A Look At The 2024 Code Cycle And Proposals

Prepared by:
William E. Koffel, P.E., FSFPE
Code Changes That Impact YOUR Business!
OVERVIEW

• Highlight significant code change activity since the 2009 Edition of the IBC
• Overview of the ICC and NFPA Code Processes
• Preview of potential code changes for the 2024 Code Change Cycle
What is Firestopping

• Firestopping is a SYSTEM (2009)
  • Not one or more materials used to fill a space
  • Not necessarily true in other parts of the world

• Titles
  • I-Codes: Fire and Smoke Protection Features (2009)
  • NFPA: Features of Fire Protection
  • May qualify for tax incentive programs in existing buildings
Contractor qualifications

• Increase the number of contractors participating in FM and UL programs
Clear, Concise Code Language

• 714.1 General. Joints installed in or between fire-resistance-rated walls, floor or floor/ceiling assemblies and roofs or roof/ceiling assemblies shall be protected by an approved fire-resistant joint system designed to resist the passage of fire for a time period not less than the required fire-resistance rating of the wall, floor or roof in or between which it is installed.
Clear, Concise Code Language
Clear, concise code language

- JOINT. The linear opening in or between adjacent fire-resistance-rated assemblies that is designed to allow independent movement of the building in any plane caused by thermal, seismic, wind or any other loading.
Specific Topics

- Engineering judgments – limit use to applications where a listed system does not exist
- Where are joint systems required?
- Air leakage requirements – L ratings
  - Concept of resist passage of smoke
- Compartmentation as a viable fire protection feature in buildings
Marking of Barriers

- IBC 2012, Section 703.7
  - Provides additional criteria (larger letters and stroke width) for marking of fire barriers, etc.
  - Submitted: City of North Las Vegas
  - Opposition: BOMA and others
- Similar language added to NFPA 101 - 2018 Edition
Marking of Barriers
Penetrations of Structural Walls

• FS8 – Proponent: Sarah Rice (2012 Edition Cycle)
• Specifically states that opening and penetration protection is not required for load bearing walls that serve no other purpose
• Opposition: IFC, FCIA, UL, 3M, NASFM, AMCA, NAIMA
Smoke Barriers – L Ratings

• Revisions to previous text

• **714.4.4 Penetrations in smoke barriers.** Penetrations in smoke barriers shall be protected by an approved *through penetration firestop system* installed and tested in accordance with the requirements of UL 1479 for air leakage. The *L rating* of the system measured ... shall not exceed:
  • 1. 5.0 cfm per square foot (0.025 m³/s · m²) of penetration opening for each *through-penetration firestop system*; or
  • 2. A total cumulative leakage of 50 cfm (0.024 m³/s) for any 100 square feet (9.3 m²) of wall area, or floor area.

• Similar language likely to be in NFPA 101 and NFPA 5000 (2018 Editions)
  • Health care exemption
Special Inspections

- Requires special inspections for through penetrations, membrane penetrations, and fire-resistant joint systems for high-rise buildings and critical structures (Category III and IV)
- Category III and IV include
  - Health care occupancies
  - Detention and correctional occupancies
  - Assembly occupancies greater than 300 occupants
  - Schools greater than 250 occupants
- Group R over 250 added in 2021 Edition
Special Inspections

• 1705.17 Fire-resistant penetrations and joints. In *high-rise buildings* or in buildings assigned to *Risk Category III* or IV, *special inspections for through-penetrations*, membrane penetration firestops, *fire-resistant joint systems* and perimeter fire barrier systems that are tested and *listed* in accordance with Sections 714.3.1.2, 714.4.2, 715.3 and 715.4 shall be in accordance with Section 1705.17.1 or 1705.17.2
  • Sections referenced include ASTM E2174 and ASTM E2393
• Broader language in NFPA 5000
Corridor Walls – Group I-2

- Previous editions:
  - **1104.17 Corridors.** Corridors serving an occupant load greater than 30 and the openings therein shall provide an effective barrier to resist the movement of smoke. Transoms, louvers, doors and other openings shall be kept closed or self closing.
Corridor Walls – Group I-2

• IFC 2015; Section 1105.4
  • Resist passage of smoke
    • Materials consistent with building construction
    • Fire resistance rated if required elsewhere
    • Continuous to deck, smoke resistant ceiling, lay-in ceiling system (1 lb/sq ft)
    • Windows to resist passage of smoke
    • “20-minute door” unless building sprinklered
    • “Protected” penetrations
    • “Protected” joints
    • Smoke dampers
  • Result of ICC Ad Hoc Committee on Healthcare
Smoke Barriers

• IFC 2015; Section 1105.6 New requirements for smoke barriers in existing hospitals. Does permit 30-minute fire resistance rating.
  • Not addressed in previous editions
  • Result of ICC Ad Hoc Committee on Healthcare
Manufacturer’s Instructions

• IBC 2018; Sections 714.2 and 715.2
  • Requires installation in accordance with manufacturer’s instructions and listing criteria
  • Removed language “install so as not to dislodge”
Inventory

• IFC 2018; Section 701.6 Owner is responsible to maintain an inventory of all fire-rated and smoke-rated construction
  • Key requirement is to have documentation of fire and smoke rated construction
  • Also requires documentation when system repaired with a listed system
Periodic Inspections

• IFC 2018 - Annual inspections of through penetration firestop systems in ALL buildings
  • Owner required maintain an inventory
  • Where the system design number is known – inspect to listing criteria and manufacturers instructions.
• NFPA 1 revised to require inspections every three years instead of five years
CODE Processes
2024 Edition of the International Codes

- Proposal closing date
  - IBC and IFC – January 11, 2021
  - NFPA 101/5000/1 – May/June 2021
- Several “special” activities ongoing
  - Health care occupancies
  - Tall wood buildings
  - FCAC and BCAC
The Standards Development Process

STEP 1
Input Stage
- Last Edition Published
- Last Edition Published

STEP 2
Comment Stage
- First Draft Meeting
- Public Input Closing Date
- Ballot First Draft
- No Public Comments Received
- No Second Revisions by Committee
- No NITMAM Received or NITMAM not Certified

STEP 3
Association Technical Meeting
- NITMAM Closing Date
- NITMAM Received and Certified
- Second Draft Report Posted
- Second Draft

STEP 4
Council Appeals and Issuance of Standard
- Consent Standard
- First Draft Report Posted
- First Draft Meeting

2
STEP 2
Comment Stage

4
STEP 4
Council Appeals and Issuance of Standard

3
STEP 3
Association Technical Meeting

1
STEP 1
Input Stage
2024 Code Change Cycle
Unresolved Issues - Joints

• **[BS] JOINT.** The opening in or between adjacent assemblies that is created due to building tolerances, or is designed to allow independent movement of the building in any plane caused by thermal, seismic, wind or any other loading.

• How does this impact fire resistant joints?
  
  • **715.1 General.** Joints installed in or between fire-resistance rated walls, floor or floor/ceiling assemblies and roofs or roof/ceiling assemblies shall be protected by an approved *fire-resistant joint system* designed to resist the passage of fire for a time period not less than the required *fire-resistance rating* of the wall, floor or roof in or between which the system is installed.

• When are fire resistant joint systems required?
Unresolved Issues - Joints

• Potential FCAC Proposal

• **CONTINUITY HEAD-OF-WALL JOINT SYSTEM.** An assemblage of specific materials or products that are designed to resist the passage of fire through voids created at the intersection of fire barriers and the underside of nonfire-resistance-rated roof assemblies for a prescribed period of time.

• **715.6 Fire barriers/nonfire-resistance-rated roof assembly intersections.** Voids created at the intersection of a fire barrier and the underside of a nonfire-resistance-rated roof sheathing, slab or deck above shall be filled by an approved material to retard the passage of fire and hot gases, or shall be protected by an approved continuity head-of-wall joint system tested in accordance with ASTM E2837 to provide an F rating/T rating for a time period not less than the required fire-resistance rating of the fire barrier in which it is installed.
Unresolved Issues - Joints

- Potential FCAC Proposal

- **707.8 Joints.** *Joints* made in or between *fire barriers*, and *joints* made at the intersection of *fire barriers* with the underside of a fire-resistance-rated floor or roof sheathing, slab or deck above, and the exterior vertical *with other fire-resistance-rated wall intersection assemblies* shall comply with Section 715.
Unresolved Issues – EJ’s

• When should EJ’s be permitted?
• What is the process for using EJ’s?
Unresolved Issues – T-Ratings

• Should a T rating be required when the penetration is protected by a non-listed system (traditional means)?

• 2018 Cycle
  • FS 60 – Requires floor penetrations protected with non-listed systems to be in a concealed space
  • Discussion - Opposing testimony focused on roundabout way to require T-ratings, lack of data demonstrating a problem, and lack of a concealed space for many floor assemblies
  • Committee Recommendation – Disapproval
Unresolved Issues – T-Ratings

• Potential FCAC Proposal

• 714.5.1.2 Through-penetration firestop system.

  4. Penetrations in a single concrete floor by steel, ferrous or copper conduits, pipes, tubes or vents with a maximum 6-inch (152 mm) nominal diameter do not require T rating. These penetrating items shall not be limited to the penetration of a single concrete floor, provided the area of the opening through each floor does not exceed 144 square inches (92,900 mm²).
Unresolved Issues – “Marking” Penetrations

• 2018 Cycle
  • FS 5 – Added a requirement to “mark” penetration and joint systems where barriers need to be marked.
  • Discussion – Opposing testimony focused on cost, location (where to put it), durability of marking system, number of penetrations
  • Committee Recommendation – Disapproval (8-5)
    • Original motion was for approval but failed
    • One Committee member was concerned about the electronic system but several did not think it was needed
Structural Load Bearing Walls

• What is required when a wall is a load bearing wall but not used for compartmentation?
  • Greg Keith proposal to specifically not require protection of openings and penetrations in such walls
  • Further discussion at ICC Code Technology Committee
• The fire resistance rating of the wall must be maintained!
Penetrations In Exterior Walls

• Potential FCAC Proposal
  • Joints, dampers, openings are already covered by the Code

• **705.11 Penetrations.** Penetrations through exterior walls required to have a *fire-resistance rating* shall comply with Section 714. Penetrations by ducts and air transfer openings shall comply with Section 705.10.

  **Exception:** Penetrations in exterior walls that are permitted to have unprotected openings do not require protection of penetrations.
Exterior Wall Provisions

• Currently being reviewed by Fire Safe North America
  • Potential changes based upon wildland fires
  • Potential changes focusing on resilience
    • Continued use of the building after a fire event
    • Multi-hazard considerations
Penetrations Of Roof Assemblies

• Working Group looking at increased use of roof top areas as occupied spaces within a building
  • Penetrations should be protected with listed firestop systems
Other Changes

• Expand requirement for special inspections
• Revisit qualified contractor requirement
• Revisit marking of through penetrations
WHAT ARE YOUR CODE COMPLIANCE ISSUES?
Questions?

William E. Koffel, P.E., FSFPE
(Registered in DC, MD, NY, OH, PA, VA, WA)
wkoffel@koffel.com

Koffel Associates, Inc.
8815 Centre Park Drive, Suite 200
Columbia, MD 21045-2107
410-540-9008
www.koffel.com

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