

SIGNIFICANT CHANGES TO THE

INTERNATIONAL BUILDING CODE®

2012 EDITION



Australia • Brazil • Japan • Korea • Mexico • Singapore • Spain • United Kingdom • United States



Significant Changes to the International Building Code[®] 2012 Edition International Code Council

Delmar Cengage Learning Staff:

Vice President, Technology and Trades Professional Business Unit: Gregory L. Clayton

Director of Building Trades: Taryn Zlatin McKenzie

Executive Editor: Robert Person

Development: Nobina Preston

Director of Marketing: Beth A. Lutz

Marketing Manager: Marissa Maiella Marketing Communications Manager:

Nicole McKasty Stagg

Production Director: Wendy Troeger

Senior Content Project Manager: Stacey Lamodi

Art Director: Benjamin Gleeksman

ICC Staff:

Senior Vice President, Business and Product Development: Mark A. Johnson

Deputy Senior Vice President, Business and Product Development: Hamid Naderi

Technical Director, Product Development: Doug Thornburg

Director, Project and Special Sales: Suzane Nunes Holten

Senior Marketing Specialist: Dianna Hallmark

© 2012 International Code Council

Line illustrations copyright © 2012 by International Code Council

ALL RIGHTS RESERVED. No part of this work covered by the copyright herein may be reproduced, transmitted, stored, or used in any form or by any means graphic, electronic, or mechanical, including but not limited to photocopying, recording, scanning, digitizing, taping, Web distribution, information networks, or information storage and retrieval systems, except as permitted under Section 107 or 108 of the 1976 United States Copyright Act, without the prior written permission of the publisher.

For product information and technology assistance, contact us at Cengage Learning Customer & Sales Support, 1-800-354-9706

For permission to use material from this text or product, submit all requests online at **www.cengage.com/permissions**. Further permissions questions can be e-mailed to **permissionrequest@cengage.com**

Library of Congress Control Number: 2011921377

ISBN-13: 978-1-111-54246-7 ISBN-10: 1-111-54246-5

ICC World Headquarters

500 New Jersey Avenue, NW 6th Floor Washington, D.C. 20001-2070 Telephone: 1-888-ICC-SAFE (422-7233) **Website: http://www.iccsafe.org**

Delmar

5 Maxwell Drive Clifton Park, NY 12065-2919 USA

Cengage Learning is a leading provider of customized learning solutions with office locations around the globe, including Singapore, the United Kingdom, Australia, Mexico, Brazil, and Japan. Locate your local office at: international.cengage.com/region

Cengage Learning products are represented in Canada by Nelson Education, Ltd.

Visit us at www.InformationDestination.com For more learning solutions, please visit our corporate website at www.cengage.com

Notice to the Reader

Publisher does not warrant or guarantee any of the products described herein or perform any independent analysis in connection with any of the product information contained herein. Publisher does not assume, and expressly disclaims, any obligation to obtain and include information other than that provided to it by the manufacturer. The reader is expressly warned to consider and adopt all safety precautions that might be indicated by the activities described herein and to avoid all potential hazards. By following the instructions contained herein, the reader willingly assumes all risks in connection with such instructions. The publisher makes no representations or warranties of any kind, including but not limited to, the warranties of fitness for particular purpose or merchantability, nor are any such representations implied with respect to the material set forth herein, and the publisher takes no responsibility with respect to such material. The publisher shall not be liable for any special, consequential, or exemplary damages resulting, in whole or part, from the readers' use of, or reliance upon, this material.

United States of America 1 2 3 4 5 6 7 14 13 12 11

Contents

PART 1 Administration Chapters 1 and 2

- 102.4 Conflicting Provisions between Codes and Standards
- 104.10.1
 Code Modifications
 for Flood Hazard Areas
- 105.2, #B2 Fences Exempt from Permits
- Definitions

PART 2 Building Planning Chapters 3 through 6

- 303.1.3 Assembly Rooms Associated with Group E Occupancies
- 303.3 Occupancy Classification of Casino Gaming Floors
- 303.3, 306.2
 Occupancy Classification of Commercial Kitchens



		Table 307.1(1), Section 307.4 Facilities Generating Combustible Dusts	15
1	•	308.2, 202 Definitions of Care Facilities	16
2	•	308.4 Occupancy Classification for Medical Care Facilities	19
3	•	310.6 Uses Classified as Group R-4 Occupancies	21
5	1	402 Open Mall Buildings	23
6	•	403.6.1 High-Rise Buildings—Fire Service Access Elevators	25
	1	406.4 Public Parking Garages	27
8	•	406.5.2.1 Open Parking Garages—Openings below Grade	29
9	1	406.5.5 Open Parking Garages—Height and Area Increases	31
11	1	410.6.3, 202 Technical Production Areas	33
13	•	412.4.6.2 Aircraft Hangar Fire Areas	36

iv CONTENTS

1	414.5 Inside Storage, Dispensing, and Use of Hazardous Materials	38	I
•	419, 202 Live/Work Units	39	•
•	422 Ambulatory Care Facilities	42	•
•	424 Children's Play Structures	44	
•	501.2 Address Identification	47	
•	505.2.2 Mezzanine Means of Egress	48	
1	506.2.1 Allowable Area Frontage Increase	50	
1	507.1 Unlimited Area Buildings— Accessory Occupancies	53	
1	507.1 Unlimited Area Buildings—Open Space	55	
1	507.8 Unlimited Area Buildings— Group H Occupancies	57	
•	509 Incidental Uses—General Provisions	60	
•	509 Incidental Uses—Separation and Protection	62	
•	Table 509 Incidental Uses—Rooms or Areas	64	
•	Table 602, Note h Fire Ratings of Exterior Walls	66	
PA Fir Ch	RT 3 e Protection apters 7 through 9	68	•
•	701.2 Multiple-Use Fire Assemblies	70	l
•	703.4 Establishing Fire Resistance Ratings	72	ł
1	703.7 Identification of Fire and Smoke Separation Walls	73	•
•	704.11 Fire Protection of Bottom Flanges	75	I

•	705.2 Extent of Projections beyond Exterior Walls	76
•	705.2.3 Protection of Combustible Projections	78
•	705.3 Projections from Buildings on the Same Lot	80
•	706.2 Double Fire Walls	82
•	706.6, 706.6.2 Fire Wall Height at Sloped Roofs	84
•	707.8, 707.9 Intersections of Fire Barriers at Roof Assemblies	86
•	709.4 Continuity of Smoke Barriers	88
•	712 Vertical Openings	89
•	713.13 Refuse and Laundry Chutes in Group I-2 Occupancies	91
•	713.13.4 Fire Protection of Termination Rooms	93
•	713.14.1 High-Rise Buildings—Elevator Lobbies	95
•	714.4.1.1.2 Floor Penetrations of Horizontal Assemblies	98
•	714.4.1.2 Interruption of Horizontal Assemblies	100
•	714.5, 715.6, 202 L Ratings	102
•	715.4 Exterior Curtain Wall/Floor Intersection	104
•	716.3, 202 Marking of Fire-Rated Glazing Assemblies	106
•	Table 716.5 Opening Protection Ratings and Markings	108
•	716.5.5.1 Glazing in Exit Enclosure and Exit Passageway Doors	111
•	Table 716.6 Fire-Protection-Rated Glazing	113

187

•	716.6.4 Wired Glass in Fire Window Assemblies	115
•	717.5.4 Fire Damper Exemption for Fire Partitions	117
•	718.2.6 Fireblocking within Exterior Wall Coverings	119
•	803.12 High-Density Polyethylene (HDPE) and Polypropylene (PP)	121
•	804.4 Interior Floor Finish Requirements	122
•	901.8 Pump and Riser Room Size	124
•	903.2.2 Sprinklers in Ambulatory Care Facilities	125
•	903.2.4, 903.2.7, 903.2.9 Furniture Storage and Display in Group F-1, M, and S-1 Occupancies	127
•	903.2.11.1.3 Sprinkler Protection for Basements	129
•	903.2.11.2 Sprinkler Protection of Rubbish and Linen Chutes	131
•	903.3.5.2 Secondary Water Supply	134
•	904.3.2 Actuation of Multiple Fire-Extinguishing Systems	135
•	905.4 Location of Class I Standpipe Hose Connections	137
•	906.1 Portable Fire Extinguishers in Group R-2 Occupancies	139
•	907.2.1 Fire Alarms Systems in Group A Occupancies	140
•	907.2.1.2 Emergency Voice/Alarm Communication Captions	142
•	907.2.3 Group E Fire Alarm Systems	144

•	907.2.9.3 Smoke Detection in Group R-2 College Buildings	146
1	907.2.11.3 Wireless Interconnection of Smoke Alarms	149
1	908.7 Carbon Monoxide Alarms	151
PA Ma Ch	ART 4 eans of Egress apter 10	153
1	1001.4 Fire Safety and Evacuation Plans	155
1	1004.1.2, Table 1004.1.2 Design Occupant Load—Areas without Fixed Seating	157
1	1005 Means of Egress Capacity Determination	159
1	1007 Accessible Means of Egress	163
•	1008.1.2 Door Swing	167
1	1008.1.9.9 Electromagnetically Locked Egress Doors	168
1	1009, 1010, 202 Interior Stairways and Ramps	170
•	1009.1 Application of Stairway Provisions	174
2	1011.2 Floor-Level Exit Signs in Group R-1	175
1	1012.2 Handrail Height	176
•	1012.3.1, 1012.8 Handrail Graspability and Projections	178
•	1013.1, 1013.8 Guards at Operable Windows	180
•	1013.3 Guard Height	183
•	1021.2 Exits from Stories	185
•	1021.2.1 Exits from Mixed Occupancy	

Buildings

vi CONTENTS

•	1021.2.3, Table 1021.2(1) Exits from Dwelling Units	188		
1	1022.5 Enclosure Penetrations of Interior Exit Stairways	192		
1	1028.1.1.1 Separation of Spaces under Grandstands and Bleachers	194		
PA Ac Ch	RT 5 ccessibility apter 11	195		
1	1104.3.1 Employee Work Areas	196		
1	1107.6.1 Accessible Units in R-1 Occupancies	198		
•	1108.2.7.3 Captioning of Public Address Announcements	200		
1	1109.2, 1109.5 Accessible Children's Facilities	202		
•	1109.6 Accessible Saunas and Steam Rooms	205		
•	1110.4 Variable Message Signs	206		
PART 6 Building Envelope, Structural Systems, and Construction Materials Chapters 12 through 26 209				
•	1203.1 Mechanical Ventilation Required	212		
•	1203.2 Ventilation of Attic Spaces	214		
•	1208.3 Minimum Kitchen Floor Area	216		
•	1210 Toilet and Bathroom Requirements	217		
•	1403.5 Flame Propagation at Exterior Walls	220		

•	1404.12, 1405.18, 202 Polypropylene Siding	222
•	1405.6 Anchored Masonry Veneer	224
•	1503.4 Roof Drainage Systems	225
•	1507.2.8.1 Roof Covering Underlayment in High Wind Areas	227
•	1507.16 Roof Gardens and Landscaped Roofs	229
•	1507.17, 3111, 202 Photovoltaic Systems	231
•	1509, 202 Rooftop Structures	233
•	1510.3 Roof Covering Replacement	240
•	Table 1604.3Deflection Limits	242
•	1604.5, 202 Risk Categories	243
•	1605.2 Load Combinations Using Strength Design of Load and Resistance Factor Design	246
•	1605.3 Load Combinations Using Allowable Stress Design	248
•	Table 1607.1 Minimum Live Loads	251
•	1607.6, 202 Helipads	255
•	1607.7 Heavy Vehicle Loads	257
•	1608.3, 1611.2, 202 Ponding Instability	259
•	1609, 202 Determination of Wind Loads	260
•	1613.3.1, 202 Mapped Acceleration Parameters	270
•	1613.4 Alternatives to ASCE 7	276

	1614 202	
	Atmospheric Ice Loads	280
•	1704.3 Statement of Special Inspections	281
•	1705.2 Special Inspection of Steel Construction	285
•	Table 1705.3 Required Verification and Inspection ofConcrete Construction	289
•	1705.4 Special Inspection of Masonry Construction	291
•	1705.16 Special Inspection of Fire-Resistant Penetration and Joint Systems	293
•	1803.5.12 Geotechnical Reports for Foundation Walls and Retaining Walls	294
•	1810.3.3.1.6 Uplift Capacity of Grouped Deep Foundation Elements	295
•	Chapter 19 Concrete Construction	296
•	1905.1.3 Seismic Detailing of Wall Piers	300
•	1905.1.8 Plain Concrete Footings in Dwelling Construction	302
•	1905.1.9 Shear Wall to Concrete Foundation Connection	304
•	2101.2 Design Methods for Masonry Structures	308
•	2206 Composite Structural Steel and Concrete Structures	309
•	2210.2 Seismic Requirements for Cold-Formed Steel Structures	311
•	2305 General Design Requirements for Lateral-Force-Resisting Systems	313

_	0000	
	2306 Allowable Stress Design	315
•	2307 Load and Resistance Factor Design	319
•	2308.12 Braced Wall Line Sheathing	321
•	2406.1, 2406.4 Safety Glazing—Hazardous Locations	324
•	2406.2 Safety Glazing—Impact Test	330
1	2510.6 Water-Resistive Barriers for Stucco Applications	332
•	2603.4.1.14 Foam Plastic Insulation Installed in Floor Assemblies	334
•	2603.7, 2603.8 Interior Finish in Plenums	336
•	2603.10, 2603.10.1 Special Approval of Foam Plastics	338
•	2610.3 Slope Requirements of a Dome Skylight	340
1	2612, 202 Fiber-Reinforced Polymer	342

PART 7

Bı an Cł	Building Services, Special Devices, and Special Conditions Chapters 27 through 34 34		
	2902.2 Single-User Toilet Facilities	347	
1	2902.3 Toilet Facilities in Parking Garages	349	
1	2902.3.5 Locking of Toilet Room Doors	350	
1	2902.5 Required Drinking Fountains	351	
1	3007 Fire Service Access Elevators	352	
1	3008 Occupant Evacuation Elevators	357	

viii CONTENTS

•	 3108 Telecommunication and Broadcast Towers 3302.3, 3303.7, 3313 Fire Safety during Construction 	361 362	 Appendix L Earthquake-Recording Instruments Appendix M Tsunami-Generated Flood Hazards 	371 373
•	3401.3 Compliance for Existing Buildings	364	Index	375
•	3411 Type B Units in Existing Buildings	366		

Preface

The purpose of Significant Changes to the International Building Code[®] 2012 Edition is to familiarize building officials, fire officials, plans examiners, inspectors, design professionals, contractors, and others in the construction industry with many of the important changes in the 2012 International Building Code[®] (IBC[®]). This publication is designed to assist those code users in identifying the specific code changes that have occurred and, more important, understanding the reason behind the change. It is also a valuable resource for jurisdictions in their codeadoption process.

Only a portion of the total number of code changes to the IBC are discussed in this book. The changes selected were identified for a number of reasons, including their frequency of application, special significance, or change in application. However, the importance of those changes not included is not to be diminished. Further information on all code changes can be found in the *Code Changes Resource Collection*, available from the International Code Council[®] (ICC[®]). The resource collection provides the published documentation for each successful code change contained in the 2012 IBC since the 2009 edition.

This book is organized into seven general categories, each representing a distinct grouping of code topics. It is arranged to follow the general layout of the IBC, including code sections and section number format. The table of contents, in addition to providing guidance in use of this publication, allows for quick identification of those significant code changes that occur in the 2012 IBC.

Throughout the book, each change is accompanied by a photograph, an application example, or an illustration to assist and enhance the reader's understanding of the specific change. A summary and a discussion of the significance of the changes are also provided. Each code change is identified by type, be it an addition, modification, clarification, or deletion.

The code change itself is presented in a format similar to the style utilized for code-change proposals. Deleted code language is shown with a strike-through, whereas new code text is indicated by underlining. As a result, the actual 2012 code language is provided, as well as a comparison with the 2009 language, so the user can easily determine changes to the specific code text. As with any code-change text, *Significant Changes to the International Building Code 2012 Edition* is best used as a study companion to the 2012 IBC. Because only a limited discussion of each change is provided, the code itself should always be referenced in order to gain a more comprehensive understanding of the code change and its application.

The commentary and opinions set forth in this text are those of the authors and do not necessarily represent the official position of the ICC. In addition, they may not represent the views of any enforcing agency, as such agencies have the sole authority to render interpretations of the IBC. In many cases, the explanatory material is derived from the reasoning expressed by the code-change proponent.

Comments concerning this publication are encouraged and may be directed to the ICC at *significantchanges@iccsafe.org*.

About the International Building Code[®]

Building officials, design professionals, and others involved in the building construction industry recognize the need for a modern, up-to-date building code addressing the design and installation of building systems through requirements emphasizing performance. The *International Building Code* (IBC), in the 2012 edition, is intended to meet these needs through model code regulations that safeguard the public health and safety in all communities, large and small. The IBC is kept up to date through the open code-development process of the International Code Council (ICC). The provisions of the 2009 edition, along with those code changes approved through 2010, make up the 2012 edition.

The ICC, publisher of the IBC, was established in 1994 as a nonprofit organization dedicated to developing, maintaining, and supporting a single set of comprehensive and coordinated national model building construction codes. Its mission is to provide the highest quality codes, standards, products, and services for all concerned with the safety and performance of the built environment.

The IBC is 1 of 14 International Codes[®] published by the ICC. This comprehensive building code establishes minimum regulations for buildings systems by means of prescriptive and performance-related provisions. It is founded on broad-based principles that make possible the use of new materials and new building designs. The IBC 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.

Acknowledgments

A special thank you is extended to Scott Stookey, Senior Technical Staff with ICC for his assistance with the fire protection portions of this text. Thanks also to ICC staff members Alan Carr, Kim Paarlberg, Bill Rehr, and Kermit Robinson for their valued review and input.

About the Authors

Douglas W. Thornburg, AIA, CBO International Code Council Technical Director of Product Development

Douglas W. Thornburg is the Technical Director of Product Development for the International Code Council (ICC), where he provides leadership in technical development and positioning of support products for the council. In addition, Doug develops and reviews technical products, reference books, and resource materials relating to construction codes and their supporting documents. Prior to employment with the ICC in 2004, he spent nine years as a code consultant and educator on building codes. Formerly Vice-President/Education for the International Conference of Building Officials (ICBO), Doug continues to present building code seminars nationally and has developed numerous educational texts and resource materials, including the IBC Handbook— *Fire- and Life-Safety Provisions*. He was presented with ICC's inaugural Educator of the Year Award in 2008, in recognition of his outstanding contributions to education and professional development. A graduate of Kansas State University and a registered architect, Doug has more than 30 years of experience in building code training and administration, including 10 years with the ICBO and 5 years with the City of Wichita, Kansas. He is certified as a building official, building inspector, and plans examiner, as well as in seven other code enforcement categories.

John R. Henry, P.E. International Code Council Principal Staff Engineer

John R. Henry is a Principal Staff Engineer with the International Code Council (ICC) Business and Product Development Department, where he is responsible for the research and development of technical resources pertaining to the structural engineering provisions of the International Building Code (IBC). John also develops and presents technical seminars on the structural provisions of the IBC. He has a broad range of experience that includes structural design in private practice, plan-check engineering with consulting firms and building department jurisdictions, and 14 years as an International Conference of Building Officials (ICBO)/ ICC Staff Engineer. John graduated with honors from California State University in Sacramento with a Bachelor of Science Degree in Civil Engineering and is a Registered Civil Engineer in the State of California. He is a member of the American Society of Civil Engineers (ASCE) and the Structural Engineers Association of California (SEAOC) and is an ICC Certified Plans Examiner. John has written several articles on the structural provisions of the IBC that have appeared in Structure Magazine and Structural Engineering and Design magazine's Code Series. He is also the coauthor with S. K. Ghosh, PhD, of the IBC Handbook-Structural Provisions.

Jay Woodward International Code Council Senior Staff Architect

Jay is a senior staff architect with the ICC's Business and Product Development department and works out of the Lenexa, Kansas, Distribution Center. His current responsibilities include serving as the Secretariat for the ICC A117.1 standard committee and assisting in the development of new ICC publications.

With more than 28 years of experience in building design, construction, code enforcement, and instruction, Jay's experience provides him with the ability to address issues of code application and design for code enforcement personnel as well as architects, designers, and contractors. Jay has previously served as the Secretariat for the ICC's *International Energy Conservation Code* and the *International Building Code's* Fire Safety Code Development committee.

A graduate of the University of Kansas and a registered architect, Jay has also worked as an architect for the Leo A. Daly Company in Omaha, Nebraska; as a building Plans Examiner for the City of Wichita, Kansas; and as a Senior Staff Architect for the International Conference of Building Officials (ICBO) prior to working for the ICC. He is also author of *Significant Changes to the A117.1 Accessibility Standard 2009 Edition*.

About the ICC

The ICC is a nonprofit membership association dedicated to protecting the health, safety, and welfare of people by creating better buildings and safer communities. The mission of the ICC is to provide the highestquality codes, standards, products, and services for all concerned with the safety and performance of the built environment. The ICC is the publisher of the family of the International Codes[®] (I-Codes[®]), a single set of comprehensive and coordinated model codes. This unified approach to building codes enhances safety, efficiency, and affordability in the construction of buildings. The ICC is also dedicated to innovation, sustainability, and energy efficiency. In addition, the ICC Evaluation Service, an ICC subsidiary, issues Evaluation Reports for innovative products and Reports of Sustainable Attributes Verification and Evaluation (SAVE).

Headquarters:

500 New Jersey Avenue, NW, 6th Floor Washington, DC 20001-2070

District Offices: Birmingham, AL; Chicago. IL; Los Angeles, CA

> 1-888-422-7233 www.iccsafe.org