



SIGNIFICANT CHANGES TO THE

INTERNATIONAL RESIDENTIAL CODE[®]

2015 EDITION



CENGAGE
Learning®

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

Significant Changes to the International Residential Code® 2015 Edition
International Code Council

Stephen A. Van Note and Sandra Hyde, P.E.

Cengage Learning Staff :

Executive Director of Professional Technology and Trades Training Solutions: **Taryn Zlatin McKenzie**

Product Manager: **Vanessa Myers**

Associate Content Developer: **Jenn Wheaton**

Director of Marketing: **Beth A. Lutz**

Senior Marketing Manager: **Marissa Lavigna**

Marketing Communications Manager: **Nicole McKasty-Stagg**

Senior Production Director: **Wendy Troeger**

Production Director: **Patty Stephan**

Senior Content Project Manager: **Stacey Lamodi**

Senior Art Director: **Benjamin Gleeksman**

ICC Staff :

Executive Vice President and Director of Business Development:

Mark A. Johnson

Senior Vice President, Product Development: **Hamid Naderi**

Vice President, Education and Certification: **Doug Thornburg**

Director, Products and Special Sales: **Suzane Nunes**

Senior Marketing Specialist: **Dianna Hallmark**

Cover images courtesy of (left to right):

© **Andrew Lebedev/Shutterstock.com**;

© **Christian De Araujo/Shutterstock.com**;

© **EPSTOCK/Shutterstock.com**

© 2015 International Code Council

WCN: 01-100-101

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 emailed to
permissionrequest@cengage.com

Library of Congress Control Number: 2014937026

ISBN: 978-1-305-25473-2

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**

Cengage Learning

20 Channel Center Street

Boston, MA 02210

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.ConstructionEdge.cengage.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.

Contents



PART 1			
Administration			
Chapters 1 and 2	1		
■ R101.2, R202			
Scope—Accessory Structures	2		
■ R104.11			
Alternative Materials, Design and Methods of Construction and Equipment	4		
■ R105.3.1.1			
Existing Buildings in Flood Hazard Areas	5		
■ R106.1.4			
Information for Construction in Flood Hazard Areas	7		
PART 2			
Building Planning			
Chapter 3	9		
■ Table R301.2(1)			
Climatic and Geographic Design Criteria	11		
■ R301.2			
Wind Design Criteria	12		
■ R301.2			
Wind Speed Maps	17		
■ Table R301.2(2)			
Component and Cladding Loads	20		
■ R301.2.1.1.1			
Sunrooms	22		
■ R301.2.1.2			
Protection of Openings in Wind Borne Debris Regions	24		
■ R301.2.1.4			
Wind Exposure Category	26		
■ Table R301.2.1.5.1			
Modifications for Topographic Wind Effects	29		
■ R301.2.4			
Floodplain Construction	30		
■ R301.3			
Story Height	32		
■ R302.1			
Exterior Walls	35		
■ R302.2			
Townhouse Separation	39		
■ R302.13			
Fire Protection of Floors	42		
■ R303.7, R303.8			
Stairway Illumination	44		
■ R304.1			
Minimum Habitable Room Area	46		
■ R305			
Ceiling Height	48		
■ R308.4.2			
Glazing Adjacent to Doors	51		
■ R308.4.5			
Glazing and Wet Surfaces	53		

iv CONTENTS

■ R308.4.7 Glazing Adjacent to the Bottom Stair Landing	55	■ R403.1.6 Foundation Anchorage	109
■ R310 Emergency Escape and Rescue Openings	56	■ R404.1.4.1 Masonry Foundation Walls in SDC D ₀ , D ₁ and D ₂	112
■ R310.5, R310.6 Emergency Escape and Rescue Openings for Additions, Alterations and Repairs	60	■ R404.4 Retaining Walls	113
■ R311.1 Means of Egress	62	■ Tables R502.3.1(1), R502.3.1(2) Floor Joist Spans for Common Lumber Species	114
■ R311.7.3, R311.7.5.1 Stair Risers	63	■ R502.10 Framing of Floor Openings	117
■ R311.7.10.1 Spiral Stairways	65	■ R507.1, R507.4 Decking	119
■ R311.7.11, R311.7.12 Alternating Tread Devices and Ship Ladders	67	■ R507.2 Deck Ledger Connection to Band Joist	121
■ R311.8 Ramps	70	■ R507.2.4 Alternative Deck Lateral Load Connection	124
■ R312.1.2 Guard Height	72	■ R507.5, R507.6, R507.7 Deck Joists and Beams	126
■ R312.2.1 Window Fall Protection	74	■ R507.8 Deck Posts	131
■ R314 Smoke Alarms	76	■ Table R602.3(1) Fastening Schedule—Roof Requirements	132
■ R315 Carbon Monoxide Alarms	82	■ Table R602.3(1) Fastening Schedule—Wall Requirements	134
■ R322.1, R322.2 Flood Hazards	87	■ Table R602.3(1) Fastening Schedule—Floor Requirements	137
■ R322.3 Coastal High-Hazard Areas	90	■ R602.3.1 Stud Size, Height and Spacing	139
■ R325 Mezzanines	93	■ R602.7 Headers	143
PART 3 Building Construction Chapters 4 through 10	95	■ Table R602.10.3(1) Bracing Requirements Based on Wind Speed	147
■ R403.1.1 Minimum Footing Size	97	■ Table R602.10.5 Contributing Length of Method CS-PF Braced Wall Panels	149
■ R403.1.2, R602.10.9.1 Continuous Footings in Seismic Design Categories D ₀ , D ₁ and D ₂	102	■ R602.10.6.2 Method PFH: Portal Frame with Hold-Downs	151
■ R403.1.3 Footing and Stem Wall Reinforcing in Seismic Design Categories D ₀ , D ₁ and D ₂	105	■ R602.10.11 Cripple Wall Bracing	153

■ R602.12 Simplified Wall Bracing	155	■ R905.16 Photovoltaic Shingles	204
■ R603.9.5 Structural Sheathing over Steel Framing for Stone and Masonry Veneer	158	■ R907 Rooftop-Mounted Photovoltaic Systems	206
■ R606 Masonry Walls	161	PART 4 Energy Conservation	
■ R606.3.5 Grouting Requirements for Masonry Construction	165	Chapter 11	207
■ R610.7 Drilling and Notching in Structural Insulated Panels	168	■ N1101.13 Compliance Paths	208
■ R703.3 Siding Material Thickness and Attachment	169	■ N1101.14 Permanent Energy Certificate	209
■ R703.5 Wood, Hardboard, and Wood Structural Panel Siding	174	■ N1102.1.3 <i>R</i> -Value Computation—Insulated Siding	211
■ R703.6 Wood Shakes and Shingles on Exterior Walls	176	■ N1102.2.4 Access Hatches and Doors	213
■ R703.9 Exterior Insulation and Finish Systems (EIFS)	180	■ N1102.2.7, Table N1102.1.2 <i>R</i> -Value Reduction for Walls with Partial Structural Sheathing	215
■ R703.11.1 Vinyl Siding Attachment	182	■ N1102.2.8, Table N1102.4.1.1 Floor Framing Cavity Insulation	217
■ R703.13, R703.14 Insulated Vinyl Siding and Polypropylene Siding	185	■ Table N1102.4.1.1 Insulation at Wall Corners and Headers	219
■ R703.15, R703.16, R703.17 Cladding Attachment over Foam Sheathing	188	■ N1102.4.2, Table N1102.4.1.1 Wood-Burning Fireplace Doors	221
■ Tables R802.4, R802.5 Ceiling Joist and Rafter Tables	192	■ N1103.3 Duct Sealing and Testing	223
■ R806.1 Attic Ventilation	194	■ N1103.5 Heated Water Circulation and Temperature Maintenance Systems	226
■ Table R806.5 Insulation for Condensation Control in Unvented Attics	195	PART 5 Mechanical	
■ R905.1.1 Underlayment	196	Chapters 12 through 23	228
■ R905.7.5 Wood Shingle Application	200	■ M1502.4.4, M1502.4.5 Dryer Exhaust Duct Power Ventilators	229
■ R905.8.6 Wood Shake Application	202	■ M1502.4.6 Dryer Duct Length Identification	231
		■ M1503.4 Makeup Air for Range Hoods	233
		■ M1506.2 Exhaust Duct Length	235

■ M1601.1.1, Table M1601.1.1, M1601.2 Above-Ground Duct Systems	237
■ M1601.4 Duct Installation	240
■ M1602 Return Air	243

PART 6

Fuel Gas

Chapter 24

245

■ G2404.11 Condensate Pumps	246
■ G2411.1.1 Electrical Bonding of Corrugated Stainless Steel Tubing	247
■ G2413.2 Maximum Gas Demand	249
■ G2414.6 Plastic Pipe, Tubing and Fittings	251
■ G2415.5 Fittings in Concealed Locations	252
■ G2415.7 Protection of Concealed Piping Against Physical Damage	254
■ G2421.2 Medium-Pressure Regulators	256
■ G2422.1 Connecting Portable and Movable Appliances	258
■ G2426.7.1 Door Clearance to Vent Terminals	260
■ G2427.4.1, G2427.6.8.3 Plastic Piping for Appliance Vents	262
■ G2427.8 Venting System Termination Location	264
■ G2439.4, G2439.7 Clothes Dryer Exhaust Ducts	266
■ G2447.2 Prohibited Location of Commercial Cooking Appliances	270

PART 7

Plumbing

Chapters 25 through 33

271

■ P2502.1, P2503.4 Inspection and Tests for Building Sewers	273
■ P2503.5 Drain, Waste, and Vent Systems Testing	275
■ P2603.2.1 Protection Against Physical Damage	277
■ P2603.3 Protection Against Corrosion	279
■ Table P2605.1 Piping Support	281
■ P2702.1, P2706.1 Waste Receptors	283
■ P2717 Dishwashing Machines	286
■ P2801 Water Heater Drain Valves and Pans	288
■ P2804.6.1 Water Heater Relief Valve Discharge Piping	291
■ P2901, P2910 through P2913 Nonpotable Water Systems	293
■ P2905 Heated Water Distribution Systems	298
■ P2906.2 Lead Content of Drinking Water Pipe and Fittings	300
■ P3003.9 Solvent Cementing of PVC Joints	302
■ P3005.2 Cleanouts	304
■ P3008.1 Backwater Valves	306
■ P3103.1, P3103.2 Vent Terminals	308
■ P3201.2 Trap Seal Protection Against Evaporation	310

PART 8			
Electrical			
Chapters 34 through 43	312		
■ E3901.9			
Receptacle Outlets for Garages	313		
■ E3902.8, E3902.9, E3902.10			
Ground-Fault Circuit Interrupter Protection	314		
■ E4203.4.3			
Location of Low-Voltage Luminaires Adjacent to Swimming Pools	315		
■ E4204.2			
Bonding of Outdoor Hot Tubs and Spas	316		
		PART 9	
		Appendices	
		Appendix A through S	318
		■ Appendix R	
		Light Straw-Clay Construction	319
		■ Appendix S	
		Strawbale Construction	323
		Index	327

Preface

The purpose of *Significant Changes to the International Residential Code®*, 2015 Edition, is to familiarize building officials, fire officials, plans examiners, inspectors, design professionals, contractors, and others in the building construction industry with many of the important changes in the 2015 *International Residential Code®* (IRC®). This publication is designed to assist code users in identifying the specific code changes that have occurred and understanding the reasons behind the changes. It is also a valuable resource for jurisdictions in their code-adoption process.

Only a portion of the code changes to the IRC 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 the 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®). This resource collection provides the published documentation for each successful code change contained in the 2015 IRC since the 2012 edition.

Significant Changes to the International Residential Code, 2015 Edition, is organized into nine parts, each representing a distinct grouping of code topics. It is arranged to follow the general layout of the IRC, including code sections and section number format. The table of contents, in addition to providing guidance in the use of this publication, allows for a quick identification of those significant code changes that occur in the 2015 IRC.

Throughout the book, each change is accompanied by a photograph or an illustration to assist in and enhance the reader's understanding of the specific change. A summary and a discussion of the significance of the change 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 legislative format similar to the style utilized for code-change proposals. Deleted code language is shown with a strikethrough, whereas new code text is indicated by underlining.

As a result, the actual 2015 code language is provided, as well as a comparison with the 2012 language, so the user can easily determine changes to the specific code text.

As with any code-change text, *Significant Changes to the International Residential Code, 2015 Edition*, is best used as a companion to the 2015 IRC. 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 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 IRC. In many cases, the explanatory material is derived from the reasoning expressed by code-change proponents.

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

About the *International Residential Code*[®]

Building officials, design professionals, contractors and others involved in the field of residential building construction recognize the need for a modern, up-to-date residential code addressing the design and installation of building systems through both prescriptive and performance requirements. The *International Residential Code*[®] (IRC), *2015 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 IRC is kept up to date through ICC's open code-development process. The provisions of the 2012 edition, along with those code changes approved through 2013, make up the 2015 edition.

The IRC is one in a family of International Codes[®] published by ICC. This comprehensive residential code establishes minimum regulations for residential building 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 IRC is a comprehensive code containing provisions for building, energy conservation, mechanical, fuel gas, plumbing and electrical systems. The IRC 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

Grateful appreciation is due to many ICC staff members for their generous assistance in the preparation of this publication. Fred Grable, P.E., ICC Senior Staff Engineer, shared his expertise and provided commentary on the plumbing provisions. Gregg Gress, ICC Senior Technical Staff, provided

welcome assistance on the mechanical and fuel gas provisions. Larry Franks, P.E., ICC Senior Staff Engineer, provided insight into updated structural provisions, particularly the foundation chapter. Grateful appreciation also is due to Peter Kulczyk for use of his photos of residential construction in this publication. All contributed to the accuracy and quality of the finished product.

About the Authors

Stephen A. Van Note, CBO
International Code Council
Managing Director, Product Development

Stephen A. Van Note is the Managing Director of Product Development for the International Code Council (ICC), where he is responsible for developing technical resource materials in support of the International Codes. His role also includes the management, review, and technical editing of publications developed by ICC staff members and other expert authors. In addition, Steve develops and presents *International Residential Code* seminars nationally. He has over 40 years of experience in the construction and building code arena. Prior to joining ICC in 2006, Steve was a building official for Linn County, Iowa. Prior to his 15 years at Linn County, he was a carpenter and construction project manager for residential, commercial, and industrial buildings. A certified building official and plans examiner, Steve also holds certifications in several inspection categories.

Sandra Hyde, P.E.
International Code Council
Senior Staff Engineer, Product Development

Sandra Hyde is a Senior Staff Engineer with the International Code Council (ICC), where, as part of the Product Development team, she develops technical resource materials in support of the structural provisions of the International Codes. Her role also includes review and technical editing of publications authored by ICC and engineering associations, and the presentation of technical seminars on the IRC and IBC structural provisions. Prior to joining ICC in 2010, Sandra worked in manufacturing and research of engineered wood products. She is a Registered Civil Engineer in Idaho and California.

About the International Code Council®

The International Code Council is a member-focused association. It is dedicated to developing model codes and standards used in the design, build, and compliance process to construct safe, sustainable, affordable, and resilient structures. Most U.S. communities and many global markets choose

the International Codes® (I-Codes®). ICC Evaluation Service (ICC-ES) is the industry leader in performing technical evaluations for code compliance, fostering safe and sustainable design and construction.

ICC Headquarters:

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

Regional Offices:

Birmingham, AL; Chicago, IL; Los Angeles, CA

1-888-422-7233 (ICC-SAFE)

www.iccsafe.org