

DIIM & Firestopping

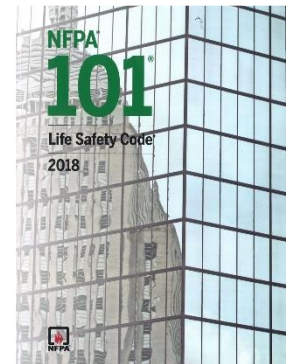
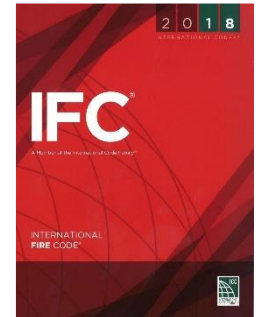
Bill McHugh, FCIA
Bill@FCIA.org

© FCIA 2019



Fire Codes Require Maintenance

- NFPA 101
- NFPA 1
- International Fire Code
- Minimum Requirements Stated
- Frequency



National Fire Protection Association - NFPA 1-2018

- **12.2* Construction.**
- 12.2.2 Fire safety construction features for new and existing occupancies shall comply with **this Code and the referenced edition of NFPA 101.**
- **12.3 Fire-Resistive Materials and Construction.**
- 12.3.1 The design and construction of fire walls and fire barrier walls that are required to separate buildings or subdivide a building to prevent the spread of fire shall comply with Section 12.3 and NFPA 221.

National Fire Protection Association - NFPA 1-2018

- 12.3.3* Maintenance of Fire-Resistive Construction, Draft-Stop Partitions, and Roof Coverings.

12.3.3.1 Required fire-resistive construction, including fire barriers, fire walls, exterior walls due to location on property, fire-resistive requirements based on type of construction, draftstop partitions, and roof coverings, shall be maintained and shall be properly repaired, restored, or replaced where damaged, altered, breached, penetrated, removed, or improperly installed.

National Fire Protection Association - NFPA 1-2018

- 12.3.3.2 Where required, **fire-rated gypsum wallboard** walls or ceilings that are damaged to the extent that through openings exist, the damaged gypsum wallboard shall be **replaced or returned to the required level of fire resistance using a listed repair system or using materials and methods equivalent to the original construction.**
- 12.3.3.3 Where readily accessible, required fire-resistance rated assemblies in high-rise buildings shall be visually inspected for integrity at least once every 3 years.

National Fire Protection Association - NFPA 1-2018

- 12.3.3.3.1 The person responsible for conducting the visual inspection shall demonstrate appropriate **technical knowledge and experience in fire-resistance-rated design and construction** acceptable to the AHJ.
- **12.3.3.3.2 A written report prepared by the person responsible for conducting the visual inspection shall be submitted to the AHJ documenting the results of the visual inspection.**

National Fire Protection Association - NFPA 101-2012

- **SECTION 4.5.8 Maintenance, Inspection, and Testing.**
- **4.5.8.1** **Whenever or wherever any device**, equipment, system, condition, arrangement, level of protection, fire-resistive construction, or any other feature **is required for compliance** with the provisions of this Code, **such device**, equipment, system, condition, arrangement, level of protection, fire-resistive construction, or other feature **shall thereafter be continuously maintained** in accordance with applicable NFPA requirements or requirements developed as part of a performance-based design, or as directed by the AHJ.
[101:4.6.12.1]

National Fire Protection

Association - NFPA 101-2012

- **4.5.8.2** **No existing life safety feature shall be removed or reduced** where such feature is a requirement for new construction. [101:4.6.12.2]
- **4.5.8.3*** **Existing life safety features **obvious to the public**, if not required by the Code, shall be either maintained or removed.** [101:4.6.12.3]
- **4.5.8.4** **Any device**, equipment, system, condition, arrangement, level of protection, fire-resistive construction, or any other feature **requiring periodic testing, inspection, or operation** to ensure its maintenance **shall be tested, inspected, or operated** as specified elsewhere in this Code or as directed by the AHJ. [101:4.6.12.4]
- **4.5.8.5** **Maintenance, inspection, and testing shall be performed under the supervision of a responsible person who shall ensure** that testing, inspection, and maintenance **are made at specified intervals** in accordance with applicable NFPA standards or as directed by the AHJ. [101:4.6.12.5]

International Fire Code Maintenance



SECTION 703 FIRE-RESISTANCE-RATED CONSTRUCTION

703.1 Maintenance. The required fire resistance rating of fire-resistance rated construction (including walls, fire stops, shaft enclosures, partitions, smoke barriers, floors, fire resistive coatings and sprayed fire resistant materials applied to structural members and fire resistive joint systems) shall be maintained. Such elements shall be visually inspected by the owner annually and properly repaired, restored or replaced when damaged, altered, breached or penetrated.

Openings made therein for the passage of pipes, electrical conduit, wires, ducts, air transfer openings, **and holes** made for any reason shall be protected with approved methods capable of resisting the passage of smoke and fire.

2015 International Fire Code Maintenance

SECTION 703 FIRE-RESISTANCE-RATED CONSTRUCTION

703.1 Maintenance. The required *fire-resistance rating* of fire-resistance-rated construction, including, but not limited to, walls, firestops, shaft enclosures, partitions, *smoke barriers*, floors, fire-resistive coatings and sprayed fire-resistant materials applied to structural members and fire-resistant joint systems, shall be maintained. Such elements **shall be visually inspected by the owner annually and properly repaired, restored or replaced where damaged, altered, breached or penetrated.** Records of inspections and repairs shall be maintained..



2015 International Fire Code Maintenance

SECTION 703 FIRE-RESISTANCE-RATED CONSTRUCTION

703.1 Maintenance. (continued) Where concealed, such elements shall not be required to be visually inspected by the *owner* unless the concealed space is accessible by the removal or movement of a panel, access door, ceiling tile or similar movable entry to the space. Openings made therein for the passage of pipes, electrical conduit, wires, ducts, air transfer openings and holes made for any reason **shall be protected with *approved* methods** capable of resisting the passage of smoke and fire. Openings through fire-resistance-rated assemblies shall be protected by self- or automatic-closing doors of *approved* construction meeting the fire protection requirements for the assembly.



2015 International Fire Code Maintenance

SECTION 703

FIRE-RESISTANCE-RATED CONSTRUCTION

703.1 Maintenance. (continued) **703.1.1 Fireblocking and draftstopping.** Required *Fireblocking* and draftstopping in combustible concealed spaces shall be maintained to provide continuity and integrity of the construction.

703.1.2 Smoke barriers and smoke partitions. Required *smoke barriers* and smoke partitions shall be maintained to prevent the passage of smoke. Openings protected with *approved* smoke barrier doors or smoke dampers shall be maintained in accordance with NFPA 105.

703.1.3 Fire walls, fire barriers and fire partitions. Required *fire walls, fire barriers* and *fire partitions* shall be maintained to prevent the passage of fire. Openings protected with *approved* doors or fire dampers shall be maintained in accordance with NFPA 80.



2018 International Fire Code

- **701.6 Owner's responsibility.** The **owner shall maintain an inventory of all required fire-resistance-rated and smoke resistant** construction, and the construction included in Sections 703 through 707 and such construction shall be visually inspected by the *owner annually and properly repaired, restored or replaced where damaged, altered, breached or penetrated.*

2018 International Fire Code

- **701.6, Continued...PC2**
- **Records of inspections and repairs** shall be maintained. Where concealed, such elements shall not be required to be visually inspected by the owner unless the concealed space is accessible by the removal or movement of a panel, access door, ceiling tile or similar movable entry to the space.

2018 International Fire Code

- **703.1 Maintaining protection. Materials and firestop systems used to protect membrane- and through-penetrations in fireresistance- rated construction and construction installed to resist the passage of smoke shall be maintained.**

2018 International Fire Code Documentation Required

- **703.1 ... Continued.**

The materials and firestop systems shall be securely attached to or bonded to the construction being penetrated with no openings visible through or into the cavity of the construction. Where the system design number is known, the system shall be inspected to the listing criteria and manufacturer's installation instruction.

UAE Fire and Life Safety Code of Practice Maintenance & Management

Chapter 1, SECTION 21 Firestopping

21.15.2 The required fire resistance rating of installed firestop systems shall be *visually inspected by the owner or owner's inspection agency annually.* Damaged, altered or breached firestop systems shall be properly repaired, restored or replaced to comply with applicable codes as per the guidelines of Civil defense.

21.15.3 Any new **Openings** made therein for the passage of through penetrants, *shall be protected with approved firestop system* to comply with applicable codes as per the guidelines of Civil defense.

National Fire Code of Canada

National Fire Code of Canada

- ***Division B – Part 2, Building and Occupant Fire Safety***

2.2.1.2 – Damage to Fire Separations – where *fire separations* are damaged so as to affect their integrity, they shall be repaired so that the integrity of the *fire separation* is maintained...

- **FCIA Manual of Practice – Appendix, Maintenance**

FCIA recommends Barrier Management for Effective Compartmentation and Structural Protection



Firestop Maintenance

- **Maintenance**
 - Code Required
 - How??

- **How to keep Track – Barrier Management Initiative**
 - Paper
 - Software
 - Labeling



M–Barrier Management Systems

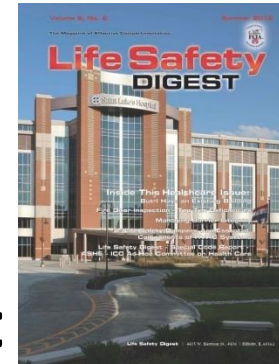
- **Why Manage Barriers & Structural Elements?**
 - **International Fire Code**
 - **International Property Maintenance Code**
 - **NFPA 101**
 - **NFPA 1**
- **It makes Fire and Life Safety Sense**

M–Barrier Management Systems Policy Topics

- **Advise Clients – Create a Budget to Meet Code Requirements**
- **Inventory – What Info?**
- **Implement Fire Resistance Management**
 - In House (Rules)
 - Outside Contractor (Rules)
- **Monitor Process**

M–Barrier Management Systems Starts @ NEW CONSTRUCTION

- **NEW Buildings – 07-84-00 Specs**
 - www.FCIA.org
- **Part I – Focus on**
 - **Systems**
 - **Not Products**
 - **Manufacturers**
- **“Single Manufacturer to the greatest possible” – EJ’s**



M–Barrier Management Systems Starts with CONSTRUCTION

- **NEW Buildings – 07-84-00 Specs**
 - [www. FCIA .org](http://www.FCIA.org)
- **Part II – Qualifications**
 - **FCIA Member in Good Standing, AND**
 - **FM 4991, Standard for the Approval of Firestop Contractors, OR**
 - **UL Qualified Firestop Contractor Program**
 - **AND**
 - **Manufacturer Accredited, Approved, Trained**

M–Barrier Management Systems Starts with CONSTRUCTION

- **NEW Buildings – 07-84-00 Specs**
 - www.FCIA.org
- **Part II – Qualifications – Special Inspection**
 - **Special Inspection Agency –**
 - **IAS AC 291 Accredited Special Inspection Agencies**
 - **Special Inspector Qualifications**
 - **FM Firestop Exam**
 - **UL Firestop Exam**
 - **AND**
 - **IFC Exam – ASTM E 3038**

M–Barrier Management Systems Starts with CONSTRUCTION

- **NEW Buildings – 07-84-00 Specs**
- **Part III – Execution**
 - **Special Inspection**
 - **ASTM E 2174 - Penetrations**
 - **ASTM E 2393 - Joints**

Built Right = Maintain Right WHEN SPECIFIED

- **Reference 01-78-00 Closeout Submittals**
 - **01 78 13 Completion and Correction List**
 - **01 78 19 Maintenance Contracts**
 - **On Labels.... Call for Annual Survey**
 - **01 78 23 Operation and Maintenance Data**
 - **01 78 23.13 Operation Data**
 - **01 78 23.16 Maintenance Data**
 - **01 78 23.19 Preventative Maintenance Instructions**

Built Right = Maintain Right WHEN SPECIFIED

- **Reference 01-78-00 Closeout Submittals**
 - **01 78 29 Final Site Survey**
 - **01 78 33 Bonds**
 - **01 78 36 Warranties**
 - **01 78 39 Project Record Documents**
 - **01 78 43 Spare Parts**
 - **01 78 46 Extra Stock Materials**
 - **01 78 53 Sustainable Design Closeout Documentation**

Built Right = Maintain Right WHEN SPECIFIED

- **Why Specifications Division 01-78-00?**
 - **Fire Resistance Inventory REQUIRED -**
 - **F-113-16 – 2018 International Fire Code**
 - **Section 703.1 becomes 701.1**
 - **Fire Rated Walls & Floors**
 - **Firestop Systems**
 - **Fire & Smoke Dampers**
 - **Fire Rated Rolling & Swinging Doors**
 - **Fire Rated Glazing**

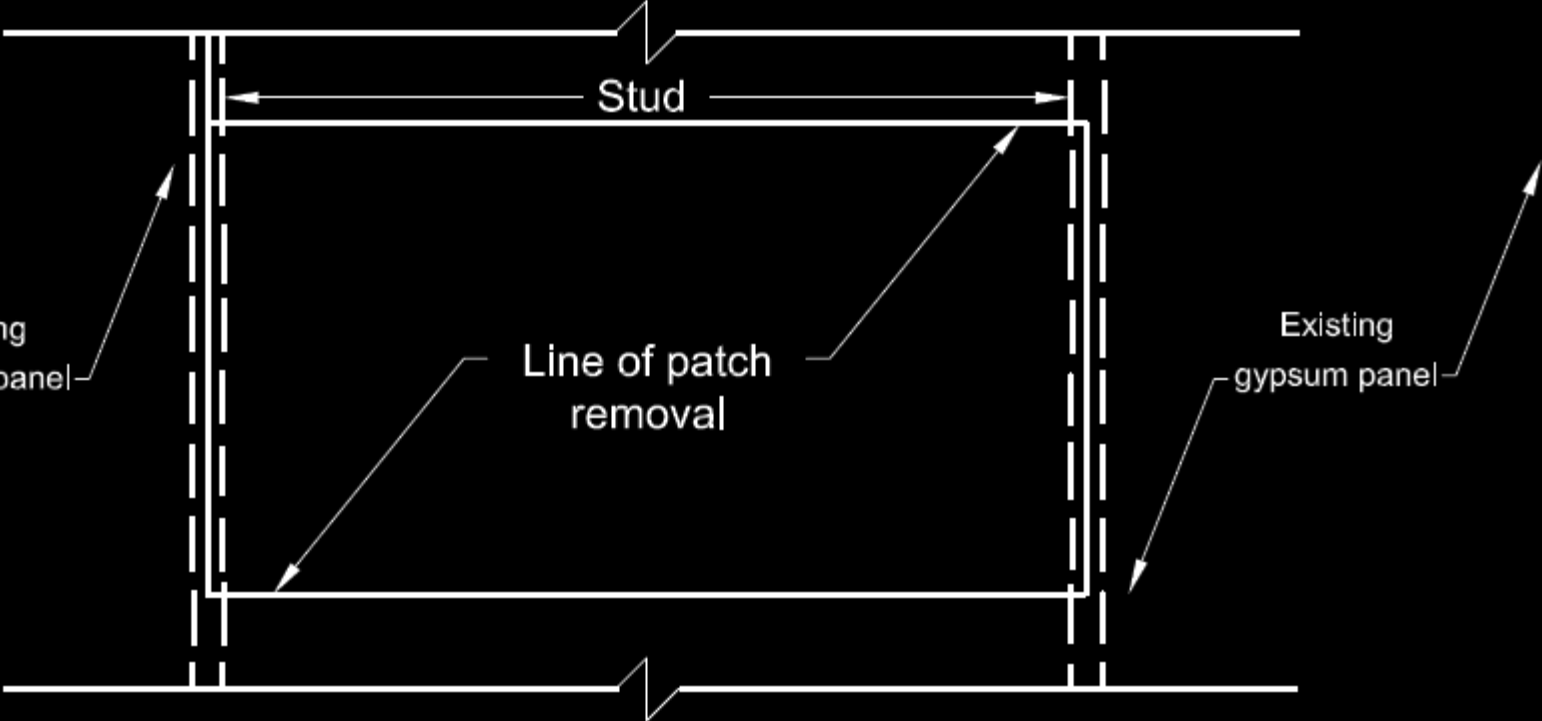
M–Barrier Management Systems

- **Why Manage Barriers?**
- **International Fire Code**
- **International Property Maintenance Code**

M–Barrier Management Systems

- **Barrier Repair Examples**

Gypsum Wallboard Repair Large Holes



Partial Elevation - 1



Contacts

Firestop Contractors International Association

Hillside, IL – +1-708-202-1108 - office

Bill McHugh – bill @ fcia.org

DIIM & Firestopping

Bill McHugh, FCIA
Bill@FCIA.org

© FCIA 2019

