

FROM THE PUBLISHER  
OF THE IFC®

# 2018

## International Fire Code®

### Study Companion



2018 International Fire Code®  
Study Companion

ISBN: 978-1-60983-794-5

Manager of Development: Doug Thornburg  
Publications Manager: Mary Lou Luif  
Project Editor: Sharon Gordy  
Production Technician: Sue Brockman  
Cover Design: Ricky Razo



COPYRIGHT © 2019  
by  
INTERNATIONAL CODE COUNCIL, INC.

ALL RIGHTS RESERVED. This publication is a copyrighted work owned by the International Code Council, Inc. (“ICC”). Without advance written permission from the ICC, no part of this publication 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 and retrieval system). For information on use rights and permissions, please contact: ICC Publications, 4051 Flossmoor Road, Country Club Hills, Illinois 60478, phone 888-ICC-SAFE (422-7233).

The information contained in this document is believed to be accurate; however, it is being provided for informational purposes only and is intended for use only as a guide. Publication of this document by the ICC should not be construed as the ICC engaging in or rendering engineering, legal or other professional services. Use of the information contained in this workbook should not be considered by the user as a substitute for the advice of a registered professional engineer, attorney or other professional. If such advice is required, it should be sought through the services of a registered professional engineer, licensed attorney or other professional.

Trademarks: “International Code Council,” the “International Code Council” logo, “ICC,” the “ICC” logo, “International Fire Code,” “IFC” and other names and trademarks appearing in this book are registered trademarks of the International Code Council, Inc., and/or its licensors (as applicable), and may not be used without permission.

Errata on various ICC publications may be available at [www.iccsafe.org/errata](http://www.iccsafe.org/errata).

First Printing: January 2019

PRINTED IN THE USA

T023549

# TABLE OF CONTENTS

## **Study Session 1:**

2018 IFC Chapters 1, 11 and Appendix A—Administration.....	1
Quiz.....	24

## **Study Session 2:**

2018 IFC Chapter 2 and IBC Chapters 3 and 5—Definitions and Occupancy Classification .....	33
Quiz.....	53

## **Study Session 3:**

2018 IFC Chapters 3 and 4— General Requirements, Emergency Planning and Preparedness .....	61
Quiz.....	82

## **Study Session 4:**

2018 IFC Chapter 5 and Appendices B, C and D—Fire Service Features .....	91
Quiz.....	110

## **Study Session 5:**

2018 IFC Chapters 6, 7, 8 and 12— Building Services and Systems; Fire and Smoke Protection Features; Interior Finish, Decorative Materials and Furnishings; and Energy Systems .....	119
Quiz.....	142

## **Study Session 6:**

2018 IFC Chapter 9—Fire Protection Systems—Part I.....	151
Quiz.....	174

## **Study Session 7:**

2018 IFC Chapter 9—Fire Protection Systems—Part II.....	183
Quiz.....	205

**Study Session 8:**

2018 IFC Chapter 10—Means of Egress..... 215  
Quiz ..... 237

**Study Session 9:**

2018 IFC Chapters 20 through 24—  
Special Occupancies and Operations, Part I: Aviation Facilities; Dry  
Cleaning; Combustible Dust-producing Operations; Motor Fuel-dispensing  
Facilities and Repair Garages; and Flammable Finishes ..... 245  
Quiz ..... 267

**Study Session 10:**

2018 IFC Chapters 25 through 29—  
Special Occupancies and Operations, Part II: Fruit and Crop Ripening;  
Fumigation and Insecticidal Fogging; Semiconductor Fabrication Facilities;  
Lumber Yards and Agro-industrial, Solid Biomass and Woodworking  
Facilities; and Manufacture of Organic Coatings ..... 275  
Quiz ..... 297

**Study Session 11:**

2018 IFC Chapters 30 through 34—  
Special Occupancies and Operations, Part III: Industrial Ovens; Tents,  
Temporary Special Event Structures and Other Membrane Structures;  
High-piled Combustible Storage; Fire Safety During Construction and  
Demolition; and Tire Rebuilding and Tire Storage ..... 305  
Quiz ..... 327

**Study Session 12:**

2018 IFC Chapters 35 through 39—  
Special Occupancies and Operations, Part IV: Welding and Other Hot Work;  
Marinas; Combustible Fibers; Higher Education Laboratories; and  
Processing and Extraction Facilities ..... 335  
Quiz ..... 356

**Study Session 13:**

2018 IFC Chapter 50—Hazardous Materials ..... 365  
Quiz ..... 387

**Study Session 14:**

2018 IFC Chapters 51 through 55—  
Aerosols, Compressed Gases, Corrosive Materials and Cryogenic Fluids..... 395  
Quiz ..... 416

**Study Session 15:**

2018 IFC Chapter 56—Explosives and Fireworks..... 425  
Quiz ..... 445

**Study Session 16:**

2018 IFC Chapter 57—Flammable and Combustible Liquids—Part I ..... 453  
Quiz ..... 474

**Study Session 17:**

2018 IFC Chapter 57—Flammable and Combustible Liquids—Part II..... 483  
Quiz ..... 503

**Study Session 18:**

2018 IFC Chapters 58 through 61—  
Flammable Gases and Flammable Cryogenic Fluids; Flammable Solids;  
Highly Toxic and Toxic Materials; and Liquefied Petroleum Gases..... 511  
Quiz ..... 532

**Study Session 19:**

2018 IFC Chapters 62 through 67—  
Organic Peroxides; Oxidizers, Oxidizing Gases and Oxidizing Cryogenic  
Fluids; Pyrophoric Materials; Pyroxylin Plastics; Unstable (Reactive)  
Materials; and Water-Reactive Solids and Liquids..... 541  
Quiz ..... 561

**Answer Keys** ..... 569



# INTRODUCTION

This study companion provides practical learning assignments for independent study of the provisions of the 2018 *International Fire Code*<sup>®</sup> (IFC<sup>®</sup>). The independent study format affords a method for the student to complete the study program in an unregulated time period. Progressing through the workbook, the learner can measure his or her level of knowledge by using the exercises and quizzes provided for each study session.

The workbook is also valuable for instructor-led programs. In jurisdictional training sessions, community college classes, vocational training programs and other structured educational offerings, the study guide and the IFC can be the basis for code instruction.

All study sessions begin with a general learning objective, the specific sections or chapters of the code under consideration, and a list of questions summarizing the key points of study. Each session addresses selected topics from the IFC and includes code text, a commentary on the code provisions, and illustrations representing the provisions under discussion. Quizzes are provided at the end of each study session. Before beginning the quizzes, the student should thoroughly review the referenced IFC provisions—particularly the key points.

The workbook is structured so that after every question the student has an opportunity to record his or her response and the corresponding code reference. The correct answers are located in the back of the workbook in the answer key.

Questions or comments concerning this workbook are encouraged. Please direct your comments to ICC at [studycompanion@iccsafe.org](mailto:studycompanion@iccsafe.org).

## **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 US communities and many global markets choose the International Codes. ICC Evaluation Service (ICC-ES) is the industry leader in performing technical evaluations for code compliance fostering safe and sustainable design and construction.

**Governmental Affairs Office:** 500 New Jersey Avenue, NW, 6th Floor, Washington, DC 20001

**Regional Offices:** Eastern Regional Office (BIR), Central Regional Office (CH), Western Regional Office (LA)

888-ICC-SAFE (422-7233)

[www.iccsafe.org](http://www.iccsafe.org)



## About the Author

Kevin H. Scott

President

KH Scott & Associates LLC

Kevin Scott is President of KH Scott & Associates LLC. Kevin has extensive experience in the development of fire safety, building safety and hazardous materials regulations. Kevin has actively worked for over 30 years in the development of fire code, building code and fire safety regulations at the local, state, national and international levels. Kevin previously worked as a Senior Regional Manager with the International Code Council, and before that, he was Deputy Chief for the Kern County Fire Department, California, where he worked for 30 years. He has developed and presented many seminars on a variety of technical subjects including means of egress, high-piled combustible storage, hazardous materials, and plan review and inspection practices.

Kevin was a member of the original IFC Drafting Committee that worked to create the first edition of the IFC. He served for seven years on the IFC Code Development Committee and was chairperson for the committee from 2001 to 2004. Kevin has actively participated in numerous technical committees to evaluate specific hazards and technologies, and to create regulations specific to those hazards.

Some of the more significant committees are:

- High-piled Combustible Storage Committee
- Hydrogen Gas Ad Hoc Committee
- Task Group 400
- Technical Advisory Committee on Retail Storage of Group ‘A’ Plastic Commodities
- Underwriters Laboratories Fire Council

Kevin’s constant work to improve fire and life safety has been recognized on many levels. His contributions have been acknowledged by various organizations when they presented him with the following awards:

- Mary Eriksen-Rattan Award in 2013—presented by the Southern California State Fire Prevention Officers’ Association
- William Goss Award in 2009—presented by the California State Firefighters Association
- Fire Official of the Year Award in 2005—presented by the California Building Officials
- Robert W. Gain Award in 2003—presented by the International Fire Code Institute