

IRC<sup>®</sup>

2015

CODE AND  
COMMENTARY

VOLUME 2

The complete IRC with  
commentary after each  
section



IRC<sup>®</sup>

2015

CODE AND  
COMMENTARY

VOLUME 2

The complete IRC with  
commentary after each  
section



2015 International Residential Code® Commentary—Volume II

First Printing: August 2015

ISBN: 978-1-60983-285-8 (soft-cover edition)

COPYRIGHT © 2015  
by  
INTERNATIONAL CODE COUNCIL, INC.

ALL RIGHTS RESERVED. This 2015 *International Residential Code® 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 Flossmoor Road, Country Club Hills, IL 60478. Phone: 1-888-ICC-SAFE (422-7233).

Trademarks: “International Code Council,” the “International Code Council” logo and the “International Residential 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 2015 *International Residential Code*<sup>®</sup>. 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 Residential Code*, we offer a companion document, the *International Residential Code*<sup>®</sup> *Commentary—Volume II*. Volume II covers Chapters 12 through Appendix Q of the 2015 *International Residential 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 Residential 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 2015 *International Residential Code*. 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 Residential Code*, and all commentary is indented below the code text and begins with the symbol ❖. All code figures and tables are reproduced as they appear in the IRC. Commentary figures and tables are identified in the text by the word "Commentary" (as in "see Commentary Figure 704.3"), and each has a full border.

Readers should note that the Commentary is to be used in conjunction with the *International Residential 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 Central Regional Office.

# TABLE OF CONTENTS

## *Part V—Mechanical*

CHAPTER 12	MECHANICAL ADMINISTRATION .....	12-1 – 12-4
CHAPTER 13	GENERAL MECHANICAL SYSTEM REQUIREMENTS .....	13-1 – 13-18
CHAPTER 14	HEATING AND COOLING EQUIPMENT AND APPLIANCES.....	14-1 – 14-16
CHAPTER 15	EXHAUST SYSTEMS.....	15-1 – 15-14
CHAPTER 16	DUCT SYSTEMS.....	16-1 – 16-20
CHAPTER 17	COMBUSTION AIR .....	17-1 – 17-2
CHAPTER 18	CHIMNEYS AND VENTS .....	18-1 – 18-14
CHAPTER 19	SPECIAL APPLIANCES, EQUIPMENT AND SYSTEMS .....	19-1 – 19-4
CHAPTER 20	BOILERS AND WATER HEATERS .....	20-1 – 20-8
CHAPTER 21	HYDRONIC PIPING.....	21-1 – 21-10
CHAPTER 22	SPECIAL PIPING AND STORAGE SYSTEMS .....	22-1 – 22-4
CHAPTER 23	SOLAR THERMAL ENERGY SYSTEMS.....	23-1 – 23-8

## *Part VI—Fuel Gas*

CHAPTER 24	FUEL GAS .....	24-1 – 24-264
------------	----------------	---------------

## *Part VII—Plumbing*

CHAPTER 25	PLUMBING ADMINISTRATION.....	25-1 – 25-6
CHAPTER 26	GENERAL PLUMBING REQUIREMENTS .....	26-1 – 26-22
CHAPTER 27	PLUMBING FIXTURES.....	27-1 – 27-24
CHAPTER 28	WATER HEATERS.....	28-1 – 28-12
CHAPTER 29	WATER SUPPLY AND DISTRIBUTION .....	29-1 – 29-78
CHAPTER 30	SANITARY DRAINAGE .....	30-1 – 30-38
CHAPTER 31	VENTS.....	31-1 – 31-26

TABLE OF CONTENTS

CHAPTER 32 TRAPS..... 32-1 – 32-4

CHAPTER 33 STORM DRAINAGE..... 33-1 – 33-4

*Part VIII—Electrical*

CHAPTER 34 GENERAL REQUIREMENTS ..... 34-1 – 34-20

CHAPTER 35 ELECTRICAL DEFINITIONS ..... 35-1 – 35-1

CHAPTER 36 SERVICES ..... 36-1 – 36-32

CHAPTER 37 BRANCH CIRCUIT AND FEEDER REQUIREMENTS ..... 37-1 – 37-22

CHAPTER 38 WIRING METHODS..... 38-1 – 38-10

CHAPTER 39 POWER AND LIGHTING DISTRIBUTION..... 39-1 – 39-48

CHAPTER 40 DEVICES AND LUMINAIRES ..... 40-1 – 40-14

CHAPTER 41 APPLIANCE INSTALLATION ..... 41-1 – 41-6

CHAPTER 42 SWIMMING POOLS..... 42-1 – 42-18

CHAPTER 43 CLASS 2 REMOTE-CONTROL, SIGNALING AND  
POWER-LIMITED CIRCUITS..... 43-1 – 43-4

*Part IX—Referenced Standards*

CHAPTER 44 REFERENCED STANDARDS..... 44-1 – 44-28

APPENDIX A SIZING AND CAPACITIES OF GAS PIPING .....A1 – A12

APPENDIX B SIZING OF VENTING SYSTEMS SERVING  
APPLIANCES EQUIPPED WITH DRAFT HOODS,  
CATEGORY I APPLIANCES, AND APPLIANCES  
LISTED FOR USE WITH TYPE B VENTS..... B-1 – B-10

APPENDIX C EXIT TERMINALS OF MECHANICAL DRAFT  
AND DIRECT-VENT VENTING SYSTEMS..... C-1 – C-2

APPENDIX D RECOMMENDED PROCEDURE FOR SAFETY  
INSPECTION OF AN EXISTING APPLIANCE INSTALLATION..... D-1 – D-6

APPENDIX E MANUFACTURED HOUSING USED AS DWELLINGS ..... E-1 – E-14

APPENDIX F PASSIVE RADON GAS CONTROLS.....F-1 – F-10

APPENDIX G PIPING STANDARDS FOR VARIOUS APPLICATIONS ..... G-1 – G-6

APPENDIX H PATIO COVERS ..... H-1 – H-6

APPENDIX I PRIVATE SEWAGE DISPOSAL..... I-1 – I-2

APPENDIX J EXISTING BUILDINGS AND STRUCTURES ..... J-1 – J-10

APPENDIX K SOUND TRANSMISSION ..... K-1 – K-2

APPENDIX L PERMIT FEES..... L-1 – L-2

APPENDIX M HOME DAY CARE—R-3 OCCUPANCY ..... M-1 – M-2

APPENDIX N VENTING METHODS ..... N-1 – N-6

APPENDIX O AUTOMATIC VEHICULAR GATES..... O-1 – O-2

APPENDIX P SIZING OF WATER PIPING SYSTEM..... P-1 – P-20

APPENDIX Q RESERVED ..... Q1 – Q-2

APPENDIX R LIGHT STRAW-CLAY CONSTRUCTION..... R1 – R10

APPENDIX S STRAWBALE CONSTRUCTION..... S1 – S28

APPENDIX T RECOMMENDED PROCEDURE FOR WORS T-CASE TESTING  
OF ATMOSPHERIC VENTING SYSTEMS UNDER N1102.4 OR  
N1105 CONDITIONS < 5ACH<sub>50</sub> ..... T1 – T4

APPENDIX U SOLAR-READY PROVISIONS—DETACHED ONE- AND  
TWO-FAMILY DWELLINGS, MULTIPLE SINGLE-FAMILY  
DWELLINGS (TOWNHOUSES)..... U1 – U2

INDEX ..... INDEX-1 – INDEX-14