

# IBC<sup>®</sup>

INTERNATIONAL BUILDING CODE<sup>®</sup>

## CODE AND COMMENTARY VOLUME 1

2006



*First Printing: January 2010*

ISBN : 978-1-58001-892-0

COPYRIGHT © 2010  
by  
INTERNATIONAL CODE COUNCIL, INC.

ALL RIGHTS RESERVED. This *2009 International Building Code® Code and Commentary—Volume I* is a copyrighted work owned by the International Code Council, Inc. Without advance written permission from the copyright owner, no part of this book may be reproduced, distributed, or transmitted in any form or by any means, including, without limitation, electronic, optical or mechanical means (by way of example and not limitation, photocopying, or recording by or in an information storage retrieval system). For information on permission to copy material exceeding fair use, please contact: Publications, 4051 West Flossmoor Road, Country Club Hills, IL 60478-5795. Phone 1-888-ICC-SAFE (422-7233).

Trademarks: “International Code Council,” the “International Code Council” logo and the “International Building Code” are trademarks of the International Code Council, Inc.

PRINTED IN THE U.S.A.

# PREFACE

The principal purpose of the Commentary is to provide a basic volume of knowledge and facts relating to building construction as it pertains to the regulations set forth in the 2009 *International Building Code*. The person who is serious about effectively designing, constructing and regulating buildings and structures will find the Commentary to be a reliable data source and reference to almost all components of the built environment.

As a follow-up to the *International Building Code*, we offer a companion document, the *International Building Code Commentary—Volume I*. Volume I covers Chapters 1 through 15 of the 2009 *International Building Code*. The basic appeal of the Commentary is thus: it provides in a small package and at reasonable cost thorough coverage of many issues likely to be dealt with when using the *International Building Code* — and then supplements that coverage with historical and technical background. Reference lists, information sources and bibliographies are also included.

Throughout all of this, strenuous effort has been made to keep the vast quantity of material accessible and its method of presentation useful. With a comprehensive yet concise summary of each section, the Commentary provides a convenient reference for regulations applicable to the construction of buildings and structures. In the chapters that follow, discussions focus on the full meaning and implications of the code text. Guidelines suggest the most effective method of application, and the consequences of not adhering to the code text. Illustrations are provided to aid understanding; they do not necessarily illustrate the only methods of achieving code compliance.

The format of the Commentary includes the full text of each section, table and figure in the code, followed immediately by the commentary applicable to that text. At the time of printing, the Commentary reflects the most up-to-date text of the 2009 *International Building Code*. As stated in the preface to the *International Building Code*, the content of sections in the code which begin with a letter designation (i.e., Section [F]307.1) are maintained by another code development committee. Each section's narrative includes a statement of its objective and intent, and usually includes a discussion about why the requirement commands the conditions set forth. Code text and commentary text are easily distinguished from each other. All code text is shown as it appears in the *International Building Code*, and all commentary is indented below the code text and begins with the symbol ❖.

Readers should note that the Commentary is to be used in conjunction with the *International Building Code* and not as a substitute for the code. **The Commentary is advisory only**; the code official alone possesses the authority and responsibility for interpreting the code.

Comments and recommendations are encouraged, for through your input, we can improve future editions. Please direct your comments to the Codes and Standards Development Department at the Chicago District Office.

The International Code Council would like to extend its thanks to the following individuals for their contributions to the technical content of this commentary:

Chris Marion	Gregory Cahanin
Jeff Tubbs	David Cooper
Rebecca Quinn	Dave Collins
Joann Surmar	Vickie Lovell
James Milke	John Valiulis
Richard Walke	Marcelo Hirschler
Dave Adams	Edward Keith
Zeno Martin	Phillip Samblanet
Jason Thompson	



# TABLE OF CONTENTS

CHAPTER 1	ADMINISTRATION . . . . .	1-1 – 1-24
CHAPTER 2	DEFINITIONS. . . . .	2-1 – 2-18
CHAPTER 3	USE AND OCCUPANCY CLASSIFICATION . . . . .	3-1 – 3-52
CHAPTER 4	SPECIAL DETAILED REQUIREMENTS BASED ON USE AND OCCUPANCY . . . . .	4-1 – 4-136
CHAPTER 5	GENERAL BUILDING HEIGHTS AND AREAS . . . . .	5-1 – 5-56
CHAPTER 6	TYPES OF CONSTRUCTION . . . . .	6-1 – 6-18
CHAPTER 7	FIRE-RESISTANCE-RATED CONSTRUCTION . . . . .	7-1 – 7-198
CHAPTER 8	INTERIOR FINISHES . . . . .	8-1 – 8-18
CHAPTER 9	FIRE PROTECTION SYSTEMS . . . . .	9-1 – 9-124
CHAPTER 10	MEANS OF EGRESS. . . . .	10-1 – 10-184
CHAPTER 11	ACCESSIBILITY . . . . .	11-1 – 11-64
CHAPTER 12	INTERIOR ENVIRONMENT . . . . .	12-1 – 12-16
CHAPTER 13	ENERGY EFFICIENCY . . . . .	13-1 – 13-2
CHAPTER 14	EXTERIOR WALLS . . . . .	14-1 – 14-44
CHAPTER 15	ROOF ASSEMBLIES AND ROOFTOP STRUCTURES . . . . .	15-1 – 15-34
INDEX	. . . . .	INDEX-1 – INDEX-32



# Chapter 1: Scope and Administration

## General Comments

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. Section 101 addresses the scope of the code and references the other *International Codes*<sup>®</sup> that are mentioned elsewhere in the code. Section 102 establishes the applicability of the code and addresses existing structures.

Section 103 establishes the department of building safety and the appointment of department personnel. Section 104 outlines the duties and authority of the building official with regard to permits, inspections and right of entry. It also establishes the authority of the building official to approve alternative materials, used materials and modifications. Section 105 states when permits are required and establishes the procedures for the review of applications and the issuance of permits. Section 106 provides requirements for posting live loads greater than 50 pounds per square foot (2394 Pa) (psf). Section 107 describes the information that must be included on the construction documents submitted with the application. Section 108 authorizes the building official to issue permits for temporary structures and uses. Section 109 establishes requirements for a fee schedule. Section 110 includes inspection duties of the building official or an inspection agency that has been approved by the building official. Provisions for the issuance of certificates of occupancy are detailed in Section 111. Section 112 gives the building official the authority to approve utility connections. Section 113 establishes the board of appeals and the criteria for making applications for appeal. Administrative provisions for violations are addressed in Section 114, including provisions for unlawful acts, violation notices, prosecution and penalties. Section 115 describes procedures for stop work orders. Section 116 establishes the criteria for unsafe structures and equipment and the procedures to be followed by the building official for abatement and for notification to the responsible party.

Each state's building code enabling legislation, which is grounded within the police power of the state, is the source of all authority to enact building codes. In terms of how it is used, police power is the power of the state to legislate for the general welfare of its citizens. This power enables passage of such laws as building codes. If the state legislature has limited this power in any way, the municipality may not exceed these limitations. While the municipality may not further delegate its police power (e.g., by delegating the burden of determining code com-

pliance to the building owner, contractor or architect), it may turn over the administration of the building code to a municipal official, such as a building official, provided that sufficient criteria are given to establish clearly the basis for decisions as to whether or not a proposed building conforms to the code.

Chapter 1 is largely concerned with maintaining "due process of law" in enforcing the building performance criteria contained in the body of the code. Only through careful observation of the administrative provisions can the building official reasonably hope to demonstrate that "equal protection under the law" has been provided. While it is generally assumed that the administration and enforcement section of a code is geared toward a building official, this is not entirely true. The provisions also establish the rights and privileges of the design professional, contractor and building owner. The position of the building official is merely to review the proposed and completed work and to determine if the construction conforms to the code requirements. The design professional is responsible for the design of a safe structure. The contractor is responsible for constructing the structure in compliance with the plans.

During the course of construction, the building official reviews the activity to ascertain that the spirit and intent of the law are being met and that the safety, health and welfare of the public will be protected. As a public servant, the building official enforces the code in an unbiased, proper manner. Every individual is guaranteed equal enforcement of the provisions of the code. Furthermore, design professionals, contractors and building owners have the right of due process for any requirement in the code.

## Purpose

A building code, as with any other code, is intended to be adopted as a legally enforceable document to safeguard health, safety, property and public welfare. A building code cannot be effective without adequate provisions for its administration and enforcement. The official charged with the administration and enforcement of building regulations has a great responsibility, and with this responsibility goes authority. No matter how detailed the building code may be, the building official must, to some extent, exercise his or her own judgement in determining code compliance. The building official has the responsibility to establish that the homes in which the citizens of the community reside and the buildings in which they work are designed and constructed to be structurally stable with adequate means of egress, light and ventilation and to provide a minimum acceptable

# IBC®

INTERNATIONAL BUILDING CODE®

## CODE AND COMMENTARY VOLUME 2

2006



*First Printing:* January 2010

ISBN : 978-1-58001-893-7

COPYRIGHT © 2010  
by  
INTERNATIONAL CODE COUNCIL, INC.

ALL RIGHTS RESERVED. This *2009 International Building Code® Code and Commentary—Volume II* is a copyrighted work owned by the International Code Council, Inc. Without advance written permission from the copyright owner, no part of this book may be reproduced, distributed, or transmitted in any form or by any means, including, without limitation, electronic, optical or mechanical means (by way of example and not limitation, photocopying, or recording by or in an information storage retrieval system). For information on permission to copy material exceeding fair use, please contact: Publications, 4051 West Flossmoor Road, Country Club Hills, IL 60478-5795. Phone 1-888-ICC-SAFE (422-7233).

Trademarks: “International Code Council,” the “International Code Council” logo and the “International Building Code” are trademarks of the International Code Council, Inc.

PRINTED IN THE U.S.A.

# PREFACE

The principal purpose of the Commentary is to provide a basic volume of knowledge and facts relating to building construction as it pertains to the regulations set forth in the 2009 *International Building Code*. The person who is serious about effectively designing, constructing and regulating buildings and structures will find the Commentary to be a reliable data source and reference to almost all components of the built environment

As a follow-up to the *International Building Code*, we offer a companion document, the *International Building Code Commentary—Volume II*. Volume II covers Chapters 16 through 35 of the 2009 *International Building Code*. The basic appeal of the Commentary is thus: it provides in a small package and at reasonable cost thorough coverage of many issues likely to be dealt with when using the *International Building Code* — and then supplements that coverage with historical and technical background. Reference lists, information sources and bibliographies are also included.

Throughout all of this, strenuous effort has been made to keep the vast quantity of material accessible and its method of presentation useful. With a comprehensive yet concise summary of each section, the Commentary provides a convenient reference for regulations applicable to the construction of buildings and structures. In the chapters that follow, discussions focus on the full meaning and implications of the code text. Guidelines suggest the most effective method of application, and the consequences of not adhering to the code text. Illustrations are provided to aid understanding; they do not necessarily illustrate the only methods of achieving code compliance.

The format of the Commentary includes the full text of each section, table and figure in the code, followed immediately by the commentary applicable to that text. At the time of printing, the Commentary reflects the most up-to-date text of the 2009 *International Building Code*. As stated in the preface to the *International Building Code*, the content of sections in the code which begin with a letter designation (i.e., Section [P]2903.1) are maintained by another code development committee. Each section's narrative includes a statement of its objective and intent, and usually includes a discussion about why the requirement commands the conditions set forth. Code text and commentary text are easily distinguished from each other. All code text is shown as it appears in the *International Building Code*, and all commentary is indented below the code text and begins with the symbol ❖.

Readers should note that the Commentary is to be used in conjunction with the *International Building Code* and not as a substitute for the code. **The Commentary is advisory only**; the code official alone possesses the authority and responsibility for interpreting the code.

Comments and recommendations are encouraged, for through your input, we can improve future editions. Please direct your comments to the Codes and Standards Development Department at the Chicago District Office.

The International Code Council would like to extend its thanks to the following individuals for their contributions to the technical content of this commentary:

Chris Marion	Gregory Cahanin
Jeff Tubbs	David Cooper
Rebecca Quinn	Dave Collins
Joann Surmar	Vickie Lovell
James Milke	John Valiulis
Richard Walke	Marcelo Hirschler
Dave Adams	Edward Keith
Zeno Martin	Phillip Samblanet
Jason Thompson	



# TABLE OF CONTENTS

CHAPTER 16	STRUCTURAL DESIGN . . . . .	16-1 – 16-114
CHAPTER 17	STRUCTURAL TESTS AND SPECIAL INSPECTIONS . . . . .	17-1 – 17-36
CHAPTER 18	SOILS AND FOUNDATIONS . . . . .	18-1 – 18-80
CHAPTER 19	CONCRETE . . . . .	19-1 – 19-46
CHAPTER 20	ALUMINUM . . . . .	20-1 – 20-2
CHAPTER 21	MASONRY . . . . .	21-1 – 21-54
CHAPTER 22	STEEL . . . . .	22-1 – 22-10
CHAPTER 23	WOOD . . . . .	23-1 – 23-116
CHAPTER 24	GLASS AND GLAZING . . . . .	24-1 – 24-26
CHAPTER 25	GYPSUM BOARD AND PLASTER . . . . .	25-1 – 25-26
CHAPTER 26	PLASTIC . . . . .	26-1 – 26-28
CHAPTER 27	ELECTRICAL . . . . .	27-1 – 27-4
CHAPTER 28	MECHANICAL SYSTEMS . . . . .	28-1 – 28-2
CHAPTER 29	PLUMBING SYSTEMS . . . . .	29-1 – 29-18
CHAPTER 30	ELEVATORS AND CONVEYING SYSTEMS . . . . .	30-1 – 30-22
CHAPTER 31	SPECIAL CONSTRUCTION . . . . .	31-1 – 31-20
CHAPTER 32	ENCROACHMENTS INTO THE PUBLIC RIGHT-OF-WAY . . . . .	32-1 – 32-6
CHAPTER 33	SAFEGUARDS DURING CONSTRUCTION . . . . .	33-1 – 33-8
CHAPTER 34	EXISTING STRUCTURES . . . . .	34-1 – 34-58
CHAPTER 35	REFERENCED STANDARDS . . . . .	35-1 – 35-22
APPENDIX A	EMPLOYEE QUALIFICATIONS . . . . .	A-1 – A-2
APPENDIX B	BOARD OF APPEALS . . . . .	B-1 – B-4
APPENDIX C	GROUP U — AGRICULTURAL BUILDINGS . . . . .	C-1 – C-4
APPENDIX D	FIRE DISTRICTS . . . . .	D-1 – D-8

<b>APPENDIX E</b>	<b>SUPPLEMENTARY ACCESSIBILITY REQUIREMENTS . . . .</b>	<b>E-1 – E-12</b>
<b>APPENDIX F</b>	<b>RODENTPROOFING. . . . .</b>	<b>F-1 – F-2</b>
<b>APPENDIX G</b>	<b>FLOOD-RESISTANT CONSTRUCTION . . . . .</b>	<b>G-1 – G-16</b>
<b>APPENDIX H</b>	<b>SIGNS . . . . .</b>	<b>H-1 – H-10</b>
<b>APPENDIX I</b>	<b>PATIO COVERS . . . . .</b>	<b>I-1 – I-2</b>
<b>APPENDIX J</b>	<b>GRADING . . . . .</b>	<b>J-1 – J-8</b>
<b>APPENDIX K</b>	<b>ADMINISTRATIVE PROVISIONS . . . . .</b>	<b>K-1 – K-4</b>
<b>INDEX</b>	<b>. . . . .</b>	<b>INDEX-1 – INDEX-32</b>