

# Building and Equipment Design Features

## Chapters 5 through 19

- **Chapter 5** Fire Service Features  
No changes addressed
- **Chapter 6** Building Services and Systems
- **Chapter 7** Fire-Resistance-Rated Construction  
No changes addressed
- **Chapter 8** Interior Finish, Decorative Materials and Furnishings
- **Chapter 9** Fire Protection Systems
- **Chapter 10** Means of Egress
- **Chapter 11** Construction Requirements for Existing Buildings
- **Chapters 12 through 19** (Reserved)

**C**alifornia Fire Code (CFC) Part III contains requirements that provide fire fighters with a means of accessing a building and establishing a fire protection water supply for that building. Chapter 5 contains requirements for address numbers on buildings and provisions for fire department access roadways. Chapter 6 contains requirements for building systems, such as elevators, standby and emergency power systems (EPS), stationary battery systems and refrigeration systems. When specified by the *California Building Code* (CBC), buildings constructed using fire-resistive materials must be properly maintained to ensure the specified fire-resistance ratings are maintained. Chapter 7 specifies the requirements for maintenance of fire-resistance-rated construction.

Interior finish and decorative materials or furnishings offer fuel contribution and surfaces through which a fire can spread and transport heat and smoke to other parts of a room or to other rooms. Chapter 8 contains the most current requirements for regulating wall and ceiling finishes, decorative materials and furnishings.

Fire protection systems are required in accordance with Chapter 9. Chapter 9 specifies the requirements for automatic sprinkler systems, alternative fire-extinguishing systems, fire alarm and detection systems, standpipes, portable fire extinguishers, emergency alarm systems, smoke and heat vents, and smoke control systems. For materials that can have a detonation or deflagration hazard, Chapter 9 specifies the requirements for explosion control systems.

Merriam-Webster's *New Collegiate Dictionary* defines egress as "a place or means of going out." In the event of a fire or an emergency that requires the occupants to safely exit a building, Chapter 10 establishes the minimum requirements for means of egress from buildings.

Chapter 11 sets forth retroactive construction requirements for existing buildings. These provisions establish minimum fire-resistance-rating requirements for shafts as well as minimum means of egress requirements in existing buildings. It also establishes retroactive requirements for the installation of automatic sprinkler systems and fire alarm and detection systems in existing buildings or occupancies. ■



**604.1**

Emergency and Standby Power Systems

**604.2.6, CBC 407.10**

Emergency and Standby Power Systems—Group I-2 Occupancies

**605.11**

Solar Photovoltaic Power Systems

**606.12**

Pressure Relief Devices for Mechanical Refrigeration

**607.6**

Protection of Fire Service Access Elevators and Occupant Evacuation Elevators

**609.2**

Commercial Cooking Appliances Producing a Low Volume of Grease-laden Vapors

**609.3.3.2**

Inspection and Cleaning of Commercial Kitchen Exhaust Hoods

**609.4**

Gas-fired Appliance Connections

**611**

Hyperbaric Facilities

**807**

Decorative Materials Other Than Decorative Vegetation in New and Existing Buildings

**901.4.1**

Required Fire Protection Systems

**901.8.2**

Removal of Existing Occupant-use Hose Lines

**903.2.1**

Fire Sprinklers in Group A Occupancies

**903.2.1.6**

Assembly Occupancies on Roofs

**903.2.1.7**

Multiple Group A Fire Areas

**903.2.9**

Commercial Motor Vehicles—Fire Sprinkler Requirements

**903.2.11.3**

Buildings 55 Feet or More in Height—Sprinklers Required

**903.3.1.1.1, 508.1.6**

Exempt Locations—Sprinklers Not Required when Automatic Fire Detection System Is Provided

**903.3.1.1.2**

Bathrooms Exempt from Sprinkler Requirements

**903.3.1.2**

NFPA 13R Sprinkler Systems

**903.3.1.2.2, 1027.6, 1104.22**

NFPA 13R Sprinkler Systems—Open-Ended Corridors (Breezeways)

**903.3.8**

Limited Area Sprinkler Systems

**904.2, 904.11**

Automatic Water Mist Systems

**905.3.11**

Standpipe Systems

**907.1.2**

Fire Alarm Shop Drawings—Design Minimum Audibility Level

**907.2.3**

Group E Manual Fire Alarm System

**907.2.6, 907.5.2.1**

Fire Alarm and Detection Systems for Group I-2 Occupancies

**907.2.6.4**

Fire Alarm and Detection Systems, Large-Family Day Care

**907.2.9.3**

Fire Alarm and Detection Systems for Group R College and University Buildings

**907.2.11.7**

Smoke Detection System

**907.2.14**

Fire Alarm and Detection Systems for Atriums

**907.2.22.1, 907.2.22.2**

Smoke Detection for Airport Traffic Control Towers

**907.5.2.2.4**

Emergency Voice/Alarm Communication Captions

**909.4.7**

Smoke Control System Interaction

**909.6.3**

Smoke Control Systems—Pressurized Stairways and Elevator Hoistways

**909.12.1, 909.20.6**

Verification of Mechanical Smoke Control Systems

**909.21**

Elevator Hoistway Pressurization Alternative

**910**

Smoke and Heat Removal

**913.2.2**

Electric Circuits Supplying Fire Pumps

**915**

Carbon Monoxide Detection

**CHAPTER 10**

Means of Egress

**1004.1.1**

Cumulative Occupant Loads

**TABLE 1004.1.2**

Occupant Load Factors

**1006, 1007**

Number of Exits and Exit Access Doorways

**1007.1**

Exit and Exit Access Doorway Configuration

**1009.8**

Two-Way Communication

**1010.1.9**

Door Operations—Locking Systems

**1011.15, 1011.16**

Ships Ladders and Ladders

**1014.8**

Handrail Projections

**1016.2**

Egress through Intervening Spaces

**1017.2.2**

Travel Distance Increase for Group F-1 and S-1 Occupancies

**1018.3, 1018.5**

Aisles

**1020.2**

Corridor Width and Capacity

**1023.3.1**

Stairway Extension

**1029.13.2.2.1**

Stepped Aisle Construction Tolerances

**1103.4.1**

Vertical Openings in Existing Group I-2 and I-3 Occupancies

**1103.7.6**

Manual Fire Alarm Systems in Existing Group R-2 Occupancies

**1105**

Construction Requirements for Existing Group I-2 Occupancies

# 604.1

## Emergency and Standby Power Systems

**CHANGE TYPE:** Addition

**CHANGE SUMMARY:** This change brings additional requirements related to emergency and standby power systems from the CBC into the CFC to provide for consistency and uniform enforcement. Load-transfer timing and duration are both quantified to assist the fire code official. Criteria have been added for Group I-2 occupancies that are located in flood hazard areas.

**2016 CODE: 604.1 Installation General.** Emergency power systems and standby power systems required by this code or the *California Building Code* shall be installed in accordance with this code, NFPA 110 and NFPA



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Power switching (load transfer) system in hospital

111. Existing installations shall be maintained in accordance with the original approval. shall comply with Sections 604.1.1 through 604.1.8.

**604.1.1 Stationary Generators.** Stationary emergency and standby power generators required by this code shall be listed in accordance with UL 2200.

**604.1.2 Installation.** Emergency power systems and standby power systems shall be installed in accordance with the *California Building Code*, the *California Electrical Code*, NFPA 110 and NFPA 111.

**604.1.3 Load Transfer.** Emergency power systems shall automatically provide secondary power within 10 seconds after primary power is lost, unless specified otherwise in this code. Standby power systems shall automatically provide secondary power within 60 seconds after primary power is lost unless specified otherwise in this code.

**604.1.4 Load Duration.** Emergency power systems and standby power systems shall be designed to provide the required power for a minimum duration of 2 hours without being refueled or recharged, unless specified otherwise in this code.

**604.1.5 Uninterruptable Power Source.** An uninterrupted source of power shall be provided for equipment where required by the manufacturer's instructions, the listing, this code, or applicable referenced standards.

**604.1.6 Interchangeability.** Emergency power systems shall be an acceptable alternative for installations that require standby power systems.

**604.1.7 Group I-2 Occupancies.** In Group I-2 occupancies, where an essential electrical system is located in flood hazard areas established in Section 1612.3 of the *California Building Code* and where new or replacement essential electrical system generators are installed, the system shall be located and installed in accordance with ASCE 24.

**604.1.8 Maintenance.** Existing installations shall be maintained in accordance with the original approval and Section 604.4.

## SECTION 202 GENERAL DEFINITIONS

**Emergency Power System.** A source of automatic electric power of a required capacity and duration to operate required life safety, fire alarm, detection and ventilation systems in the event of a failure of the primary power. Emergency power systems are required for electrical loads where interruption of the primary power could result in loss of human life or serious injuries.

**Standby Power System.** A source of automatic electric power of a required capacity and duration to operate required building, hazardous

*604.1 continues*

*604.1 continued* materials or ventilation systems in the event of a failure of the primary power. Standby power systems are required for electrical loads where interruption of the primary power could create hazards or hamper rescue or fire-fighting operations.

**CHANGE SIGNIFICANCE:** The expansion of the existing Section 604.1 is intended to assist the fire code official by providing details such as installation requirements, load-transfer timing, load duration of the fuel supply, criteria for new or replacement installations for Group I-2 occupancies and maintenance requirements in one code section. Previously, this information was contained only in Section 2701 of the CBC. Definitions for emergency power systems (EPS) and standby power systems (SPS) have been added.

EPS and SPS are required based on a building's occupancy classification, height or depth of the building, building area, occupant load or specific hazardous materials or hazards to emergency responders. These systems are designed to provide electrical power to specified loads such as means-of-egress illumination, smoke control systems, emergency voice/alarm communication systems, fire service access elevators or occupant evacuation elevators.

This section now provides requirements for maximum load-transfer times. EPS must automatically transfer loads within 10 seconds after primary power is lost, and SPS must automatically transfer loads within 60 seconds after primary power is lost. Additionally, the amount of fuel needed for EPS and SPS is 2 hours minimum unless an alternative duration is required.

In recognition of the problems created when generators are rendered unusable due to flooding, this section now requires that new and replacement essential electrical systems in Group I-2 occupancies shall be installed in accordance with ASCE 24, Flood Resistant Design and Construction (American Society of Civil Engineers, Standard 24). ASCE 24 is a referenced standard in the *California Building Code*. Any building or structure that falls within the scope of the CBC that is proposed in a flood hazard area is to be designed in accordance with ASCE 24.

ASCE 24 tells the designer the minimum requirements and expected performance for the design and construction of buildings and structures in flood hazard areas. It is not a restatement of all of the National Flood Insurance Program regulations, but offers additional specificity, some additional requirements and some limitations. Buildings designed according to ASCE 24 are better able to resist flood loads and flood damage.