

## Study Session

# 3

## 2018 IFC Chapters 3 and 4 General Requirements, Emergency Planning and Preparedness

**OBJECTIVE:** To gain an understanding of the issues, requirements and procedures related to general precautions against fire, emergency planning and preparedness.

**REFERENCE:** Chapters 3 and 4, 2018 *International Fire Code*

- KEY POINTS:**
- What is the scope of Chapter 3 of the *International Fire Code*, and how is its purpose best summarized?
  - What and where are some of the key definitions related to general precautions against fire?
  - How does the *International Fire Code* deal with what might commonly be called trash? What are some of the specific requirements regarding types and amounts of materials?
  - Where can additional information and details be found about the regulation of motion picture projection and the use and storage of cellulose nitrate film?
  - How are bonfires and other types of open burning regulated in the *International Fire Code*?
  - What are some of the uses of open flame that are regulated, and where can details be found?
  - What are the provisions regarding the storage, use and repair of forklifts?
  - In what areas is smoking prohibited, and how is this enforced?
  - Are there regulations for the maintenance of abandoned or vacant premises?
  - How are indoor displays of highly combustible materials and vehicles or boats regulated?
  - What are the requirements for indoor storage of combustible materials? Outdoor storage?
  - How are fire protection appliances protected from vehicle impact?
  - Can gasoline-fueled equipment be used inside a building?

- KEY POINTS:**  
**(Cont'd)**
- Can gasoline-fueled or gaseous-fueled vehicles be displayed inside a building?
  - What is the maximum height of stored products inside a building? Outside buildings?
  - What portions of a mobile food preparation vehicle (catering truck) are regulated by the *International Fire Code*?
  - Which types of activities are regulated by Chapter 4 of the *International Fire Code*?
  - Under what circumstances is the fire code official authorized to require a fire watch?
  - Which occupancy groups are required to develop a fire safety and evacuation plan?
  - Which facilities are required to provide employees with training in fire emergency procedures?
  - What are some of the more specific emergency planning requirements for certain uses and occupancies?
  - Which facilities are required to make an announcement regarding the location of exits?
  - How often are emergency evacuation drills to be conducted in an assisted living facility?
  - When emergency evacuation drills are practiced at a restaurant, who needs to participate?
  - What is a lockdown plan, and how is it prepared and implemented?
  - Which types of buildings require the preparation and maintenance of a lease plan?
  - Which *International Fire Code* provision prohibits the installation of booby traps in buildings?
  - What are the training requirements for employees and staff at facilities that handle hazardous materials?
  - When are crowd managers required and what are their responsibilities?

**Code Text:** *The provisions of this chapter shall govern the occupancy and maintenance of all structures and premises for precautions against fire and the spread of fire and general requirements of fire safety.*

**Discussion and Commentary:** There are a number of situations or activities that are widely known to either cause fires or exacerbate the spread of fires. As an example, the use of charcoal grills on balconies of apartment buildings that are constructed either partially or entirely of combustible materials has been the cause of countless fires that typically spread to the remainder of the building and threaten other occupants. The purpose of Chapter 3 is to identify common causes for the ignition and spread of fire, and to provide regulations to guard against them.

### **GENERAL REQUIREMENTS:**

- PERMITS (required operational permits as listed in IFC Sec. 105.6)
- ASPHALT KETTLES (transport, fuel containers, attendant, etc.)
- COMBUSTIBLE WASTE MATERIAL (trash, weeds, under bleachers, oily rags, containers, dumpsters, etc.)
- IGNITION SOURCES (clearances, hot ashes, flares, etc.)
- MOTION PICTURE PROJECTION ROOMS (See IFC Sec. 306, NFPA 40, IBC Sec. 409)
- OPEN BURNING, RECREATIONAL FIRES AND PORTABLE OUTDOOR FIREPLACES (permits, prohibitions, clearances, attendance)
- OPEN FLAMES (cooking, candles, lanterns, heaters, candelabra, etc.)
- POWERED INDUSTRIAL TRUCKS (forklifts, etc.)
- SMOKING (“No Smoking” areas, signs, ash trays, discarding materials)
- VACANT PREMISES (abandoned, vacant, empty tenant spaces, fire protection and separations, removal of combustibles and hazardous materials, etc.)
- FUELED EQUIPMENT (motorcycles, lawn care, portable cooking)
- INDOOR DISPLAYS (unobstructed exits, fueled vehicle requirements)
- ROOFTOP GARDENS AND LANDSCAPED ROOFS (vegetation, fire fighting, etc.)
- LAUNDRY CARTS (combustibility, sprinkler protection, etc.)
- HAZARDS TO FIRE FIGHTERS (shafts, pits, rooftop obstructions, etc.)

### **MISCELLANEOUS COMBUSTIBLE MATERIALS STORAGE:**

- In buildings (ceiling and sprinkler clearance, equipment rooms, etc.)
- Outdoors (distance to lot lines, maximum height, etc.)

NFPA Standard 550, “Guide to the Fire Safety Concepts Tree” published by the National Fire Protection Association, is a good source for additional information regarding the prevention of fire ignition and the management of fire impacts.

**Code Text:** *Capacity of 1 cubic yard or more. Dumpsters with an individual capacity of 1.0 cubic yard [200 gallons (0.76 m<sup>3</sup>)] or more shall not be stored in buildings or placed within 5 feet (1524 mm) of combustible walls, openings or combustible roof eave lines unless the dumpsters are constructed of noncombustible materials or of combustible materials with a peak rate of heat release not exceeding 300 kW/m<sup>2</sup> where tested in accordance with ASTM E1354 at an incident heat flux of 50 kW/m<sup>2</sup> in the horizontal orientation.*

**Exceptions:**

1. Dumpsters in areas protected by an approved automatic sprinkler system installed throughout in accordance with Section 903.3.1.1, 903.3.1.2 or 903.3.1.3.
2. Storage in a structure shall not be prohibited where the structure is of Type I or IIA construction, located not less than 10 feet (3048 mm) from other buildings and used exclusively for dumpster or container storage.

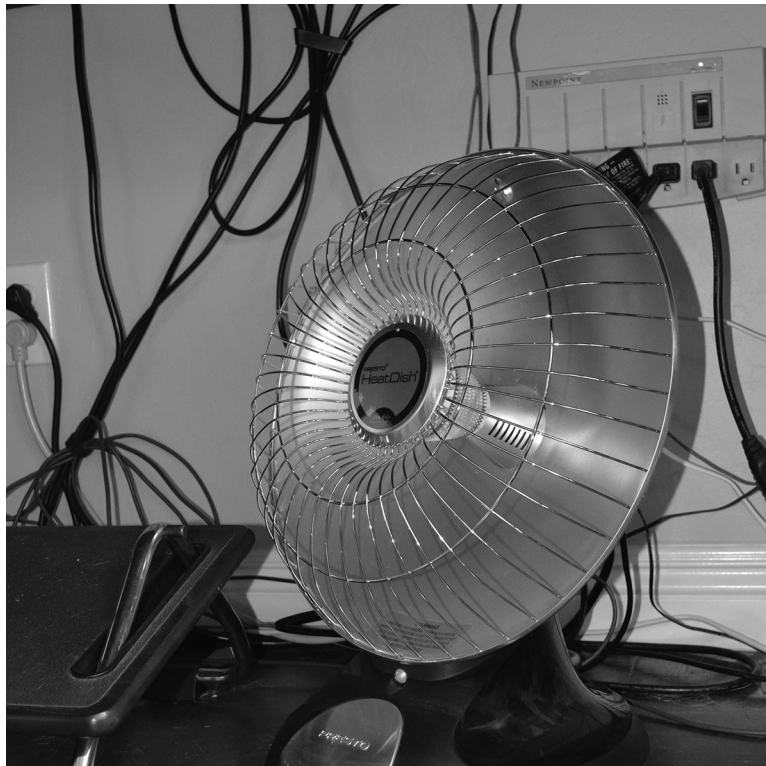
**Discussion and Commentary:** Fires often occur in waste containers. The vast majority of contents in a waste container is combustible materials. Containers larger than one cubic yard can create a significant fire and therefore are required to be located outside and at least five feet from walls or eaves of combustible construction. Containers used for waste material are commonly constructed of plastics, and the container itself adds to the already large fuel load. The IFC requires plastic containers be manufactured from resins that have a limited heat-release rate to ensure that the rate of fire development is controlled.



The IFC also requires wastebaskets in Groups I-1, I-2 and I-3 occupancies and Group B ambulatory care facilities to be noncombustible or have a heat-release rate of 300 kW/m<sup>2</sup> or less.

**Code Text:** *Clearance between ignition sources, such as luminaires, heaters, flame-producing devices and combustible materials, shall be maintained in an approved manner.*

**Discussion and Commentary:** This section can be applied to any number of situations where there are combustible materials near a source of ignition. If an open flame is present, an ignition source is available. As well as just a source of heat, such as a light fixture or luminaire. The section does not specify the minimum separation distance between the combustible materials and the source of heat. The separation required is based on the level of heat and the susceptibility of the exposed materials to ignite.



Various sources of heat are used in different environments, but they must all be separated from combustible materials.

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**Topic:** Where Prohibited

**Category:** General Requirements

**Reference:** IFC 308.1.1

**Subject:** Open Flames

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**Code Text:** *A person shall not take or utilize an open flame or light in a structure, vessel, boat or other place where highly flammable, combustible or explosive material is utilized or stored. Lighting appliances shall be well-secured in a glass globe and wire mesh cage or a similar approved device.*

**Discussion and Commentary:** This section prohibits several different uses of open flames. Where an open flame is present, an ignition source is available. All that is necessary to create a dangerous situation is to provide the fire with more fuel. Thus, the provisions of IFC Section 308 limit the amount of fuel that is available and keep the flames separated from the fuel sources.



This provision is intended to regulate a readily available ignition source.

**Code Text:** *Powered industrial trucks using liquid fuel, LP-gas or hydrogen shall be refueled outside of buildings or in areas specifically approved for that purpose. Fixed fuel-dispensing equipment and associated fueling operations shall be in accordance with Chapter 23. Other fuel-dispensing equipment and operations, including cylinder exchange for LP-gas-fueled vehicles, shall be in accordance with Chapter 57 for flammable and combustible liquids or Chapter 61 for LP-gas.*

**Discussion and Commentary:** Refueling of industrial trucks using LP-gas, compressed natural gas or conventional fuels such as gasoline or diesel fuel must comply with the requirements of Chapter 23. This is an important provision because of the hazards associated with the dispensing of fuels. IFC Section 309.6 requires fueling of industrial trucks and equipment be performed outside of the building to minimize the hazards to the occupants, or in an area that has been approved for a refueling by the fire code official.



Forklifts operated inside this building are driven outside to replace the empty LP-gas cylinder with a full cylinder.

**Code Text:** *Temporarily unoccupied buildings, structures, premises or portions thereof, including tenant spaces, shall be safeguarded and maintained in accordance with Sections 311.1.1 through 311.6.*

(See IFC Section 311 and subsections.)

**Discussion and Commentary:** Vacant premises can create potential hazards for a number of reasons. Typically, no one is present on a regular basis to watch over the facilities or maintain them in a safe condition. Abandoned buildings can be a nuisance to the community, subject to trespassing and use by neighborhood children, people seeking shelter or persons engaging in criminal activities. This combination of lack of oversight and unauthorized uses may lead to careless acts that can result in fires, accidents or other incidents that might endanger users, emergency responders and adjacent properties. IFC Section 311 provides tools to safeguard against these eventualities and to restore abandoned premises to a safe condition.



Section 311.1.1 includes references to the *International Property Maintenance Code*® (IPMC®), in which Sections 108–110 provide requirements that deal with unsafe structures, and to the *International Building Code*, in which Section 116 contains provisions to deal with unsafe structures and the maintenance of existing structures.