



# ARC Building Solutions

Award-winning manufacturers of Cavity Fire Barriers and Cavity Closers

## High Rise Solutions

Cavity Fire Barriers for High Rise Construction

## Maintaining Compartmentation

Compartmentation of a building is an essential fire stopping strategy, providing crucial time for escape by restricting the spread of smoke and fire, while containing the fire to allow it to be safely extinguished.

Wall cavities can provide a clear channel for fire to spread rapidly throughout a building, bypassing the carefully designed compartmentation.

ARC's high rise solutions have been carefully designed to ensure these critical compartment lines can be maintained within the wall cavity.

## Typical Applications

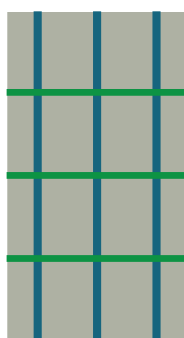
### Masonry construction



Vertical party wall:  
ARC Fire Stop Slab  
Closed state cavity fire barrier

Horizontal separating floor:  
ARC Fire Stop Slab  
Closed state cavity fire barrier

### External non-combustible rainscreen cladding



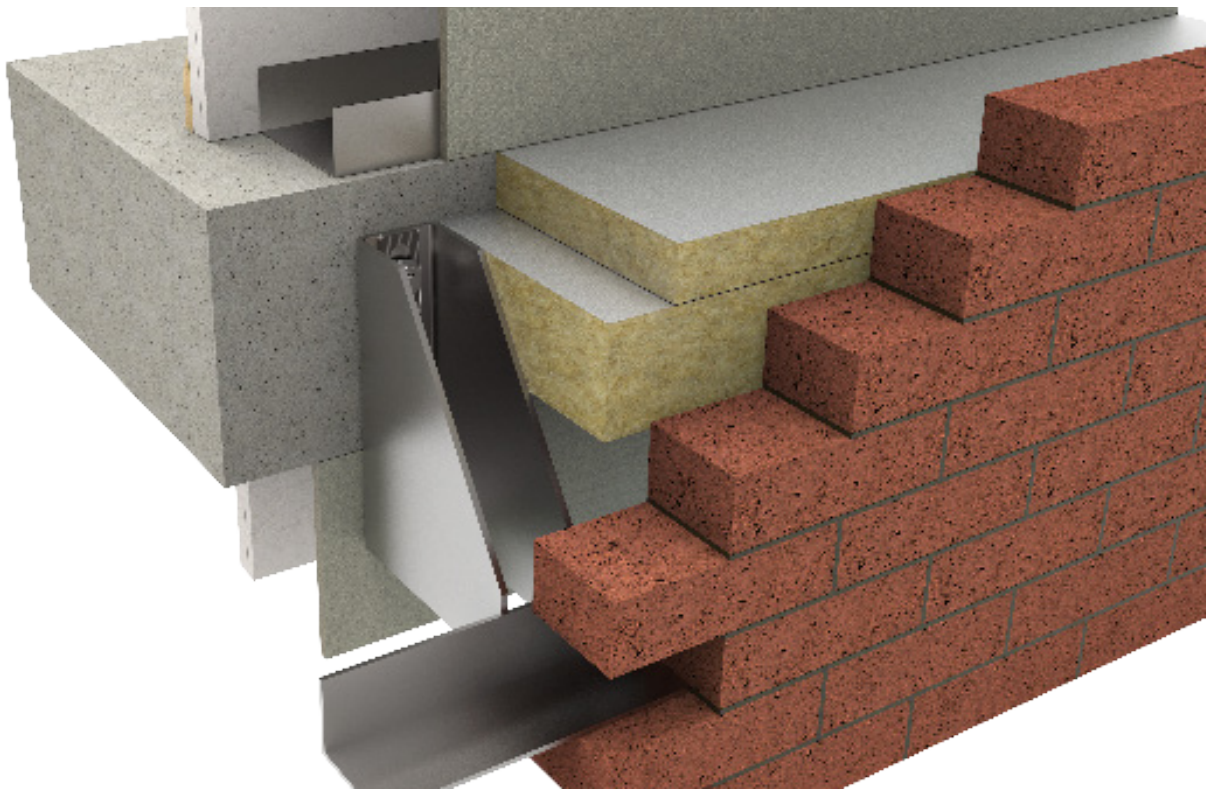
Vertical party wall:  
ARC Fire Stop Slab  
Closed state cavity fire barrier

Horizontal separating floor:  
ARC Open State Cavity Barrier  
Open state ventilated intumescent cavity fire barrier

## Suitable Substrates

ARC Fire Stop Slab and ARC Open State Cavity Barrier are suitable for use with either concrete or masonry internal and external substrates. Where used against a different non-combustible substrate, you must ensure that the substrate is fire tested to demonstrate the required level of fire performance with the facing material selected. You must also ensure that the wall system does not deform or deflect in such a way that could adversely affect the performance of the cavity barrier.

ARC recommends that a qualified fire engineer should be employed in such instances.



## FIRE STOP SLAB

### Cavity fire barrier for masonry construction

- » Up to three hours fire integrity
- » Foil faced to provide a smoke barrier
- » Suitable for horizontal or vertical applications
- » Cut to size on site or factory finished
- » Available to suit cavity widths up to 450mm
- » Mechanically fixed to inner leaf using ARC fixing brackets
- » Tested in accordance with EN1366-4 against both masonry and CP Board
- » Third-party certificated by IFC Certification

## Application

ARC Fire Stop Slab provides up to three hours fire integrity horizontally or vertically within external masonry walls. It is ideal for use at separating floor levels and is designed to be mechanically fixed using ARC fixing brackets. ARC Fire Stop Slab is manufactured from rockfibre mineral wool insulation with a class 'O' reinforced aluminium foil facing to both sides offering excellent resistance to smoke.

## Installation

ARC Fire Stop Slab should be fitted into the cavity as the external brickwork progresses. Lengths of barrier should be tightly butt jointed, with care taken to ensure there are no gaps.

A 5mm compression fit is required. When cutting on-site, it is important to ensure the cut size is suitable for the as-built cavity, as no gaps can remain between the barrier and the internal or external leaf.

ARC Fixing Brackets are used to mechanically fix the barrier to the inner leaf (masonry or CP board). Following the fitting instructions to the right, the ARC Fixing Bracket is folded into shape, and then mechanically fixed to the inner leaf using masonry screws. ARC Fire Stop Slab can then carefully be pushed into place on the bracket. The bracket should sit in the middle of the barrier's depth, and be installed at a minimum of 600mm centres or 2 per length, whichever is higher.

## Fire Properties

ARC Fire Stop Slab has been tested for fire resistance at Warrington Fire, achieving up to 3hrs fire integrity between two masonry leaves, and up to 2hrs fire integrity when installed between one leaf of masonry and one leaf of CP board. Tests were carried out in accordance with EN1366-4.

IFC certificate number: IFCC 1731

Where usage falls outside of this scope, for example when used with external cladding, or with an SFS wall system, performance of the cavity barrier could be affected by the structural integrity and fire performance of the surrounding construction.

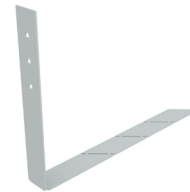
Before selecting a product, designers and specifiers must ensure all parts of the construction that make up the internal or external leaf of the wall are suitable to support a cavity barrier for the length of fire integrity required. Fire test data for the components and/or system must be reviewed, including through-wall performance, and with particular attention paid to any deflection or distortion which could cause gaps to form between the substrate and cavity barrier.

ARC Building Solutions Ltd cannot accept liability for failure where usage is outside of the certificated scope of application, including but not limited to, where deflection or distortion of wall or cladding systems has allowed gaps to form around the cavity barrier, or where the barrier is not fitted in accordance with the manufacturer's guidelines.

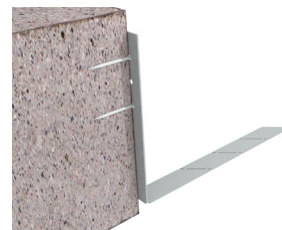
## Fixing Bracket Fitting Instructions



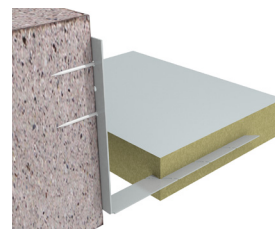
Two brackets are available: small for up to 160mm cavity and large for sizes up to 450mm.



Now bend the bracket into an 'L' shape at the fold point (a small 'U' shape cutout on each side).



Once folded the bracket can be fixed to the block (or CP board). It is recommended to use at least two fixing points to ensure strength. Non-combustible fixings of appropriate type and strength for the substrate and application should be selected.



Now impale the insulation onto the bracket as can be seen in this cross-section. Please note two brackets should be used for each piece, approx. 150mm inwards from each end.

# FIRE STOP SLAB

## Standard Dimensions: Full Slab

Product Code	Description	Thickness	Dimensions
FFS600/100	ARC Fire Stop Slab	100mm	100 x 600 x 1200mm
FFS SB	ARC Small Fixing Bracket ≤ 160mm cavity	n/a	n/a
FFS LB	ARC Large Fixing Bracket ≤ 450mm cavity	n/a	n/a

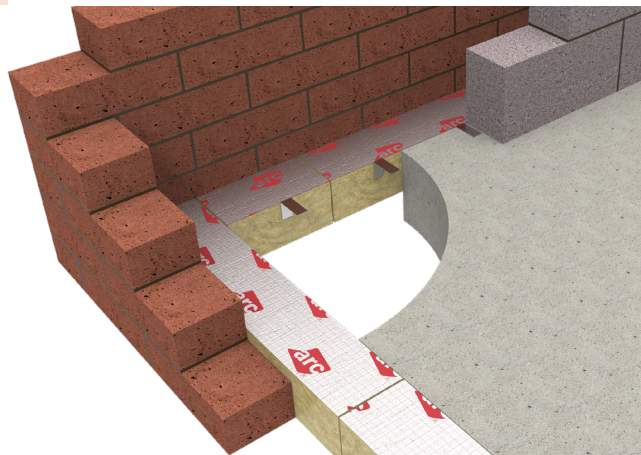
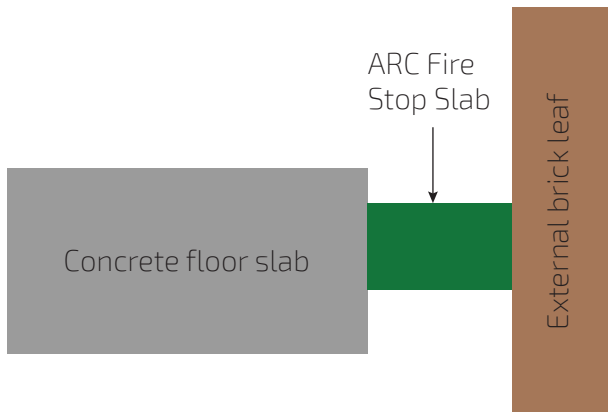
## Standard Dimensions: Cut Pieces

Product Code	Maximum Cavity Size	Substrate Type	Dimensions	Fire Performance		Pack Quantity	Packs Per Pallet
				Integrity	Insulation		
FFB50	50mm	Masonry	55 x 100 x 1200mm	3hrs	45mins	48	10
FFB60	60mm	Masonry	65 x 100 x 1200mm	3hrs	45mins	40	10
FFB70	70mm	Masonry	75 x 100 x 1200mm	3hrs	45mins	40	10
FFB80	80mm	Masonry	85 x 100 x 1200mm	3hrs	45mins	30	10
FFB90	90mm	Masonry	95 x 100 x 1200mm	3hrs	45mins	24	10
FFB100	100mm	Masonry	105 x 100 x 1200mm	3hrs	45mins	24	10
FFB110	110mm	Masonry	115 x 100 x 1200mm	3hrs	45mins	24	10
FFB120	120mm	Masonry	125 x 100 x 1200mm	3hrs	45mins	18	10
FFB130	130mm	Masonry	135 x 100 x 1200mm	3hrs	45mins	18	10
FFB140	140mm	Masonry	145 x 100 x 1200mm	3hrs	45mins	18	10
FFB150	150mm	Masonry	155 x 100 x 1200mm	3hrs	45mins	18	10
FFB160	160mm	Masonry	165 x 100 x 1200mm	3hrs	45mins	12	12
FFB170	170mm	Masonry	175 x 100 x 1200mm	3hrs	45mins	12	12
FFB180	180mm	Masonry	185 x 100 x 1200mm	3hrs	45mins	12	12
FFB190	190mm	Masonry	195 x 100 x 1200mm	3hrs	45mins	12	10
FFB200	200mm	Masonry	205 x 100 x 1200mm	3hrs	45mins	12	10
FFB210	210mm	Masonry	215 x 100 x 1200mm	3hrs	45mins	12	10
FFB220	220mm	Masonry	225 x 100 x 1200mm	3hrs	45mins	12	8
FFB230	230mm	Masonry	235 x 100 x 1200mm	3hrs	45mins	12	8
FFB240	240mm	Masonry	245 x 100 x 1200mm	3hrs	45mins	10	8
FFB250	250mm	Masonry	255 x 100 x 1200mm	3hrs	45mins	10	8
FFB260	260mm	Masonry	265 x 100 x 1200mm	3hrs	45mins	8	10
FFB270	270mm	Masonry	275 x 100 x 1200mm	3hrs	45mins	8	10
FFB280	280mm	Masonry	285 x 100 x 1200mm	3hrs	45mins	8	10
FFB290	290mm	Masonry	295 x 100 x 1200mm	3hrs	45mins	8	10
FFB300	300mm	Masonry	305 x 100 x 1200mm	3hrs	45mins	8	10
FFB325	325mm	Masonry	330 x 100 x 1200mm	2hrs	45mins	6	10
FFB350	350mm	Masonry	355 x 100 x 1200mm	2hrs	45mins	6	10
FFB375	375mm	Masonry	380 x 100 x 1200mm	2hrs	45mins	6	10
FFB400	400mm	Masonry	405 x 100 x 1200mm	2hrs	45mins	4	10
FFB425	425mm	Masonry	430 x 100 x 1200mm	2hrs	45mins	4	10
FFB450	450mm	Masonry	455 x 100 x 1200mm	2hrs	45mins	4	10
FFB50-450	50-450mm	CP Sheathing Board one side	As Above	2hrs	45mins	As Above	

## Typical Detail: Masonry cavity

This detail shows the ARC Fire Stop Slab installed horizontally between the concrete slab edge and external brickwork.

Cavity Width	Fire Performance	
	Integrity	Insulation
Up to 300mm	180mins	45mins
Up to 450mm	120mins	45mins

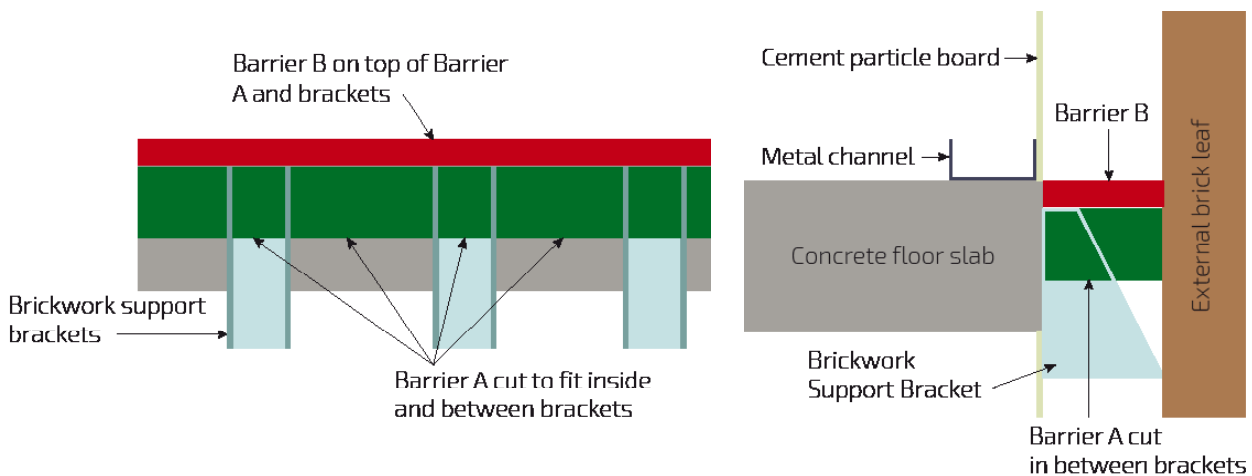


## Detail Two: Installed Inside and Inbetween Brickwork Support Brackets

This detail shows the ARC Fire Stop Slab installed against the edge of a concrete floor slab, with the barrier fitted in between the metal brickwork support brackets. The brickwork support brackets need to be set at least 50mm below the top of the slab.

Fire Integrity: 120 mins Insulation: 90 mins  
Maximum cavity width: 250mm

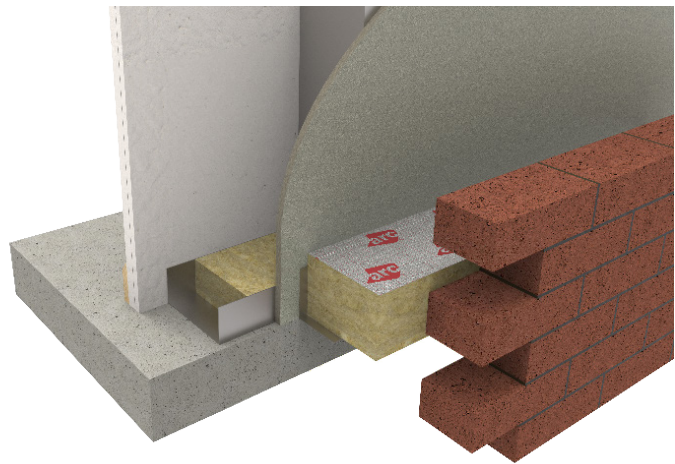
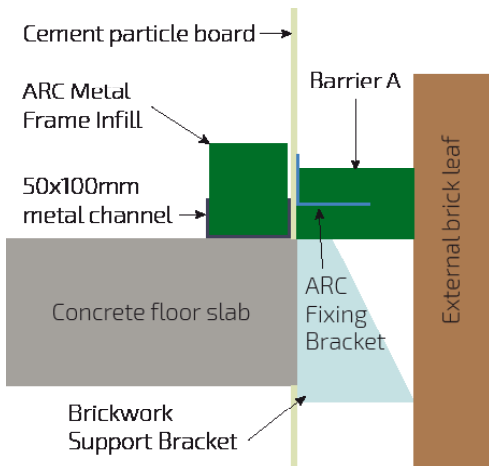
Barrier A (100mm thick) is installed inside and in between the brickwork support brackets. Barrier B (50mm thick) sits on top to offer insulation from any heat transmission through the metal brackets.



## Detail Three: Installed Above Brickwork Support Brackets

This detail shows the ARC Fire Stop Slab installed above the brickwork support brackets, allowing for a simpler installation. Where the inner leaf construction is SFS, an ARC Metal Frame Infill must also be installed as illustrated. It is important the bottom of the barrier is no higher than the top of the concrete floor slab.

Fire Integrity: 60 mins  
Insulation: 60 mins  
Maximum cavity width: 150mm



### Fire Integrity Properties:

**Detail 1:** standard configuration covered by EN 1366 fire integrity testing and ARC's third-party product certification  
**Details 2 and 3:** ARC has carried out ad-hoc testing to the principles of EN 1366. Details available on request.

ARC Fire Stop Slab is suitable for use with either concrete or masonry internal and external substrates. Where used against a different non-combustible substrate, you must ensure that the substrate is fire tested to demonstrate the required level of fire performance with the facing material selected. You must also ensure that the wall system does not deform or deflect in such a way that could adversely affect the performance of the cavity barrier.

## Environment

No CFCs or HCFCs are involved in the manufacturing process of ARC's rockfibre mineral wool insulation. The material presents no known threat to the environment and is classed as ODP and GWP zero.

ARC Fire Stop Slab has a Green Guide rating of A+.

## Health and Safety

ARC Building Solutions has an approved Health and Safety Policy and is committed to working and supplying products safely. ARC's rockfibre mineral wool is not classed as a possible human carcinogen. We have assessed products as required by Substances Hazardous to Health Regulations (COSHH). An ARC COSHH data sheet is available and can be downloaded from ARC's website.

## Standards

ARC Fire Stop Slab is manufactured using rockfibre mineral wool which achieves a fire classification of Euroclass A1 as defined in BS EN 13501-1, and conforms to BS EN 13162 and EN16001 Energy Management Systems.

ARC's rockfibre mineral wool insulation has a thermal conductivity of 0.035W/mK.

## Storage and Packaging

ARC Fire Stop Slabs are supplied in polythene packs which are designed for transporting and protecting the products. It is not recommended that the packs are stored in direct sunlight. When storing the barriers for longer periods of time it is recommended that the product should be stored indoors, or under cover.



## OPEN STATE CAVITY BARRIER

Open state cavity barrier for ventilated cavities

- » Reactive intumescent element
- » Either 60min or 120min fire integrity
- » 25mm or 44mm air gap for ventilated cavity
- » Tested to ASFP TGD19 standards
- » Fixing brackets included as standard
- » Suitable for use horizontally



## Description

ARC OSCB cavity barriers are designed for installation within cavities where ventilation is required in service use. Manufactured from non-combustible rockfibre mineral wool with a reactive intumescent layer, the cavity barrier can provide an air gap of up to either 25mm or 44mm.

The intumescent layer will rapidly expand when exposed to heat in a fire event, closing off the air gap and preventing vertical fire spread within the external wall cavity.

Suitable for installation horizontally, ARC OSCB open state cavity barriers should be partnered with ARC Fire Stop Slab installed vertically for a complete cavity barrier solution.

## Design Considerations & Detailing

### Size & Tolerance

Air gap specified is maximum allowable. This is the space between the front of the cavity barrier and rear side of the outer substrate, and should take in to account any contours, shapes, or profiles in the external wall system. Consider over-specifying where material or build tolerance is a concern.

### Suitable Substrates

ARC Open State Cavity Barrier is suitable for use with either concrete or masonry internal and external substrates. Where used against a different non-combustible substrate, you must ensure that the substrate is fire tested to demonstrate the required level of fire performance with the facing material selected. You must also ensure that the wall system does not deform or deflect in such a way that could adversely affect the performance of the cavity barrier.

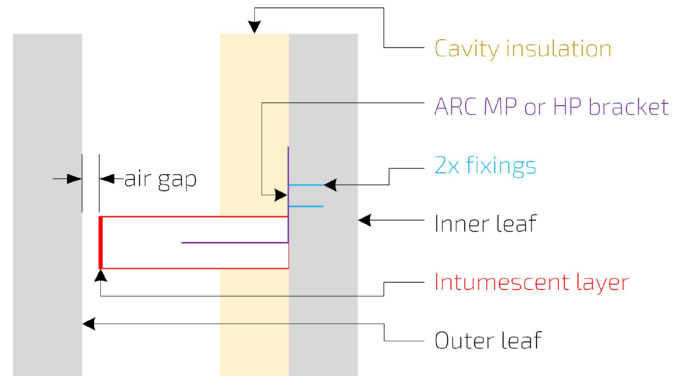
### Cavity Insulation

ARC Open State Cavity Barrier must be installed directly to the inner leaf with the cavity insulation interrupted ('Drawing 1'). A non-combustible stone wool cavity insulation is recommended for use in conjunction with ARC Open State Cavity Barrier. Alternatively a PIR or foil-faced phenolic is approved. ARC Open State Cavity Barrier is not approved for use in uninsulated cavities.

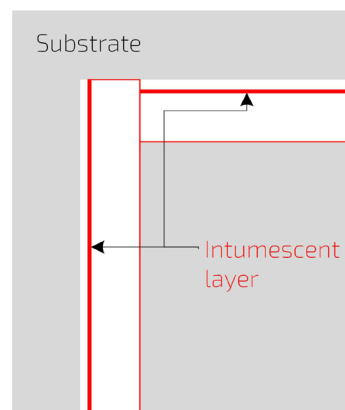
The depth of the cavity insulation must never exceed the depth of the mineral wool element of the cavity barrier. See table A2 for sizing.

## Standard Details

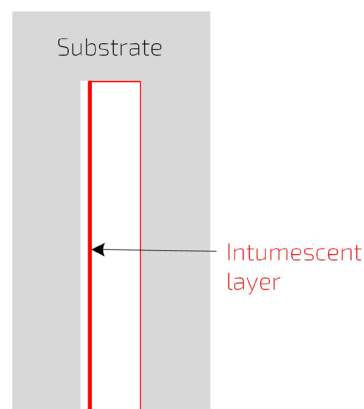
Drawing 1 - standard detail



Drawing 2 - corner detail



Drawing 3 - end of run detail



## Installation Instructions

ARC Open State Cavity Barrier consists of a mineral wool core with an intumescent layer pre-fixed, encapsulated in a polythene wrap. It is fixed to the inner substrate using the appropriate fixings outlined in the table below. Do not remove the polythene wrap, or the factory fitted screws inside the wrap. These are integral to the function of the product and should remain for its life span.

### Installation Method:

- » Ensure all necessary components are to hand.
- » Fold the fixing brackets in accordance with fixing specifications table A1
- » Fix the fixing brackets to the inner leaf. Use appropriate non-combustible fixings for the substrate, taking note of the spacing information in table A1. Consider the bracket positions to avoid a clash with the screws pre-fixed inside the barrier
- » The vertical leg of the brackets should be fixed so that they extend above the cavity barrier as shown in 'Drawing 1'
- » Push fit the cavity barrier onto the brackets, ensuring the brackets penetrate the barrier centrally through its 75mm depth
- » Ensure the rear face of the barrier is tightly fitted against the inner substrate without gaps. The surface of the inner substrate must be true and even
- » Individual lengths should be butt jointed tightly together with no gaps. Ensure both the rock mineral wool and intumescent components are butted together tightly
- » At the extreme end of a run ('Drawing 3'), or at corners ('Drawing 2'), the end of the cavity barrier must tightly abut the substrate with no gaps

### Notes:

- i. Cut lengths of barrier  $\geq 200\text{mm}$  length must include 2 fixing brackets.
- ii. Cut lengths  $< 200\text{mm}$  must include 1 fixing bracket centrally. It is the installer's responsibility to ensure this short piece of barrier is mounted securely, tightly fitted against abutting pieces. A short piece should always abut a piece with multiple brackets, ie. do not fit multiple short pieces together.
- iii. Depending on the barrier width and bracket specification, it may be necessary to trim down the length of the fixing bracket's horizontal leg. The fixing bracket should penetrate at least 75% of the depth of the barrier, except where the full size of the bracket is already smaller than this. The horizontal leg should also be at least 25mm short of the intumescent layer when the barrier is fully mounted on to the brackets.
- iv. Where the horizontal open state barrier meets the vertical 'full fill' barrier (ARC Fire Stop Slab), the vertical barrier must be continuous with the horizontal ARC OSCB tightly butted to each side.



## Product Specification

Product Range	Cavity Widths Available	Max. Air Gap	Colour	Fire Performance		Dimensions
				Integrity	Insulation	
OSCB25	100 – 450mm	25mm	Red with green strip	60 mins	60 mins	Depth : Cavity width less 25mm Thickness: 75mm Length: 1200mm
OSCBPLUS25	100 - 300mm	25mm	Red with blue strip	120 mins	120 mins	Depth : Cavity width less 25mm Thickness: 75mm Length: 1200mm
	301 - 450mm			90 mins	90 mins	
OSCB44	100 – 300mm	44mm	Red with yellow strip	60 mins	60 mins	Depth : Cavity width less 44mm Thickness: 75mm Length: 1200mm
	301 – 450mm			45 mins	30 mins	





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