

# INTERNATIONAL FIRE CODE<sup>®</sup>

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2012 International Fire Code®

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# PREFACE

#### Introduction

Internationally, code officials recognize the need for a modern, up-to-date fire code addressing conditions hazardous to life and property from fire, explosion, handling or use of hazardous materials and the use and occupancy of buildings and premises. The *International Fire Code*<sup>®</sup>, in this 2012 edition, is designed to meet these needs through model code regulations that safeguard the public health and safety in all communities, large and small.

This comprehensive fire code establishes minimum regulations for fire prevention and fire protection systems using prescriptive and performance-related provisions. It is founded on broadbased principles that make possible the use of new materials and new system designs. This 2012 edition is fully compatible with all of the *International Codes*<sup>®</sup> (I-Codes<sup>®</sup>) published by the International Code Council (ICC)<sup>®</sup>, including the *International Building Code*<sup>®</sup>, *International Energy Conservation Code*<sup>®</sup>, *International Existing Building Code*<sup>®</sup>, *International Fuel Gas Code*<sup>®</sup>, *International Green Construction Code*<sup>™</sup> (to be available March 2012), *International Mechanical Code*<sup>®</sup>, *Interformance Code*<sup>®</sup>, *International Plumbing Code*<sup>®</sup>, *International Private Sewage Disposal Code*<sup>®</sup>, *International Property Maintenance Code*<sup>®</sup>, *International Residential Code*<sup>®</sup>, *International Swimming Pool and Spa Code*<sup>™</sup> (to be available March 2012), *International Wildland-Urban Interface Code*<sup>®</sup> and *International Zoning Code*<sup>®</sup>.

The *International Fire Code* provisions provide many benefits, among which is the model code development process that offers an international forum for fire safety professionals to discuss performance and prescriptive code requirements. This forum provides an excellent arena to debate proposed revisions. This model code also encourages international consistency in the application of provisions.

#### Development

The first edition of the *International Fire Code* (2000) was the culmination of an effort initiated in 1997 by a development committee appointed by ICC and consisting of representatives of the three statutory members of the International Code Council: Building Officials and Code Administrators International, Inc. (BOCA), International Conference of Building Officials (ICBO) and Southern Building Code Congress International (SBCCI). The intent was to draft a comprehensive set of fire safety regulations consistent with and inclusive of the scope of the existing model codes. Technical content of the latest model codes promulgated by BOCA, ICBO and SBCCI was utilized as the basis for the development, followed by public hearings in 1998 and 1999 to consider proposed changes. This 2012 edition presents the code as originally issued, with changes reflected in the 2003, 2006 and 2009 editions and further changes approved through the ICC Code Development Process through 2010. A new edition such as this is promulgated every three years.

This code is founded on principles intended to establish provisions consistent with the scope of a fire code that adequately protects public health, safety and welfare; provisions that do not unnecessarily increase construction costs; provisions that do not restrict the use of new materials, products or methods of construction; and provisions that do not give preferential treatment to particular types or classes of materials, products or methods of construction.

### Adoption

The International Fire Code is available for adoption and use by jurisdictions internationally. Its use within a governmental jurisdiction is intended to be accomplished through adoption by reference in accordance with proceedings establishing the jurisdiction's laws. At the time of adoption, jurisdictions should insert the appropriate information in provisions requiring specific local information, such as the name of the adopting jurisdiction. These locations are shown in bracketed words in small capital letters in the code and in the sample ordinance. The sample adoption ordinance on page xxi addresses several key elements of a code adoption ordinance, including the information required for insertion into the code text.

#### Maintenance

The *International Fire Code* is kept up-to-date through the review of proposed changes submitted by code enforcing officials, industry representatives, design professionals and other interested parties. Proposed changes are carefully considered through an open code development process in which all interested and affected parties may participate.

The contents of this work are subject to change both through the Code Development Cycles and the governmental body that enacts the code into law. For more information regarding the code development process, contact the Code and Standard Development Department of the International Code Council.

While the development procedure of the *International Fire Code* assures the highest degree of care, ICC, its members and those participating in the development of this code do not accept any liability resulting from compliance or noncompliance with the provisions because ICC and its founding members do not have the power or authority to police or enforce compliance with the contents of this code. Only the governmental body that enacts the code into law has such authority.

# Code Development Committee Responsibilities (Letter Designations in Front of Section Numbers)

In each code development cycle, proposed changes to the code are considered at the Code Development Hearings by the International Fire Code Development Committee, whose action constitutes a recommendation to the voting membership for final action on the proposed change. Proposed changes to a code section that has a number beginning with a letter in brackets are considered by a different code development committee. For example, proposed changes to code sections that have [B] in front of them (e.g. [B] 607.2) are considered by the appropriate International Building Code Development Committee (IBC-Means of Egress) at the code development hearings.

The content of sections in this code that begin with a letter designation is maintained by another code development committee in accordance with the following:

- [B] = International Building Code Development Committee (IBC-Fire Safety, General, Means of Egress or Structural);
- [EB] = International Existing Building Code Development Committee;
- [FG] = International Fuel Gas Code Development Committee;
- [M] = International Mechanical Code Development Committee; and
- [P] = International Plumbing Code Development Committee.

Note that for the development of the 2015 edition of the I-Codes, there will be two groups of code development committees and they will meet in separate years. The groupings are as follows:

| Group A Codes<br>(Heard in 2012, Code Change Proposals<br>Deadline: January 3, 2012) | Group B Codes<br>(Heard in 2013, Code Change Proposals<br>Deadline: January 3, 2013)   |
|--|--|
| International Building Code  | Administrative Provisions (Chapter 1 all codes except IRC and ICCPC, administrative updates to currently referenced standards, and designated definitions) |
| International Fuel Gas Code  | International Energy Conservation Code   |
| International Mechanical Code  | International Existing Building Code   |
| International Plumbing Code  | International Fire Code  |
| International Private Sewage<br>Disposal Code  | International Green Construction Code  |
|  | ICC Performance Code   |
|  | International Property Maintenance Code  |
|  | International Residential Code   |
|  | International Swimming Pool and Spa Code   |
|  | International Wildland-Urban Interface Code  |
|  | International Zoning Code  |

Code change proposals submitted for code sections that have a letter designation in front of them will be heard by the respective committee responsible for such code sections. Because different committees will meet in different years, it is possible that some proposals for this code will be heard by a committee in a different year than the year in which the primary committee for this code meets.

For example, Section 907.2.13.1.2 of this code (and the IBC) is designated as the responsibility of the International Mechanical Code Development Committee. This committee will conduct its code development hearings in 2012 to consider code change proposals in its purview, which includes any proposals to Section 907.2.13.1.2.

Note also that every section of Chapter 1 of this code is designated as the responsibility of the Administrative Code Development Committee, and that committee is part of the Group B portion of the hearings. This committee will conduct its code development hearings in 2013 to consider all code change proposals for Chapter 1 of this code and proposals for Chapter 1 of all I-Codes. Therefore, any proposals received for Chapter 1 of this code will be deferred for consideration in 2013 by the Administrative Code Development Committee.

It is very important that anyone submitting code change proposals understand which code development committee is responsible for the section of the code that is the subject of the code change proposal. For further information on the code development committee responsibilities, please visit the ICC web site at www.iccsafe.org/scoping.

#### **Marginal Markings**

Solid vertical lines in the margins within the body of the code indicate a technical change from the requirements of the 2009 edition. Deletion indicators in the form of an arrow ( $\blacksquare$ ) are provided in the margin where an entire section, paragraph, exception or table has been deleted or an item in a list of items or a table has been deleted.

A single asterisk [\*] placed in the margin indicates that text or a table has been relocated within the code. A double asterisk [\*\*] placed in the margin indicates that the text or table immediately following it has been relocated there from elsewhere in the code.

| 2012 LOCATION (**) | 2009 LOCATION (*) |
|--------------------|-------------------|
| 109.2              | 107.5             |
| 1004.1.1.2         | 1004.6            |
| 1008.1.9.8         | 1008.1.4.4        |
| 1028.10.1          | 1017.4            |
| 1028.10.1.1        | 1017.4.1          |
| 1028.10.1.2        | 1017.4.3          |
| 1103.2             | 510.3             |

The following table indicates such relocations in the 2012 International Fire Code:

Note that these \* and \*\* margin markings are not shown for the Chapter reorganization of the IFC in this 2012 edition. For information on this reoranization, please see page vii.

# **Coordination between the International Building and Fire Codes**

Because the coordination of technical provisions is one of the benefits of adopting the ICC family of model codes, users will find the ICC codes to be a very flexible set of model documents. To accomplish this flexibility some technical provisions are duplicated in some of the model code documents. While the *International Codes* are provided as a comprehensive set of model codes for the built environment, documents are occasionally adopted as a stand-alone regulation. When one of the model documents is adopted as the basis of a stand-alone code, that code should provide a complete package of requirements with enforcement assigned to the entity for which the adoption is being made.

The model codes can also be adopted as a family of complementary codes. When adopted together there should be no conflict of any of the technical provisions. When multiple model codes are adopted in a jurisdiction it is important for the adopting authority to evaluate the provisions in each code document and determine how and by which agency(ies) they will be enforced. It is important, therefore, to understand that where technical provisions are duplicated in multiple model documents that enforcement duties must be clearly assigned by the local adopting jurisdiction. ICC remains committed to providing state-of-the-art model code documents that, when adopted locally, will reduce the cost to government of code adoption and enforcement and protect the public health, safety and welfare.

# **Italicized Terms**

Selected terms set forth in Chapter 2, Definitions, are italicized where they appear in code text. Such terms are not italicized where the definition set forth in Chapter 2 does not impart the intended meaning in the use of the term. The terms selected have definitions which the user should read carefully to facilitate better understanding of the code.

# **Effective Use of the International Fire Code**

The International Fire Code<sup>®</sup> (IFC<sup>®</sup>) is a model code that regulates minimum fire safety requirements for new and existing buildings, facilities, storage and processes. The IFC addresses fire prevention, fire protection, life safety and safe storage and use of hazardous materials in new and existing buildings, facilities and processes. The IFC provides a total approach of controlling hazards in all buildings and sites, regardless of the hazard being indoors or outdoors.

The IFC is a design document. For example, before one constructs a building, the site must be provided with an adequate water supply for fire-fighting operations and a means of building access for emergency responders in the event of a medical emergency, fire or natural or technological disaster. Depending on the building's occupancy and uses, the IFC regulates the various hazards that may be housed within the building, including refrigeration systems, application of flammable finishes, fueling of motor vehicles, high-piled combustible storage and the storage and use of hazardous materials. The IFC sets forth minimum requirements for these and other hazards and contains requirements for maintaining the life safety of building occupants, the protection of emergency responders, and to limit the damage to a building and its contents as the result of a fire, explosion or unauthorized hazardous material discharge.

#### Arrangement and Format of the 2012 IFC

Before applying the requirements of the IFC it is beneficial to understand its arrangement and format. The IFC, like other codes published by the International Code Council, is arranged and organized to follow sequential steps that generally occur during a plan review or inspection. The 2012 IFC has been reorganized into 7 Parts as illustrated in the tables below. Each Part represents a broad subject matter and includes the chapters that logically fit under the subject matter of each Part. It is also foreseeable that additional chapters will need to be added in the future as regulations for new processes or operations are developed. Accordingly, the reorganization was designed to accommodate such future chapters by providing reserved (unused) chapters in several of the Parts. This will allow the subject matter parts to be conveniently and logically expanded without requiring a major renumbering of the IFC chapters.

| 2012 REORGANIZATION OF THE IFC    |  |
|-----------------------------------|--|
| Parts and Chapters                | Subject Matter                         |
| Part I – Chapters 1 and 2         | Administrative and definitions         |
| Part II – Chapters 3 and 4        | General safety provisions              |
| Part III – Chapters 5 through 11  | Building and equipment design features |
| Part III - Chapters 12 through 19 | Reserved for future use                |
| Part IV – Chapters 20 through 36  | Special occupancies and operations     |
| Part IV – Chapters 37 through 49  | Reserved for future use                |
| Part V – Chapters 50 through 67   | Hazardous materials                    |
| Part V – Chapters 68 through 79   | Reserved for future use                |
| Part VI – Chapter 80              | Referenced standards                   |
| Part VII - Appendices A through J | Adoptable and informational appendices |

| 2012 IFC CHAPTER REORGANIZATION |                        |   |
|---------------------------------|------------------------|---|
| CHAPTER NUMBER<br>2009          | CHAPTER NUMBER<br>2012 | CHAPTER TITLE   |
| 1                               | 1                      | Scope and Administration                              |
| 2                               | 2                      | Definitions   |
| 3                               | 3                      | General Requirements                                  |
| 4                               | 4                      | Emergency Planning and Preparedness                   |
| 5                               | 5                      | Fire Service Features                                 |
| 6                               | 6                      | Building Services and Systems                         |
| 7                               | 7                      | Fire-Resistance-Rated Construction                    |
| 8                               | 8                      | Interior Finish, Decorative Materials and Furnishings |
| 9                               | 9                      | Fire Protection Systems                               |
| 10                              | 10                     | Means Of Egress                                       |
| 11                              | 20                     | Aviation Facilities                                   |
| 12                              | 21                     | Dry Cleaning  |
| 13                              | 22                     | Combustible Dust-Producing Operations                 |
| 14                              | 33                     | Fire Safety during Construction and Demolition        |
| 15                              | 24                     | Flammable Finishes                                    |
| 16                              | 25                     | Fruit and Crop Ripening                               |
| 17                              | 26                     | Fumigation and Insecticidal Fogging                   |
| 18                              | 27                     | Semiconductor Fabrication Facilities                  |
| 19                              | 28                     | Lumber Yards and Woodworking Facilities               |
| 20                              | 29                     | Manufacture of Organic Coatings                       |
| 21                              | 30                     | Industrial Ovens                                      |
| 22                              | 23                     | Motor Fuel-Dispensing Facilities and Repair Garages   |
| 23                              | 32                     | High-Piled Combustible Storage                        |
| 24                              | 31                     | Tents and Other Membrane Structures                   |
| 25                              | 34                     | Tire Rebuilding and Tire Storage                      |
| 26                              | 35                     | Welding and Other Hot Work                            |
| 27                              | 50                     | Hazardous Materials—General Provisions                |
| 28                              | 51                     | Aerosols  |
| 29                              | 52                     | Combustible Fibers                                    |
| 30                              | 53                     | Compressed Gases                                      |
| 31                              | 54                     | Corrosive Materials                                   |
| 32                              | 55                     | Cryogenic Fluids                                      |
| 33                              | 56                     | Explosives and Fireworks                              |
| 34                              | 57                     | Flammable and Combustible Liquids                     |
| 35                              | 58                     | Flammable Gases and Flammable Cryogenic Fluids        |
| 36                              | 59                     | Flammable Solids                                      |
| 37                              | 60                     | Highly Toxic and Toxic Materials                      |
| 38                              | 61                     | Liquefied Petroleum Gases                             |
| 39                              | 62                     | Organic Peroxides                                     |

(continued)

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| 2012 IFC CHAPTER REORGANIZATION—continued |                        |  |
|---|------------------------|--|
| CHAPTER NUMBER<br>2009                    | CHAPTER NUMBER<br>2012 | CHAPTER TITLE  |
| 40  | 63                     | Oxidizers, Oxidizing Gases and Oxidizing Cryogenic<br>Fluids |
| 41  | 64                     | Pyrophoric Materials   |
| 42  | 65                     | Pyroxylin (Cellulose Nitrate) Plastics                       |
| 43  | 66                     | Unstable (Reactive) Materials                                |
| 44  | 67                     | Water-Reactive Solids and Liquids                            |
| 45  | 36                     | Marinas  |
| 46  | 11                     | Construction Requirements for Existing Buildings             |
| 47  | 80                     | Referenced Standards   |
| Appendix A-J                              | Appendix A-J           | No changes in reorganization                                 |

The IFC requirements for fire-resistive construction, interior finish, fire protection systems, means of egress and construction safeguards are directly correlated to the chapters containing parallel requirements in the IBC, as follows:

| IFC Chapter | Subject   |
|-------------|---|
| 7           | Fire-resistance-rated construction                    |
| 8           | Interior finish, decorative materials and furnishings |
| 9           | Fire protection systems                               |
| 10          | Means of egress                                       |
| 33          | Fire safety during constructin and demolition         |

The following is a chapter-by-chapter synopsis of the scope and intent of the provisions of the *International Fire Code*:

#### PART I-ADMINISTRATIVE

**Chapter 1 Scope and Administration.** This chapter contains provisions for the application, enforcement and administration of subsequent requirements of the code. In addition to establishing the scope of the code, Chapter 1 identifies which buildings and structures come under its purview. Chapter 1 is largely concerned with maintaining "due process of law" in enforcing the regulations contained in the body of the code. Only through careful observation of the administrative provisions can the code official reasonably expect to demonstrate that "equal protection under the law" has been provided.

**Chapter 2 Definitions.** All terms that are defined in the code are listed alphabetically in Chapter 2. While a defined term may be used in one chapter or another, the meaning provided in Chapter 2 is applicable throughout the code.

Where understanding of a term's definition is especially key to or necessary for understanding of a particular code provision, the term is shown in *italics* wherever it appears in the code. This is true only for those terms that have a meaning that is unique to the code. In other words, the generally understood meaning of a term or phrase might not be sufficient or consistent with the meaning prescribed by the code; therefore, it is essential that the code-defined meaning be known.

Guidance regarding tense, gender and plurality of defined terms as well as guidance regarding terms not defined in this code are also provided.

# PART II-GENERAL SAFETY PROVISIONS

**Chapter 3 General Requirements.** The open burning, ignition source, vacant building, miscellaneous storage, roof gardens and landscaped roofs and hazards to fire fighters requirements and precautions, among other general regulations, contained in this chapter are intended to improve premises safety for everyone, including construction workers, tenants, operations and maintenance personnel and emergency response personnel. As with other chapters of the *International Fire Code*, Section 302 contains a list of terms that are defined in Chapter 2 and are applicable to the chapter contents.

**Chapter 4 Emergency Planning and Preparedness.** This chapter addresses the human contribution to life safety in buildings when a fire or other emergency occurs. The requirements for continuous training and scheduled fire, evacuation and lockdown drills can be as important as the required periodic inspections and maintenance of built-in fire protection features. The level of preparation by the occupants also improves the emergency responders' abilities during an emergency. The *International Building Code* (IBC) focuses on built-in fire protection features, such as automatic sprinkler systems, fire-resistance-rated construction and properly designed egress systems whereas this chapter fully addresses the human element. As with other chapters of the *International Fire Code*, Section 402 contains a list of terms that are defined in Chapter 2 and are applicable to the chapter contents.

### PART III-BUILDING AND EQUIPMENT DESIGN FEATURES

**Chapter 5 Fire Service Features.** The requirements of this chapter apply to all buildings and occupancies and pertain to access roads; access to building openings and roofs; premises identification; key boxes; fire protection water supplies; fire command centers; fire department access to equipment and emergency responder radio coverage in buildings. As with other chapters of the *International Fire Code*, Section 502 contains a list of terms that are defined in Chapter 2 and are applicable to the chapter contents.