

Electrical Safety

2025 California Fire Code — Sections 603, 315.3.3, 4102 & 1010.2.8.2 | 2025 California Electrical Code

Purpose. Electrical hazards are a common source of fires, shocks, and unsafe building conditions. This handout summarizes fire-code requirements commonly encountered during inspections, including damaged wiring, open electrical boxes, required working clearances, electrical-room storage and identification, power strips, extension cords, temporary wiring, portable electric heaters, and special egress requirements for certain electrical equipment rooms.

1. Governing Electrical Safety Requirements

Electrical equipment, wiring, devices, and systems required by the California Fire Code or California Building Code must be installed, used, and maintained in accordance with the California Electrical Code and the applicable provisions of CFC Section 603.

- Electrical equipment, wiring, devices, and appliances must be tested, listed and labeled, and installed, used, and maintained in accordance with their listing and manufacturer instructions.
- Conditions that create an electrical shock hazard or fire hazard must be corrected.
- Electrical alterations, repairs, replacements, and new installations must comply with the California Electrical Code and applicable permit requirements.

The 2025 California Electrical Code is California Code of Regulations, Title 24, Part 3. It incorporates the 2023 National Electrical Code (NFPA 70) with California amendments.

Code references: 2025 CFC §§603.1–603.2; 2025 California Electrical Code, Title 24, Part 3 (based on NFPA 70-2023)

2. Damaged Wiring, Equipment and Open Electrical Boxes

- Electrical wiring, devices, equipment, and appliances that are damaged or modified and create a shock or fire hazard cannot be used until properly repaired or replaced.
- Open junction boxes and open-wiring splices are prohibited.
- Switch boxes and electrical outlet boxes must have approved covers.
- Temporary or improvised repairs that leave exposed conductors, loose connections, damaged insulation, or other hazardous conditions are not acceptable.

Code references: 2025 CFC §§603.2, 603.2.1 and 603.2.2

3. Electrical Working Space and Clearances

Required working space in front of electrical service equipment must remain clear and available for safe operation, inspection, maintenance, and emergency access.

Minimum Working Space	Requirement
Width	At least 30 inches. If the equipment is wider than 30 inches, the working-space width must be at least the width of the equipment.
Depth	At least 36 inches in front of electrical service equipment under the CFC minimum; additional depth may be required by the California Electrical Code based on voltage and conditions.
Height	At least 78 inches.
Storage	Materials cannot be stored within the required electrical working space.

The California Fire Code also directs working-space compliance to CEC §110.26 for electrical equipment rated 1,000 volts or less and CEC §110.32 for equipment rated over 1,000 volts.

Code references: 2025 CFC §603.4; 2025 CEC §§110.26 and 110.32

4. Electrical Rooms: Identification, Illumination and Storage

- Service equipment areas, motor control centers, and electrical panelboards must have illumination.
- Doors into electrical control panel rooms must be identified by a plainly visible and legible sign stating “ELECTRICAL ROOM” or similar approved wording.
- Combustible material cannot be stored in electrical equipment rooms.
- Even where noncombustible items are otherwise permitted, required electrical working space must remain unobstructed.

Code references: 2025 CFC §§603.3, 603.4, 603.4.1 and 315.3.3

5. Disconnects and Multiple Power Sources

- The disconnecting means for each service, feeder, or branch circuit originating on a switchboard or panelboard must be legibly and durably marked to identify its purpose unless the purpose is obvious.
- Where a building or structure is supplied by more than one power source, required markings must be provided at each service-equipment location and at interconnected electric power production sources.
- Multiple-source markings must identify all electric power sources at the premises in accordance with the California Electrical Code.

Examples of multiple power sources can include utility power together with photovoltaic systems, generators, energy storage systems, or other electric power production sources. The exact disconnect and marking arrangement is governed by the California Electrical Code and applicable system-specific code provisions.

Code references: 2025 CFC §§603.4.2 and 603.4.3; California Electrical Code

6. Power Strips, Relocatable Power Taps and Current Taps

Relocatable power taps (commonly called power strips) and current taps must be listed and used in accordance with the California Electrical Code and CFC Section 603.5.

Item	Requirement
Relocatable power taps	Must be listed and labeled in accordance with UL 1363.
Current taps / adapters	Must be listed and labeled in accordance with UL 498A.
Connection	Must generally be connected directly to a permanently installed receptacle.
Daisy-chaining	Connecting power strips together is generally prohibited. A limited temporary-use exception exists only where specifically approved for certain Group A occupancies or meeting rooms in Group B occupancies.
Cord routing	Power-strip cords cannot extend through walls, ceilings, floors, under doors or floor coverings, or be exposed to physical/environmental damage.

Code references: 2025 CFC §§603.5, 603.5.1, 603.5.2 and 603.5.3; UL 1363; UL 498A

7. Extension Cord Requirements

Extension cords are intended for temporary use with portable appliances. They are not a substitute for permanent building wiring.

- Extension cords must be listed and labeled in accordance with UL 817.
- They cannot be affixed to structures or routed through walls, ceilings, or floors, under doors, or under floor coverings.
- They must be protected from environmental damage and physical impact.
- Extension cords may be used only with portable appliances.
- Cords marked for indoor use cannot be used outdoors.
- An extension cord must be plugged directly into an approved receptacle, relocatable power tap, or current tap and, except for an approved multiplug extension cord, must serve only one portable appliance.
- Cord ampacity cannot be less than the rated ampacity of the appliance it supplies.
- Extension cords must remain in good condition and cannot have splices, deterioration, or damage.
- Where the appliance requires equipment grounding, the extension cord must include an equipment grounding conductor.

Code references: 2025 CFC §§603.6–603.6.4; UL 817

8. Portable Electric Space Heaters

Portable electric space heaters are a common fire-inspection concern and are regulated separately by CFC Section 4102.

- Only listed and labeled portable electric space heaters may be used.
- The heater must be plugged directly into an approved receptacle.
- Portable electric space heaters cannot be plugged into an extension cord.
- A minimum clearance of 3 feet must be maintained from combustible materials.
- The heater may be used only in locations for which it is listed.
- Additional restrictions apply in Group I-2 occupancies and ambulatory care facilities.

Code references: 2025 CFC §§4102.1–4102.1.5

9. Temporary Wiring

- Temporary wiring for electrical power and lighting generally cannot remain in use for more than 90 days.
- Temporary wiring methods must comply with the applicable provisions of the California Electrical Code.
- The 90-day limitation does not apply in the same manner to qualifying temporary wiring used during construction, remodeling, repair, or demolition where the wiring complies with the California Electrical Code.
- Temporary wiring attached to a structure must be protected from physical damage and supported on insulators spaced not more than 10 feet apart.

Code references: 2025 CFC §§603.8 and 603.8.1; California Electrical Code

10. Electrical Motors and Abandoned Plenum Wiring

- Electrical motors must be kept free from excessive accumulations of oil, dirt, waste, and debris.
- Abandoned cables in accessible plenums must either be tagged for future use or removed when they can be accessed without damaging or demolishing the building.

Code references: 2025 CFC §§603.7 and 603.9

11. Special Egress Requirements for Certain Electrical Rooms

Certain rooms containing electrical equipment have additional door and egress requirements because an electrical fault or arc event can make rapid evacuation necessary.

- Exit or exit-access doors serving transformer vaults, rooms designated for batteries or energy storage systems, and modular data centers must be equipped with panic hardware or fire exit hardware.
- For rooms containing electrical equipment rated 800 amperes or more with overcurrent devices, switching devices, or control devices, if the exit or exit-access door is less than 25 feet from the equipment working space, the door must swing in the direction of egress travel and cannot have a latch or lock other than panic hardware or fire exit hardware.

Code reference: 2025 CFC §1010.2.8.2; California Electrical Code working-space provisions

12. Quick Electrical Safety Compliance Check

- ☐ Electrical wiring, devices, equipment, and appliances are not damaged, modified, or creating a shock/fire hazard.
- ☐ All junction boxes, switches, and outlet boxes have approved covers; no open splices are present.
- ☐ Electrical working space is maintained at the required width, depth, and height and is free of stored materials.
- ☐ Electrical rooms are properly identified and illuminated.
- ☐ No combustible materials are stored in electrical equipment rooms.
- ☐ Disconnects and multiple power sources are properly identified.
- ☐ Power strips and current taps are listed, directly connected as required, and not improperly daisy-chained.
- ☐ Extension cords are temporary, undamaged, correctly rated, and not used as permanent wiring.
- ☐ Portable electric space heaters are directly plugged into receptacles and kept at least 3 feet from combustibles.
- ☐ Temporary wiring complies with the applicable 90-day limit and California Electrical Code requirements.
- ☐ Electrical motors are kept free of excessive oil, dirt, waste, and debris.
- ☐ Accessible abandoned plenum wiring is tagged for future use or removed.
- ☐ Where special electrical-room egress requirements apply, the required door swing and panic/fire-exit hardware are provided.

Applicable Code References

- 2025 California Fire Code, Title 24, Part 9 — §§315.3.3, 603.1–603.9, 1010.2.8.2 and 4102.1–4102.1.5.
- 2025 California Electrical Code, Title 24, Part 3 — based on the 2023 National Electrical Code (NFPA 70) with California amendments.
- UL 1363 — Relocatable Power Taps.
- UL 498A — Current Taps and Adapters.
- UL 817 — Cord Sets and Power-Supply Cords.

This handout summarizes commonly applicable electrical fire-safety requirements for public information and routine fire-prevention inspections. The adopted California codes, referenced standards, approved plans, manufacturer listings/instructions, local amendments, and determinations of the applicable code official govern where a conflict or project-specific condition exists.