



Head of Wall Fire Joint

Concerns with the Different Types of Fire Stopping Joint materials—Spray, Sealant, & Mechanical

Part 7 of 7

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Previous Technical Bulletins covered the fundamentals of head-of-wall fire joints, including their purpose, appropriate applications, and how to select the correct UL Assembly system for a specific joint. This Bulletin delves into the different types of firestop materials, newly available systems in the market, and the factors that influence the choice of one product over another. As with many aspects of construction, there are multiple ways to achieve the desired outcome—firestopping a head-of-wall joint is no exception.

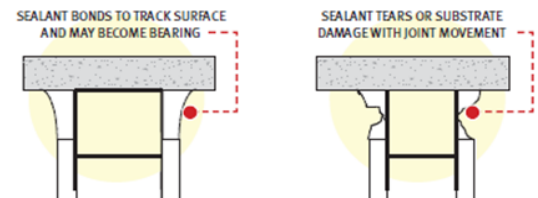
Corey S. Zussman, AIA, NCARB - QA/QC Vice President

Head of Wall Fire Joint Bulletins will address:

- I - What is a "Head of Wall" fire joint & why do we need it.
- II - Types of UL Assemblies.
- III - How to read a Head of Wall & what to look for – Typical Wall & Shaft Wall.
- IV - Engineering Judgments and 3rd Party Verification – How to read an E.J.
- V - Deflection calculations & Compression limitations
- VI - Mineral Wool Installation
- VII - Concerns with the different types of fire stopping materials – Spray, Sealant, Mechanical

- ❑ There are three (3) general types of sealant systems for fire stopping...Intumescent, Endothermic, and Elastomeric.
- ❑ **Intumescent**—A sealant type material that expands with heat. Typically not used in a head-of-wall.
- ❑ **Endothermic**—A sealant type material that blocks heat through chemical absorption and moisture release. Typically not used in a head-of-wall.
- ❑ **Elastomeric**—A sealant type that relies on adhesion and flexibility, such as silicone, urethanes, etc. Typically IS used in a head-of-wall.
- ❑ Sealant type systems rely on adhesive strength and the product to fill and maintain the joint. Intumescent systems will expand outward and fall out if not properly tooled.
- ❑ Sealant type systems must avoid three-sided adhesion to function properly. Mineral wool typically will serve as the bond breaker.
- ❑ Non-sprayed sealant systems must be tooled, or compressed into the joint in order to obtain proper adhesion and will not fall out of the joint under a fire condition. See manufacturer for more instructions.
- ❑ Typically, non-sprayed sealant systems have a limited joint thickness of about 1/2"-3/4"...also, this type of system requires the drywall to be "castle cut" in the flutes in order to maintain the joint thickness. This system has a limited range of movement, typically between 7.5%-35%. **Head of wall joints typically will not be able to use this type of system.**
- ❑ Spray type systems act as a band-aid, attached to the top and bottom of the joint and allows for flexibility in-between. This type of system allows for considerable movement and joint size. **(Typically used for our Head-of-wall)**
- ❑ There are several types of mechanical joints, such as a gypsum type mechanical joint, "Fire Trak", "Firestik", Intumescent strips (both pre-installed on the top track sides or post installed rolls), Intumescent top track covers, and several others.
- ❑ Mechanical joints allow for 100% movement of the joint without the need for a sealant system (Verify if wall is a smoke wall, as some sealant might be needed)
- ❑ Mechanical joints are typically more expensive for materials, however, a savings might be captured through a labor decrease due to the lack of sealant type fire stopping at the head of wall.

AVOID THREE SIDED ADHESION



According to NFPA:

¾ of all fire deaths are caused by smoke inhalation

57% of all people killed in fire are not in the room of the fire origin

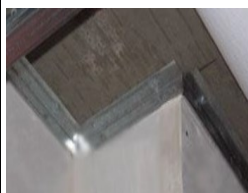
47% of survivors caught in a fire could not see more than 12 feet.

Smoke travels 120-420 feet per minute under fire conditions



Types of Mechanical Joints

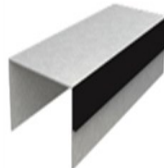
Intumescent Firestik



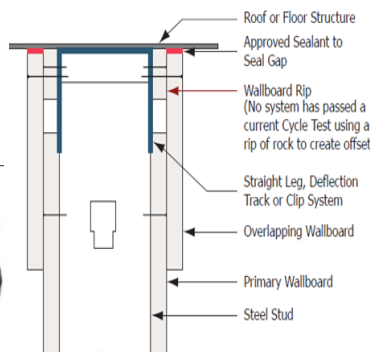
Intumescent Track Cover



Intumescent strips



Gypsum type mechanical system... this type will require fasteners very frequently along the top.



Fire Trak

