Wall Cavity Barrier (Red Edition)

Fire and Smoke Barrier for masonry cavity walls.

AIM ACOUSTIC AND INSULATION MANUFACTURING

Technical Guide | Issue 6 - 06 2024

PRODUCT

AIM Wall Cavity Barrier is made from foil faced high density, compressible, Rockwool stone wool and is suitable for use in all masonry cavity walls. The barrier prevents the passage of heat, flame and smoke within the cavity it fills for 30, 60 or 120 minutes.

APPLICATIONS

AIM Wall Cavity Barrier may be used to provide a fire barrier in masonry cavity walls as well as for fire stopping between a masonry wall system† and a concrete floor slab. It is typically used vertically and horizontally to provide a fully closed cavity fire barrier along compartmentation lines in the outer leaf of the building. AIM Wall Cavity Barrier may be used in different or non-standard constructions, such as rainscreen cladding systems, with the approval of a competent person.

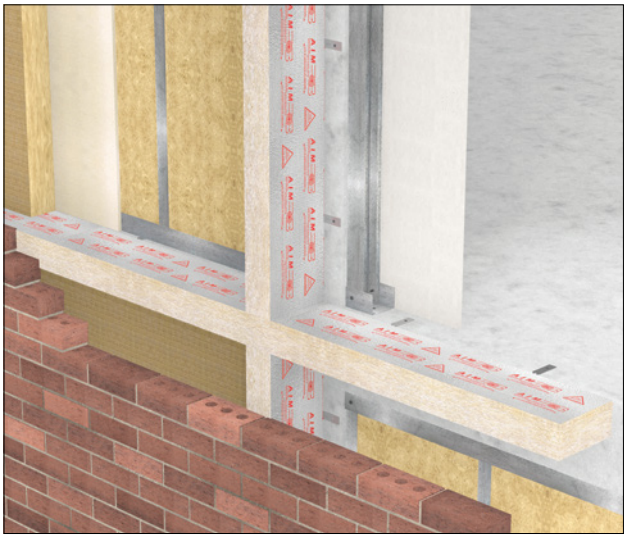
†AIM Wall Cavity Barrier has not been tested for use with aluminium curtain wall systems.

FEATURES

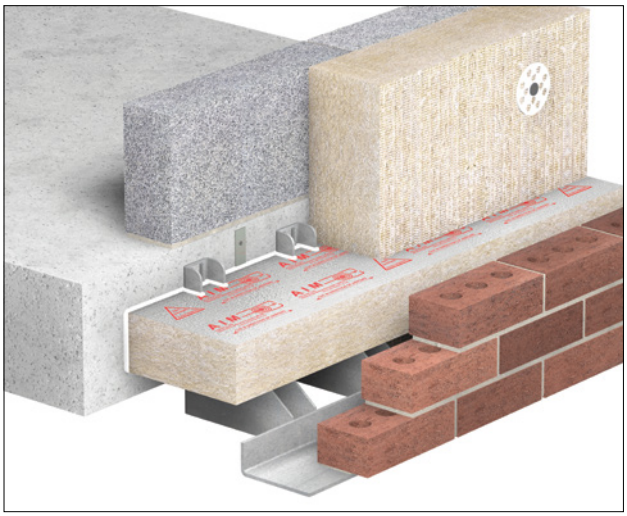
- High density foil faced stone wool barrier.
- Thicknesses to provide 30, 60 and 120 minute fire ratings.
- For use within voids up to 600mm.
- Tested for use with SFS substrate.
- Tested for use with Masonry Support brackets.
- Available cut to size or in slab form for on site cutting.
- Reduces airborne transmission of sound by a minimum of 21dB R_W.
- Jointing tape not required.
- Suitable for horizontal and vertical use.
- Suitable for use with all thermal insulation types

BENEFITS

- Prevents the passage of Heat, Fire and Smoke through external wall cavities.
- Reduces airborne sound through the external wall cavity.
- The product provides 30, 60 or 120 minutes Integrity & Insulation when tested to EN 1366-4.
- Can be used in a wide variety of construction types, with the correct approval.



Example product installation schematic using materials by others



IFC Certification

Certificate number: IFCC 1897

COMPONENTS available from AIM

Wall Cavity Fire Barrier Fixing Brackets

AIM Intumescent Mastic

Barrier

PHYSICAL INFORMATION

AIM Wall Cavity Barrier cut to size

- Length: 1000mm
- Thicknesses: 75mm, 100mm, 125mm
- Foil Facing (with AIM logo now in red print to denote new test results)
- Cavity widths: 50 - 600mm (barrier to be compressed by 5%)
- Pre-compressed for ease of installation
- Faced with reinforced aluminium foil for enhanced smoke resistance

Packaging (cut product)

AIM Wall Cavity Barrier are generally packed into cartons and stretch wrapped onto wooden pallets with a showerproof polythene pallet cover and high quality edge protectors.

AIM Wall Cavity Barrier Slab

- Slab thickness: performance (integrity and insulation)
  - 75mm: 30 minutes
  - 100mm: 60 minutes
  - 125mm: 120 minutes
- Slab size: 1000 x 600mm and 1000 x 1200mm
- Foil facing imprinted with AIM logo now in red print to denote new test results
- Available polythene sleeved when supplied pre-cut to size*

Packaging (Slab product)

Orders for slab and half slab barrier will be supplied stretch wrapped onto pallets with a showerproof polythene pallet cover and edge protection (ie, no cartons).

AS STANDARD

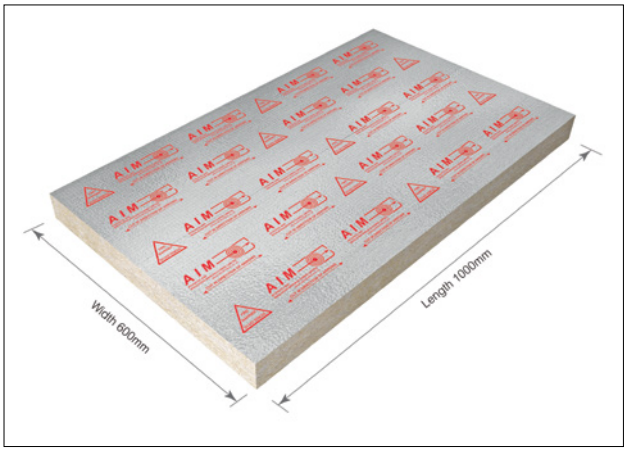
AIM Wall Cavity Barrier is supplied either cut to size, complete with appropriate clips or in slab form with clips sold as separate items to quantities determined by the installer.

OPTIONS

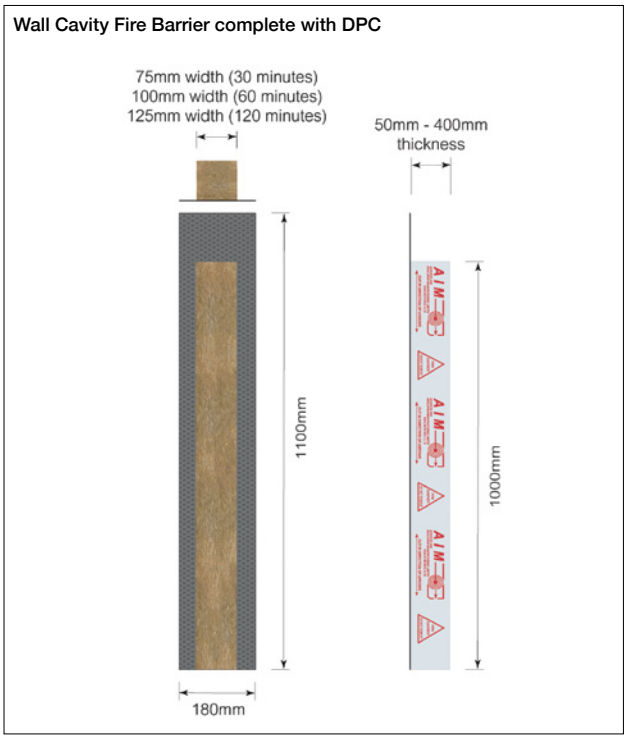
Can be supplied with a DPC, either loose or pre-laminated. The DPC variant has been fire tested to EN 1366-4.

Barrier in a polythene sleeve*

*This product variant is available but has not been fire tested. It's use would be subject to the approval of the project fire engineer or consultant.



Wall Cavity Fire Barrier complete with DPC



TECHNICAL INFORMATION

Fire Performance

AIM Wall Cavity Barrier has been Tested to EN 1366-4. Full details of the scope of tested evidence is shown in the table below

	Masonry to Masonry Construction			SFS to Masonry Construction
Thickness	Integrity / Insulation up to 400mm Cavity	Integrity / Insulation up to 600mm Cavity	Masonry Support Bracket	Integrity / Insulation up to 300mm Cavity
75mm	120 / 30 minutes	60 / 30 minutes	N/A	N/A
100mm	120 / 60 minutes	60 / 60 minutes	120 / 60 minutes	120 / 60 minutes*
125mm	120 / 120 minutes	120 / 90 minutes	120 / 120 minutes*	120 / 120 minutes*
Test Reports	WF 522952 (V) WF 523632 (H)	WF 533341 (V) WF 533340 (H)	WF 537195 (H)	WF 538665 (V) WF 538666 (H)
Third Party Certification	IFCC 1897	N/A	N/A	N/A

* Results achieved with A1 stone wool insulation fitted above and below the seal.

(V) vertical installation, (H) horizontal installation. Performance is related to barrier thickness.

Cavity Size	Fixing Clip Required	Clip gauge	Fixing Frequency
Up to 160mm	Small Fixing Clip	25mm x 0.9mm	2 per metre (min 2 per cut length) @ 500mm
161mm to 400mm	Large Fixing Clip	25mm x 1.2mm	2 per metre (min 2 per cut length) @ 500mm
401mm to 600mm	HD Fixing Clip	25mm x 1.6mm	3 per metre (min 2 per cut length) @ 333mm

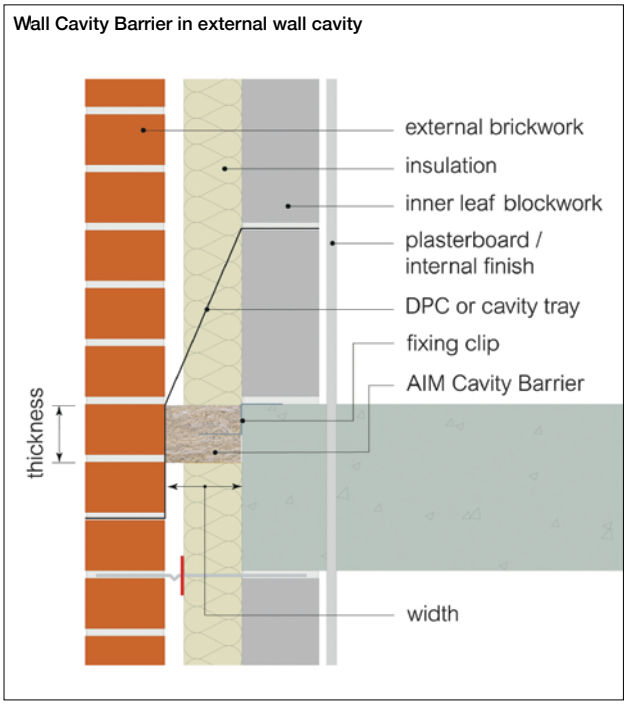
NBS Source PARTNER

AIM are partners with NBS. Our products can be found on NBS Source and have been authored to NBS specification standards and have both CAWS and Uniclass 2015 classifications.

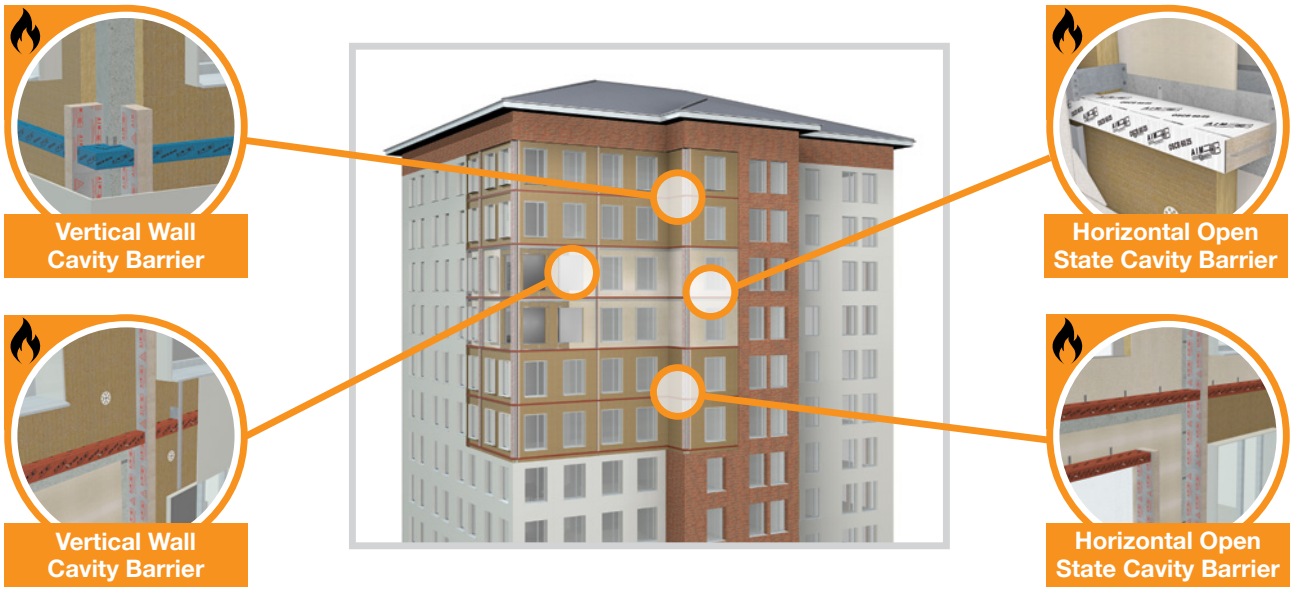
IFC Certification

Certificate number: IFCC 1897

The NHBC guidelines state that a separating layer should be fitted between the cavity barrier and external brickwork; we are able to supply Wall Cavity Barrier pre-laminated to a polythene DPC or supply rolls of DPC for this purpose.



WALL CAVITY BARRIER IN HIGH RISE CONSTRUCTION

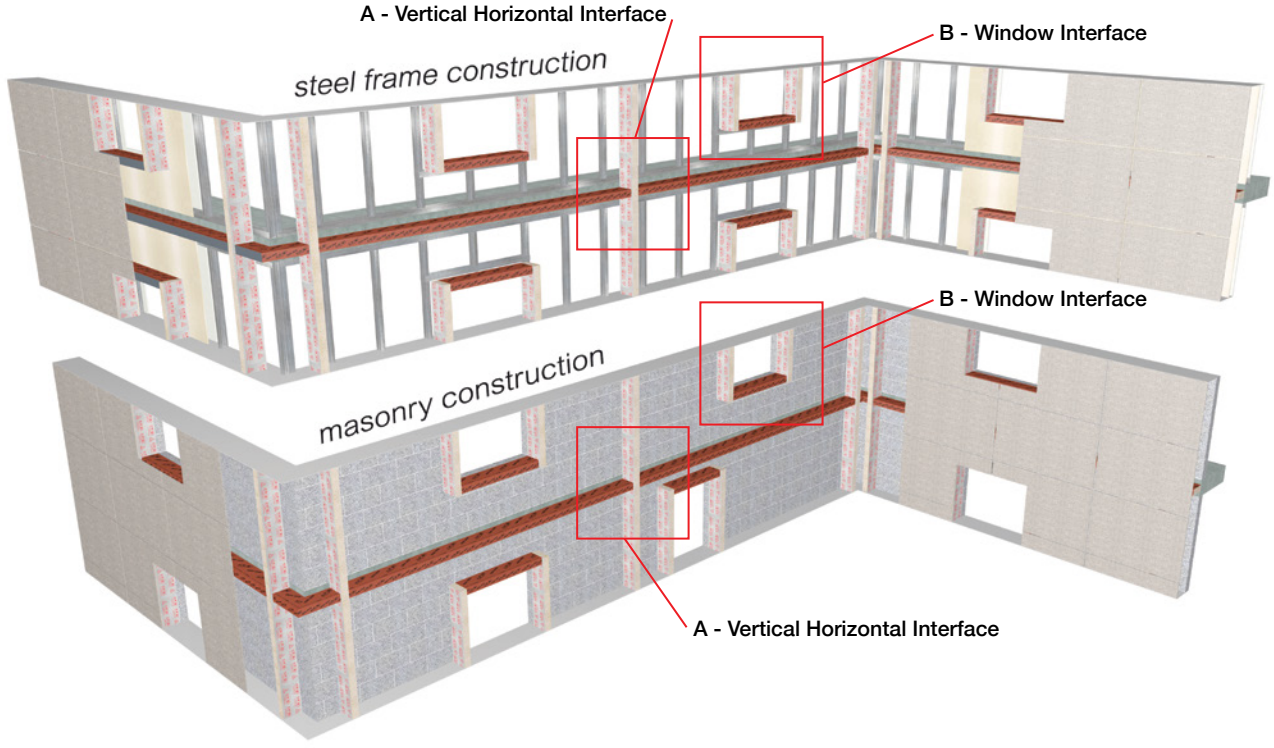


COMPARTMENTATION AND RAINSCREEN CLADDING SOLUTIONS

In general, AIM Wall Cavity Barriers are used in conjunction with AIM's OSCBs. The AIM Wall Cavity Barriers tend to be used for vertical fire stopping and permitting free flowing ventilation through the cavity in a horizontal plane. Wall Cavity Barriers provide a fully filled cavity solution and are generally used vertically to prevent the spread of fire across the face of a building.

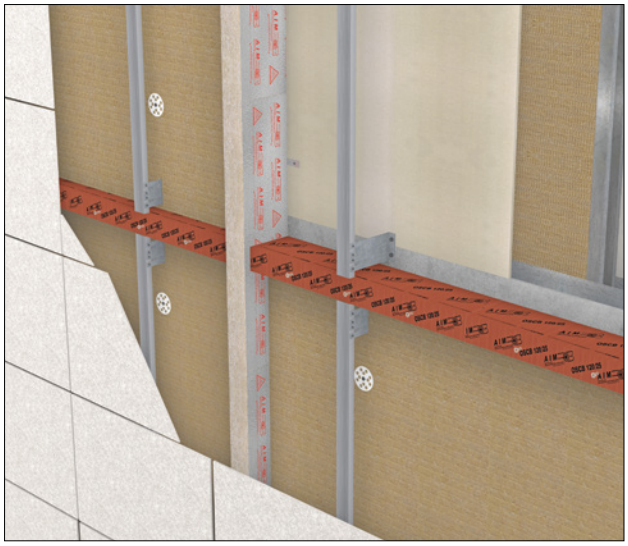
The drawings below provide guidance as to how the two products are combined to provide an overall fire stopping solution.

Please note: the drawings below reflects typical cavity barrier locations and is presented for guidance purposes only. The specifier and user must seek formal approval regarding cavity barrier location requirements on a project basis.

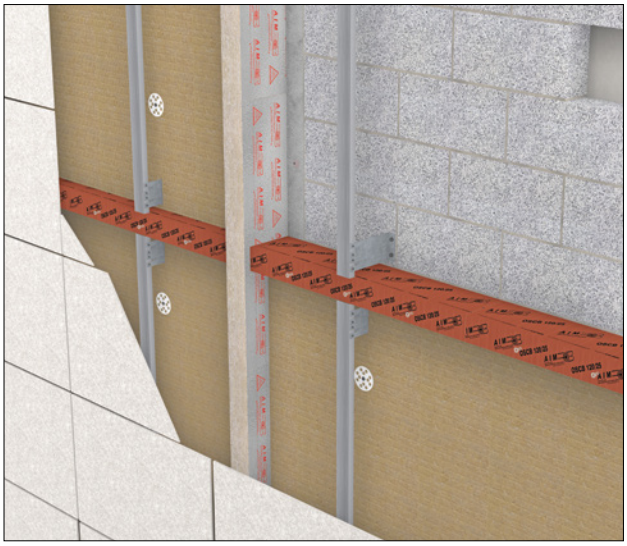


A - HORIZONTAL AND VERTICAL INTERFACE

Typically, and in line with the recommendations of the Association of Specialist Fire Protection (The ASFP), the vertical cavity barrier takes precedence over the horizontal cavity barrier although this is not a regulatory requirement and may be amended to suit site requirements. To be effective, the cavity barriers must be fitted tightly back to a fire resisting substrate with fixing clips and non-combustible screws. The interface between the vertical and horizontal cavity barriers must be tight and secure without gaps or voids.



Steel Frame / SFS construction substrate



Masonry construction substrate

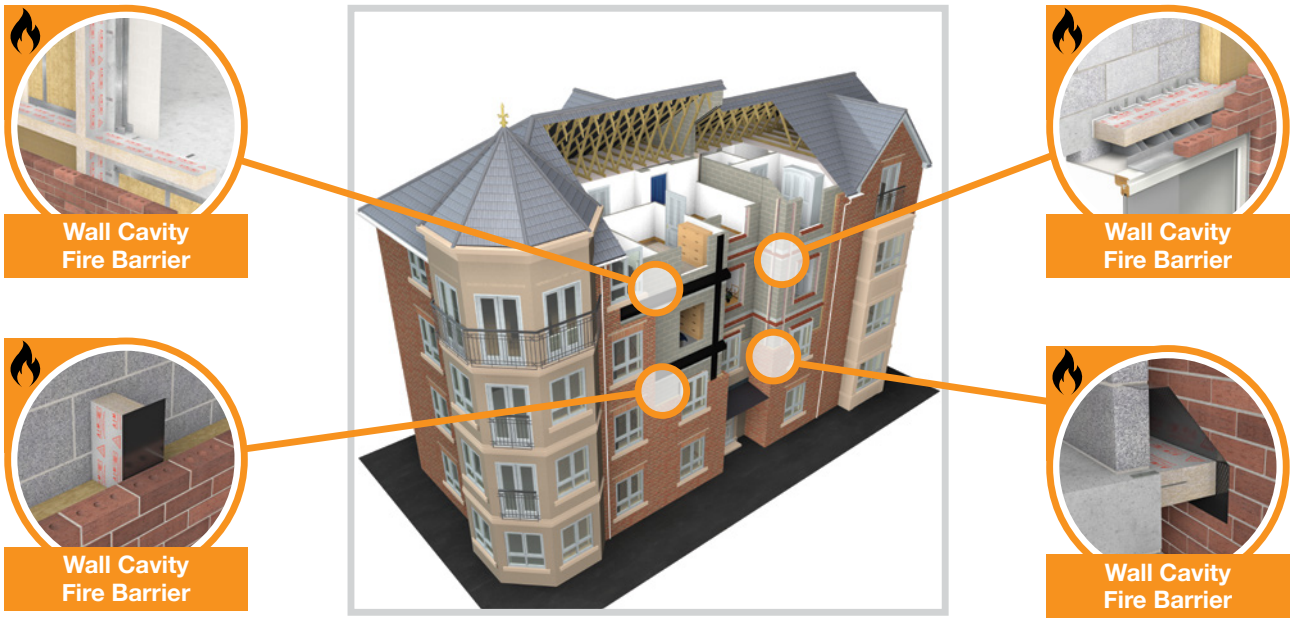
B - WINDOW INTERFACE

Typically when installing cavity barriers around openings in the wall such as doors, windows and non-fire rated vents the cavity barriers fitted at the reveals are full fill with open state cavity barriers fitted at the head and the sill. The cavity barrier must form a complete seal around the opening to provide protection to all four edges. To be effective, the cavity barriers must be fitted tightly back to a fire resisting substrate with fixing clips and non-combustible screws. The interface between the vertical and horizontal cavity barriers must be tight and secure without gaps or voids.

Steel Frame / SFS construction substrate

Masonry construction substrate

WALL CAVITY BARRIER IN MASONRY CONSTRUCTION



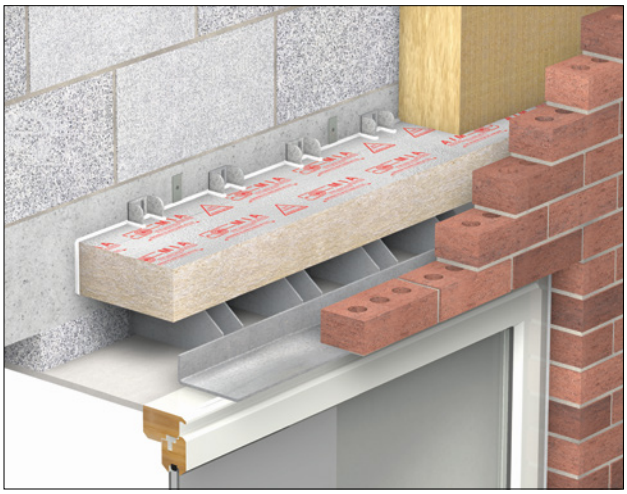
AIM Wall Cavity Barriers provide a fully filled cavity solution and are typically used vertically and horizontally, sealing the cavity along compartmentation lines to ensure a continuous fire barrier in the building's outer leaf within masonry constructions, especially where a more stringent fire resistance is required. AIM Wall Cavity Barrier has also been tested for use as a cavity closer around door and window openings.

The barrier prevents the passage of heat, flames and smoke through the external wall cavity for periods of 30, 60, or 120 minutes in a fire situation. It also reduces flanking sound transmission through external wall cavities.

AIM Wall Cavity Barriers are available either cut to size or in slab format for cutting on site.

AIM WALL CAVITY BARRIER MASONRY SUPPORT SOLUTION

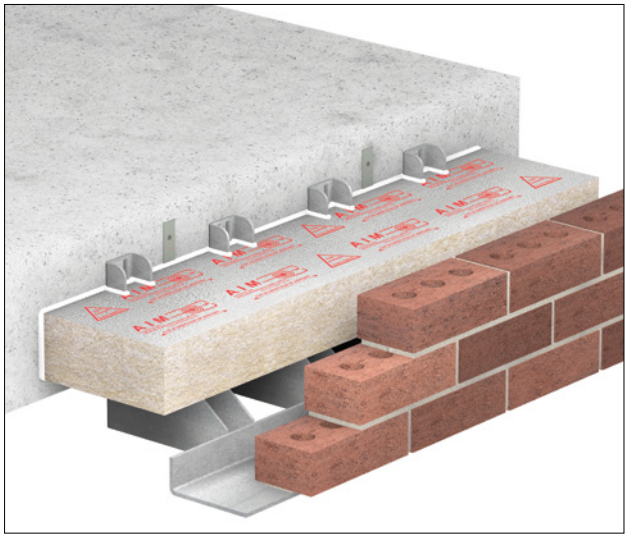
The AIM Wall Cavity Barrier has been tested in conjunction with Leviat brick support shelfs where the location of the barrier and brick support shelf coincides. The AIM Wall Cavity Barrier has been tested with and without thermal insulation and with the fins fully exposed. The table and drawings below show the relative position of the brackets and the fire resistance that is achieved with the respective barrier thickness.

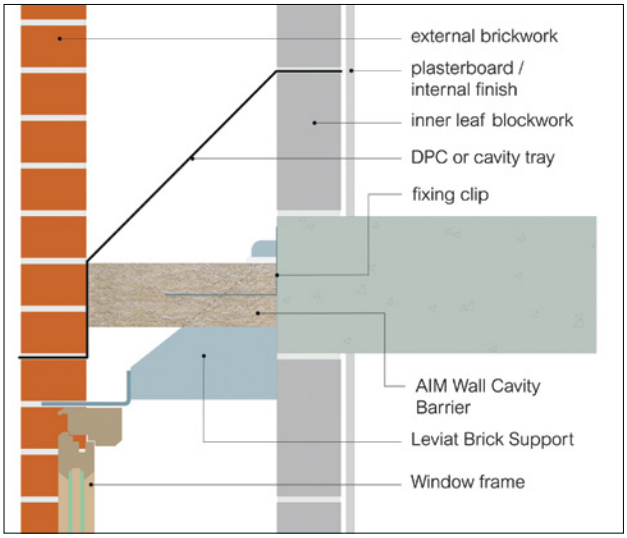


WCB Thickness	Barrier Penetration	SW Thermal Insulation	Integrity (Minutes)	Insulation (Minutes)
100mm	100%	No	120	60
100mm	50%	No	120	60
100mm	100%	Yes	120	60
125mm	100%	No	120	60*
125mm	50%	No	120	120
125mm	100%	Yes	120	120

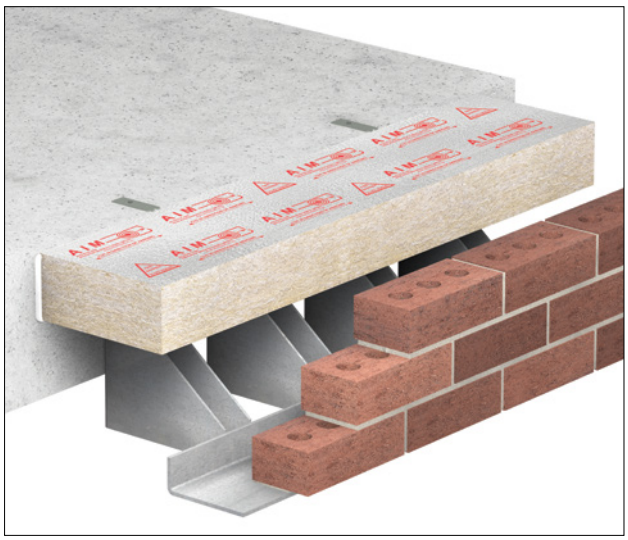
* Only 1 hour where the barrier is fully penetrated and no stonewool thermal insulation.

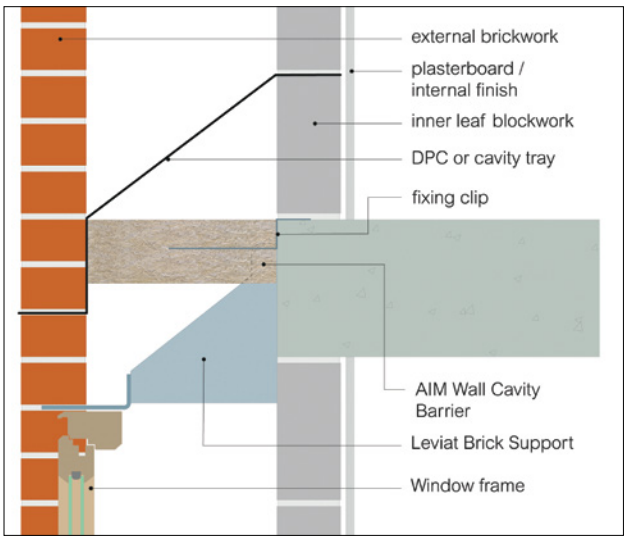
100% PENETRATION WITH NO THERMAL INSULATION



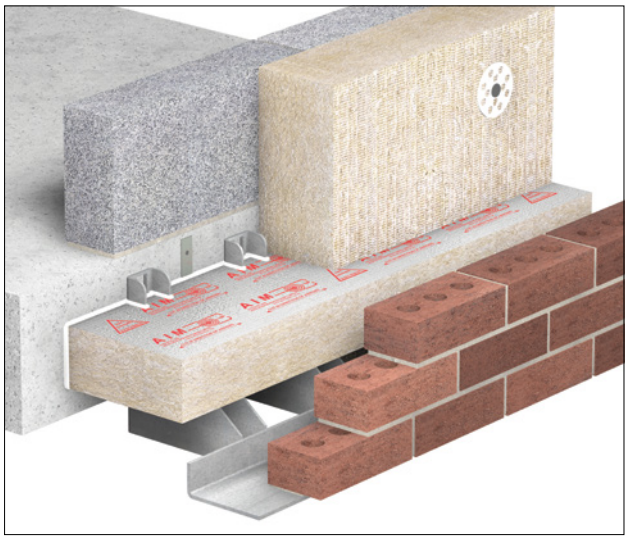


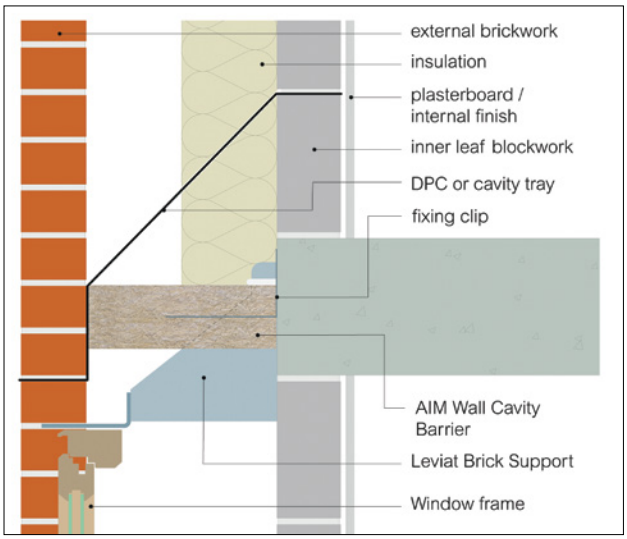
50% PENETRATION WITH NO THERMAL INSULATION





100% PENETRATION WITH NON-COMBUSTIBLE THERMAL INSULATION





INSTALLATION GUIDELINES

AIM Wall Cavity Barrier is fitted under compression in conjunction with fixing clips; it must fit tightly and completely fill the cavity with 5% compression. If the barrier is also being used to prevent air leakage, it requires taped joints and intumescent mastic to the linear edges to create a seal.

Clips

Clips are required when the barrier is installed. Two clips per length are required for cavities up to 400mm. For cavities 401mm to 600mm, three fixing clips are required per length. Clips are supplied as flat strips, prenotched to allow them to be easily formed on site and with pre-stressed snap off points to enable the correct length to be created.

Clips must not be installed with the sharp points left exposed at any time, due to risk of serious injury.

For horizontal slab edge applications the fixing clips should penetrate the barriers width by approximately 75% and mid height. Fixing clips may be secured to the edge of the concrete slab or the top surface of the slab by forming the clips to a Z shape. The cavity barrier may be located at the top, bottom or mid-height of the floor slab.

For vertical applications the fixing clips should penetrate the barriers width by approximately 75% and mid width of the seal. The fixing clips may be secured to the substrate on either side of the cavity barrier.

If the cavity barriers are installed in advance of the façade, it may be necessary to secure the cavity barrier to the substrate to prevent it becoming dislodged in high winds.

The joints between adjoining sections, and where horizontal and vertical cavity barriers intersect, must be tight and secure without any gaps or voids.

Caution

If the gap to be filled is between two building components which might separate in a fire, the two components must be mechanically linked so that separation cannot occur.

Masonry Cavity Walls

Horizontal Barrier: Bed the fixing clips into the joints in the internal leaf. A damp proof membrane or cavity tray must be installed into the cavity wall immediately above, and to the outside of, the fire barrier.

Items required for installation

PPE abrasion resistant gloves

PPE impact resistant goggles

RPE dust mask

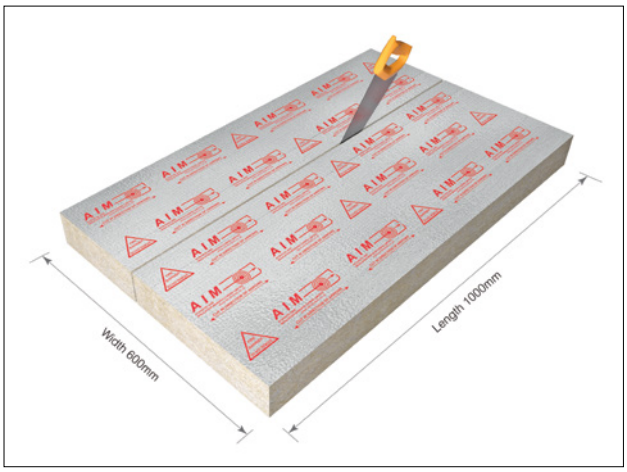
Sharp knife

Tape measure

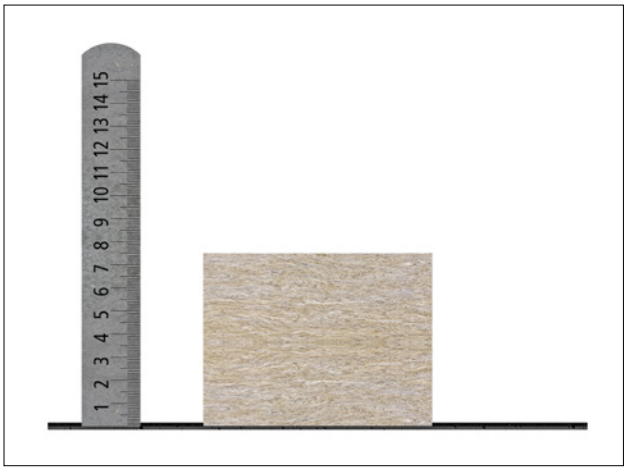
Insulation saw

AIM Intumescent Mastic

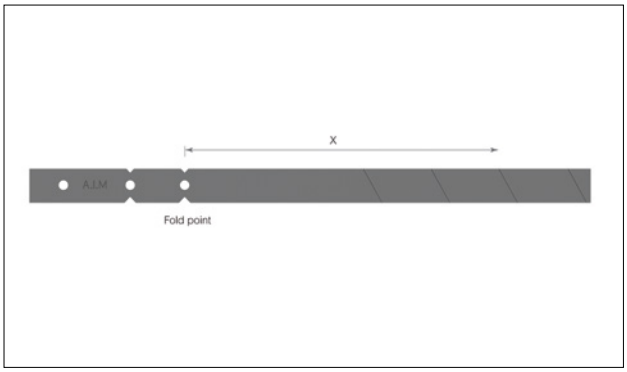
1 Measure the cavity depth and add 5%. Mark the slab and carefully cut using an insulation saw or hand saw. Please cut in the direction of the arrows printed on the foil facing. Note: This step is not required if installing Wall Cavity Fire Barrier cut to size.



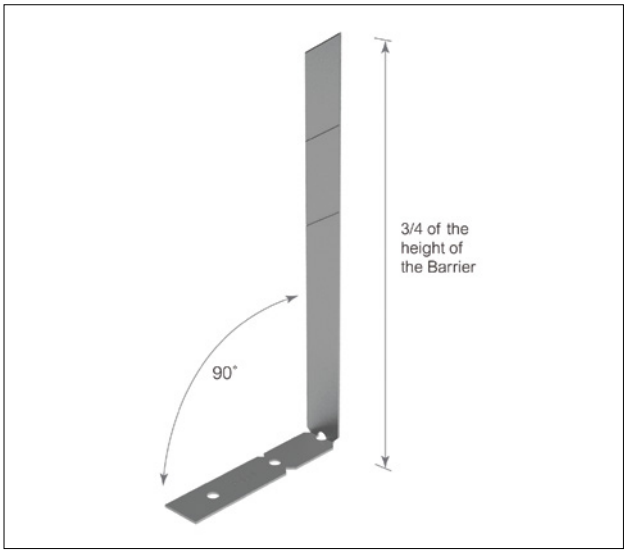
2 Check that the Wall Cavity Barrier is the correct thickness for the cavity. The barrier should be 5% larger than the cavity.



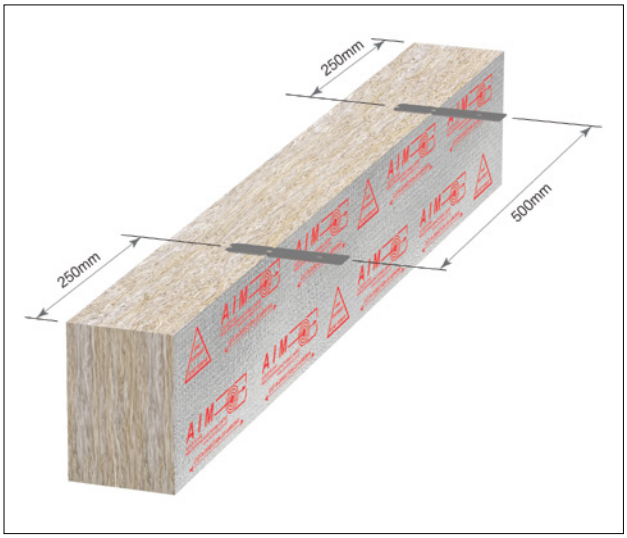
3 Snap the fixing clips to the correct length. Dimension X should be three quarters of the barrier's width.



4 Form two fixing clips to 90º to form an L shape

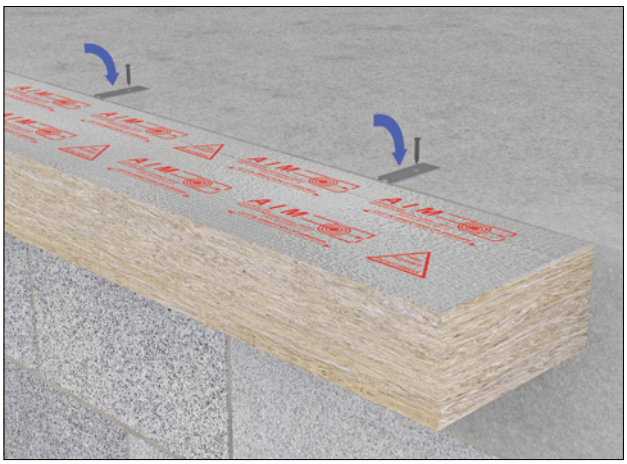


5 Insert two fixing clips into the barrier at 500mm centres approximately 250mm from each end.



6 Hold the section of barrier tightly against the abutting section and secure the barrier to the substrate.

7 If the barrier is being used at the perimeter of a concrete floor slab, fit the barrier so it sits level with the top of the floor slab. Fold the clips over and secure them to the top of the slab.



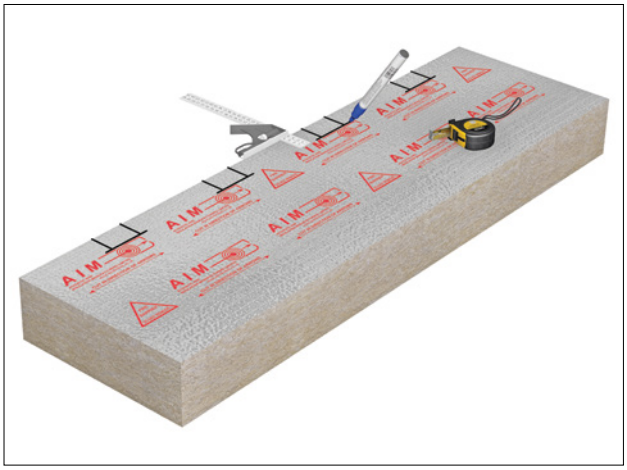
8 Check for any gaps between the barrier and substrates. All gaps should be fully sealed with AIM intumescent mastic.

Where vertical barriers could cause "brick push" a push off post or bricklayer profile can be secured to the outside of the building as a preventative measure.

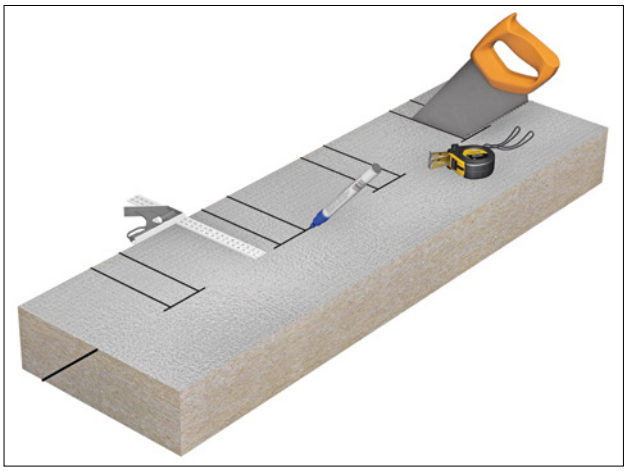
Fitting around the masonry support shelf

1. Mark where you need to cut. Hold the section of cavity barrier against the support shelf and mark where the fins will penetrate; ideally on both sides of the section of barrier.

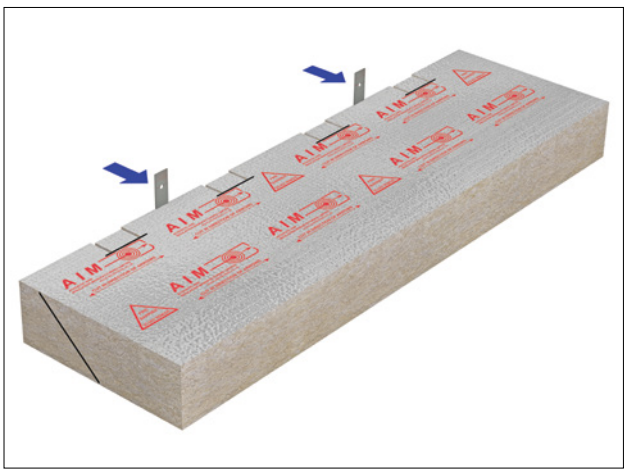
   Mark how far you need to cut. Mark onto the face how far through you need to cut.



2. The barrier is easily cut with a hand woodworking saw.

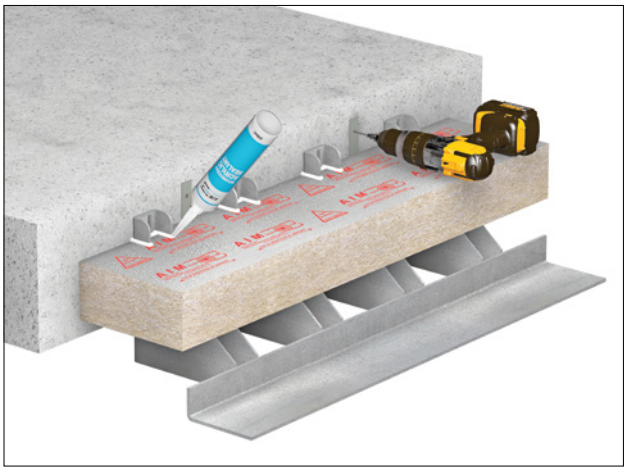


3. Fit two fixing clips per length of barrier. These should be at roughly 500mm centres. Whilst the barrier really doesn't need fixing clips here, Approved Document B states that all cavity barriers must be mechanically secured in place.



4. Carefully fit the Wall cavity Barrier over the fins. When fitting the barrier make sure that the cut sections doesn't snag on the sides of the fins.

   Secure the fixing clips back to the slab edge. Remember that all of the fixings need to be non-combustible and corrosion resistant.



STORAGE

Cut product is supplied in cartons on pallets, slab products are supplied on wooden pallets with edge protection and a shower proof hood. Products should be stored away from the elements until ready for installation.

MAINTENANCE

This product does not contain moving parts and, if undisturbed in the cavity, requires no routine inspections or maintenance.

It is recommended that the integrity of the barrier is rechecked if further works are carried out, which may involve disturbing the product.

DURABILITY

AIM fire barriers are chemically inert, will not sustain vermin and do not encourage the growth of rot, fungi, moulds or bacteria. They are compatible with all normal building materials. Rockwool stone wool has been proven in service for over 60 years, in a wide range of climates and degrees of exposure. It will generally perform effectively for the lifetime of the building, plant or structure.

HEALTH & SAFETY

Insulation products supplied by AIM are considered to be inert articles and as such are exempt from requirements to provide a Safety Data Sheet.

A Product Safety and Handling Information Sheet is available upon request.

ENVIRONMENT

Global warming potential = zero

The stonewool element of the products originate from Rockwool UK. It may be possible to recycle clean and uncontaminated material under Rockwool UK's Rockcycle® service. Please contact Rockwool on 01656 868400 for further details.

ORDERING

To order this product the following information will be required:

- Cavity depth in mm
- Fire Performance required
- Approximate quantity
- Delivery location

All AIM fire barriers are made to order. Products are typically supplied in seven to ten working days but lead times may vary depending on existing factory commitments.

There is no minimum order quantity or value although small orders may attract transport surcharges.

TECHNICAL SUPPORT

Technical Support is available from our experienced sales team on 01293 582 400 or sales@aimlimited.co.uk

ABOUT AIM

AIM are a quality insulation convertor with over 30 years experience in the design, testing & manufacturing of high quality fire barriers for customers worldwide.

VERSION CONTROL

Issue 6 - 06 2024

This document replaces and supersedes all previous versions.

The current version number can be verified at https://www.aimlimited.co.uk/downloads/ or call AIM on 01293 582400

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