

PART

1

Administrative

Chapters 1 and 2



- **Chapter 1** Scope and Administration
- **Chapter 2** Definitions

The provisions in Chapter 1 set forth requirements for the adoption, application, enforcement, and administration of the *International Fire Code* (IFC). In addition to establishing the scope and intent of the IFC, the chapter addresses construction, operational and maintenance inspection authority, the general responsibilities and authority of the Fire Prevention Division or Bureau, and adoption of standards located in Chapter 80. Upon adoption by a governmental jurisdiction, Chapter 1 specifies the requirements for issuance and enforcement of construction and operational permits; establishment of a board of appeals; inspection of sites, facilities, buildings, and processes; collection of fees; issuing stop use orders; and actions required to serve legal notice and correction violations.

Chapter 2 provides definitions for terms used throughout the IFC and the *International Building Code* (IBC). Codes themselves are technical documents, and literally every word and term can add to or change the meaning of the intended results. All of the chapter-specific definitions were consolidated into Chapter 2 in the 2012 IFC. ■

101

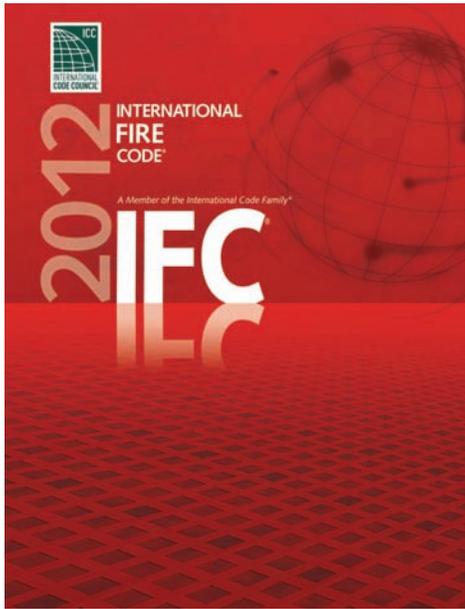
Organization of the IFC

202

Definitions—Groups E, I, and R Care Occupancies

Section 101

Organization



Cover of 2012 IFC

International Code Council®

CHANGE TYPE: Modification

CHANGE SUMMARY: The 2012 IFC has been completely reorganized into parts to make it easier for its users.

2012 CODE:

Part I—Administrative

Chapter 1 Scope and Administration

Chapter 2 Definitions

Part II—General Safety Provisions

Chapter 3 General Requirements

Chapter 4 Emergency Planning and Preparedness

Part III—Building and Equipment Design Features

Chapter 5 Fire Service Features

Chapter 6 Building Services and Systems

Chapter 7 Fire-Resistance-Rated Construction

Chapter 8 Interior Finish, Decorative Materials and Furnishings

Chapter 9 Fire Protection Systems

Chapter 10 Means of Egress

Chapter ~~46~~ 11 Construction Requirements for Existing Buildings

Chapters 12 through 19 (reserved)

Part IV—Special Occupancies and Operations

Chapter ~~11~~ 20 Aviation Facilities

Chapter ~~12~~ 21 Dry Cleaning

Chapter ~~13~~ 22 Combustible Dust-Producing Operations

Chapter ~~22~~ 23 Motor Fuel-Dispensing Facilities and Repair Garages

Chapter ~~15~~ 24 Flammable Finishes

Chapter ~~16~~ 25 Fruit and Crop Ripening

Chapter ~~17~~ 26 Fumigation and Insecticidal Fogging

Chapter ~~18~~ 27 Semiconductor Fabrication Facilities

Chapter ~~19~~ 28 Lumber Yards and Woodworking Facilities

Chapter ~~20~~ 29 Manufacture of Organic Coatings

Chapter ~~21~~ 30 Industrial Ovens

Chapter ~~24~~ 31 Tents and Other Membrane Structures

Chapter ~~23~~ 32 High-Piled Combustible Storage

Chapter ~~14~~ 33 Fire Safety during Construction and Demolition

Chapter ~~25~~ 34 Tire Rebuilding and Tire Storage

Chapter ~~26~~ 35 Welding and Other Hot Work

Chapter ~~45~~ 36 Marinas

Chapters 37 through 49 (reserved)

Part V—Hazardous Materials

- Chapter 27 50 Hazardous Materials—General Provisions
- Chapter 28 51 Aerosols
- Chapter 29 52 Combustible Fibers
- Chapter 30 53 Compressed Gases
- Chapter 31 54 Corrosive Materials
- Chapter 32 55 Cryogenic Fluids
- Chapter 33 56 Explosives and Fireworks
- Chapter 34 57 Flammable and Combustible Liquids
- Chapter 35 58 Flammable Gases and Flammable Cryogenic Fluids
- Chapter 36 59 Flammable Solids
- Chapter 37 60 Highly Toxic and Toxic Materials
- Chapter 38 61 Liquefied Petroleum Gases
- Chapter 39 62 Organic Peroxides
- Chapter 40 63 Oxidizers, Oxidizing Gases and Oxidizing Cryogenic Fluids
- Chapter 41 64 Pyrophoric Materials
- Chapter 42 65 Pyroxylin (Cellulose Nitrate) Plastics
- Chapter 43 66 Unstable (Reactive) Materials
- Chapter 44 67 Water-Reactive Solids and Liquids
- Chapters 68 through 79 (reserved)

Part VI—Referenced Standards

- Chapter 47 80 Referenced Standards

Part VII—Appendices

- Appendix A Board of Appeals
- Appendix B Fire-Flow Requirements for Buildings
- Appendix C Fire Hydrant Locations and Distribution
- Appendix D Fire Apparatus Access Roads
- Appendix E Hazard Categories
- Appendix F Hazard Ranking
- Appendix G Cryogenic Fluids—Weight and Volume Equivalents
- Appendix H Hazardous Materials Management Plan (HMMP) and Hazardous Materials Inventory Statement (HMIS) Instructions
- Appendix I Fire Protection Systems—Noncompliant Conditions
- Appendix J Building Information Signs ~~Emergency Responder Radio Coverage~~

CHANGE SIGNIFICANCE: The 2012 IFC was reorganized in its entirety. This reorganization combined respective chapters into key sections. The format and arrangement of the reorganized IFC is further improved, making it easier to use. This organization establishes certain placeholders in the event future chapters are developed and approved.

The 2012 IFC is divided into seven parts. Each part is assigned to a particular subject matter, such as General Safety Provisions or Special

Occupancies and Operations. The chapters with requirements applicable to a particular part are located within each respective part. This reorganization will improve correlation between the *International Building Code* (IBC) and the IFC. This arrangement is a different approach when compared to the other ICC codes. It was found that the IFC needs to be organized in such a manner that it can be readily expanded when new hazards are identified and regulations are brought forth so that fire code officials can manage them.

Several chapters were relocated as a result of this format revision:

- Part I: Chapter 1—Scope and Administration and Chapter 2—Definitions are the same throughout all of the ICC codes. The IFC is now consistent with the IBC layout and arrangement concerning these provisions.
- Part III: Chapter 7—Fire-Resistance-Rated Construction, Chapter 8—Interior Finish, Decorative Materials and Furnishings, Chapter 9—Fire Protection Systems, and Chapter 10—Means of Egress are the same subjects in the IBC and remain the same in the IFC for consistency. Chapter 46—Construction Requirements for Existing Buildings is now Chapter 11.
- Part IV: Chapter 23—Tents and Other Membrane Structures was relocated to Chapter 31. This provides consistency with the IBC as its requirements for membrane structures are located in Chapter 31. Chapter 14—Fire Safety During Construction and Demolition was relocated to Chapter 33, which is the same chapter number in the IBC addressing Safeguards During Construction. The IFC requirements for marinas were moved from Chapter 45 to Chapter 36.
- Part V: All of the hazardous material provisions are now consolidated into a single part, which begins at Chapter 50.

CHANGE TYPE: Modification

CHANGE SUMMARY: Requirements for the various types of medical or occupant care and their occupancy classifications are now based on defined terms, the number of persons, and whether persons are capable of self-preservation.

2012 CODE:

SECTION 202

GENERAL DEFINITIONS

24 Hour Care. The actual time that a person is an occupant within a facility for the purpose of receiving care. It shall not include a facility that is open for 24 hours and is capable of providing care to someone visiting the facility during any segment of the 24 hours.

Ambulatory Health Care Facility. Buildings or portions thereof used to provide medical, surgical, psychiatric, nursing or similar care on a less than 24-hour basis to persons individuals who are rendered incapable of self-preservation by the services provided.

Custodial Care. Assistance with day-to-day living tasks; such as assistance with cooking, taking medication, bathing, using toilet facilities and other tasks of daily living. Custodial care include occupants who evacuate at a slower rate and/or who have mental and psychiatric complications.

Detoxification Facilities. Facilities that serve patients who are provide treatment for substance abuse on a 24-hour basis and serving care recipients who are incapable of self-preservation or who are harmful to themselves or others.

Child Foster Care-Facilities. Facilities that provide care on a 24-hour basis to more than five children, 2½ years of age or less.

202 continues



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Group I-2 detoxification facility

202

Definitions—Group B, E, I, and R Care Occupancies

202 continued

Group Home. A facility for social rehabilitation, substance abuse or mental health problems that contain a group housing arrangement that provides custodial care but does not provide acute care.

Hospitals and Mental Psychiatric Hospitals. Facilities buildings or portion thereof used on a 24-hour basis that provides care or treatment for the medical, psychiatric, obstetrical, or surgical treatment of inpatients who care recipients that are incapable of self-preservation.

Incapable of Self Preservation. Persons because of age; physical limitations; mental limitations; chemical dependency; or medical treatment cannot respond as an individual to an emergency situation.

Medical Care. Care involving medical or surgical procedures, nursing or for psychiatric purposes.

Nursing Homes. Nursing homes are long-term care Facilities that provide care on a 24-hour basis, including both intermediate care facilities and skilled nursing facilities, serving more than five persons and where any of the persons are incapable of self-preservation.

Personal Care Service. The care of residents persons who do not require chronic or convalescent medical or nursing care. Personal care involves responsibility for the safety of the residents persons while inside the building.

Residential Care/Assisted Living Facilities. A building or part thereof housing persons on a 24-hour basis, who because of age, mental disability or other reasons, live in a supervised residential environment which provides personal care services. The occupants are capable of responding to an emergency situation without physical assistance from staff. This classification shall include, but not be limited to, the following: residential board and care facilities, assisted living facilities, halfway houses, group homes, congregate care facilities, social rehabilitation facilities, alcohol and drug abuse centers and convalescent facilities.

[B] EDUCATIONAL GROUP E. Educational Group E includes, among others, the use of a building or structure, or a portion thereof, by six or more persons at any one time for educational purposes through the 12th grade.

Accessory to places of worship. Religious educational rooms and religious auditoriums, which are accessory to places of religious worship in accordance with Section 508.3.1 of the *International Building Code* and have occupant loads of less than 100, shall be classified as Group A-3 occupancies.

Group E day care facilities. This group includes buildings and structures or portions thereof occupied by more than five children older than 2½ years of age who receive educational, supervision or personal care services for less than 24 hours per day.



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Group E day-care facility

Within places of worship. Rooms and spaces within places of worship providing such care during religious functions shall be classified as part of the primary occupancy.

Five or fewer children. A facility having five or fewer children receiving such care shall be classified as part of the primary occupancy.

Five or fewer children in a dwelling unit. A facility within a dwelling unit having five or fewer children receiving such care shall be classified as a Group R-3 occupancy or shall comply with the *International Residential Code*.

The use of a building or structure, or portion thereof, for educational, supervision or personal care services or more than five children older than 2½ years of age, shall be classified as a Group E occupancy.

INSTITUTIONAL GROUP I. Institutional Group I occupancy includes, among others, the use of a building or structure, or a portion thereof, in which people are cared for or live in a supervised environment, having physical limitations because of health or age are harbored for medical treatment or other care or treatment, or in which people are detained for penal or correctional purposes or in which the liberty of the occupants is restricted care or supervision is provided to individuals who are or are not capable of self preservation without physical assistance or in which people are detained for penal or correctional purposes or in which the liberty of the occupants is restricted. Institutional occupancies shall be classified as Group I-1, I-2, I-3 or I-4.

GROUP I-1. This occupancy shall include buildings, structures or portions thereof housing for more than 16 persons who reside on a 24 hour basis who because of age, mental disability or other reasons, live in a supervised residential environment that provides personal care services and receive custodial care. The occupants are capable of responding to an emergency situation without physical assistance from staff self preservation. This group shall include, but not be limited to, the following:

Residential board and custodial care

(Remainder of occupancies remains unchanged)

202 continues

202 *continued*

Five or fewer persons receiving care. A facility such as the above with five or fewer persons *residents* shall be classified as Group R-3 or shall comply with the *International Residential Code* in accordance with Section 101.2 provided an automatic sprinkler system is installed in accordance with Section 903.3.1.3 or *International Residential Code* Section P2904.

Six to Sixteen Persons Receiving Care. A facility such as above, housing at least six and not more than 16 persons receiving such care, shall be classified as Group R-4.

GROUP I-2. This occupancy shall include buildings and structures used for medical, ~~surgical, psychiatric, nursing or custodial~~ care on a 24 hour basis for more than five persons who are not capable of self preservation. This group shall include, but not be limited to, the following:

~~Foster Child~~ care facilities
 Detoxification facilities
 Hospitals
 Nursing homes
~~Mental Psychiatric~~ hospitals

Five or fewer persons receiving care. A facility such as the above with five or fewer residents shall be classified as Group R-3 or shall comply with the *International Residential Code* in accordance with Section 101.2 provided an automatic sprinkler system is installed in accordance with Section 903.3.1.3 or Section P2904 of the *International Residential Code*.

GROUP I-4, DAY CARE FACILITIES. This group shall include buildings and structures occupied by more than five persons of any age who receive custodial care for less than 24 hours per day by individuals other than parents or guardians, relatives by blood, marriage or adoption, and in a place other than the home of the person cared for. ~~A facility such as the above five or fewer persons shall be classified as a Group R-3 or shall comply with the *International Residential Code* in accordance with Section 101.2. Places of worship during religious functions are not included.~~ This group shall include, but not be limited to, the following:

Adult day care
Child day care

~~Adult care facility.~~ A facility that provides accommodations for less than 24 hours for more than five unrelated adults and provides supervision and custodial care shall be classified as Group I-4.

~~Exception:~~ A facility where occupants are capable of responding to an emergency situation without physical assistance from the staff shall be classified as Group R-3.

~~Child care facility.~~ A facility that provides supervision and custodial care on less than a 24-hour basis for more than five children $2\frac{1}{2}$ years of age or less shall be classified as Group I-4.

Classification as Group E. A child day care facility that provides custodial care for more than five but no more than 100 children 2½ years or less of age, when the rooms where such children are cared for are located on the level of exit discharge and each of these child care rooms has an exit door directly to the exterior, shall be classified as Group E.

Rooms and spaces within places of worship providing such care during religious functions shall be classified as part of the primary occupancy.

A facility having five or fewer persons receiving custodial care shall be classified as part of the primary occupancy.

A facility such as the above within a dwelling unit and having five or fewer persons receiving custodial care shall be classified as a Group R-3 occupancy or shall comply with the *International Residential Code*.

R-3. Residential occupancies where the occupants are primarily permanent in nature and not classified as Group R-1, R-2, or I, including:
Buildings that do not contain more than two dwelling units.

~~Adult care facilities that provide accommodations for five or fewer persons of any age for less than 24 hours.~~

~~Child care facilities that provide accommodations for five or fewer persons of any age for less than 24 hours.~~

Care facilities that provide accommodations for five or fewer persons.

Congregate living facilities with 16 or fewer individuals.

Adult care and child Care facilities for 5 or fewer individuals receiving care that are within a single-family home dwellings are permitted to comply with the *International Residential Code* provided an automatic sprinkler system is installed in accordance with Section 903.3.1.3 or *International Residential Code* section P2904.

R-4. This occupancy shall include buildings, structures or portions thereof for more than five but not more than 16 persons, excluding staff, who reside on a 24 hour basis in a supervised residential environment and receive custodial care. The occupants are capable of self preservation. This group shall include, but not be limited to, the following:

Alcohol and drug centers

Assisted living facilities

Congregate care facilities

Convalescent facilities

Group homes

Halfway houses

Initial stage Alzheimer's facilities

Residential board and custodial care facilities

Social rehabilitation facilities

~~Residential occupancies shall include buildings arranged for occupancy as residential care/assisted living facilities including more than five but not more than 16 occupants, excluding staff. Group R-4 occupancies shall meet the requirements for construction as defined for Group R-3, except as otherwise provided for in this code or shall comply with the *International Residential Code* provided the building is~~

202 continues

202 *continued*

protected by an *automatic sprinkler system* installed in accordance with Section 903.2.8.

(See the 2012 *International Fire Code* for the applicable changes to Chapters 9 and 10.)

CHANGE SIGNIFICANCE: A commonly asked question concerns the occupancy classification for day-care facilities. Under the 2009 IBC and IFC, day-care occupancies may have a number of functions depending on the population they are intended to serve. The traditional thought of a day care is an occupancy where children more than 2½ years of age are cared for while the parents work. However, as the larger percentage of the U.S. population ages, day care now includes occupancies where older adults receive daily assistance to ensure they are taking required medications, as well to assist them in cooking meals or personal hygiene. These occupancies allow older adults to maintain a high degree of independence while enjoying the company of other adults while under a limited level of supervision.

A major element of this code change is the word “care.” In terms of occupancies, “care” occurs when an occupant is physically or mentally injured or diseased and receives some type of clinical support to heal or reduce the harm of the injury or disease. The term “care” has significant implications as it relates to health care funding by the U.S. Department of Health and Human Services. Care may include providing a comfortable environment for hospice. Some levels of care are places where the occupants are capable of self-preservation and can initiate self-rescue. In other cases, the degree of care requires increased levels of protection because the individual is incapable of self-preservation. In these cases the building is typically designed to protect the person in place and is equipped with a higher level of fire protection and redundant electrical power systems. This code change now defines the various categories of care provided to individuals and ties them to the occupancy classification.

Under the 2012 IBC the classification of occupancies where health care beyond examinations and patient consultation is provided is dependent on five variables:

- The number of the occupants or patients.
- The age of the occupants or patients.
- The type of care provided.
- The duration that the occupants are under care in the building.
- Are the occupants capable of self-preservation?

Several definitions were added or revised in the IFC and IBC to differentiate the various types of care. Section 202 contains a new definition to be used by design professionals and code officials to determine if persons are capable of self-preservation. An individual who cannot respond to an emergency situation as a result of medical care, chemical dependency, or physical or mental limitations is incapable of self-preservation and meets the requirement of the new definition.

Custodial care is a new definition in Section 202. In custodial care, the occupants are provided with the level assistance in performing daily tasks found in assisted living facilities. Individuals in this setting are capable of self-preservation but may not evacuate at the same rate as persons in other occupancies due to mental health issues. Persons in an

TABLE 202-A Care Categories by Type

Care Category	Are Occupants Capable of Self-Preservation?
Ambulatory Care	No; the person cannot respond as an individual to an emergency situation.
Custodial	Yes, but at a slower rate of egress and the occupants may have mental illnesses.
Detoxification	No; individuals may cause injury to themselves or others and may be either medicated or secured with limited or no ability to egress.
Personal Care Service	Yes
Medical	Depends on the disease, injury, or illness and whether the patient is rendered incapable of self-preservation.
Incapable of Self-Preservation	No; the person cannot respond as an individual to an emergency situation.

assisted living facility are assumed capable of self-preservation because their care does not render them incapable of self-preservation.

Occupants who do not require medical treatment but instead need a safe, structured environment are receiving personal care service as defined in IFC Section 202. This category would be assigned to adults or children over the age of 2½ years who attend or reside in a day-care facility.

A summary of the care categories is presented in Table 202-A.

With these additions and revisions of the definitions for the various categories of care, the second part of these code changes aligned these terms with the applicable occupancies. Classification of occupancies remains dependent on the number of persons receiving care and the duration of care; however, the requirements for classification of Group I and Group R-4 day-care occupancies are now tied to the type of care that will be delivered. This change is a major improvement because it establishes clear criteria for the classification of care occupancies.

The code requirements for all of these occupancies were also clarified by establishing a minimum limit of five persons before the applicable provisions for Group I and Group R-4 day-care facilities become applicable. In an occupancy that provides care and the number of persons receiving care is five persons or less, the use is classified as either a Group R-3 occupancy or must comply with the requirements of the *International Residential Code for One- and Two-Family Dwellings and Townhomes* (IRC). Care occupancy classification criteria are presented in Table 202-B.

Fire protection requirements in the various care occupancies have been modified to reflect the hazards that are present within them. Automatic sprinkler protection is required in most of these occupancies. In the case of Group I occupancies, Section 903.2.6 was modified by the addition of two new exceptions for Group I-4 day-care facilities delivering custodial care. Exception 2 does not require the installation of an automatic sprinkler system when the day-care facility is located at the level of exit discharge and each room where care is provided has one exterior exit door. When a Group I-4 day-care facility is located on a floor or level other than the level of exit discharge, Exception 3 requires automatic sprinkler protection on the level housing the day-care facility and all floors between

202 continued

TABLE 202-B Care Occupancy Classification Criteria

Occupancy & Function	Number of Persons & Age	Type of Care	Duration of Care
Group B Ambulatory Care Facility	4 or more persons; Age is not relevant	Incapable of Self Preservation	Less than 24 hours
Group E Day Care Facility	More than 5; Over 2½ years	Personal Care Services	Less than 24 hours
Group E Day Care Facility	More than 5 but not more than 100; Less than 2½ years	Custodial	Less than 24 hours
Group I-1	More than 16; Age is not relevant	Custodial	24 hours
Group I-2	More than 5; Age is not relevant	Medical or Detoxification; Incapable of Self Preservation	24 hours
Group I-4 Day Care Facility	More than 5; Age is not relevant	Custodial	Less than 24 hours
Group R-3	5 or less; Age is not relevant	Not relevant	Not relevant
Group R-4	More than 5 but not more than 16; Age is not relevant	Custodial	24 hour

the level where care is provided and the level of exit discharge. The sprinkler system must be designed in accordance with Section 903.3.1.1.

In Group I-1 occupancies, Exception 1 was modified to specify that an automatic sprinkler system protecting these occupancies must comply with either NFPA 13, *Standard for the Installation of Sprinkler Systems* (see Section 903.3.1.1), or NFPA 13R, *Standard for the Installation of Sprinkler Systems in Residential Occupancies up to and Including Four Stories in Height* (see Section 903.3.1.2). A dwelling fire sprinkler system designed in accordance with IRC Section P2904 or NFPA 13D, *Standard for the Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes*, is no longer permitted. The reason for the change is that an automatic sprinkler system designed for the protection of one- and two-family dwellings and townhomes is outside of its scope when protecting Group I-1 occupancies with 16 or more persons receiving care.

Fire protection requirements in Section 903.2.8 for Group R occupancies were clarified by allowing the use of IRC or NFPA 13D dwelling fire sprinkler system in Group R-3 and R-4 congregate residences and care facilities within single family dwellings with 16 or less residents.

General Safety Provisions

Chapters 3 and 4

- Chapter 3 General Requirements
- Chapter 4 Emergency Planning and Preparedness
No changes addressed

A basic requirement of the *International Fire Code* (IFC) is to prevent the ignition of materials inside and outside buildings. Controlling fuels and ignition sources will limit the potential for fire. Chapter 3 contains requirements for combustible waste materials, control or elimination of ignition sources, open flames and recreational fires, and the use of smoking materials. Certain equipment can also be a source of ignition, and Chapter 3 addresses the proper operation of asphalt kettles and powered industrial trucks. In occupancies such as assembly uses or covered malls, controls are specified for certain hazardous materials or displays of vehicles. Impact of a stationary tank or pressure vessel of a compressed gas or flammable liquid can result in the release of the stored material; therefore, requirements for the protection from vehicle impact are also contained in Chapter 3. In the event of a fire or hazardous material release.

Chapter 4 requires that evacuation plans be prepared, that a hazardous materials communication program be established, and that employees be trained to identify fire hazards and safely evacuate other building occupants. ■

307.1.1

Prohibited Open Burning

315.1

Obstructions on Roofs

316.1

Roof Gardens and Landscaped Roofs



307.1.1

Prohibited Open Burning

CHANGE TYPE: Modification

CHANGE SUMMARY: Requirements for open burning were clarified to recognize prescribed burns in wildland areas.

2012 CODE: 307.1.1 Prohibited Open Burning. *Open burning shall be prohibited that is offensive or objectionable because of smoke emissions or when atmospheric conditions or local circumstances make such fires hazardous shall be prohibited.*

Exception: *Prescribed burning for the purpose of reducing the impact of wildland fire when authorized by the fire code official.*

307.3 Extinguishment Authority. *The When open burning creates or adds to a hazardous or objectionable situation, or a required permit for open burning has not been obtained, the fire code official is authorized to order the extinguishment of the open burning operation by the permit holder, another person responsible or the fire department of open burning that creates or adds to a hazardous or objectionable situation.*

CHANGE SIGNIFICANCE: Excluding road flares, open flame devices designed to enhance safety or for occupational use, IFC Section 202 defines open burning as the burning of materials outside of an enclosed chamber where smoke and the other combustion by-products do not pass through a chimney or vent. Open burning does not include open flames, recreational fires, or the use of portable outdoor fireplaces.

Section 307.1.1 has been revised by permitting prescribed burning to reduce the impact of wildland fires. Such an activity is not considered open burning by the 2012 IFC. Prescribed burns are commonly done in wildland and urban interface areas to control the available fuel. Prescribed burning is used to eliminate hazardous fuels, alter vegetation to promote



Open burning of household debris

the growth of fuels that produce less heat and burn slower, improve the habitat for wildlife and vegetation, control nuisance pests, and improve access for replanting and other recreational activities. Annually, several million acres are subjected to prescribed burning in the United States. The new exception now permits prescribed burning when it is approved by the fire code official.

This code change further revises Section 307.3 by now specifying when a fire code official can require open burning to be extinguished. When the code official finds that open burning creates a hazardous condition such as the potential for igniting exposures or is unsafe due to atmospheric conditions, Section 307.3 authorizes the extinguishment of the fire.

316.4

Obstructions on Roofs

CHANGE TYPE: New

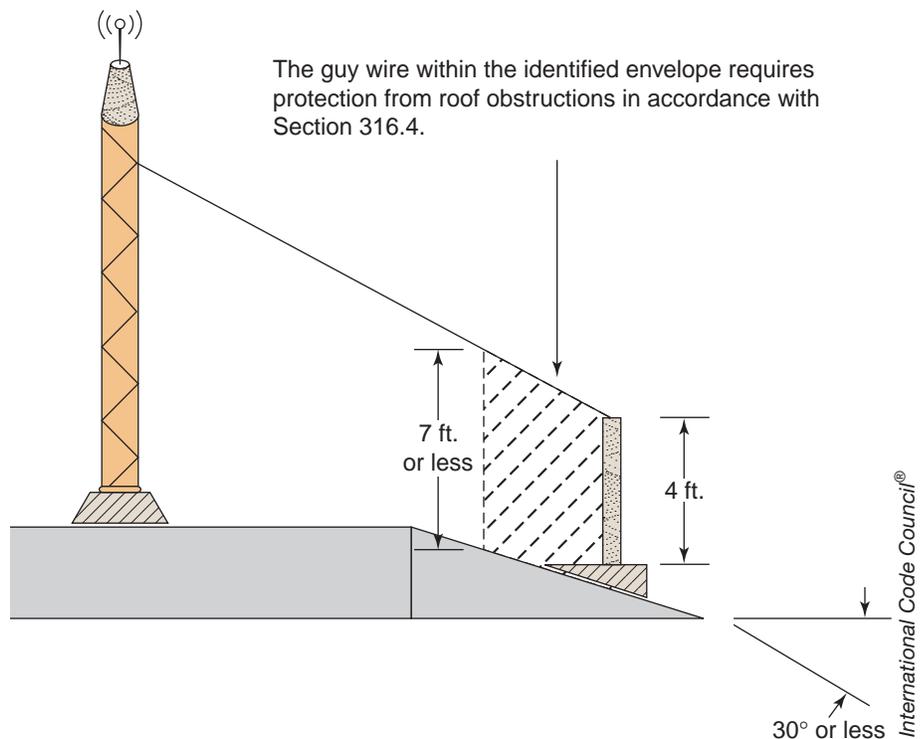
CHANGE SUMMARY: A physical guard is required for certain obstructions on roofs with a less than 30 degree slope.

2012 CODE: 316.4 Obstructions On Roofs. Wires, cables, ropes, antennas, or other suspended obstructions installed on the roof of a building having a roof slope of less than 30 degrees shall not create an obstruction that is less than 7 feet (2133 mm) high above the surface of the roof.

Exceptions:

1. Such obstruction shall be permitted where the wire, cable, rope, antennae or suspended obstruction is encased in a white 2" minimum diameter plastic pipe or an approved equivalent.
2. Such obstruction shall be permitted where there is a solid obstruction below such that accidentally walking into the wire, cable, rope, antennae or suspended obstruction is not possible.

CHANGE SIGNIFICANCE: Part of the IFC's intent in Section 101.2 is to control conditions that can affect the safety of firefighters and emergency responders during operations. One condition is obstructions on the roofs of buildings. A primary concern is poorly identified or unidentified obstructions on building roofs that can become entanglement hazards or, in the case of equipment such as cellular or wireless communication



IFC requirement for obstructions on roofs

antennas, can be potential pathways for stray current if the electrical ground is somehow compromised and an emergency responder comes into contact with it.

Section 316.4 is a new provision that addresses obstructions on building roofs. This requirement was developed to establish criteria for roof obstructions that must be arranged so emergency responders are not accidentally injured by their presence. It is applicable on roofs with a slope of 30 degrees or less—it is not applicable on roofs with a slope of more than 30 degrees. Under this new requirement a means of identification, a barrier, or some other form of obstruction must be provided when a guy wire, cable, or rope is less than 7 feet above the roof level. The 7-foot value is based on the potential of a firefighter in a smoke-obscured environment striking the cable or wire, especially in the head, neck, or torso area. A common fire service slang term for such an event is “being clothes-lined,” and these events have resulted in permanent paralysis of firefighters and other emergency responders.

If the obstruction is located in the plane that is 7 feet or less below the roof surface, Exception 1 allows the use of a protective collar such as a 2-inch-diameter plastic pipe that is sleeved over the cable. Other options include illuminating the cable or providing reflective marking of the cable, wire, or rope. Any method that offers equivalency to the prescribed pipe sleeve can be approved by the fire code official if it demonstrates equivalency.

Exception 2 recognizes that solid obstructions such as screen walls or fencing can provide a physical barrier and can eliminate the need for protecting the emergency responders from roof obstructions that are less than 7 feet above the roof level.

Section 317

Roof Gardens and Landscaped Roofs

CHANGE TYPE: New

CHANGE SUMMARY: The IFC has new requirements to address fire safety concerns of roof gardens and landscaped roofs.

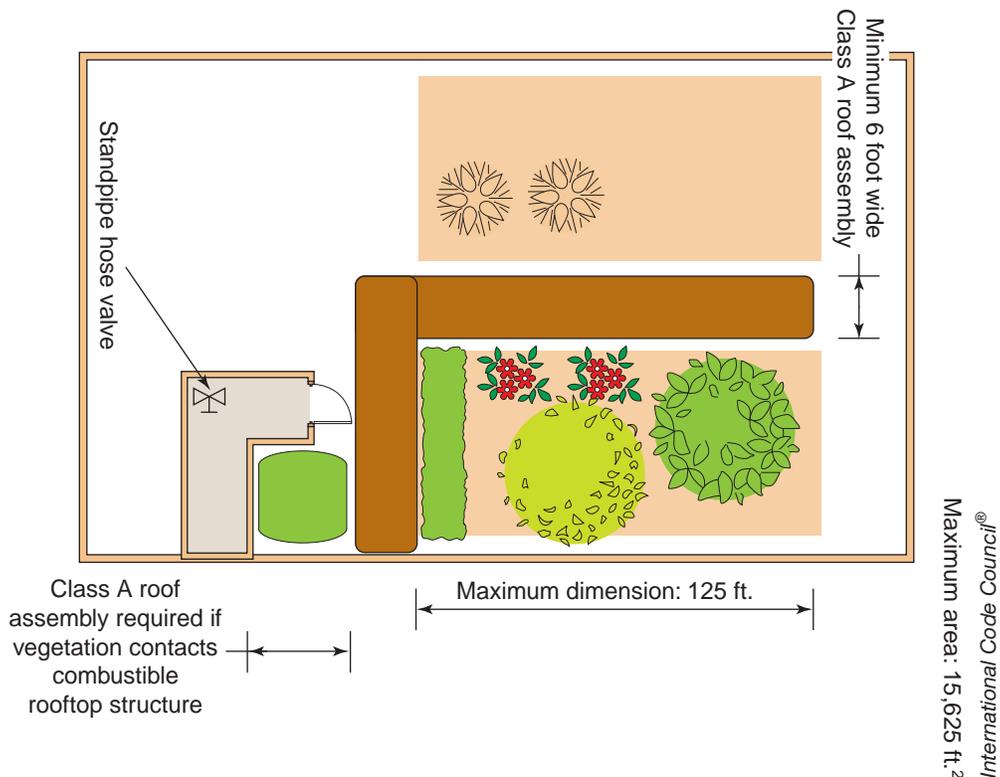
2012 CODE:

SECTION 317 ROOF GARDENS AND LANDSCAPED ROOFS

317.1 General. Rooftop gardens and landscaped roofs shall be installed and maintained in accordance with this code and Sections 1505 and 1507.16 of the *International Building Code*.

317.2 Rooftop Garden or Landscaped Roof Size. Rooftop garden or landscaped roof areas shall not exceed 15,625 ft² (1,450 m²) in size for any single area with a maximum dimension of 125 ft (39 m) in length or width. A minimum 6 ft (1.8 m) wide clearance consisting of a Class A rated roof system complying with ASTM E108 or UL790 shall be provided between adjacent rooftop garden or landscaped roof areas.

317.3 Rooftop Structure and Equipment Clearance. For all vegetated roofing systems abutting combustible vertical surfaces, a Class A-rated roof system complying with ASTM E108 or UL790 shall be achieved for a minimum 6 ft (1.8 m) wide continuous border placed



Summary of Section 317 requirements for roof gardens and landscaped roofs



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A landscaped roof. The roof is a concrete deck, which is classified by the IBC as a Class A roof covering.

around rooftop structures and all rooftop equipment including, but not limited to, mechanical and machine rooms, penthouses, skylights, roof vents, solar panels, antenna supports, and building service equipment.

317.4 Vegetation. Vegetation shall be maintained as described in Sections 317.4.1 and 317.4.2.

317.4.1 Irrigation. Supplemental irrigation shall be provided as necessary to maintain levels of hydration necessary to keep green roof plants alive and to keep dry foliage to a minimum.

317.4.2 Dead Foliage. Excess biomass, such as overgrown vegetation, leaves and other dead and decaying material, shall be removed at regular intervals not less than two times per year.

317.4.3 Maintenance Plan. The fire code official is authorized to require a maintenance plan for vegetation placed on roofs due to the size of a roof garden, materials used, or when a fire hazard may exist to the building or exposures due to the lack of maintenance.

317.5 Maintenance Equipment. Fueled equipment stored on roofs and used for the care and maintenance of vegetation on roofs shall be stored in accordance with Section 313.

905.3.8 Roof Gardens and Landscaped Roofs. Buildings or structures that have roof gardens or landscaped roofs that are equipped with a standpipe shall extend the standpipe to the roof level on which the roof garden or landscaped roof is located.

Section 317 continues

Section 317 continued

International Code Council®

Standpipe hose valve serving a landscaped roof

CHANGE SIGNIFICANCE: A major element of green building construction is energy conservation and preservation of natural resources such as water. One method of accomplishing this is providing vegetation on building roofs in the form of gardens or landscaping. Roof gardens or landscaped roofs offer a number of savings to the building owner. For buildings constructed with a membrane-type roofing system, roof gardens, or landscaping can increase the life span of the roofing materials by almost 100%, according to some studies referenced. Depending on the design, roof area, and local climate, research has found that certain green roofs can reduce summer cooling loads by about 25%, and in some cases have reduced heat gain by 95%. In addition to reduced energy costs, these reductions have the potential to reduce the size of heating, ventilating, and air-conditioning (HVAC) equipment, which in turn lowers the capital costs for construction. Roof gardens can also reduce the sound pressure level inside of the building and are helpful in controlling storm-water runoff.

2012 IFC Section 317 is a new section that addresses roof gardens and landscaped roofs. The requirements in this section limit the area of roof gardens, require the use of roof assemblies designed for severe fire exposures, and provide for the installation of a standpipe connection. It also sets forth requirements for establishing a maintenance plan for the vegetation installed on roof gardens or landscaped roofs. This code change does not define what constitutes a roof garden or landscaped roof; however, its intent is to deal with the structural and fire safety concerns over construction that creates a green space on a building roof rather than the placement of a small roof garden.

Section 317.1 references the requirements in IBC Chapter 15, “Roof Assemblies and Rooftop Structures,” for roof gardens and landscaped roofs. IBC Section 1507.16 requires compliance with the Chapter 15

provisions and specific structural requirements in IBC Sections 1607.11.2.2 and 1607.11.3 for special-purpose roofs and landscaped roofs. The IBC requires that roof gardens and landscaped roofs be calculated at a minimum 20 pound/square foot uniform live load and that the weight of landscaping materials be considered as dead loads and computed assuming the soil is saturated.

In addition to the IBC structural requirements, roof gardens and landscaped roofs can also require the installation of a Class A roof assembly. Section 317.1 references the provisions in IBC Section 1505, which sets forth the fire exposure ratings for roof assemblies. The IBC fire classification requirements for roof assemblies are based on the building's construction type; they are not based on the building's occupancy. IBC Table 1505.1 does not require the installation of a Class A roof assembly on any of the recognized building construction types. The minimum roof covering classification prescribed by the IBC is either a Class B or Class C roof assembly. The only time Class A roof assemblies are specified is when a building is located in a Fire District and the jurisdiction has adopted IBC Appendix D or when required in the *International Wildland-Urban Interface Code*. Because the IBC does not require the installation of Class A roof assemblies, the number of listed systems available to design professionals will be limited. IBC Section 1505.2 requires that Class A assemblies be listed and identified as such by an approved testing agency. An assembly's resistance to fire exposure and listing is based on ASTM E-108 or UL 790, *Standard Test Methods for Fire Test of Roof Coverings*.

Exceptions to IBC Section 1505.2 consider roofs covered with brick, masonry, or an exposed concrete roof deck as equivalent to a Class A roof covering, as well as copper, ferrous, and nonferrous metal shingles or sheets. Clay and concrete tile or slate roofs are also classified as Class A assemblies when they are installed on noncombustible decks.

On large roofs, the IFC does not permit the entire coverage of the roof with vegetation. Under the requirement in Section 317.2, the area of roof gardens or landscaping cannot exceed 15,625 ft.²; and its maximum length or width cannot exceed 125 feet. The 125-foot value is based on the typical amount of hose carried by fire departments for high-rise hose packs. If the area or dimension of a landscaped garden or roof exceeds the prescribed area or dimension limits, Section 317.2 allows additional landscaped area when each is separated by a minimum 6-foot-wide buffer space constructed as a Class A roof assembly.

If a building utilizes combustible construction for the construction of penthouses, mechanical equipment rooms, or elevator machine rooms, Section 317.3 requires a minimum 6-foot-wide border constructed around the combustible construction. The buffer space is also constructed to the IBC requirements for a Class A roof assembly. The buffer space is not required if the roof garden or landscaped roof is separated by more than 6 feet from the combustible construction or when noncombustible construction is used.

Section 317.4 sets forth requirements for the maintenance of vegetation. It requires a maintenance plan that may be used to guide code officials on the care and upkeep of vegetation, removal of dead foliage at least bi-annually, and storage of fuel-fired equipment in accordance with IFC Section 313.

In buildings that require a standpipe system, Section 905.3.8 requires the extension of a standpipe hose valve to the roof level serving the landscaped roof or roof garden.

Section 317 continued

Additional requirements on the design and construction of green roofs are set forth in the forthcoming *International Green Construction Code*, published by ICC. Another source for information and prima facie evidence of compliance is contained in Property Loss Prevention Data Sheet 1-35, *Green Roof Systems*, published by Factory Mutual Global.

Building and Equipment Design Features

Chapters 5 through 12

- **Chapter 5** Fire Service Features
- **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)

International Fire Code (IFC) Part III contains requirements that provide firefighters 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, stationary battery systems, and refrigeration systems. When specified by the *International Building Code* (IBC), 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 materials, 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 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. This chapter was formerly Chapter 46 in the 2009 IFC. ■

503.4.1

Traffic Calming Devices

506.1, 607.5

Fire Service Elevator Keys

508.1.5

Required Features

510.1

Emergency Responder Radio Coverage

continues



604.5

Emergency Lighting Equipment

605.11

Solar Photovoltaic Power Systems

610

Commercial Kitchen Cooking Oil Storage

803.5.2

Newly Introduced Textile Wall and Ceiling Coverings

806.2

Artificial Vegetation

808.4

Combustible Lockers

901.4.6

Pump and Riser Room Size

901.9

Discontinuation or Change of Service

903.2.2

Ambulatory Care Facilities

903.2.4, 903.2.7, 903.2.9

Furniture Storage and Display in Group F-1, M, and S-1 Occupancies

903.2.11.1.3

Basements

903.2.11.2

Rubbish and Linen Chutes

903.3.5.2

Secondary Water Supply

904.1.1, 906.3

Certification of Service Personnel

904.3.2

Actuation

905.4

Location of Class I Standpipe Hose Connections

906.1

Where Required

907.2.1

Group A Occupancies

907.2.1.2

Emergency Voice/Alarm Communication Captions

907.2.3

Group E Fire Alarm

907.2.6.1.1

Smoke Alarms and Smoke Detectors

907.4.1

Protection of Fire Alarm Control Unit

907.5.2.1.1

Average Sound Pressure

908.7

Carbon Monoxide Alarms

1004.1.2, TABLE 1004.1.2

Design Occupant Load—Areas without Fixed Seating

1005.1

Means of Egress Sizing

1008.1.2

Door Swing

1009, 1010, 202

Definitions: Exits, Stairways, and Ramps

1011.2

Floor-Level Exit Signs in Group R-1

1021.2, 1021.2.3

Exits from Stories and Single-Story or Multistory Dwelling Units

1022.5

Penetrations

1030.2

Reliability

1102.1

Intent

1103.8.1

Where Required

1104.16.5.1

Examination

CHANGE TYPE: New

CHANGE SUMMARY: Fire code official approval is required before a traffic calming device can be constructed.

2012 CODE: **503.4.1. Traffic Calming Devices.** Traffic calming devices are prohibited unless approved by the fire code official.

503.4.1

Traffic Calming Devices

CHAPTER 2 DEFINITIONS

TRAFFIC CALMING DEVICES. Traffic calming devices are design elements of fire apparatus access roads such as street alignment, installation of barriers, and other physical measures intended to reduce traffic and cut-through volumes, and slow vehicle speeds.

CHANGE SIGNIFICANCE: In many communities, a concern of homeowners is the use of residential streets as an alternative route to minor and major thoroughfares. They are concerned about pedestrian safety and reducing vehicle speeds and the traffic volume on residential streets. On the other hand, property owners also want the lowest response time that is practical in the event of an emergency that requires a response by the fire or police department. In fact, response time is the primary measurement for quality of service used by the public. The installation of traffic calming devices competes with these two goals.

A number of studies have been conducted to evaluate the impact of traffic calming devices on the response time of fire and emergency medical services (EMS) apparatus. These studies found that traffic calming

503.4.1 continues



International Code Council®

Speed pillow

503.4.1 *continued*

Traffic circle

devices have no real impact on law enforcement vehicles because of their size—however, depending on the method of traffic calming used and the vehicle type, response times for fire and emergency services generally are increased by these devices by 2 to 10 seconds.¹ Studies also found that the vehicle frames of fire and EMS apparatus can be damaged and emergency services personnel have been injured while responding or testing certain traffic calming devices.

Because of these concerns, Section 503.4.1 now prohibits the installation of traffic calming devices on fire apparatus access roads unless they are approved by the fire code official. A new definition was also added in Section 202.1. In most jurisdictions the design and construction of traffic calming devices is the responsibility of the Public Works or Transportation Department. As a result, the fire code official will need to closely work with their engineering staff to ensure traffic calming devices, when approved, have the least impact on response time to emergencies.

¹Bunte, Leslie W., *Traffic Calming Programs and Emergency Response: A Competition of Two Public Goods*, unpublished thesis (M.P.A.), University of Texas at Austin. 2000.

CHANGE TYPE: New

CHANGE SUMMARY: The IFC has new requirements for nonstandard and standard keys for use by the fire service on elevators.

2012 CODE:

506.1, 607.5

Fire Service Elevator Keys

PART I

506.1 Where Required. Where access to or within a structure or an area is restricted because of secured openings or where immediate access is necessary for life-saving or fire-fighting purposes, the fire code official is authorized to require a key box to be installed in an approved location. The key box shall be of an approved type listed in accordance with UL 1037 and shall contain keys to gain necessary access as required by the fire code official.

506.1.2 Non-standardized Fire Service Elevator Keys. Key boxes provided for non-standardized fire service elevator keys shall comply with Section 506.1 and all of the following:

1. The key box shall be compatible with an existing rapid entry key box system in use in the jurisdiction and approved by the fire code official.
2. The front cover shall be permanently labeled with the words “Fire Department Use Only – Elevator keys.”
3. The key box shall be mounted at each elevator bank at the lobby nearest to the lowest level of fire department access.
4. The key box shall be mounted 5’6” above the finished floor to the right side of the elevator bank.
5. Contents of the key box are limited to fire service elevator keys. Additional elevator access tools, keys and information pertinent to emergency planning or elevator access shall be permitted when authorized by the fire code official.

506.1, 607.5 continues



Listed elevator and building key box (Courtesy of Knox Company, Phoenix, AZ)

506.1, 607.5 continued



Non-standard fire service elevator key set (Courtesy of W.S. Darley Company, Itasca, IL)

6. In buildings with two or more elevator banks, a single key box shall be permitted to be used when such elevator banks are separated by not more than 30 feet. Additional key boxes shall be provided for each individual elevator or elevator bank separated by more than 30 feet.

Exception: A single key box shall be permitted to be located adjacent to a fire command center or the nonstandard fire service elevator key to be secured in a key box used for other purposes and located in accordance with Section 506.1.

PART II

SECTION 607

ELEVATOR OPERATION, MAINTENANCE AND FIRE SERVICE KEYS

607.4 Elevator Key Location. Keys for the elevator car doors and fire-fighter service keys shall be kept in an approved location for immediate use by the fire department.

607.5 Standardized Fire Service Elevator Keys. All buildings with elevators equipped with Phase I Emergency Recall, Phase II emergency in-car operation, or a Fire Service Access Elevator shall be equipped to operate with a standardized fire service elevator key approved by the fire code official.

Exception: The owner shall be permitted to place the building's non-standardized fire service elevator keys in a key box installed in accordance with Section 506.1.2

607.5.1 Requirements for Standardized Fire Service Elevator

Keys. Standardized fire service elevator keys shall comply with all of the following:

1. All fire service elevator keys within the jurisdiction shall be uniform and specific for the jurisdiction. Keys shall be cut to a uniform key code.
2. Fire service elevator keys shall be a patent protected design to prevent unauthorized duplication.
3. Fire service elevator keys shall be factory restricted by the manufacturer to prevent the unauthorized distribution of key blanks. No uncut key blanks shall be permitted to leave the factory
4. Fire service elevator keys subject to these rules shall be engraved with the words "DO NOT DUPLICATE".

607.5.2 Access to Standardized Fire Service Keys. Access to standardized fire service elevator keys shall be restricted to the following:

1. Elevator owners or their authorized agents;
2. Elevator contractors.
3. Elevator Inspectors of the jurisdiction.
4. Fire code officials of the jurisdiction.
5. The fire department and other emergency response agencies designated by the fire code official.

607.5.3 Duplication or Distribution of Keys. No person may duplicate a standardized fire service elevator key or issue, give, or sell a duplicated key unless in accordance with this code.

607.5.4 Responsibility to Provide Keys. The building owner shall provide up to three (3) standardized fire service elevator keys where required by the fire code official, upon installation of a standardized fire service key switch or switches in the building.

CHANGE SIGNIFICANCE: An elevator key is an important tool for firefighters. The key allows firefighters to access the interior of the shaft housing of an elevator cabin to initiate rescue in case of a malfunction or the loss of building power. More often, an elevator key is used to capture and control an elevator.

Requirements for the design, construction, and testing of elevators are contained in ASME/ANSI A17.1, *Safety Code for Elevators and Escalators*. ANSI A17.1 requires all new elevators to be equipped with Phase I and Phase II firefighter service features. In Phase I service, a smoke detector is installed in each elevator lobby. Activation of the smoke detector causes the elevator to recall to the designated floor, which is usually the ground floor of a building. Upon arrival, the elevator door opens and the elevator is no longer operable by the occupants. In any building that is equipped

506.1, 607.5 continued

with an elevator having a travel distance of more than 25 feet, IFC Section 607.1 requires that it be equipped with Phase I firefighter service. This requirement is applicable to all new and existing buildings. In the event a smoke detector fails or if emergency responders wish to use the elevator such as for the transportation of equipment in the treatment of a patient, a key switch is provided in the elevator lobby. Activation of the key switch captures the elevator and recalls it to the floor level where the switch was activated.

Phase II firefighter service allows firefighters to control the elevator and travel to any floor served by the elevator. The operating controls are located inside of the elevator car. When the elevator is placed into the fire service mode, the elevator can only be operated by personnel in the elevator car. To return the elevator to normal service, the elevator must be reset using the Phase I switch.

2012 IFC Sections 506 and 607.5 establish new requirements for elevator keys used by the fire service. The provisions in Section 506 address non-standard elevator keys. The provisions in Section 607.5.1 now require that keys for any new elevators installed in the jurisdiction use a standard format, regardless of manufacturer or model. Standardizing the type of elevator key creates a consistent arrangement for firefighters who utilize the elevators for EMS incidents or for the deployment of personnel and equipment in a multiple-story firefighting operation. The keys must be manufactured to prevent unauthorized duplication and their access is limited by Section 607.5.2 to emergency responders, elevator mechanics, fire officials, and the building owner. Section 607.5.4 requires that at least three keys of the same standard design be provided when an elevator is installed and is equipped with Phase I and II service or is a Fire Service Access Elevator.

Since 2006, ASME/ANSI A17.1 has required the installation of a standard key and switches for fire recall, fire operation, and, when provided, emergency power. The key is interchangeable with all of the required switches. This common key has become standard for the operation of the firefighter emergency operations (FEO) systems, regardless of manufacturer. The key is designated as “FEO-K1” and is marked as such.

Many jurisdictions have elevators built prior to the introduction of a standard elevator key, and as a result, each building with an elevator requires its own elevator key. The key is most likely based on the model of the elevator and the year it was manufactured. Section 506.1.2 sets forth new requirements to assist jurisdictions in managing the issue of different elevator keys in different buildings. This section authorizes the jurisdiction to require the installation of a key box to house elevator keys. The new provisions specify where the key box is to be located inside the building and require it to be compatible with the existing key boxes used by the jurisdiction. The exception to Section 506.1.2 permits installations adjacent to fire command centers or in other locations where approved by the fire code official.

Section 506.1 was modified by requiring that key boxes installed under the 2012 IFC be listed as meeting UL 1037-99, *Standard for Antitheft Alarms and Devices*. Previous editions of the IFC did not require the jurisdiction to select key boxes that were listed. Based on the new revision to Section 506.1, any fire department key box now must be listed in accordance with UL 1037.