

Firestopping, Joint Systems and Dampers

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Preface

Firestopping, Joint Systems and Dampers

Firestopping, Joint Systems and Dampers examines the provisions of the *International Building Code*[®] (IBC[®]) related to the protection of openings and penetrations in fire-resistance-rated construction to preserve the effectiveness of the rated assembly. Openings and penetrations in a fire-resistance-rated and/or smoke-resistant assembly create potential weak links or holes that can dramatically reduce the assembly's effectiveness, or render it completely ineffective, if they are not properly protected. This publication explains and illustrates the correct application of the code requirements for dampers, penetration firestop systems and joint systems so that a fire-resistance-rated and/or smoke-resistant building assembly can perform as intended and maintain its rating. Because many of the IBC damper requirements are duplicated in the *International Mechanical Code*[®] (IMC[®]), section references are given for both codes.

Many code users have a general understanding of the code provisions for fire-resistant construction and are aware of some of the requirements for dampers, penetration firestop systems and joint systems. However, they may not be aware of the importance and distinct differences between these devices and systems, exactly how and where they are each to be used, or the correct installation for satisfying the code requirements. This book was developed to provide the most comprehensive look at the International Codes' penetration and duct opening protection requirements. Regardless of the experience level of the code user, this book will be beneficial to building, fire or mechanical officials, plans examiners, inspectors, design professionals, contractors and others in the construction industry by guiding the reader through each specific code section and exception. The discussion and commentary with each provision along with the illustrations will help in explaining the exact type of protection required as well as directing the reader toward other related sections or resources that regulate the installation, inspection or evaluation of the protection.

While primarily written to focus on the code requirements related to these protection features, this book recognizes that the code user must understand the basic concepts of fire protection as well as product testing and listing requirements in order to ensure that the correct product is selected and properly installed. Therefore, this book has been written to include some noncode items, guidance on how these provisions may need to be administratively applied, or where the reader can obtain additional assistance or guidance.

Because *Firestopping, Joint Systems and Dampers* addresses each of the three specific title subjects in detail, it can be used by individuals who are interested only in one of the specific protection options, or by anyone interested in obtaining a more comprehensive understanding of the code's protection require-

ments. As an example, because the book looks at each specific code section or provision, it could be used to determine the details of a provision and what is needed to comply with that specific requirement. On the other hand, because the book addresses multiple code subjects and provisions, it can be used to gain a better understanding of how the code protects buildings and occupants from the hazards of fire and smoke.

This book begins by reviewing the basics of fire-resistance and fire-protection ratings and the pass/fail criteria established by the test standards. It then discusses in detail each provision related to dampers (testing, ratings, actuation, access, identification and where dampers are required); penetrations (definitions, test standards, where penetration protection is required, sleeves, dissimilar materials, ducts, installation, inspection and maintenance); and fire-resistant joint systems (test criteria, installation, where joints systems are required, voids at the intersection of exterior walls and floors, and joints in smoke barriers). After reviewing each of the elements and the related code requirements, the book then looks at administrative and non-code issues that affect these elements. The book then concludes with a section which addresses differences between the 2015 and 2012 editions of the code.

The main body of the book is written to cover the 2015 IBC and IMC, but the text directs the reader to an appendix chapter where differences between the 2015 and 2012 editions of the codes are listed. Where there are technical changes between the editions, a note has been included to direct the reader to additional discussion within the appendix to explain the code change and the effect it may have on applying the provisions. Where code provisions have been moved, a table provides a cross-reference of section numbers so that the user can determine where the comparable provision was previously located.

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The International Code Council is grateful for the support and sponsorship of the International Firestop Council (IFC), its Board of Directors and its member companies. Their strength, as well as their valuable input and guidance in the development of this publication, are keys to the success of education in this industry. The membership directory of the IFC can be found at www.firestop.org/ifc-members.

The author would like to thank a number of people who have helped to create this publication. Even though their names may not be listed on the cover, there should be no doubt that this document would not exist without their assistance and effort. First, former ICC staff member Bob Guenther had the original idea for

this book and deserves recognition for the effort he made to get it approved and developed.

Grateful appreciation is due a great number of people who provided reviews, comments and suggestions, and photos for this book. This is a much better publication due to the efforts of these individuals, including: Bob Guenther; John Valiulis from Hilti; Richard Walke and John Taecker with UL; Brice Miller, who when the book was conceived was with the International Firestop Council and helped to push for the book as a cosponsor; Bill McHugh with the Firestop Contractors International Association (FCIA); Jim Harper, a “retired” but still working code official from Nebraska; Kent Maune with Ruskin manufacturing; Sam Dardano, Larry Felker with BELIMO Aircontrols (USA); Kirk Kaiser with Barrier Technologies; Dave Nelsen with Norton and Schmidt Consulting Engineers; and Jeff Boyle Code Consultant Service.

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Jay Woodward is a senior staff architect with the ICC’s Business and Product Development department. Jay’s more than 31 years of experience in building design, construction, code enforcement and instruction 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 A117.1 Standard committee, ICC’s *International Energy Conservation Code*, and the *International Building Code’s* Fire Safety Code Development committee.

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About the International Firestop Council

The International Firestop Council (IFC) is a nonprofit association of manufacturers, distributors, installers and other key stakeholders interested in passive fire protection materials and systems in North America. We are the source of firestop expertise in the industry. Thanks to our collective decades-long investment in industry research, development and fire testing, the IFC is committed to providing impartial and broad-based information, resources, affiliation and techniques regarding firestop system selection, performance, installation and inspection to the construction and code-enforcement communities. The IFC's mission is to promote the technology of fire and smoke containment in modern building construction through research, education and development of safety standards and code provisions.

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

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