circuit protected by an AFCI circuit breaker. Hard-wiring and interconnection is required for remodeling, additions, or alterations that have an accessible attic space usable for alarm wiring or that include removal of existing wall or ceiling finishes that can be used for alarm wiring. Battery-only alarms are allowed for alterations solely on the exterior (re-roofing, decks, new windows) and for work limited to alteration or repair of plumbing, mechanical, or



electrical systems (such as furnace replacement or panel upgrades). Battery-only alarms are allowed for projects where this is no removal of ceiling finishes and no accessible attic. [CRC 314.4&6, 315.5Exc.4].

LIGHTING;

Electrical - Lighting:

- All installed lighting shall be high efficacy. [CNC 150.0(k)1A]
- Under-cabinet lighting must be switched separately from other lighting.[CNC 150.0(k)2L]

KITCHENS

Electrical - Lighting:

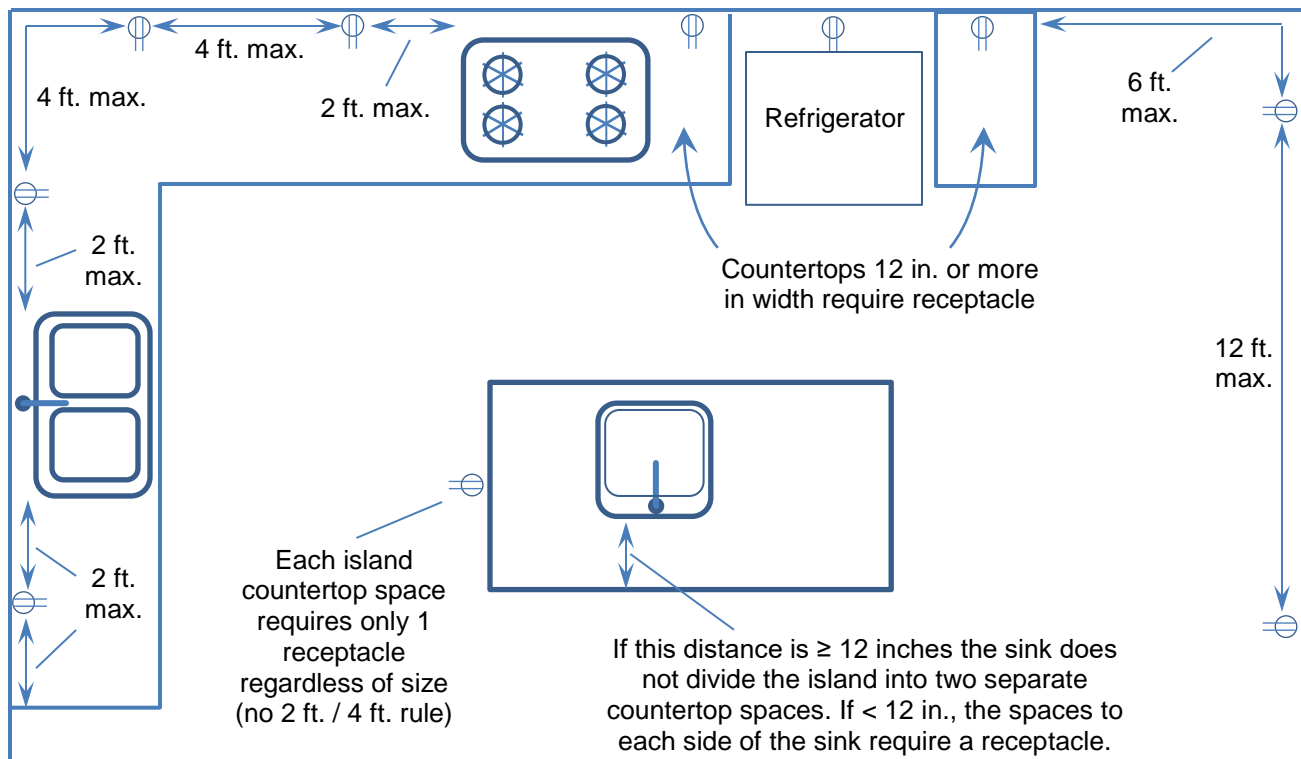
- All installed lighting shall be high efficacy. [CNC 150.0(k)1A] (**new in 2016 codes**)
- Under-cabinet lighting must be switched separately from other lighting.[CNC 150.0(k)2L]

Electrical – Branch Circuits:

- A minimum of two 20-amp small appliance branch circuits are required to serve countertop and wall receptacles in the kitchen, pantry and dining room [CEC 210.11A]. No built-in appliances are allowed on these circuits (except an electric clock or the ignition of a gas range).
- Individual (dedicated) circuits are required for garbage disposals, microwaves, compactors, and dishwashers. [CEC210.19A1b]
- AFCI (arc-fault circuit-interrupter) protection is required for all 120V 15- & 20-amp kitchen circuits. [CEC210.12A] (**new in 2016 codes**)

Electrical – Receptacles:

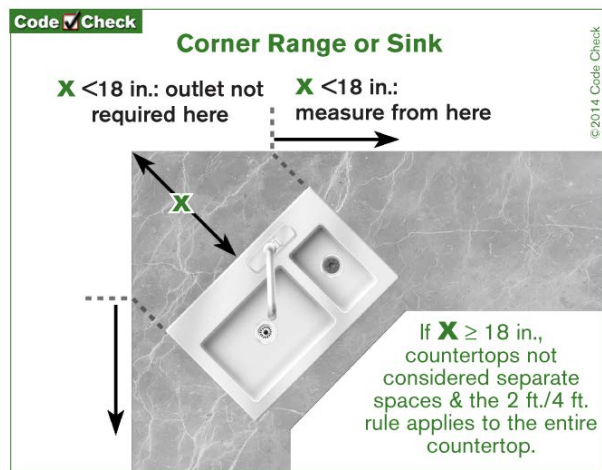
- Receptacles shall be installed at each countertop space ≥ 12 in. in width [CEC 210.52C1]. Receptacles shall be installed so that no point along the wall line is more than 24 inches horizontally from an outlet in that space [CEC 210.52C1]. The maximum spacing between receptacles, measured on the wall-countertop line, is 48 inches.



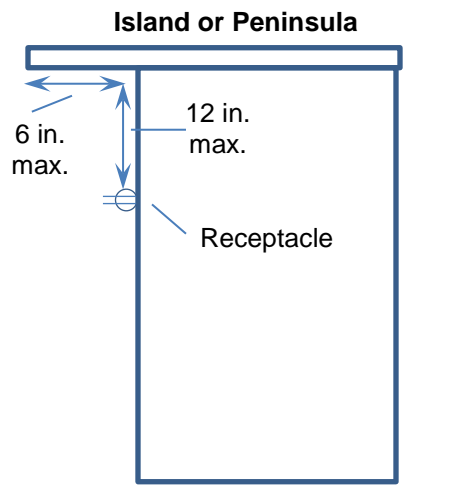
- All receptacles serving kitchen countertop surfaces shall have GFCI protection [210.8A6].

- Countertop receptacles shall not be installed in a face up position [CEC 406.5E]. Listed “pop-up” receptacles are allowed [CEC 210.52C5]. Receptacles or strip outlets can be installed on the underside of the cabinet above the countertop if within 20 inches of the countertop.
- Dishwashers require GFCI protection, including 240-volt dishwashers. (**new in 2016 codes**)
- All GFCI device controls must be in readily accessible locations. Outlets behind a dishwasher are not readily accessible. GFCI protection can be provided by using a GFCI circuit breaker.
- All general purpose and countertop receptacles must be tamper-resistant. [CEC 406.12A]

Kitchen Electrical – Receptacles (Continued):



- Corner sinks separate the space on each side when the distance between the corner and the sink is < 18 inches. If ≥ 18 in., the 2 ft. / 4 ft. rule continues behind the sink [CEC 210.52C4].
- The 24-inch/48-inch rule does not apply to island or peninsular countertops. These require only one receptacle per countertop space, regardless of length [CEC 210.52C2&3]. An island or peninsula is considered divided into separate countertop spaces when a sink or range is installed and does not have 12 inches of space behind it. See the diagram on page 2.
- On islands and peninsulas only, receptacles are allowed on the side of the cabinet, not more than 12 inches below the countertop and with no overhanging countertop greater than 6 inches [CEC 210.52C5 exc.]
- Bar-type counters are considered wall space. Wall spaces ≥ 2 ft. require receptacles so that no portion of the wall is more than 6 ft. from a receptacle outlet, measured at the floor/wall line [CEC 210.52A1&2].
- A range hood / microwave combination can be cord-and-plug connected if the circuit is an individual (dedicated) branch circuit. The receptacle outlet shall be a single type, not a duplex receptacle that would accept two plugs [CEC 422.16B4].



Kitchen Plumbing:

- Dishwashers shall be connected with an approved drainage air gap devices located above the flood level rim of the sink [CPC 807.3].
- Newly installed kitchen faucets shall not exceed 1.8 gallons per minute [GRN 4.303.1.4.4]. All Existing plumbing fixtures not included in the scope of new work shall be replaced if necessary to comply with SB407 Plumbing Fixtures Replacement requirements – See Water Conservation Certification Form.
- All piping ¾ inch or more in diameter and all hot water pipes from the heating source to the kitchen fixtures must be insulated with min. 1-inch thick insulation [CNC 150.0(j)2]. Existing inaccessible piping does not require insulation.

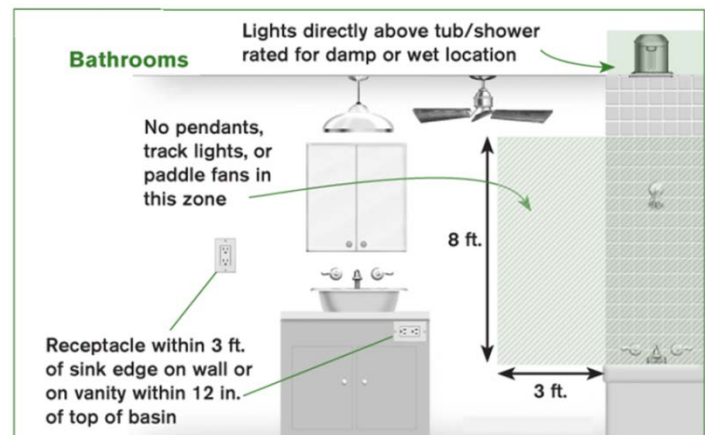
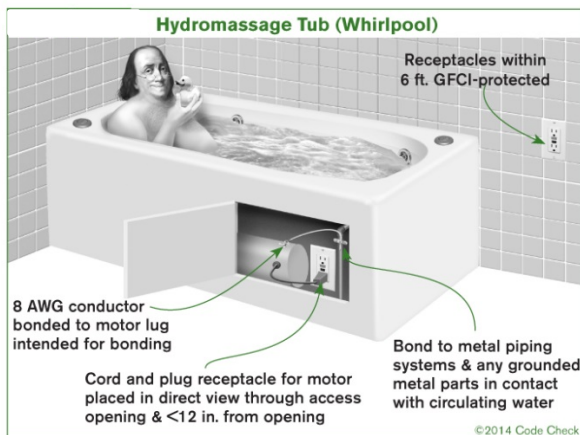
Kitchen Mechanical:

- A mechanical permit is required to replace a kitchen exhaust hood that includes an outside air vent. The vent must terminate on the building exterior at least 3 ft. from other openings into the building [CMC502.2.1]. Flexible (corrugated) ducting is not allowed for exhaust hoods [CMC 504.3].

BATHROOMS

Bath Electrical:

- All installed lighting shall be high efficacy. [CNC 150.0(k)1A] (**new in 2016 codes**)
- At least one light shall be controlled by a vacancy sensor (a manual-on, automatic-off occupancy sensor). [CNC 150.0(k)2AJ] (**new in 2016 codes**)
- Exhaust fans must be switched separate from lighting, with the exception that lighting integral to an exhaust fan can be on the same switch if the fan is controlled by a humidistat that continues its operation after the light is off.
- All receptacle outlets in bathrooms shall be GFCI protected [CEC 210.8A1].
- All receptacle outlets in bathrooms shall be tamper resistant [CEC 406.12A].
- When a bathtub or shower stall is in an area not technically considered a bathroom (by the definitions in the electrical code), receptacles within 6 ft. of the tub/shower stall must be GFCI-protected. [CEC210.8A9]. (**new in 2016 codes**)
- A receptacle outlet is required within 3 feet of each wash basin location. It may be on the wall, or an adjacent partition, or on the face or side of the cabinet not more than 12 inches below the top of the basin [CEC 210.52D]. (**Change in 2016 codes** – previous code measured the 12 inches from the top of the vanity. Basins such as that in the figure below are sometimes well above the top of the vanity).
- Receptacles cannot be face-up in a vanity surface; listed pop-up receptacles are allowed [CEC 406.5E & 210.52D].
- A minimum of one 20-amp circuit is required for the receptacles in the bathroom(s). This circuit can have no other outlets, including lights [CEC 210.11C3]. If a 20-amp circuit serves only one (1) bathroom, lights and fans can be on the same circuit with the receptacles in that bathroom [CEC 210.11C3 exception].
- Hydro-massage tubs require an individual (dedicated) branch circuit and readily accessible GFCI protection [CEC 680.71]. An access door is required and must be large enough to remove the motor and pump. Cord-connected equipment must have the receptacle facing the opening and be no more than one foot behind the access hatch [CEC 680.73].



- Recessed light fixtures in shower enclosures must be listed for a damp or wet location [CEC 410.10A]
- Pendant light fixtures, track lights, and paddle fans shall not be installed lower than 8 feet above the flood-level rim of a tub, including the area 3 feet past the edge of the tub [CEC 410.10D].
- Electrical panels shall not be installed in bathrooms [CEC 240.24E].
- Switches and receptacles are not allowed in bathtub or shower spaces [CEC 404.4C & 406.9C].

BATHROOMS (Continued)

Bathroom Plumbing, General:

- All piping $\frac{3}{4}$ inch or more in diameter and all hot water pipes associated with a recirculation system must be insulated with min. 1-inch thick insulation. Existing inaccessible piping does not require insulation [CNC 150.0(j)2].
- Newly installed plumbing fixtures shall be water-conserving in compliance with the California Plumbing Code and Green Building Standards. Water closets shall not exceed 1.28 gallons per flush, showerheads shall not exceed 2.0 GPM and new lavatory faucets shall not exceed 1.2 GPM at 60 PSI. [CPC 407.2, 408.2 & 411.2] All Existing plumbing fixtures not included in the scope of new work shall be replaced if necessary to comply with SB407 Plumbing Fixtures Replacement requirements – See Water Conservation Certification Form.

Bathroom Plumbing, Toilets & Bidets:

- Toilets and bidets require a minimum 15 inches of clearance from the center line of the bowl to each side, and 24 inches of clearance from the front edge of the bowl [CPC 402.5]. The maximum flow rate is 1.28 GPF [CPC 403.2.1].
- Lavatory sinks require a minimum of 24 inches front clearance [CPC 402.5] (**new in 2016 code**)
- Showers require a minimum 2 inch drain and trap [CPC Table 702.1].
- All shower compartments shall have a minimum finished interior of 1024 square inches and shall be capable of encompassing a 30 inch diameter circle [CPC 408.6]. The curb may encroach on these size requirements. All surfaces shall be waterproof up to 72 inches above the drain inlet [CRC R307.2]. Thresholds shall be of sufficient width to accommodate a minimum 22 inch clear egress opening from the shower [CPC 408.5].
- Safety glass (tempered or laminated) is required for all glass shower doors and partitions and for windows in walls facing the tub or shower and located less than 60 inches above the standing surface of the tub/shower and within 60 inches horizontally [CRC R308.4.1&5].
- The maximum water temperature to a shower or tub/shower combination is 120°F. The water heater thermostat cannot be used as the control for this temperature. Valves shall provide scald and thermal shock protection, and be pressure-balanced, thermostatic, or combination pressure-balanced/thermostatic mixing in accordance with ASSE 1016 or ASME A112.18.1/CSA B125.1. [CPC 408.3].

Mechanical:

- Mechanical ventilation is required in all bathrooms with tubs or showers. The fan must move a minimum 50 CFM of air and be separately switched from the lighting. Fans that operate continuously can be 20 CFM. The duct must terminate on the exterior not less than 3 feet from openings into the building [CMC 502.2.1].
- Baths with no tub or shower (half baths) do not require mechanical ventilation if they are provided with a window at least 3 sq. ft. half of which is openable [CRC R303.3].

Tile & Backing:

- Water-resistant gypsum board (purple board) can be used as a tile backer board in areas that are not subject to direct exposure to water or high humidity [CRC R702.3.7.1]. Examples would be a wall behind a toilet or above a vanity countertop. Purple board cannot be used in a shower for direct application of tile. It can be used in showers behind a water-resistive membrane with mortar bed and lath. Other acceptable materials for application of tile in showers include cement board, fiber-cement or glass mat gypsum backers [CRC R702.4.2].

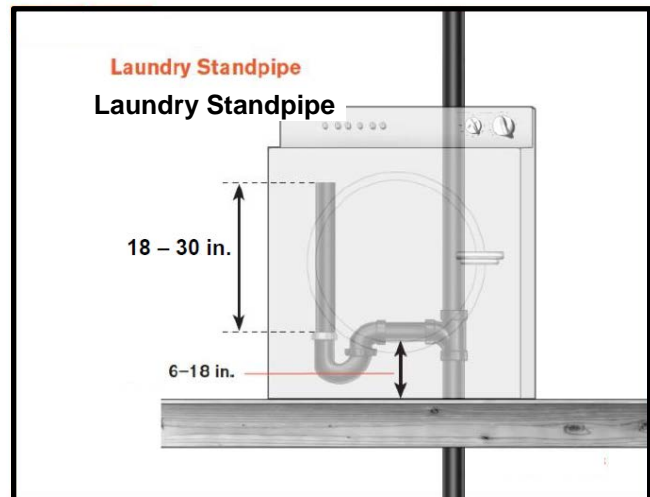
Laundry Rooms

Electrical:

- All new or altered lighting shall be high efficacy. [CNC 150.0(k)1A]
- At least one light shall be controlled by a vacancy sensor (a manual-on, automatic-off occupancy sensor). [CNC 150.0(k)2AJ (**new in 2016 codes**)]
- All 125-volt receptacles in laundry areas GFCI protection, including the clothes washer receptacle. [CEC 210.8A10]. (**new in 2016 codes**)
- Receptacle outlets shall be tamper-resistant except those within dedicated space for an appliance not easily moved from one place to another (behind clothes washer). [CEC 406.12A]
- A separate 20-amp circuit is required for the laundry equipment. The lights and other receptacles in the room cannot be on that circuit [CEC 210C2].
- All circuits supplying outlets or devices in the laundry area (including laundry areas in garages) must be AFCI protected [CEC210.12A] (**new in 2016 codes**)

Plumbing:

- Clothes washer standpipes must be 2-inch diameter. The weir of the trap must be roughed in 6 – 18 inches above the floor; the standpipe must be a minimum of 18 and a maximum of 30 inches above the trap [CPC 804.1].



Mechanical:

- Clothes dryers in closets require a minimum of 100 sq. in. of makeup air, which can be supplied by louvers or undercutting the door [CMC 504.4.1].
- Dryer ducts must be smooth-walled metal 4-inch diameter and not more than 14 feet in length, with an allowance of 2 90° bends in that 14 ft. Deduct 2 ft. for each additional 90° bend in excess of 2 [CMC 504.4.2.1].
- Ducts may not pass through plenums or be shared with other systems or vents. They cannot be connected with screws that penetrate the duct interior [CMC 504.4].
- Dryer ducts must terminate on the building exterior in a backdraft damper. Screens or louvers cannot be installed [CMC 504.4].
- Flexible transition ducts (connectors) between the dryer and the metal duct are allowed in lengths up to 6 feet and cannot be concealed within construction [CMC 504.4.2.2 exception]. They must be UL listed and labeled (L&L) as dryer transition ducts, and cannot be plastic.

Dryer Exhaust Ducts

The Consumer Product Safety Commission (CPSC) estimates that up to 16,000 home fires a year originate at clothes dryers. Common causes of these fires are lint buildup from improperly installed or maintained exhaust ducts. Ducts must be rigid metal. Screws should not penetrate the duct as they accumulate lint which leads to blockage. Join ducts with the male end in the direction of air flow.

The diagram shows a dryer connected to a metal exhaust duct. The duct is labeled "Length 14 ft. maximum with up to 2 90° bends. Deduct 2 ft. for each additional 90°." The duct is shown with a backdraft damper at the end. The damper is labeled "Backdraft Damper" and "End outside & no screens". The duct is labeled "Transition ducts metal, listed & labeled, & not concealed".