

## AFCI Requirements 2019 California Electrical Code

New circuits require AFCI protection for the entire branch circuit if they supply any outlets or devices in the following locations. 210.12(A) and (B).

- Kitchens, family rooms, dining rooms, living rooms, parlors, libraries, dens, bedrooms, sunrooms, recreation rooms, closets, hallways, laundry areas (including laundry areas in a garage), or similar rooms or areas, and dormitory units.

**Note:** An “outlet” of a circuit can be a receptacle outlet, a lighting outlet, or a smoke or CO alarm outlet. A switch is a device, not an outlet. A patio light that is controlled by a switch in the house requires protection because the device controlling the outlet is in an area requiring AFCI protection.

1. For new circuits, protection must be provided by a **combination type** AFCI circuit breaker. The words “combination type” is written on the face of the circuit breaker. 210.12(A)(1).



Combination-type AFCI circuit breaker (CEC 210.12(A)(1))

2. Branch/feeder AFCI breakers are acceptable IF the first outlet box of the circuit contains an Outlet Branch Circuit (OBC) AFCI. The words “branch feeder” are written on the face of the circuit breaker. 210.12(A)(2).



Branch/feeder type AFCI circuit breaker + outlet branch circuit (OBC) type AFCI receptacle (CEC 210.12(A)(2))

3. Outlet Branch Circuit (OBC) AFCIs resemble GFCI receptacle outlets, except that they say AFCI on their face. New circuits can be protected by OBC AFCIs if the OBC is the first outlet of the circuit and the wiring between an ordinary breaker and the OBC is either concrete encased, metal conduit or steel-jacketed cable. 210.12(A)(5) and (6).

\*\*\* Please be advised that options (3) and (4) of CEC 210.12 (omitted from this handout) are not currently viable options as the product is not available in the market. \*\*\*

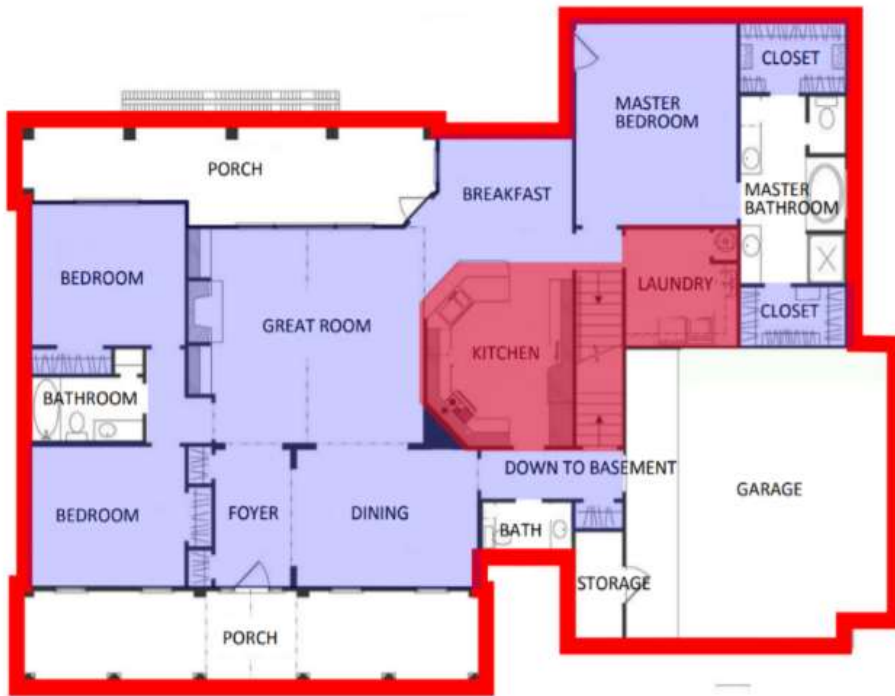
4. When existing circuits are modified, extended, or replaced, the wiring of that circuit must be protected by either:
  - a combination-type AFCI circuit breaker, or
  - an OBC AFCI at the first receptacle outlet of the existing circuit 210.12(D).

**Note:** AFCI protection shall not be required where the extension of the existing conductors is not more than 6 ft and does not include any additional outlets or devices.

5. When a service is upgraded or relocated and sections of existing branch circuit wiring are replaced as part of the work, those branch circuits require AFCI protection when serving the areas listed above. This does not apply to service upgrades where the panel is relocated and the length of wire to connect the original circuits to a new panel location is less than 6 feet. 210.12(D).
6. Replacement receptacles in any of the areas listed in 210.12(A) or (B) must have AFCI protection 406.4(D)(4). This can be provided by:
  - a combination-type AFCI breaker, or
  - an OBC AFCI, or
  - an OBC AFCI in the same circuit and ahead of the replacement receptacle.

**Note:** If no equipment grounding conductor is present, one must be added, or, the OBC receptacle outlet must be a dual-function AFCI-GFCI type.

7. All AFCI controls (breaker test buttons and outlet test buttons) must be in readily accessible locations 210.12 & 406.4(D). “Readily Accessible” is defined as “Capable of being reached quickly for operation, renewal, or inspections without requiring those to whom ready access is requisite to take actions such as to use tools (other than keys), to climb over or under, to remove obstacles, or to resort to portable ladders, and so forth.”



<p><b>POWER</b></p> <div style="border: 1px solid black; width: 20px; height: 15px; margin-bottom: 5px;"></div> <div style="background-color: #ccccff; width: 20px; height: 15px; margin-bottom: 5px;"></div> <div style="background-color: #cc0000; width: 20px; height: 15px;"></div>	<p><b>LIGHTING</b></p> <div style="border: 2px solid red; width: 20px; height: 15px; margin-bottom: 5px;"></div>	<p>Ground-fault circuit-interrupter (GFCI); All 120-volt, single-phase, 15-amp and 20-amp branch circuits supplying outlets or devices installed in bathrooms, garages, accessory structures, outdoors, crawl spaces, unfinished basements (i.e., not intended as habitable rooms and limited to storage areas, work areas, and the like), kitchen countertop outlets, all sinks (within 6' of the outside edge of the sink), bathtubs, shower stalls (within 6' of the outside edge of the bathtub or shower stall), and laundry areas. (CEC 210.8(A)).</p> <p>Arc-Fault Circuit-Interrupter (AFCI); All 120-volt, single-phase, 15-amp and 20-amp branch circuits supplying outlets or devices installed in kitchens, family rooms, dining rooms, living rooms, parlors, libraries, dens, bedrooms, sunrooms, recreation rooms, closets, hallways, laundry areas, or similar rooms or areas. (CEC 210.12(A)).</p> <p>GFCI and AFCI</p>	<p>Exception: The branch circuit supplying the fire alarm equipment installed per CEC760.41(B) or CEC760.121(B) shall not be supplied through ground-fault circuit interrupters or arc-fault circuit interrupters.</p>
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