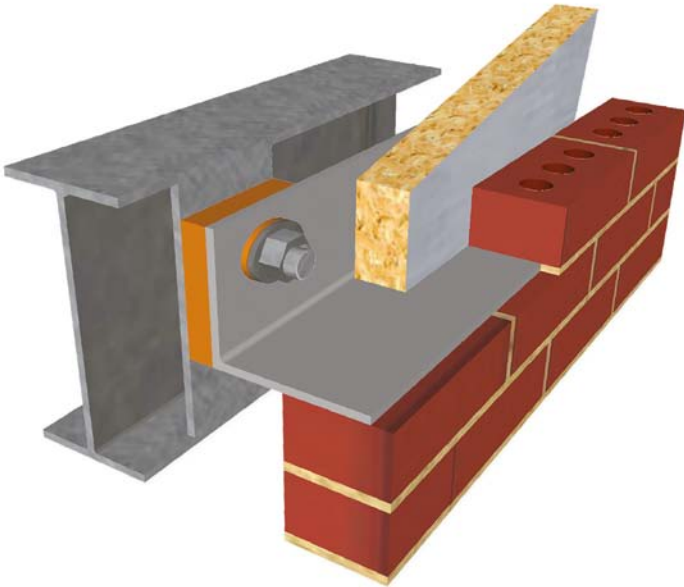




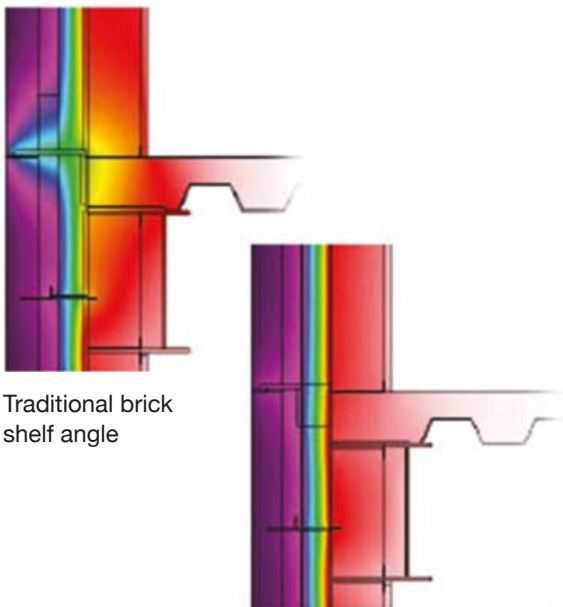
Thermal Break Material Armatherm™ Grade FRR

For Masonry Shelf Angles



Masonry veneer walls require tie-backs and shelf angles which form significant thermal bridges and reduce the walls' R value by as much as 60%. Traditionally, shelf angles transfer the masonry load back to the building's structural steel by penetrating the insulating layer (thermal envelope) of the wall assembly creating a continuous thermal bridge.

Reducing heat flow within a building's thermal envelope reduces energy consumption as well as potential condensation issues. Thermal bridging through steel and concrete framing can have a significant impact on a buildings' energy performance.



Traditional brick shelf angle

Thermally broken brick shelf angle

To improve the R value of a masonry wall, the shelf angle can be bolted to brackets or shims which move the angle to the outside of the insulation. The brackets or shims are then connected to the structure at evenly spaced points reducing the effects of a continuous thermal bridge. The impact of thermal bridging at these discreet points can be reduced even further by using Armatherm™ FRR thermal break material and washers between the brackets/shims and the structure within the insulating layer. A wall's effective R value is now only reduced by as little as 10-15%.

Moreover, Armatherm™ material can be used in lieu of brackets, reducing cost and size of the shelf angle while increasing the thermal performance at each connection.

The thermal conductivity of Armatherm™ is nearly 300 times less than steel and 100 times less than stainless steel.



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Armatherm™ Grade FRR

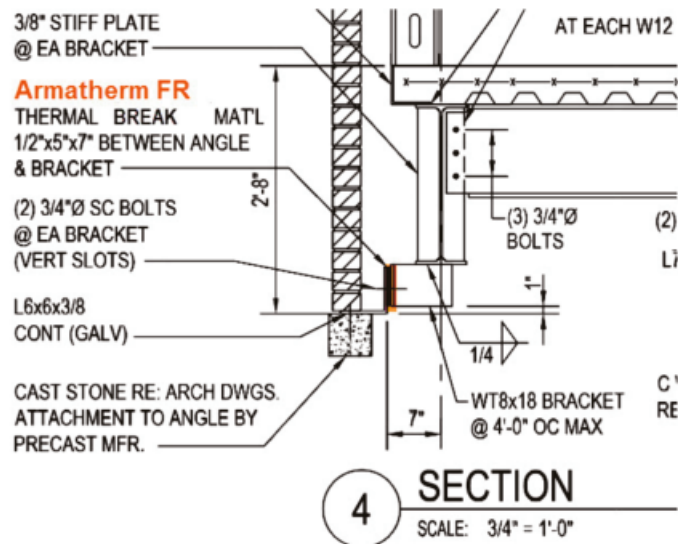
Washer and Bushing

Thermal Performance

A thermal break should also be provided at the front side of the bolt head between the steel washer and face of the shelf angle. This prevents a thermal bridge through the bolt which would otherwise provide a path for heat flow through the thermal break assembly. Armatherm™ washers and bushings are recommended to eliminate this path.

Armatherm™ FRR material provides low thermal conductivity and high compressive strength. It has been used in hundreds of structural steel framing connections in moment and shear conditions.

Armatherm™ FRR material is made of a reinforced, thermoset resin which is fire resistant, does not readily burn and has very limited creep under load making it the ideal material for use in structural thermal break connections. Contact us for assistance with your structural design or thermal calculations.



ARMATHERM™ Thermal bridging solutions to improve building envelope performance

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