

Study Session

3

2015 IFC Chapters 3, 4 and 5

General Requirements, Emergency Planning and Preparedness, and Fire Service Features

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

REFERENCE: Chapters 3, 4 and 5, 2015 *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?
 - Which types of activities are regulated by Chapter 4 of the *International Fire Code*?
 - What types of security devices are prohibited in a means of egress system?
 - Under what circumstances is the fire code official authorized to require a fire watch or crowd managers?
 - Which occupancy groups require the provision of 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?

- KEY POINTS:**
- (Cont'd)**
- Which uses 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?
 - 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?
 - What is the scope of Chapter 5 of the IFC and what types of issues does it regulate?
 - When do required fire apparatus roads and water supplies need to be installed for a new building or development that is being constructed?
 - Under what circumstance is a fire apparatus access road allowed to exceed 150 feet in length?
 - When is the fire code official authorized to require the installation of a key box?
 - Which *International Fire Code* provision prohibits the installation of booby traps in buildings?
 - How are fire-flow requirements for buildings and facilities to be determined?
 - What is the required clear space around a fire hydrant?
 - When is emergency responder radio coverage required?
 - Which code section requires that rooms containing fire protection equipment be identified by readily visible signs?
 - When are crowd managers required and what are their responsibilities?

Topic: Scope

Category: General Precautions

Reference: IFC 301.1

Subject: General

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 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)
- 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, firefighting, etc.)
- LAUNDRY CARTS (combustibility, sprinkler protection, etc.)
- HAZARDS TO FIRE FIGHTERS (shafts, pits, rooftop obstructions, etc.)

VEHICLE IMPACT PROTECTION:

- Motor fuel dispensing, above-ground tanks, IFC Sec. 2306.4
- LP-gas motor fuel-dispensing, above-ground tanks, IFC Sec. 2307.6.4, 6109.13
- Compressed gas vaults, IFC Sec. 5303.16.6
- Flammable & combustible liquid vaults, IFC Sec. 5704.2.8.6
- Flammable & combustible liquids, above-ground tanks, Sec. 5704.2.9.6.5

MISCELLANEOUS COMBUSTIBLE MATERIALS STORAGE:

- In buildings (ceiling and sprinkler clearance, equipment rooms, etc.)
- Outdoors (distance to property 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.

Topic: Container Capacity Exceeding 5.33 ft³ **Category:** General Requirements
Reference: IFC 304.3.2 **Subject:** Combustible Waste Materials

Code Text: *Containers with a capacity exceeding 5.33 cubic feet (40 gallons) (0.15 m²) shall be provided with lids. Containers and lids shall be constructed of noncombustible materials or of combustible materials with a peak rate of heat release not exceeding 300 kW/m² when tested in accordance with ASTM E 1354 at an incident heat flux of 50 kW/m² in the horizontal orientation.*
Exception: *Wastebaskets complying with Section 808.*

Discussion and Commentary: Containers used for collecting soiled linens or waste material are commonly constructed of plastics, and these containers can represent a large fuel load inside of a building. 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.



(Photograph courtesy of the Rubbermaid Corporation.)

The IFC also requires wastebaskets in Groups I-1, I-2 and I-3 occupancies to be noncombustible or have a heat-release rate of 300 kW/m² or less.

Topic: Where Prohibited
Reference: IFC 308.1.1

Category: General Requirements
Subject: Open Flames

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.

Topic: General
Reference: IFC 407.1

Category: Emergency Planning and Preparedness
Subject: Hazard Communication

Code Text: *The provisions of Sections 407.2 through 407.7 shall be applicable where hazardous materials subject to permits under Section 5001.5 are located on the premises or where required by the fire code official*

Discussion and Commentary: The requirements of this section are important, both for fire prevention, in assuring that materials are stored and used in accordance with applicable requirements, and for emergency response, in knowing the types, quantities and locations of materials on the premises. These requirements typically apply only when the amount of hazardous materials that are present exceed the permit amounts listed in Table 105.6.21, but may also be applied at the direction of the fire code official.



OSHA has required material safety data sheets as part of its Hazard Communication requirements for over 15 years. Many larger companies use on-line resources for storing and disseminating MSDS sheets. These electronic resources meet the requirements of IFC Section 407.2.

Topic: Scope

Category: Fire Service Features

Reference: IFC 501.1

Subject: General

Code Text: *Fire service features for buildings, structures and premises shall comply with this chapter (IFC Chapter 5).*

Discussion and Commentary: The intent of Chapter 5 is to ensure that a fire apparatus has access to the building, that a reliable water supply is available and that fire protection systems are accessible. If the building is a high-rise, IFC Section 508 specifies the construction and installation of certain building systems and a fire protection controls fire command center.



A performance-based code and a prescriptive code, the *International Fire Code* does not always specify requirements in detail, but often contains references to nationally recognized standards. Chapter 5 references the AASHTO standard for bridges and NFPA standards for the design of the water supply and fire protection systems.

Code Text: *Approved fire apparatus access roads shall be provided for every facility, building or portion of a building hereafter constructed or moved into or within the jurisdiction. The fire apparatus access road shall comply with the requirements of this section and shall extend to within 150 feet (45 720 mm) of all portions of the exterior walls of the first story of the building as measured by an approved route around the exterior of the building or facility. Exceptions to IFC Section 503.1.1 authorize the fire code official to increase the 150-foot distance if 1) the building is equipped with the appropriate NFPA 13, 13R or 13D sprinkler system, 2) an access road is not feasible and approved alternative protection is provided or 3) there are not more than two R-3 or U occupancies.*

Discussion and Commentary: The intent of this section is to ensure that fire fighters are able to lay a hose line to reach any portion of the exterior walls of a building or facility. If any portion of a building is greater than 150 feet from an access road, an access road or roads constructed to fulfill fire apparatus access road standards must be extended so that the 150-foot requirement is met. The *approved route* language provides for unobstructed foot traffic around the exterior of the building.

