Residential Building Inspection: A Step-by-Step Guide

ISBN: 978-1-60983-732-7

Cover Design: Duane Acoba
Project Editor: Kathy Osmus
Project Head: Hamid Naderi
Author: Mike Brinkman
Layout and Typesetting: Beverly Ledbetter

COPYRIGHT © 2017

ALL RIGHTS RESERVED. This publication 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).

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 book should not be considered by the user to be 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. These procedures are not intended to be a complete checklist for each type of inspection or used in place of the codes, nor are they intended as an interpretation of the codes.

Trademarks: "International Code Council," the "International Code Council" logo, "ICC," the "ICC" logo, "International Building Code," "IBC," "International Residential Code," and "IRC" are trademarks of the International Code Council, Inc.

Errata on various ICC publications may be available at www.iccsafe.org/errata.

First Printing: October 2017

LUM. FASCIA ENTED SOF

2"X6" STUI

K-50 FKIC

SIDE É REAR BRICK VENE

14 PRESS

PRE-FINISHE



20"



ENGINEER DESIGNED DETACHED SINGLE-FAMILY DWELLING

ACKNOWLEDGMENTS

Thank you to the group of professionals at CSG Consultants. I could not ask to be a part of a more supportive company. Thanks to many of you for taking time to actually read, edit, critique and suggest improvements to previous versions of the book's content.

I especially want to thank my wife Crickett Brinkman for her constant support and guidance in my development as a complete building inspector. She possesses that rare ability to help others achieve their goals without expecting recognition for her efforts. Without her help, this book would have never been completed. Thank you!

About the Author

Mike Brinkman, CBO, MCP, CASp CSG Consultants, Inc. Central Valley Inspection Services Manager mikeb@csgengr.com

Mr. Brinkman is certified in multiple disciplines as a Division of State Architect (DSA), a Certified Access Specialist (CASp), a Certified Building Official (CBO) and a Master Code Professional (MCP). He has demonstrated his dexterity in enforcing a full range of state codes as well as specifications and standards. As a Master Code Professional, Mr. Brinkman has attained the highest level for certification standards within the International Code Council[®] (ICC[®]).

Mr. Brinkman has extensive knowledge of complex residential and commercial buildings and structures and all stages of construction. As a project manager, he expertly advises all stakeholders on design, coordination and construction of projects, working with jurisdictional staff, engineers, architects and homeowners to quickly move through the necessary processes and procedures to achieve successful completion. His extensive knowledge in enforcement of building, plumbing, electrical, mechanical and other codes as well as his keen understanding of necessary ordinances ensures proper construction and successful project delivery.

Mr. Brinkman is responsible for all building operations for many municipal building departments—planning, directing, supervising and coordinating all building department activities while maintaining customer service levels and positive public relations. He is active as a manager, trainer and instructor for personnel working in residential and commercial construction, plan reading and code interpretation.

PREFACE

The International Residential Code® (IRC®) outlines several stages of inspections from start to completion of each project. Jurisdictions may have their own specific inspections, too, or have some variations of the IRC inspections. Additionally, what items are inspected at each stage might vary slightly from jurisdiction to jurisdiction, which makes it more challenging to understand. Consistency and common understanding of various stages of inspections, and what is involved at each inspection type, creates a strong learning foundation and leads to better and safer buildings.

Residential Building Inspection: A Step-by-Step Guide is a "how-to" resource developed by an expert in this field with many years of experience in project management, inspections and training those entering this field. This book will benefit a variety of professionals, such as building department personnel, builders, contractors, project managers, homeowners and others involved in residential building construction. Beginners as well as those with experience can benefit by improving consistency, establishing departmental procedures or creating a strong training program. The procedures, inspection items and approaches are generic and applicable everywhere, regardless of the model code edition or custom or state code edition adopted. Numerous photos and graphics provide an invaluable visual presentation to enhance understanding and support the presentation.

The International Code Council® publishes standards and model codes and, together with its subsidiaries, provides support services such as product evaluation, accreditation, solar rating and certification, personnel certification, training/education, plan review and code opinions for ICC members, creating a complete building safety system. The I-Codes® and standards are used in research, in education, as a resource for various building construction guides/publications and as the basis for adoption at local and state levels. Many states create their own custom state codes based on the I-Codes, such as California, Florida and North Carolina, and many jurisdictions adopt the I-Codes with amendments.

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 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.

Headquarters: 500 New Jersey Avenue, NW, 6th Floor

Washington, DC 20001-2070

Regional Offices: Eastern Regional Office (BIRMINGHAM)

Central Regional Office (CHICAGO)

Western Regional Office (LOS ANGELES)

Phone: 888-ICC-SAFE (888-422-7233)

Website: www.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, upto-date residential code addressing the design and installation of building systems through both prescriptive and performance requirements. The *International Residential Code* (IRC), 2018 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 2015 edition, along with those code changes approved through 2017, make up the 2018 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.

INTRODUCTION

Overview

A standard operating procedure (SOP) for each individual inspection and for different situations would be complex; the procedures included in this manual are based on inspections commonly performed during the construction of a single-family residence (SFR). Also included are general overviews of basic inspections commonly associated with existing houses.

The procedures and language listed in this book may differ from what you've been taught because processes and procedures are unique to each jurisdiction.

Things to Remember

- Make proper introductions and verify the accuracy of the project address and the type of inspection.
- Verify the previous inspections and possible outstanding corrections.
- Check the availability of approved plans, in print or electronically.



SOFT SKILLS

Soft skills are an important part of the everyday activities of all building industry professionals. Generally, all parties during the construction process strive to efficiently and effectively finish a safe place for families to live in without the need for recalls, multiple returns after final or legal complications. Toward that goal, all parties should comply with the adopted codes as they were intended, be service oriented and be open-minded when finding solutions. Consistency, clarity of written and spoken communication, time lines and continuous learning are critical aspects for those involved in the building industry.

Two popular ICC publications and training based on them address these topics in-depth. *Inspector Skills* by Stephen Van Note and *Report Writing for Code Inspectors* by Jean Reynolds and David Diamantes can be found at the following links:

Inspector Skills: http://shop.iccsafe.org/inspector-skills.html

Report Writing for Code Inspectors: http://shop.iccsafe.org/report-writing-for-code-inspectors.html

For ICC training and education, go to: https://learn.iccsafe.org

Table of Contents

Acknowledgments		••••••••••••••••••••••••••••••••••••••
Preface		vii
Introduction		STRAPP ix
Soft Skills		х
Under-Slab Plumbing Inspe	ction	1
Foundation Inspection		
Roof and Shear Inspection	$\dot{\alpha}$	11
Rough-In/ Frame Inspection		
Insulation Inspection		5/8"THK. 79
Gypsum Board, Lath and Ga	Inspection	22
Electrical Panel Release Ins		
Electrical Panel Release Ins	pection	
Utility Release / Gas Tag Ins	pection	41
Final Inspection		
Additions, Remodels and Al		
Electrical Panel Changeout	0	
Energy/ Green		
Garage Conversion Inspection		
HVAC Changeout Inspection	1	61
Patio Cover Inspection		
Photovoltaic Inspection	[4:4,33] [0]	69
Ground-Mount Systems		
Roof-Mount Systems		
Reroof Inspection		

Swimming Pool Inspection	79
In-Ground/Gunite Pools	79
Fiberglass/One-Piece Pools	85
Above-Ground Pools	86
Temporary Power Pole Inspection	89
Water Heater Changeout Inspection	91
Water Softener Inspection	95
Glossary of Terms and Acronyms	97