SFIA
STEEL FRAMING INDUSTRY ASSOCIATION

SFIA175:High Performance Joint Firestopping

Presenter: Jaime Manzo

Date: March 25, 2026

AIA
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Continuing
Education

Welcome & housekeeping
A word about SFIA
Presentation
Q&A

Overview

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STEEL FRAMING INDUSTRY ASSOCIATION

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- Thank you for attending our webinar today!
- Mics are muted. Please ask any questions in the chat or Questions windows.
- A PDF of the presentation and a Certificate of Attendance will be available in your Steel Framing Learning Portal account after the webinar.
- Please submit your AIA number to Meredith Perez in the chat or email it to Meredith@steelframing.org if you wish to have your learning units recorded.
- If you are a group viewing the presentation from a single computer, please email Meredith for the Group AIA attendance form so we can report LUs for everyone who attended. Meredith@steelframing.org

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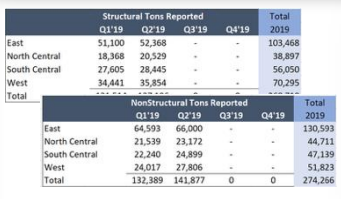
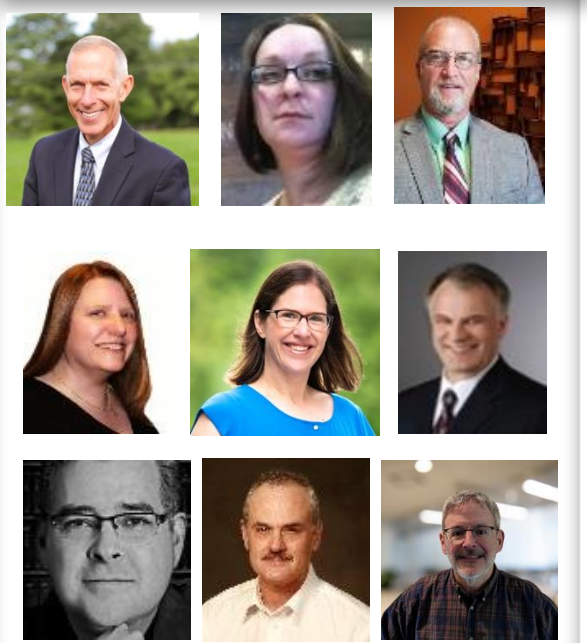


SFIA Staff



Architectural & Project Assistance

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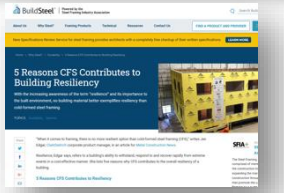
Sustainability



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Codes & Standards

ANSI
American National Standards Institute

Advocacy

Certification

Introducing our Speaker!

JAIME MANZO, FIRESTOP TECHNICAL REPRESENTATIVE

Jaime is responsible for sales & technical support of CEMCO's fire-stop product line. His role includes technical support of CEMCO's Fire, Acoustic, and Smoke joint products across the construction industry. Prior to joining CEMCO, Jaime spent five years in the industry promoting code compliant products and training contractors on best practices. He also has 15 years' experience as owner of a drywall contracting company. His prior experience also included providing technical assistance for one of the largest drywall manufacturers.

Credit(s) earned on completion of this course will be reported to AIA CES for AIA members. Certificates of Completion for both AIA members and non-AIA members are available upon request.

This course is registered with AIA CES for continuing professional education. As such, it does not include content that may be deemed or construed to be an approval or endorsement by the AIA of any material of construction or any method or manner of handling, using, distributing, or dealing in any material or product.

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Questions related to specific materials, methods, and services will be addressed at the conclusion of this presentation.

Approved Continuing Education

Course Description

The presentation will guide participants through a comprehensive understanding of joint firestopping. We will explore the test standards, IBC codes, joint applications, along with first and second-generation firestopping products. We will emphasize the importance of standardized joint details across all wall types and conclude with a brief discussion on sustainability and which products are best suited for LEED certification.

Learning Objectives

1. Identify the International Building Code sections and referenced test standards for joint systems related to fire, movement and sound performance.
2. Recognize a variety of wall-to-wall, bottom-of-wall and head-of-wall joints.
3. Evaluate different joint types relevant to their performance advantages and disadvantages, particularly in respect to their durability, cost and long-term performance over the building life-cycle.
4. Design and specify resistance joints to ensure building performance and to provide occupant safety.

High Performance Joint Firestopping

CEMCO®

Expanding Your Solutions

AIA Continuing Education Provider

CEMCO Fire Gasket FIRESTOPPING FOR BUILDING JOINTS

CEMCO Fire Bead® FIRE RATED DEFLECTION BEAD

CEMCO HOTROD® XL FIRESTOPPING FOR BUILDING JOINTS

CEMCO SUPER SEAL-X FIRE RATED DEFLECTION BEAD

CEMCO FireRip™ HIGH DEFLECTION DYNAMIC JOINT PROTECTION

Course Objectives

By completing this course, the design professional will be able to formulate an "IDEA" centered on High Performance Joint Firestopping & Acoustic Applications:

- "I" - identify a variety of joint types, including their UL assemblies and ratings.
- "D" - discuss International Building Code (IBC) that relates to fire resistant joint systems and firestopping.
- "E" - evaluate different types of joint products & systems, their advantages and disadvantages in regard to their durability, cost, and safety.
- "A" - apply knowledge to specify fire resistance & acoustical joints.

Course Focuses On…

…Head of Wall (HW-), Bottom of Wall (BW-), & Wall to Wall (WW-) Joints:

- Designed to accommodate movement (*allowing the assemblies to move independent of each other*) due to forces such as Live/Dead load, thermal expansion/contraction, wind sway, or seismic movements.
  - For example: A Head-of-Wall joint allows floor/ceiling assembly to move without damaging the wall assembly and more specifically the drywall.
    - The drywall contributes to the fire-resistance rating of the assembly therefore it is critical that the drywall is not damaged/cracked.

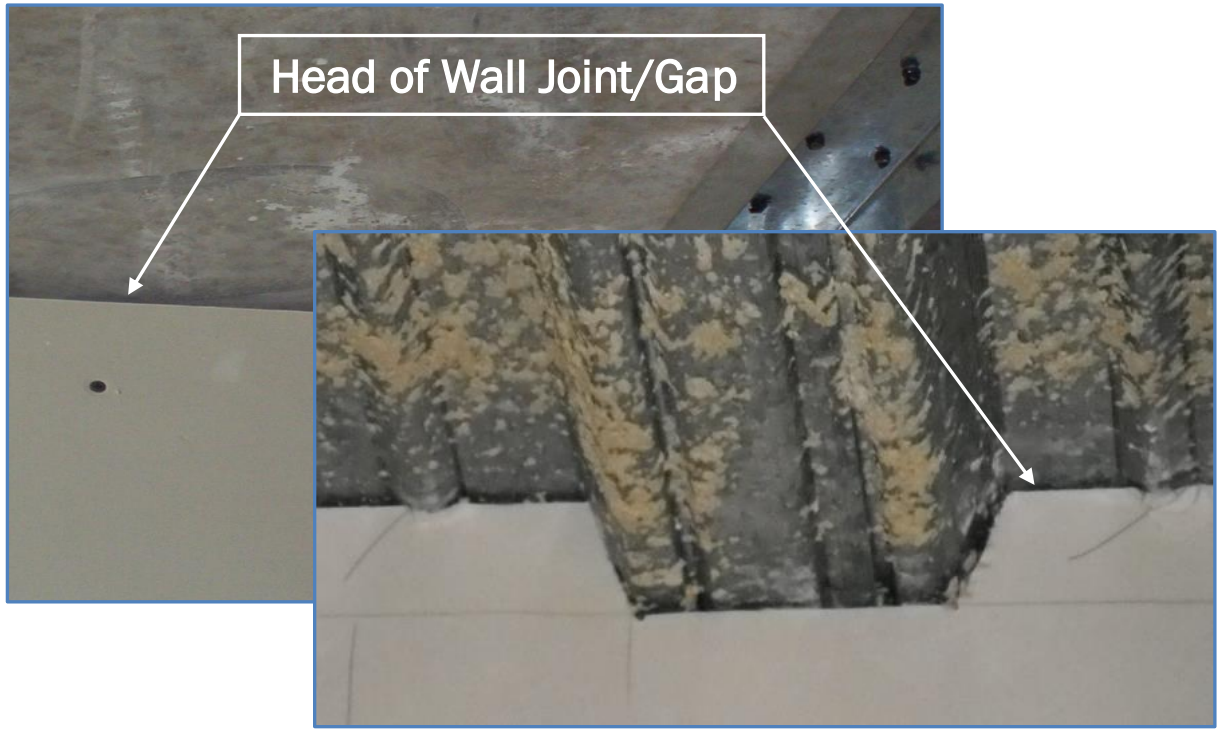
"I" – identify types of Wall Joints

What is a joint or gap?

IBC definition – "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."

Commonly used materials to provide fire and acoustic solutions include:

- Pre-formed
- Compressible Intumescent
- Fire Rated Drywall Accessories
- Drywall Rip
- Sealants / Sprays



Common types of joints/gaps include:

~Head of Wall

~Bottom of Wall

~Wall to Column

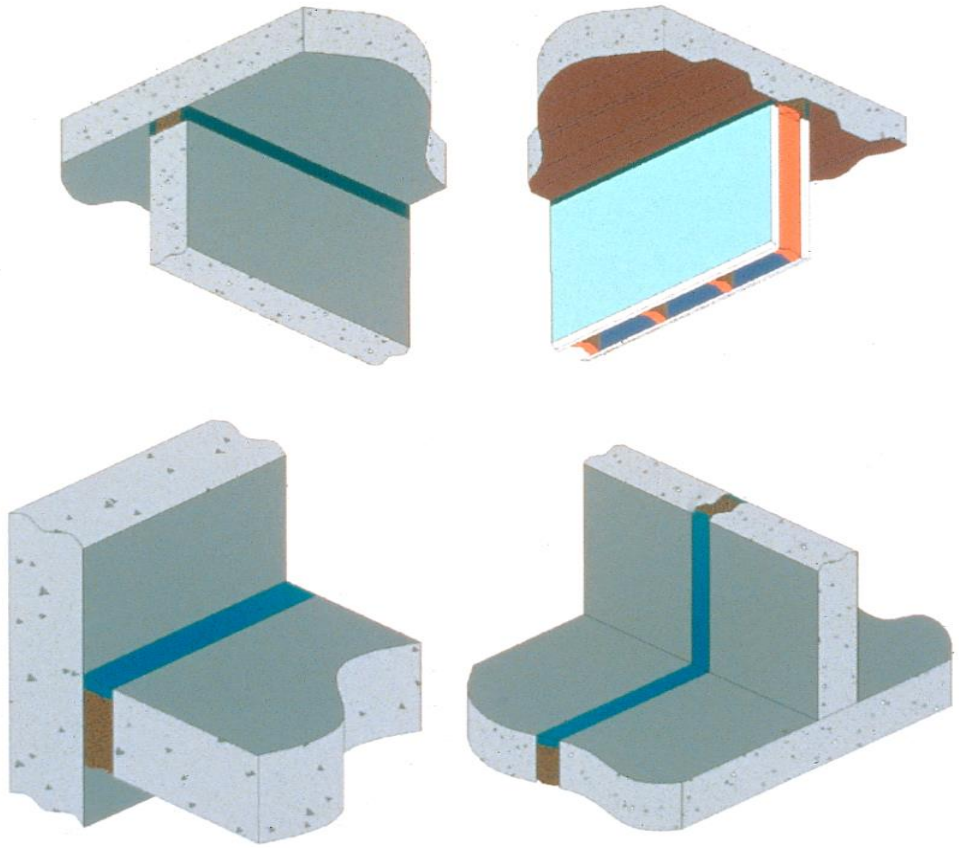
~Wall to Wall

~Floor to Floor

~Floor To Wall

“D” – discuss International Building Code (IBC)

Building Code Requirements Fire Resistive Joints



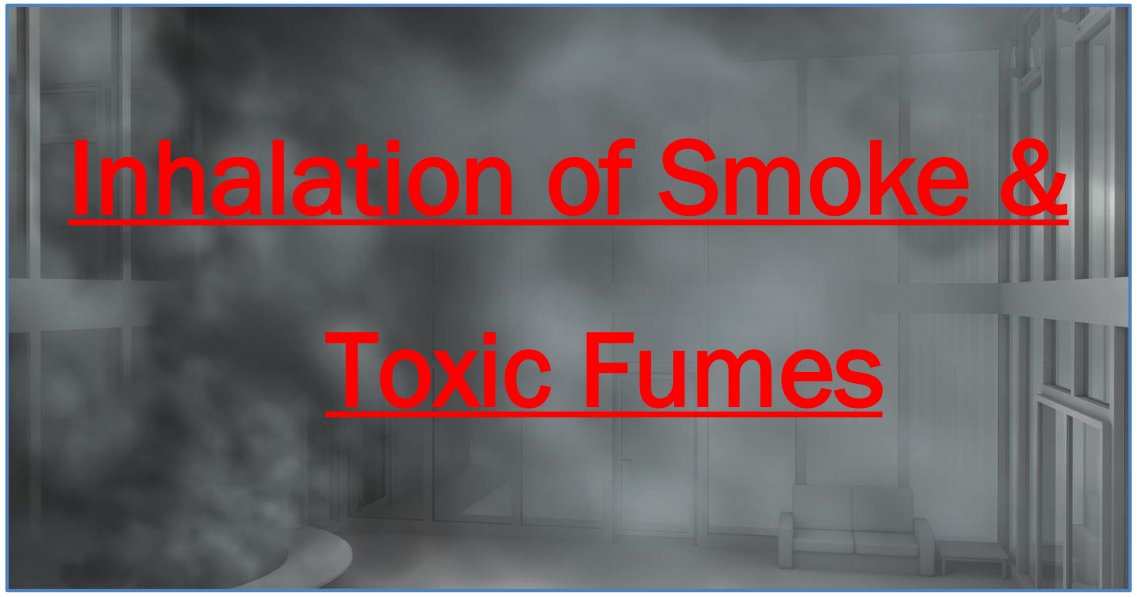
Section 715.1: Fire Resistive Joint Systems

“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.”

"D" – discuss International Building Code (IBC)

Question: Why all the fuss about fire-resistance & firestop?

- All recognized building codes require use of passive fire-resistant construction to include firestop systems for penetrations and joints.
- In addition, the leading cause of death in a fire is…



"D" – discuss International Building Code (IBC)

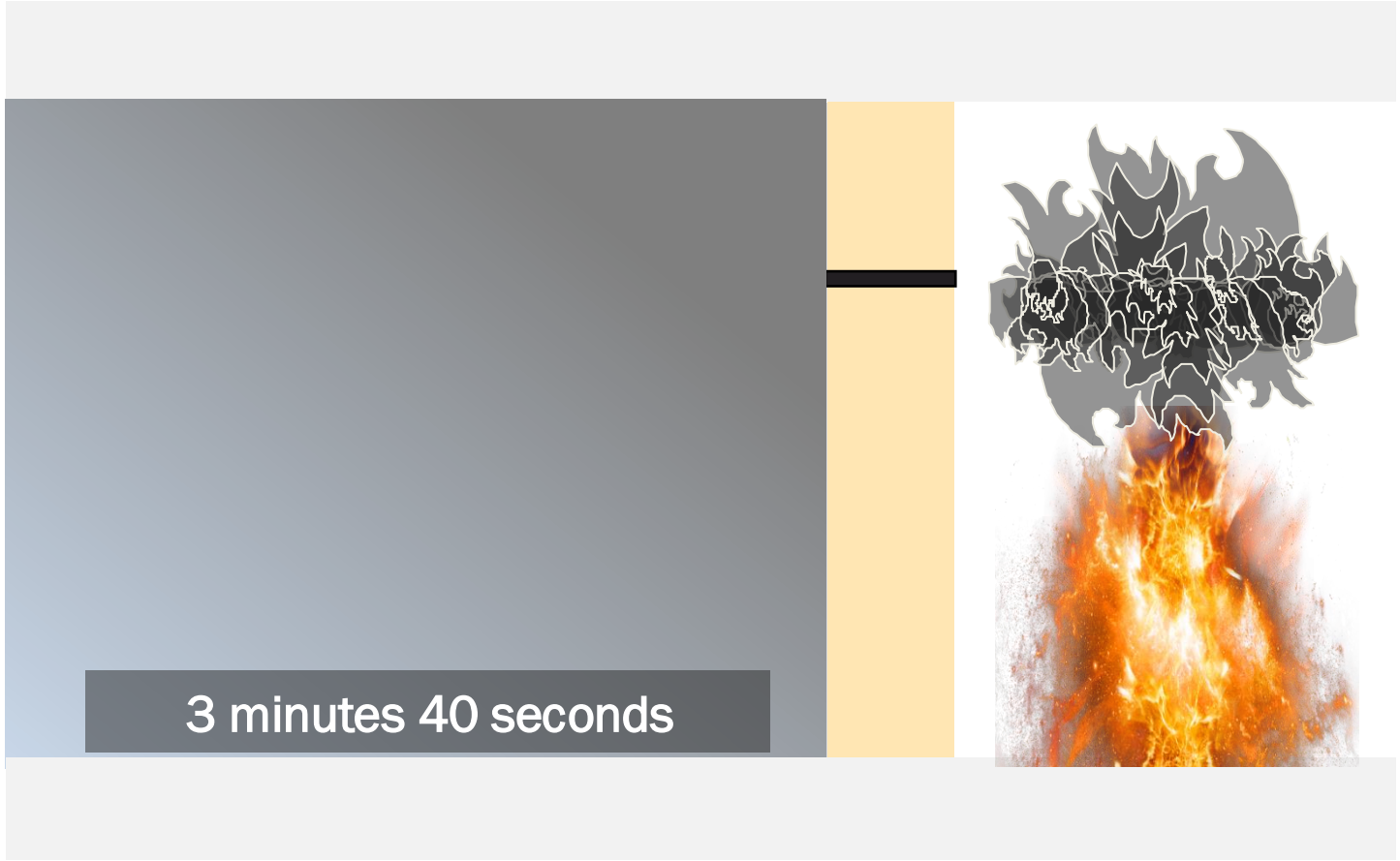
How fast can smoke travel?

Consider this:

- A room measuring 20 ft x 20 ft x 20 ft (8,000 cu. Ft.) with a pencil size hole in the wall between it and the room a fire has started.

How long will it take for smoke to fill the room to a level such that you cannot see your hands just 18 inches in front of your face?

“D” – discuss International Building Code (IBC)



"D" – discuss International Building Code (IBC)

IBC Sections of Importance

- 715.3 Fire test criteria. *Fire-resistant joint* systems shall be tested in accordance with the requirements of either ASTM E-1966 or UL 2079…
  - Pass/Fail Components of both standards are:
    - Assembly rating – includes fire (F-rating), thermal (T-rating)
    - Cycling (movement)
    - Hose stream (were required)
    - L-rating (optional)
- 715.4.2 Exterior curtain wall/vertical fire barrier intersections
- 1705.16 Special Inspection of Fire-Resistant Penetration and Joint Systems

"D" – discuss International Building Code (IBC)

ASTM E-1966 and UL 2079
Assembly Rating requirements

- Requires the assembly (firestop, gypsum, CMU/ concrete wall; wood or concrete floor/ceiling assembly, etc.) to be 3rd party tested and listed assembly.
  - Prevent passage of fire for described time.
  - Prevent non-fire side of reaching 325° above ambient (or 400° degrees with baseline ambient temperature of 75°)
  - Prevent passage of hose stream through non-fire side of assembly.

"D" – discuss International Building Code (IBC)

ASTM E-1966 and UL 2079

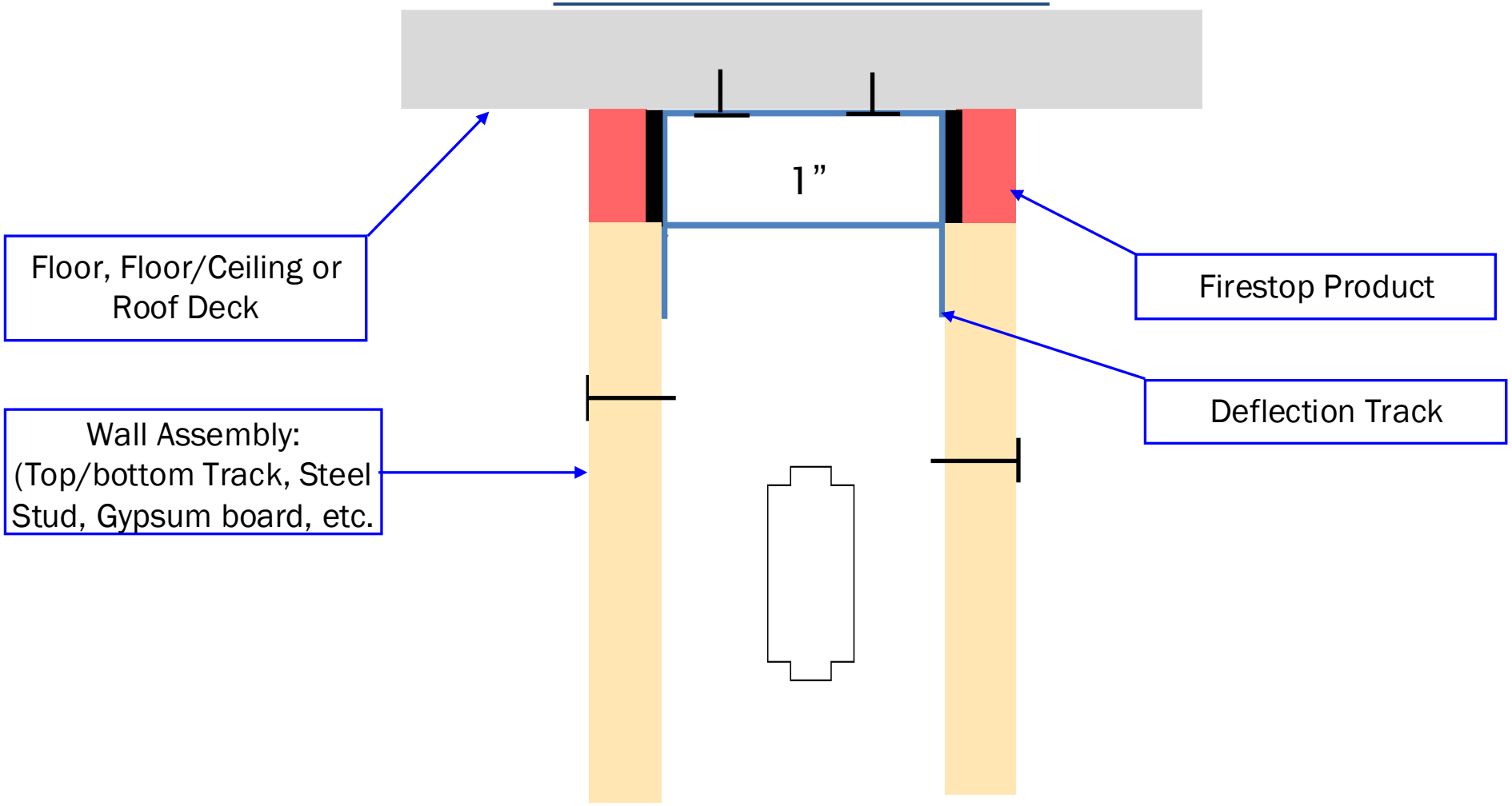
Cycling or Movement requirements

- **Three levels**
  - Level I = 1 cycle/min for 500 cycles (Thermal)
  - Level II = 10 cycles/min for 500 cycles (Wind Sway)
  - Level III = 30 cycles/min for 500 cycles (Seismic)

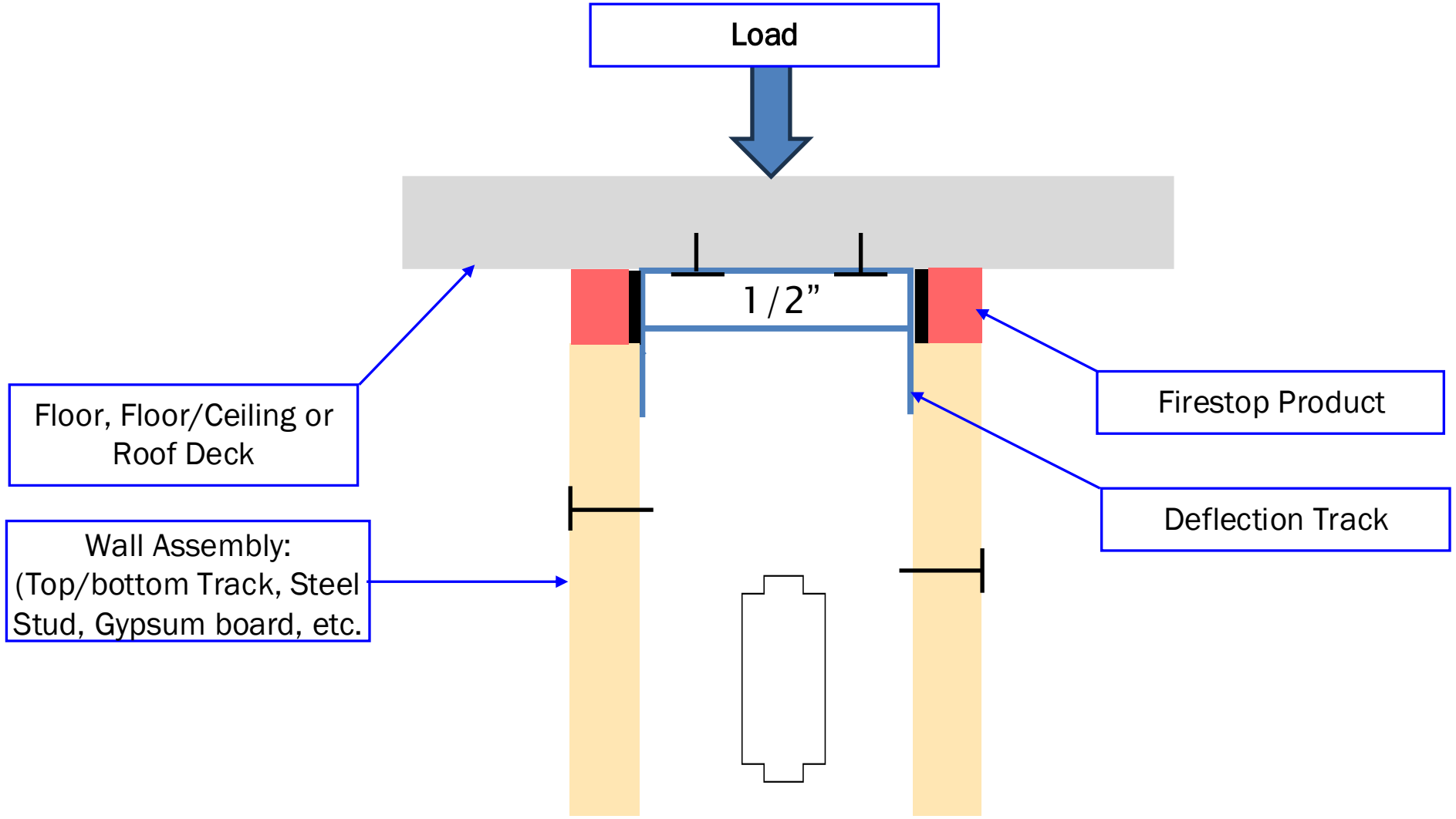
- **"Nominal" or "Installed" joint width**
  - Joint width at the time firestop product is installed – reference each UL System for specifics

“D” – discuss International Building Code (IBC)

Nominal 1” Joint Width



“D” – discuss International Building Code (IBC)



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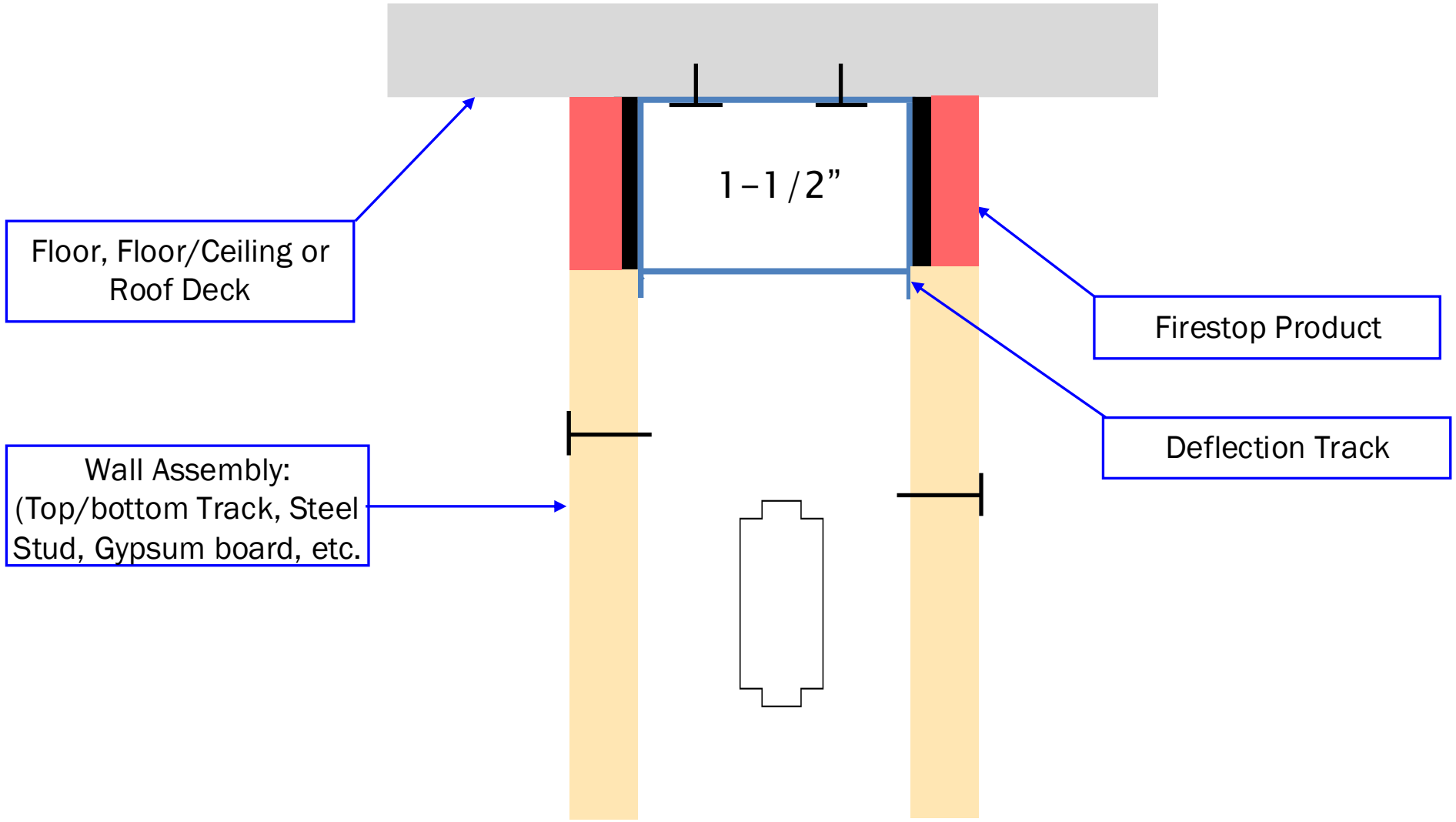


"D" – discuss International Building Code (IBC)

ASTM E-1966 and UL 2079

Cycling or Movement requirements

- Movement Calculation Table for Firestop Product with 25% movement in UL System (Encumbered)
  - Assembly ratings (F & T) —1 and 2 Hr. U400 Assembly with Max. Nominal Joint Width of 1 inch
  - Class II Movement Capabilities — 25% Compression or Extension (wind sway movement non-seismic conditions)

Nominal Joint Width	25% Compression	25% Extension	Two Way = Compression & Extension	Compression Only
1/2"	1/8"	1/8"	1/4"	1/8"
1"	1/4"	1/4"	1/2"	1/4"

- Movement Calculation Table for Firestop Product with 100% movement in UL System (Unencumbered)

1/4"	1/4"	1/4"	1/2"	1/4"
1/2"	1/2"	1/2"	1"	1/2"
3/4"	3/4"	3/4"	1-1/2"	3/4"
1"	1"	1"	2"	1"

"D" – discuss International Building Code (IBC)

ASTM E-1966 and UL 2079
Hose Stream requirements

- Water from 2-1/2" nozzle applied at varying psi (depending on hourly rating)
- Specific duration of time (depending on hourly rating)
- Test is to determine effect of:
  - Rapid cooling
  - Durability test to ensure falling debris during a fire and increased air pressures do not dislodge the firestop system including:
    - Studs
    - Wall board
    - Backing (mineral wool, backer rod, etc.)
    - Firestop products

"D" – discuss International Building Code (IBC)

ASTM E-1966 and UL 2079
Leakage (Smoke) Test requirements

- Measures air leakage rate through fire-resistive joint system
  - Measured at ambient (room temperature or 75° F) and
  - Measured at elevated temperature of 400° F (325° above ambient)
- Rating calculated as Cubic Feet Minute per Linear Foot of Joint (CFM/LF JT)

"D" – discuss International Building Code (IBC)

A deeper dive into Special Inspections:

1705.16 Special Inspection of Fire-Resistant Penetration and Joint Systems,

- What building types require special inspections?
  - High-Rise
  - Category III
  - Category IV
  - Group R >250 occupants (added in 2018 IBC)

“D” – discuss International Building Code (IBC)

ASTM E-2393 Inspection Standard

- On-site during installation – randomly witness 5% of total LF of each joint system, or
- Post-installation using destructive verification of one sampling of each joint system per 500 LF

“First Generation” Firestop and Acoustic Products & Solutions

"E" – evaluate different types of joint products & systems

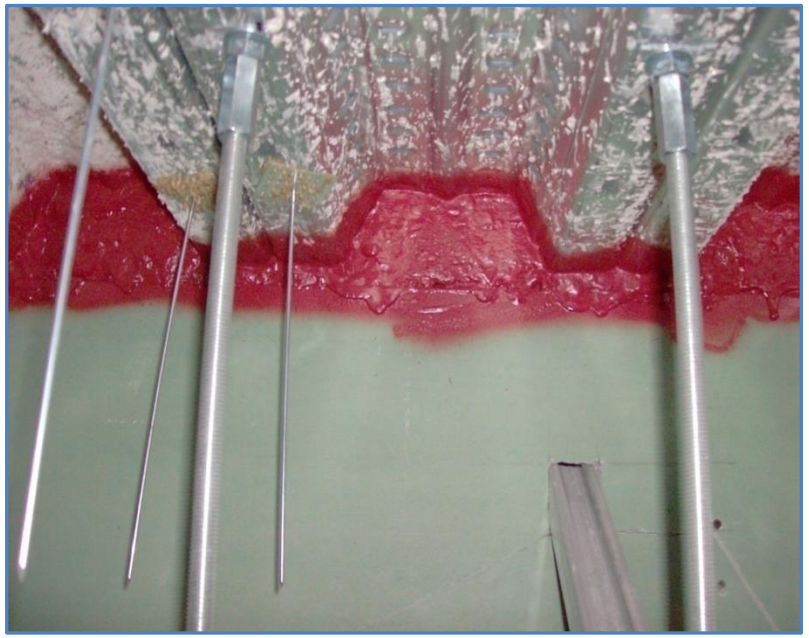
"First Generation" Products & Solutions

- Firestop Sealants:
  - Encumbered systems relying on adhesive bond
    - 1/4" to 1-1/4" depth of sealant
  - Varying Compression and/or Extension
- Performance by Product Type:
  - Acrylic products typically provide movement ranging from 7% up to 25%.
  - Silicone products can provide movement upwards up to 33%.
  - Systems providing higher movement historically require wider joints and backing material (mineral wool, ceramic blanket, etc.).

“E” – evaluate different types of joint products & systems

“First Generation” Products & Solutions

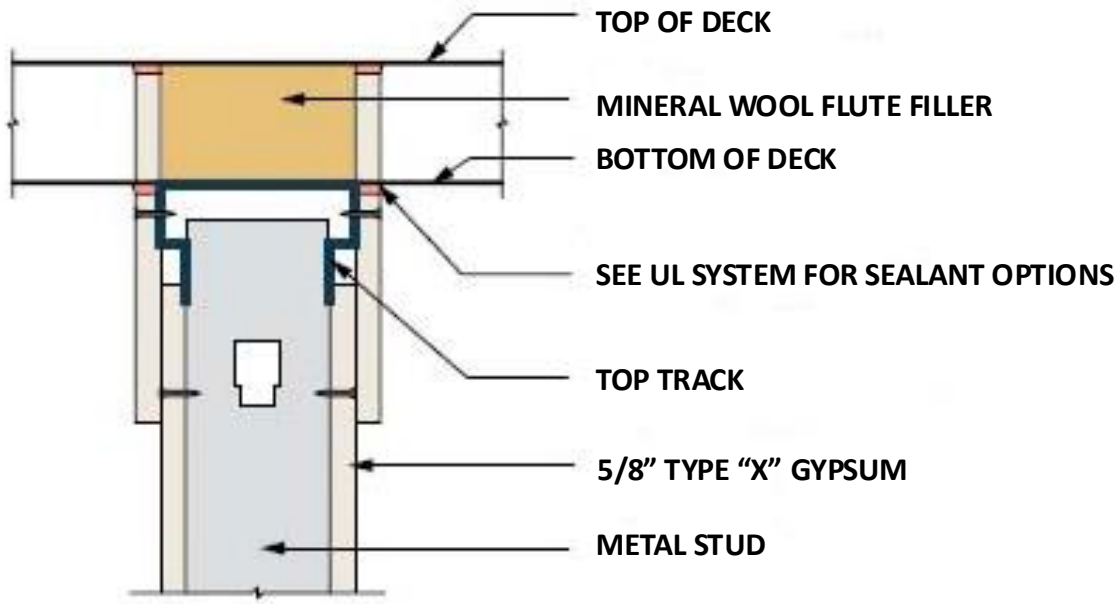
- Firestop Spray:
  - Encumbered systems relying on adhesive bond
    - 1/2 – 2” overlap onto surrounding substrate
  - Backing always required
    - Specific compression rates and orientation of backing material required.
  - Compression and/or Extension rates ranging from 12% to 50% of installed joint width.

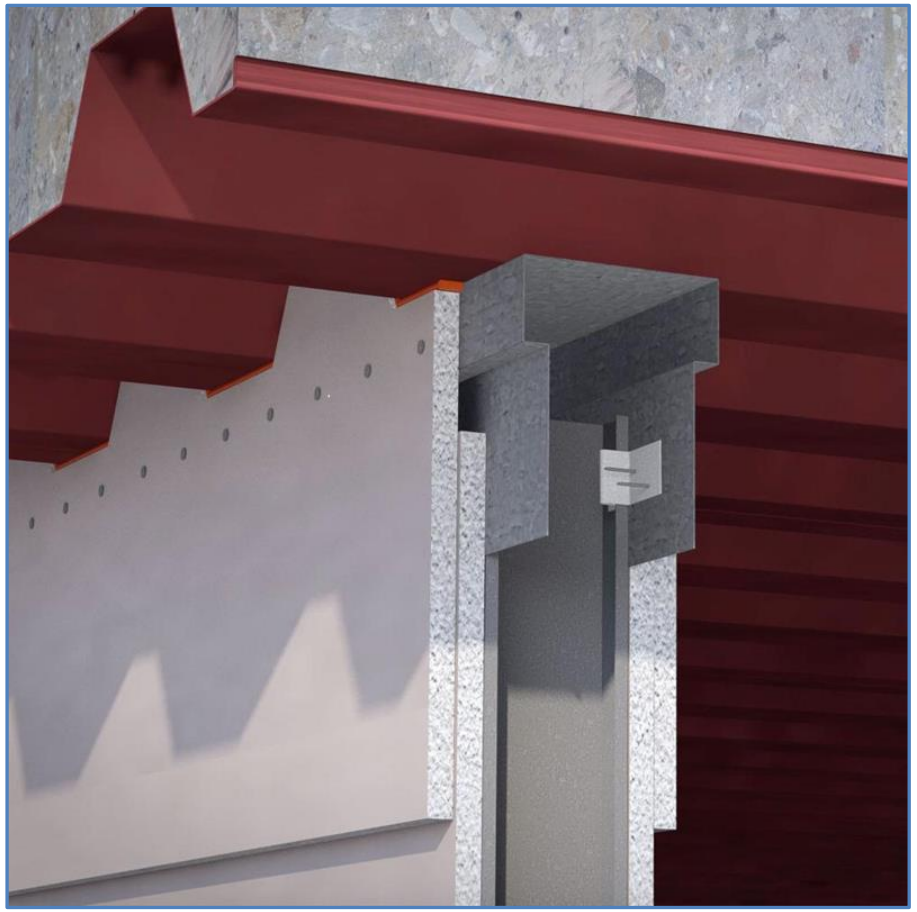


“E” – evaluate different types of joint products & systems

“First Generation” Products & Solutions

- “T” shaped track creates a shoulder allowing for attachment of drywall rips aligned with the exterior surface of the wall to protect the head of wall gap and to facilitate movement.





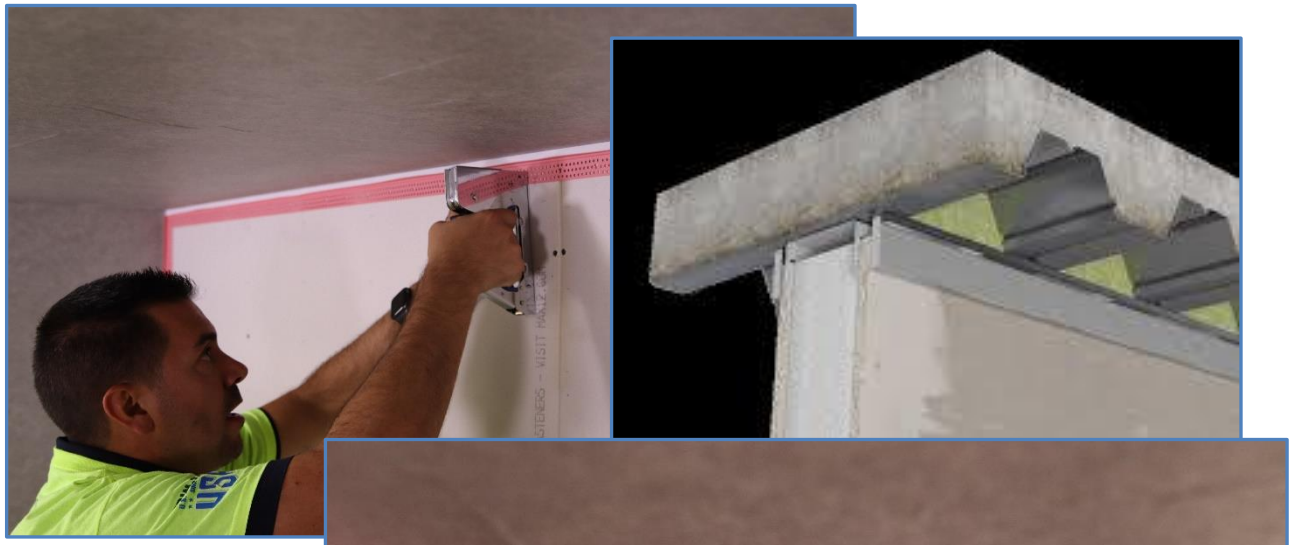
Typical T Track Design

“Next Generation” Firestop and Acoustic Products & Solutions

“E” – evaluate different types of joint products & systems

“Next Generation” Products & Solutions

- **Pre-formed Firestop**
  - Fully-cured Firestop
  - No backing material
  - Paintable
  - Unencumbered movement



“A” – apply knowledge to specify fire resistance & acoustical joints

- Up to 1-1/2” movement
- Installs fully cured
- No shrinkage
- STC testing

AIA Continuing Education Provider

Fire Gasket

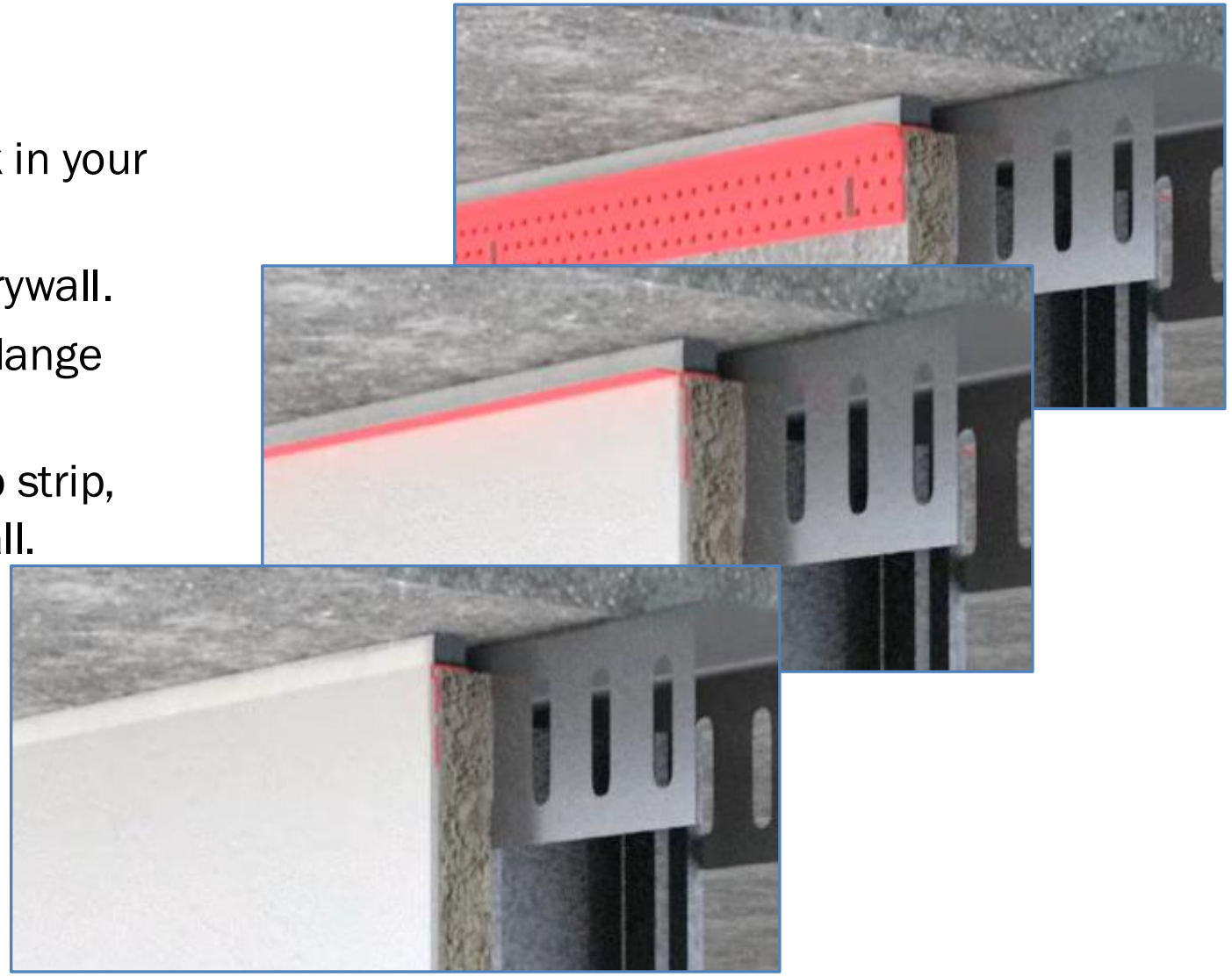
Provides unbreakable seal with ½”, 1” and 1-1/2” total movement – 1 and 2 hour UL listed systems

“A” – **apply** knowledge to specify fire resistance & acoustical joints

Preformed Firestop Products

Firestop and acoustic products that work in your design.

- Some surface mount to face of drywall.
- Includes perforated attachment flange with removable mud leg.
- Apply joint compound, remove zip strip, sand and apply finishes to the wall.
- Code compliant performance.

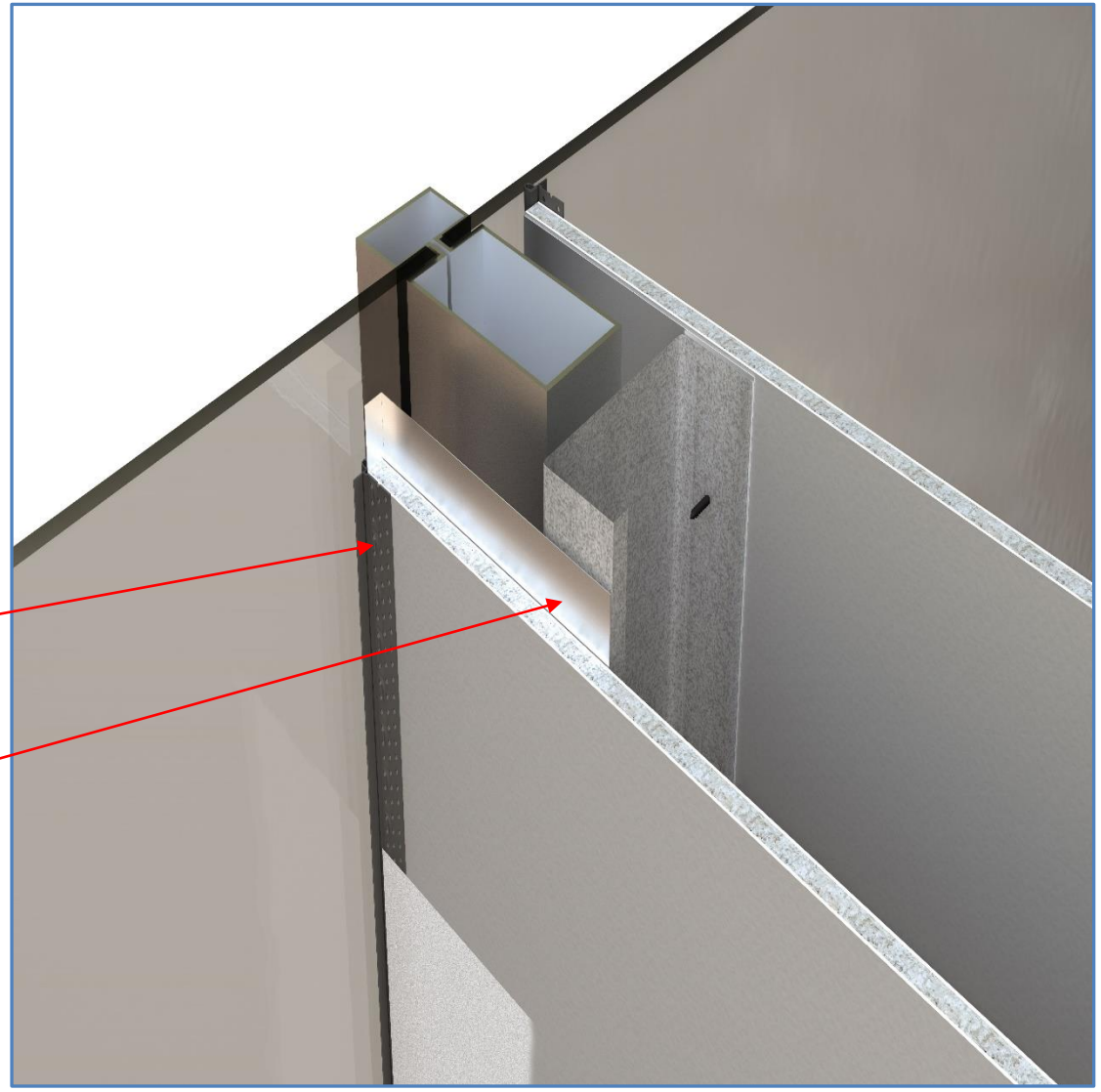


“A” – apply knowledge to specify fire resistance & acoustical joints

2018 / 2021 IBC Code Change

- “715.6 Exterior curtain wall/vertical fire barrier intersections.
  - Voids created at the intersection of nonfire-resistance-rated exterior curtainwall assemblies and vertical fire barriers shall be filled with an approved material or system to retard the interior spread of fire and hot gases.”

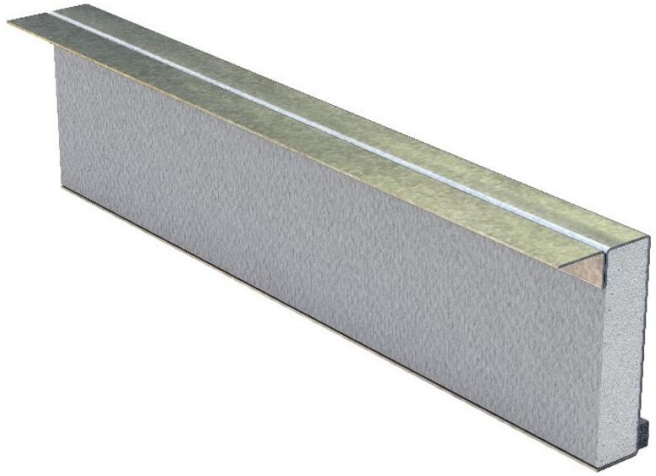
- Super Seal-X (Black)
  - L-angle allowing gypsum board to extend out toward glass
  - Recently obtained 1 & 2 hour UL listing
  - Fire, Smoke & STC Rating

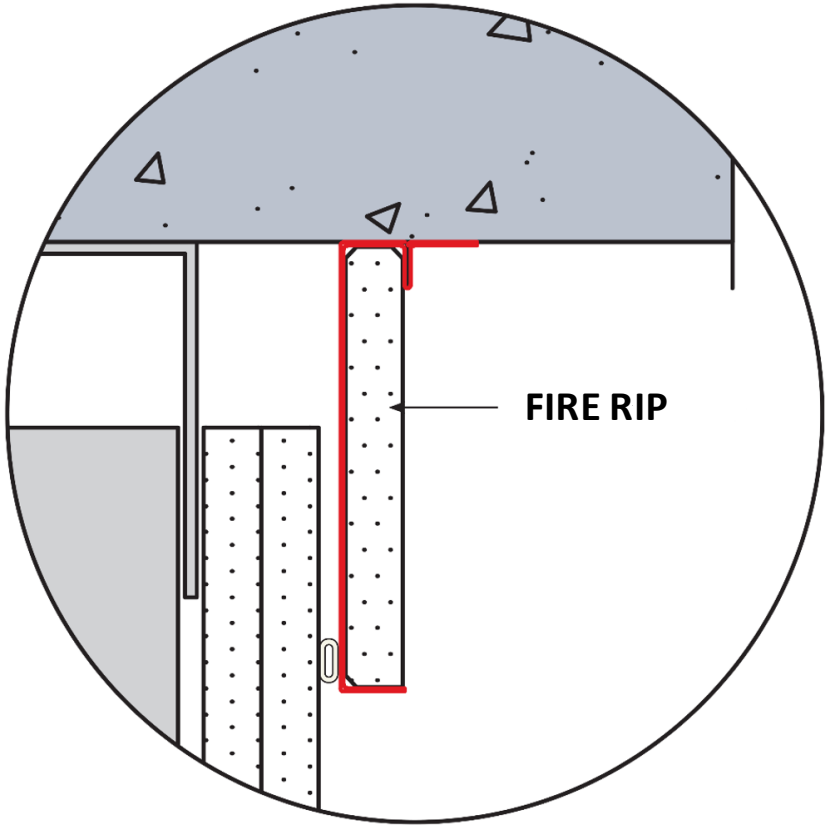


“A” – apply knowledge to specify fire resistance & acoustical joints

Fire Rip

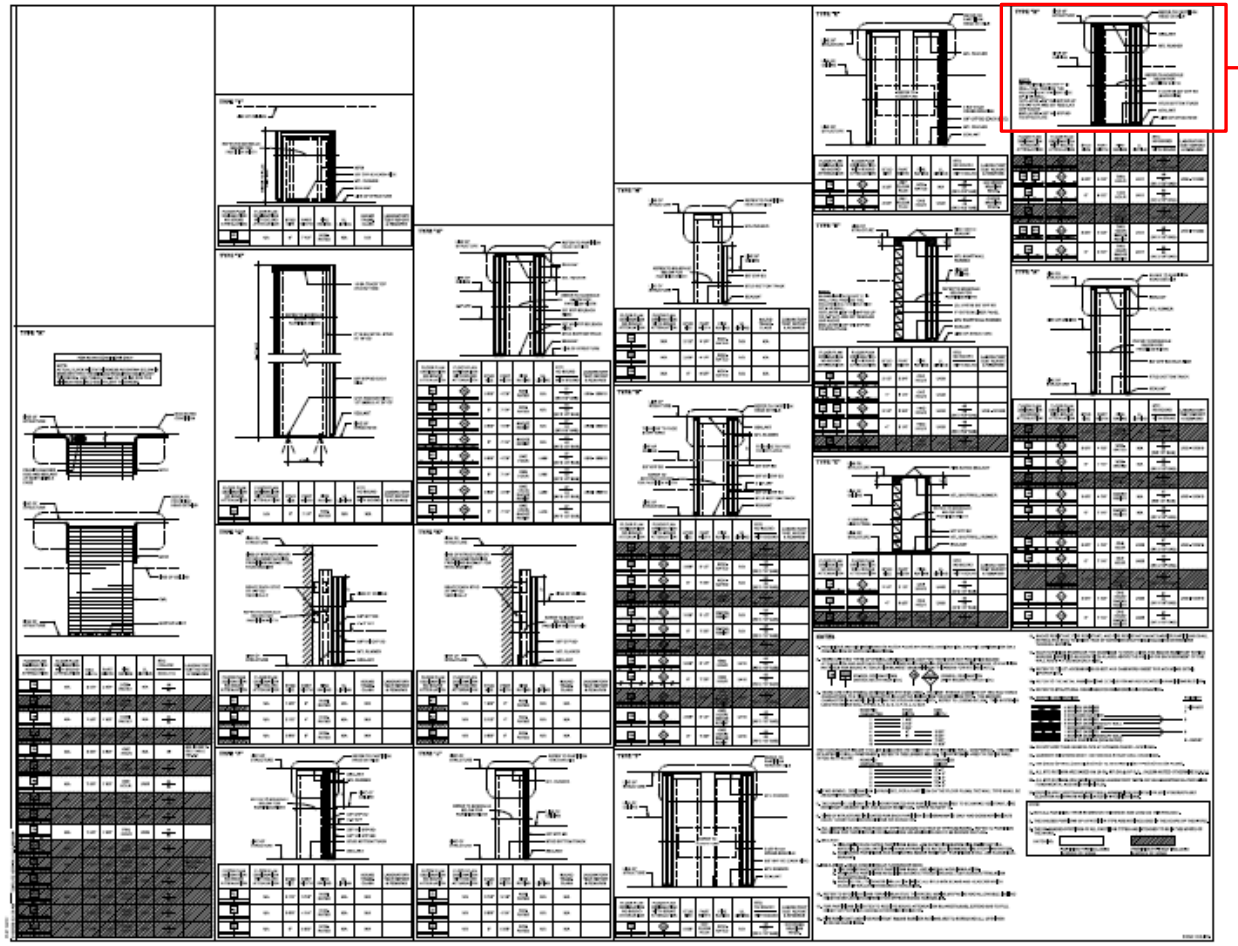
- Steel encased from the factory
- Single piece profile for all wall widths
- Can be used on Shaft walls and CMU walls as well
- No additional sealant or spray required over flute filler
- Provides up to 4” of overall movement (compression & extension)

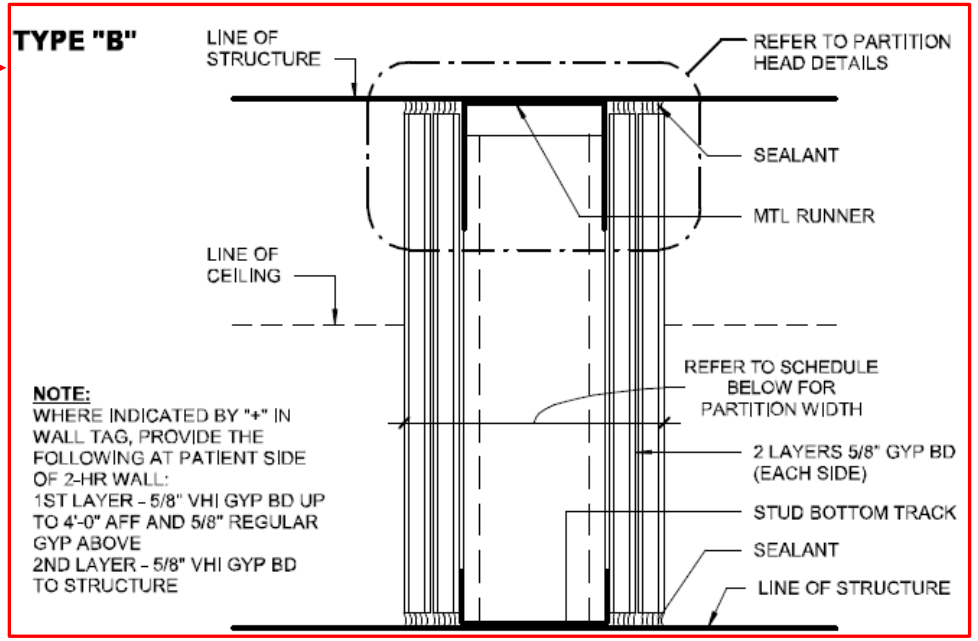




Specifying Head of Wall Fire-Resistive Joint Systems

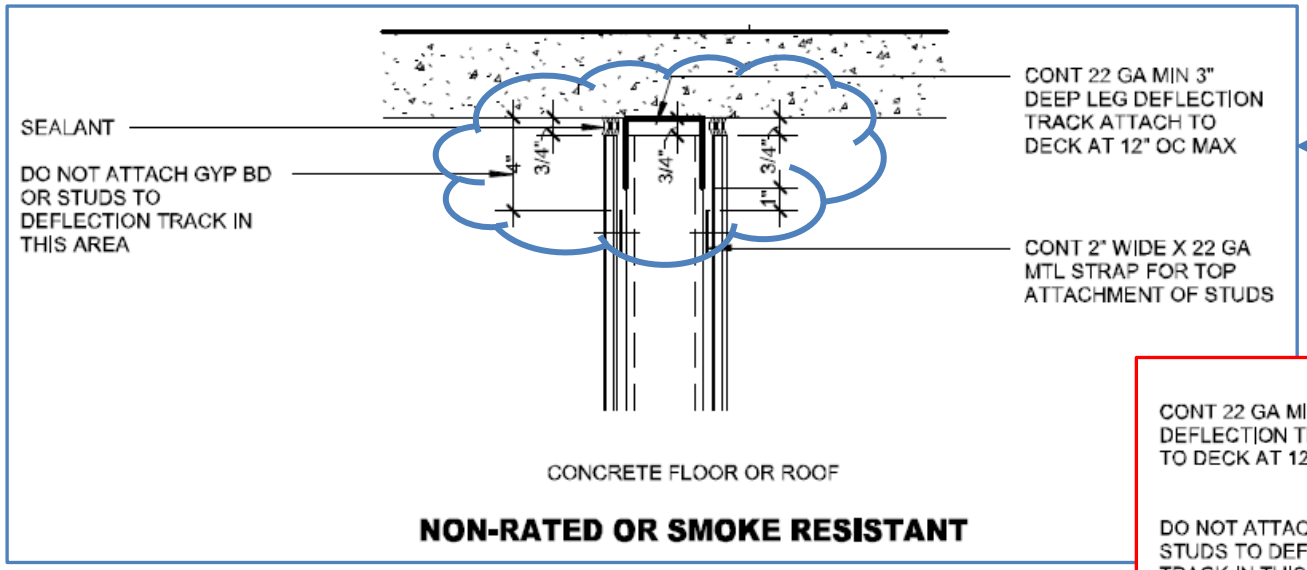
“E” – evaluate different types of joint products & systems





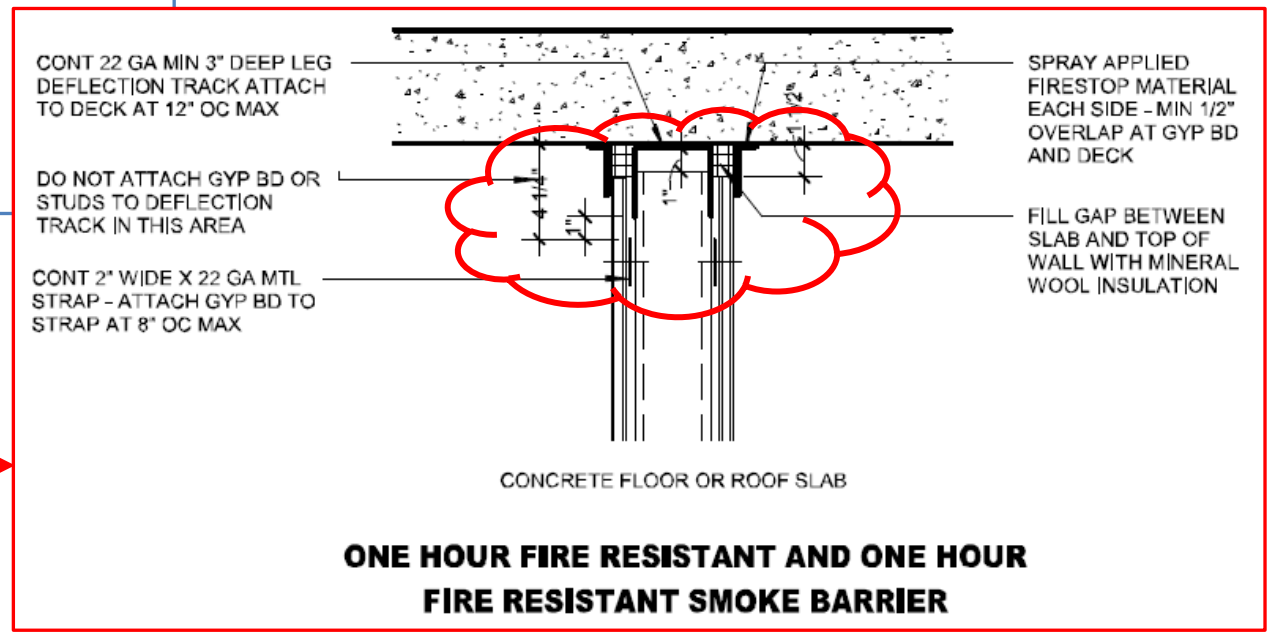
Partition schedule directs users to partition head details.

“E” – evaluate different types of joint products & systems



3/4” Joint Width for Non-Rated or Smoke Resistant Wall Types

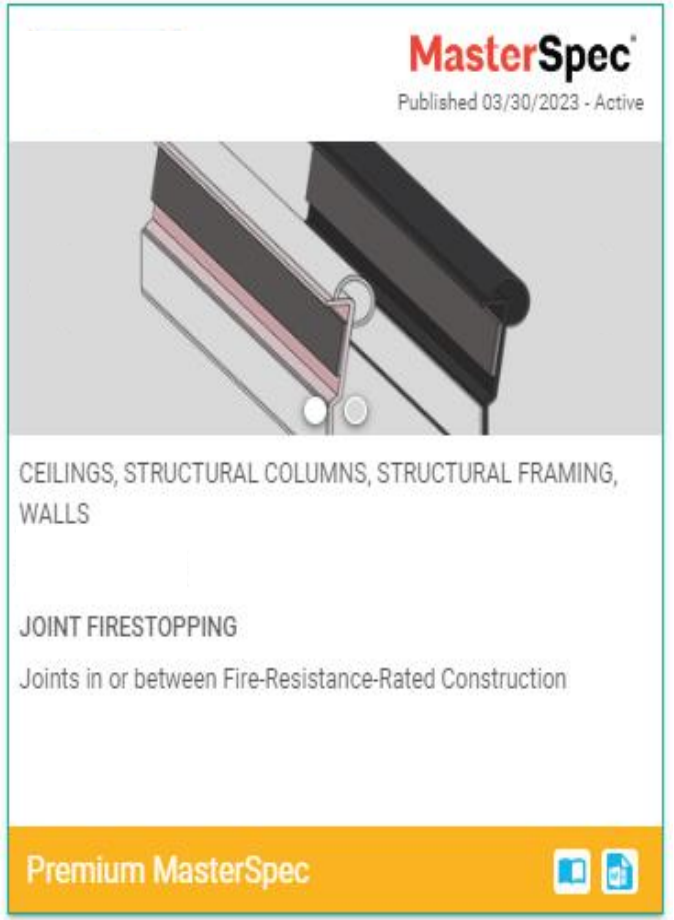
1” Joint Width for Non-Rated or Smoke Resistant Wall Types



“A” – apply knowledge to specify fire resistance & acoustical joints

CSI Specification Format*

- Common Specification Sections
  - Firestop
    - 078443 Joint Firestopping
    - 078446 Fire-Resistive Joint Systems
  - Acoustic
    - 079219 Acoustical Joint Sealant
  - Other
    - 092216 – reference appropriate 07 specifications



* Contact Technical Support for assistance updating your Master Specs or visit https://cemcosteel.com/services/architectural-support/

Sustainability

“A” – apply knowledge to specify fire resistance & acoustical joints

Will the Firestopping Material Contribute to LEED Certification?

- Short answer…maybe*
  - Wet applied materials:
    - Limits on use of recycled content
    - Available credits based on the manufacturer include:
      - Construction Waste Management
      - Regional Materials
      - Recycled Content

CEMCO Steel & Firestop Products*

- Yes, we do
  - Construction Waste Management
  - Recycled Content
  - Regional Material
  - Site Selection
  - Construction Indoor Air Quality Management
  - Potential Innovation in Design Contributions

* Contact the manufacturer for specific contribution levels for the product(s) of interest.

Summary & Conclusion

Summary

- Firestop in general is migrating toward “Preformed” solutions.
  - Benefits include:
    - Code compliant solutions.
    - Sustainable design contribution.
    - Pre-measured dosage to promote proper installation.
    - Innovative design solutions including wall assembly and firestop solutions.
    - Cost savings through:
      - Increased productivity
      - Schedule management
      - Efficient inspection process
    - Aesthetically pleasing solutions acceptable to be exposed to view in the building design.
    - Provides long term performance warranties.

Questions

This concludes The American Institute of Architects Continuing Education Systems Course

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For comments, questions or technical assistance, please contact CEMCO at:

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