



# THE GLOBAL LANGUAGE OF PASSIVE FIRE PROTECTION

Understanding the 'DIIM'™ Way

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# TABLE OF CONTENTS

3

PASSIVE FIRE PROTECTION

4

THE 'DIIM'<sup>TM</sup> OF  
FIRESTOPPING

5

MANUAL OF PRACTICE

6

EDUCATION

7

ADOPTABLE SYSTEMS





# PASSIVE FIRE PROTECTION

## THE FIRST LINE OF DEFENSE

Fire and smoke safety are paramount concerns in the built environment. Passive fire protection systems, such as fire-resistive walls, floors, penetration and joint protection systems, fire doors, fire windows, and fire and smoke dampers, offer a proactive, inherent defense and act as the building's first line of resistance against the spread of fire and smoke. These systems protect first-responders and occupants during an emergency evacuation or defend-in-place situation by activating to contain a fire and prevent its spread, effectively compartmentalizing the building. They also maintain the structural integrity of building elements. Passive fire protection systems form the backbone of a building's fire safety strategy.

## THE FIRE & LIFE SAFETY PLAN

A Fire and Life Safety Plan (FLSP) is a proactive guide that outlines the procedures and systems in place to protect building occupants and property from fire and other life safety hazards. It encompasses all aspects of fire safety, from prevention and detection to suppression and compartmentation and evacuation. A FLSP is crucial for building owners, managers, and occupants to understand their roles and responsibilities in fire safety. This document is the starting point of passive fire protection.

Having an FLSP is a mandatory requirement in several jurisdictions and often must be submitted along with building approval submissions to the requisite authorities. Generally, published building codes provide the framework for an FLSP, but a performance-based framework or first principal approach can also be used when developing a Fire and Life Safety Plan.

## EMERGENCY EVACUATION PLAN

This is the most commonly visible sign of the implementation of a Fire and Life Safety Plan in any building. Found at several noticeable parts of a building, this document guides occupants in simple terms on how to evacuate the building in case of a fire. The functioning of this plan solely depends on the correct design, implementation, and maintenance of all passive fire protection systems.

Over the years, countless professionals have contributed to various Recommended Professional Practices, Standards, Codes, and Guides which have improved fire and life safety around the world. Many of these frameworks are now widely implemented across the world to ensure fire safety by better implementation of passive fire protection. One such framework is the 'DIIM'<sup>™</sup> of Firestopping, which is widely adopted worldwide.

# THE GLOBAL LANGUAGE

## THE 'DIIM'<sup>TM</sup> OF FIRESTOPPING

The 'DIIM'<sup>TM</sup> of firestopping refers to the proper 'D'esign, 'I'nstallation, 'I'nspection, and 'M'aintaining Protection of firestop systems, a framework that ensures effective fire protection in buildings. Following the 'DIIM'<sup>TM</sup> approach is critical because it ensures firestopping systems function as intended, which means safer buildings protecting occupants and property and continued use of the building following a fire or smoke event.

### D

#### 'D'ESIGN

The foundation of any fire safety system lies in its 'D'esign. Architects, engineers, and designers must collaborate closely to ensure that the building's design incorporates appropriate fire-resistive elements. This includes specifying fire-resistance-rated materials, designing compartmentation strategies, and identifying potential fire hazards.

### I

#### 'I'NSTALL

Proper 'I'nstallation is crucial to the performance of passive fire protection systems. Contractor personnel must be trained and companies qualified to install firestop systems and other fire-resistive materials according to manufacturer's installation instructions, tested and listed system specifications, and industry standards. Quality control measures, such as contractor self-inspections and testing, must be implemented to verify the proper installation, accuracy, and integrity of the system.

### I

#### 'I'NSPECT

Regular independent 'I'nspections are essential to identify potential issues or deficiencies in passive fire protection systems. Experienced, exam-proven inspectors working for accredited inspection agencies should conduct periodic inspections to assess the condition of fire-resistive materials, firestop systems, and other passive fire protection elements. Any problems identified during inspections should be addressed promptly to prevent potential fire hazards.

### M

#### 'M'AINTEIN PROTECTION

'M'aintaining passive fire protection systems is vital to their long-term effectiveness. To maintain protection, building owners and facility managers must establish a comprehensive maintenance program which includes regular visual inspection and repair of all aspects of passive fire protection and rated and non-rated assemblies. Additionally, it is important to keep accurate records of activities performed to be in compliance with regulations and standards.



# MANUAL OF PRACTICE

## THE INDUSTRY RESOURCE GUIDE

The 'DIIM'<sup>TM</sup> philosophy - 'D'esign, 'I'nstall, 'I'nspect, and 'M'aintain Protection - offers a comprehensive framework for ensuring the effectiveness of passive fire protection systems. Adhering to this philosophy significantly enhances fire safety and reduces the risk of property damage and loss of life.

To spread the word of the 'DIIM'<sup>TM</sup> philosophy, FCIA has published the Manual of Practice (MOP). The MOP offers a code-neutral body of knowledge, which unlocks the 'DIIM'<sup>TM</sup> philosophy using adoptable systems and the guiding principles of fire and life safety and safe buildings for all. This living document continues to evolve, including building codes, standards, materials, designs, and learnings from around the world, making it the only industry resource of its kind.

## WHAT IT DOES

The MOP helps professionals across the world:

- Understand prescriptive and performance-based building codes, which form the basis of designing Passive Fire Protection Systems;
- Learn the standards used to implement assurance systems, including product standards, performance evaluation standards, fire-resistance test methods, installation standards, as well as the standards used to develop inspection regimes.
- Explore the processes used to correlate between building drawings & drawings demonstrating compliance of systems built using materials and how to distinguish between what is compliant and what is not.
- Implement a quality management system-based approach to manage projects.





# THE ROLE OF EDUCATION

## A MULTI-LAYERED APPROACH

The success of the 'DIIM'<sup>TM</sup> philosophy relies heavily on the expertise of professionals involved in every stage of firestopping and effective compartmentation. Comprehensive education and training programs are essential for equipping architects, engineers, contractors, inspectors, regulatory bodies, and facility managers with the specialized knowledge needed to implement effective passive fire protection systems. These programs should offer structured, multi-level courses that cover the general principles of 'D'esign, 'I'nstallation, 'I'nspection, and 'M'aintenance. Further, continuous learning to ensure that industry professionals stay current with evolving codes, standards, and best practices is a cornerstone in building a global workforce capable of upholding the highest standards of fire and life safety, ultimately making buildings safer worldwide.

## THE FEP

One such program is the FCIA Firestop Education Program (FEP). This industry-specific, manufacturer-generic education program offers three levels of training tailored to different aspects of firestopping. The virtual program can be accessed globally, enabling professions around the world to apply adoptable systems and standards universally. Education through the FEP not only enhances technical proficiency but also promotes collaboration among stakeholders in fire safety. By equipping professionals with a shared understanding of 'DIIM'<sup>TM</sup>, the program ensures that designs are practical, installations are precise, inspections are thorough, and maintenance is proactive. This holistic approach minimizes errors, reduces risks, and ensures that passive firestop systems perform as intended during emergencies,

LEVEL	DESCRIPTION
1	The Firestop Level 1 introduces the core concepts of 'DIIM' <sup>TM</sup> , emphasizing how proper execution of each component leads to safer buildings.
2	Firestop Level 2 is a comprehensive 20+-hour masterclass that dives deep into the technical aspects of firestop products and systems, equipping participants with the skills to select, install, inspect, and analyze firestop systems effectively.
3	Firestop Level 3 focuses on advanced topics such as estimating project management, and project budgeting management, providing industry insights for those involved in proposal development and field operations.



# ADOPTABLE SYSTEMS

## UNIFORM PFP PRACTICES GLOBALLY

The 'DIIM'<sup>TM</sup> philosophy has driven the development of numerous standards, systems, and frameworks that are widely adoptable across the globe. These have been embraced by international organizations, regulatory authorities, and businesses in various countries to enhance fire safety and quantify risks associated with fire and smoke events. By integrating the principles of 'D'esign, 'I'nstallation, 'I'nspEction, and 'M'aintenance, the reliability of Fire and Life Safety Plans are strengthened, ensuring robust passive fire protection systems. The consistent, evidence-based approach to firestopping enables stakeholders to assess compliance, mitigate vulnerabilities, and maintain building safety. The global adoption of uniform passive fire protection practices fosters a consistent approach to fire safety, reducing the likelihood of fire- and smoke-related incidents, and supports the protection of lives and property through effective compartmentation and risk management strategies.

The frameworks below have been created with the exclusive purpose of improving fire and life safety through passive fire protection systems. All are adoptable frameworks which can be implemented or referenced around the world.

### ACCREDITATION PROGRAMS

[FM 4991 Standard for the Approval of Firestop Contractors Accreditation Program](#)

[UL Solutions Qualified Firestop Contractor Program](#)

[IAS AC 291 Accreditation Program](#)

[UL Technical Evaluation Developer Program](#)

### CODES & STANDARDS

[International Building Code](#)

[National Building Code of Canada](#)

[ASTM E2174](#)

[ASTM E2393](#)

[ASTM E3456](#)

[ULC S101](#)

### SPECIFICATIONS

[07 84 004 Specification](#)

[07 84 00 Canada Specification](#)

### RECOMMENDED GUIDELINES

[IFC Inspection Guidelines for Penetration Firestop Systems and Fire Resistive Joint Systems in Fire-Resistance-Rated Construction](#)

[IFC Recommended Guidelines for Performing Destructive Testing for Installed Penetration Firestop Systems, Fire-Resistive Joint Systems, or Perimeter Fire Barrier Systems](#)

[IFC Guidelines for Evaluating Engineering Judgements](#)

### TO LEARN MORE

about FCIA and their members  
and for additional resources,  
visit [www.FCIA.org](http://www.FCIA.org).

