Pepper CONSTRUCTION

Quality Technical Bulletin

Head-of-Wall Fire Joint—Part VII

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BUILDING QUALITY AT EVERY LEVEL

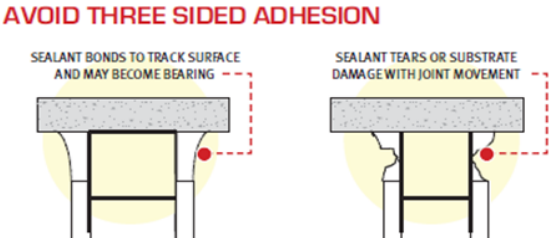
Head of Wall Fire Joint Bulletins will address:

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 EJ.
V - Deflection calculations & Compression limitations
VI - Mineral Wool Installation
VII - Concerns with the different types of fire stopping materials – Spray, Sealant, and Mechanical

The previous Technical Bulletins described what a head-of-wall fire joint is, when to use it, and how to make sure that the correct UL Assembly system is being applied for a specific joint. This Bulletin in the series discusses the different types of fire stop material, new types of systems in the market, and the reasoning behind one products use or another. As with everything in construction, there is more than one way to construct something...fire stopping head-of-wall joint is no different.

Corey Zussman, AIA, NCARB - Director of Quality Management

- 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 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 wood 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.

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.

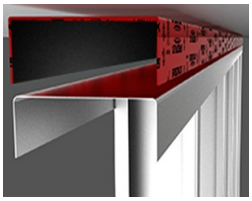
Smoke travels 120-420 feet per minute under fire conditions

NFPA®

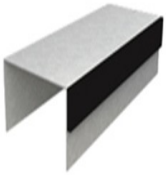
Types of Mechanical Joints

Intumescent Firestik

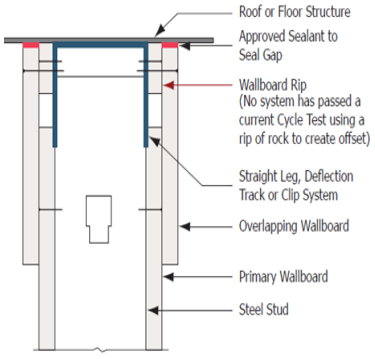
Intumescent Track Cover



Intumescent strips



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



Fire Trak (T-Shaped top track)

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