

NVFB

Non Ventilated Fire Barrier

Tenmat's NVFB (non-ventilated fire barrier) is designed to maintain fire resistance performance within external wall cavities.

Product Description

Tenmat's NVFB Non-Ventilated Cavity Fire Barriers, are manufactured from stone mineral wool with an A1 Reaction to Fire Rating and are designed to maintain fire resisting performance to external wall cavities.

The NVFB is capable of providing effective fire resistance, for integrity (E) and insulation (I) for up to 120 minutes (EI120) depending upon the orientation of the NVFB and the construction of the external walls.

Tenmat NVFB is supplied cut to size to suit the cavity width or can be supplied in full slabs. It is supplied as plain stone mineral wool as standard and can also be supplied with foil encapsulation or with an integral DPC.

The NVFB is designed for use within cavities up to 600mm wide and only requires 5mm of compression when fitting.

Product Details

- Cavity Fire Barrier for use at: Compartment Floor, Compartment/ Party Walls & Around Openings
- UL-EU 3rd Party Certification
- Fire Resistance Classification to EN 13501-2
- AS1530.4 & AS4072.1 Assessment Report
- A1 Reaction to Fire
- Fire Rated up to 120 minutes integrity and insulation (EI120)
- Suitable for cavities up to 600mm
- Suitable for use vertically and horizontally
- Tested for use in conjunction with masonry support brackets
- Tested with SFS Systems with calcium silicate fibre cement boards
- Provided in 1 metre lengths
- Standard thickness/depth of 100mm
- Available in a reduced thickness/depth of 82mm
- Optional integral DPC to prevent moisture migration
- Supplied plain as standard. Optional foil encapsulation available.
- No maintenance required after installation

Sizes

Cut to Size:

100mm Deep x Width to suit cavity (+5mm for compression fit) x 1000mm

Full Slabs:

100mm x 605mm x 1003mm (available plain or foiled).

100mm x 1000mm x 1200mm (available plain only).

Non-standard 82mm thickness available upon request.

Approved Applications

Non-Ventilated Fire Barriers for vertical external wall cavities.



Fire Test Evidence

UL-EU Certificate - UL-EU-01265-CPR / UL International Classification Report - 4789980605
UL - AS1530.4 & AS4072.1 Fire Test Assessment Report 4790682420-1

Inner Leaf Substrate Type (facing cavity) with appropriate fire resistance	Outer Leaf Substrate Type (facing cavity) with appropriate fire resistance	Orientation	Insulation Type Within Cavity	To suit cavity widths (in mm)	Compression required	Minimum Thickness of NVFB (mm)	Product Fire Resistance Rating		
							Integrity (E)	Insulation (I)	Classification (EI)
Rigid Walls - min. 100mm thick									
100mm Masonry or Concrete walls	100mm Masonry or Concrete walls	Vertical	None	10-200	5mm	100	120	120	120
150mm Masonry or Concrete walls	150mm Masonry or Concrete walls	Vertical	None	201-600	5mm	100****	120	30	30
SFS System with calcium silicate cement fibre board									
SFS System Walls*	150mm Masonry or Concrete walls	Vertical	75mm thick Rockwool DuoSlab	10-600	5mm	100****	120	30	30
SFS System Walls*	150mm Masonry or Concrete floor	Horizontal	75mm Rockwool DuoSlab	10-595	5mm	100****	120	60	60
Rigid Floors - min. 150mm thick									
150mm concrete/masonry floor	150mm concrete/masonry floor	Horizontal	None	10-100	5mm	100	120	120	120
150mm concrete/masonry floor	150mm concrete/masonry floor	Horizontal	None	101-200	5mm	100	120	90	90
150mm Masonry or Concrete floor	Masonry or Concrete	Horizontal	None	201-450	5mm	100****	120	30	30
150mm Masonry or Concrete floor	Masonry or Concrete floor	Horizontal	None	451-595	5mm	100****	60	30	30
Rigid Floors with Masonry Support Brackets									
150mm Masonry or Concrete with masonry support brackets	150mm Masonry or Concrete	Horizontal	None	200	5mm	100****	120	120	120
150mm Masonry or Concrete with masonry support brackets	150mm Masonry or Concrete	Horizontal	None	201-450	5mm	100****	120	30	30
Fire Tested to the general principles of EN 1366-4: 2021 (Note: The below evidence does not fall under reports UL-EU-01265-CPR or AS Assessment 4790682420-1)									
SFS System with Render Outer									
SFS System Wall**	Mineral Fibre / Render Insulation Board***	Vertical	None	10-60	2mm	100	120	120	120
Timber Frame Systems									
Timber Frame*****	Masonry or Concrete	Vertical	None	10-123	2mm	100	60	60	60
Timber Frame*****	Masonry or Concrete	Vertical	None	124-299	2mm	100	60	30	30

NVFB can be supplied with optional DPC layer for use with external masonry walls

*SFS System build up - 135mm overall thickness, comprising 90mm Metsec C stud, clad internally with 2 x 15mm Knauf Fire Panel, clad externally with 1 x 12mm RCM Y-Wall and minimum 75mm Rockwool Duo Slab. The supporting construction must be classified in accordance with EN13501-2 for the required fire resistance period.

**SFS system build up - 123mm overall thickness, comprising 94mm Metsec C Stud, clad internally with 1x 20mm Glasroc F FireCase, filled with 100mm thick RWA45 insulation, clad externally with 1 x 10mm Cembrit cement particle board

***Rockwool DuoSlab / Dual Density 140kg/m³ & 100kg/m³ Mineral Fibre Slab, 90mm thick

****82mm thick option available

*****Timber Frame inner substrate tests cover both OSB and Plywood sheathing boards (min. 9mm thick) with a minimum 38mm thick timber stud that must be in place directly behind the sheathing board in line with the cavity barrier

The fire rating required on Timber Frame projects would typically be expected to be 30 minutes only. The fire ratings and information provided in this document and supporting fire test evidence is not intended to be a complete specification for the proposed cavity barrier and it is the responsibility of others (the Principal Designer) to ensure that the product/assembly is suitable for the intended purpose.

Technical Information

Property	Units	Value
Reaction to Fire Classification EN 13501-1		A1

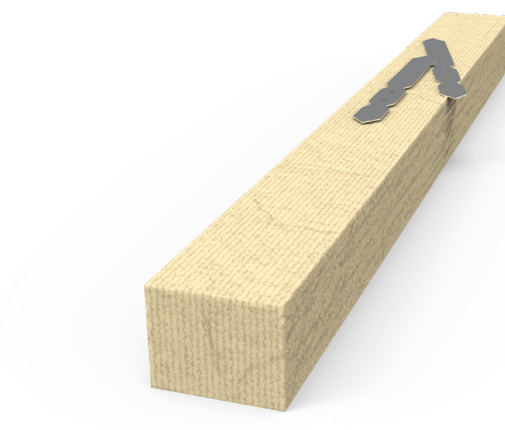
Sizes

Cavity Size (mm)	Product Width (mm) including 5mm compression	Orientation	Fitting Option Number	Barrier Support Type	No. of support (brackets) fixings per metre	Maximum Bracket Centres (mm)	Face Fixed Fixing Centres (mm)
10 to 75	15-80	Vertical or Horizontal	1	Screw	N/A	N/A	250
76-600	81-605	Vertical or Horizontal	2	MP Bracket	2	500	N/A
200-450 (Masonry Support Brackets)	205-455	Horizontal only	3	MP Bracket	2	500	N/A

Note:

A DPC should be applied when using the NVFB behind a masonry outer substrate (this follows NHBC guidance)

Where an NVFB with an integral DPC is required, face fixing is not possible and brackets must be used and can be cut to size as required.



Installation Considerations

NVFB cavity barriers should be installed in a continuous run. Where this is not possible, details should be agreed with the projects principal designer and or fire engineer.

Horizontal cavity barriers should be installed adjacent and tightly abutted to any vertical cavity barriers, the vertical NVFB cavity barriers should be installed first. NVFB cavity barriers may be cut to length as required, adjacent lengths must be tightly abutted together.

Cavity barrier fixing brackets must not penetrate through the face of the cavity barrier. Screws for direct fixing and fixings to secure brackets are not supplied by Tenmat.

The brackets used to fix the NVFB cavity barrier must be installed with the spike inserted centrally to the rock mineral wool. The use of tape is not required over the joints between the lengths of NVFB.

A DPC should be applied when using the NVFB behind a masonry outer substrate (this follows NHBC guidance).

For Timber Frame constructions, a minimum 38mm thick timber stud must be in place directly behind the sheathing board following the line with the cavity barrier.

The NVFB must be installed following the installation methods described below. The NVFB must not be penetrated by any other mechanical or electrical services.

Pre Installation

The principal designer must approve the use of any cavity barrier, whether open state or full fill, in conjunction with the products fire classification reports, taking full account of the whole construction of the external wall systems and components, including any requirements of Building Regulations and or NHBC Standards.

Before a Tenmat NVFB cavity barrier is recommended, by Tenmat, the following information is required to ensure that the suggested product is considered suitable for the intended application, by Tenmat, within the construction as indicated by the client.

- 1) Project name, location and postcode.
- 2) Building height and use (as per ADB V1/2 2020).
- 3) Fire resistance period/rating required. Integrity and Insulation (EI).
- 4) Composition and construction of external walls, both inner and outer substrates.
- 5) Total external wall cavity size. (Maximum distance from outer face of inner substrate to inner face of outer substrate including tolerances/profiles).
- 6) Type and thickness of cavity insulation if present.
- 7) What ventilation gap is required horizontally? (Note: NVFB does not maintain a ventilation gap, if this is required then a Tenmat VFB / Open State Cavity Barrier should be considered)
- 8) Are non-vented cavity barriers required vertically and horizontally?
- 9) Quantity required to complete project?
- 10) When will materials be required?
- 11) Name and role of person completing form.

When the above information is obtained then this can be cross referenced with the full range of Tenmat cavity barriers to ensure that the product recommended, by Tenmat, is considered suitable for consideration by the principal designer.

General Considerations For The Principle Designer

Ideally the cavity barrier should be installed uninterrupted in a continuous line, the product is tested without interruptions with the exception of masonry support brackets (see specific detail).

The principal designer must sanction any interruptions, which may include items such as brackets, rails or battens, that may affect the continuous line of the cavity barrier. The principal designer must consider the combustibility, melting points and the shape of any interruptions, that are likely to prevent the cavity barrier performing as tested or as expected in the projects design.

If there are interruptions/obstructions that prevent the cavity barrier being fitted in a continuous line, and with sanction from the principal designer, the product may be cut with a sharp knife and tightly butted up against any obstructions and then restarted on the opposite side of the obstruction, the obstruction must not create a void which is not filled.

The cavity barrier should not be penetrated by anything other than the mechanical fixings which are used to fix the cavity barrier to the building.

The cavity barrier should be installed onto a flat surface, with no gaps behind the cavity barrier.

The Tenmat technical team should be consulted in any instance where the principal designer is uncertain as to any issues which may impede the ability of the cavity barrier to perform as expected.

Ensure the installation area is free from dust, oil and any corrosive material.

Check the mounting substrate is solid and free from cracks and degradation before beginning and in the case of timber frame systems, ensure that the sheathing board is minimum 9mm thick and a minimum 38mm thick timber stud is in place directly behind the sheathing board following the line of the cavity barrier.

Fitting Instructions

Option 1

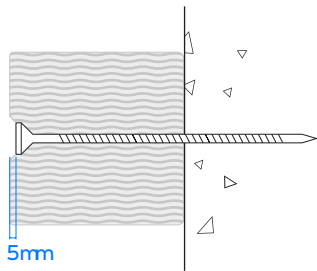
NVFB - Vertical and Horizontal

Cavity Size 10mm up to 75mm equates to product width across cavity 15mm up to 80mm wide, directly faced fixed.

Note:

If cutting the NVFB to size from a full slab for the above cavity sizes, care should be taken to ensure cut dimension allows for the minimum compression to be achieved. After cutting, all other instructions and fixings details below should be followed.

Where an NVFB with an integral DPC is required, Face fixing is not possible and brackets must be used and can be cut to size as required.



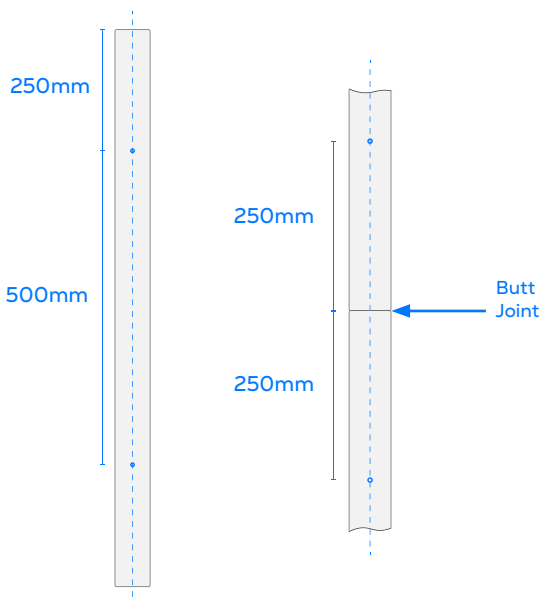
Use stainless steel screws, with a maximum head diameter of 12.5mm and with a length suitable for the cavity barrier and the substrate. Ensure that the screw head fully penetrates the face of the cavity barrier, the screw head should sit at least 5mm behind the face of the cavity barrier. Care should be taken not to compress the surface more than 10mm as this may effect the performance of the cavity barrier.

Position the first screw fixing through the centre line of the face of the cavity barrier at a maximum 250mm from one end, continue to face fix through at maximum 500mm centres (2 screws per linear meter), ensuring that the final fixing is a maximum 250mm from the end of the cavity barrier.

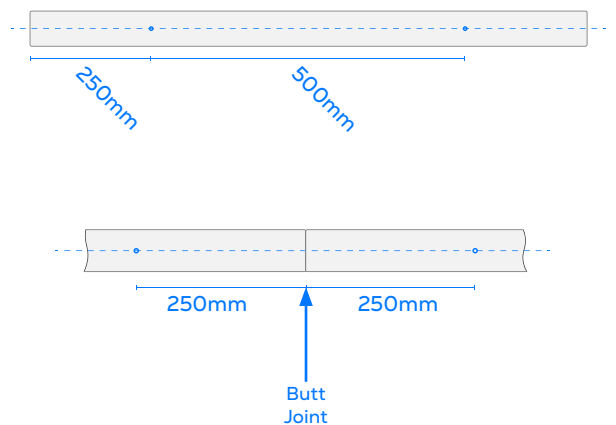
This will ensure that face fixings are positioned at 500mm centres across the continuous run of cavity barrier.

Ensure that all joints and intersections are tightly butted with no gaps.

Vertical Install



Horizontal Install



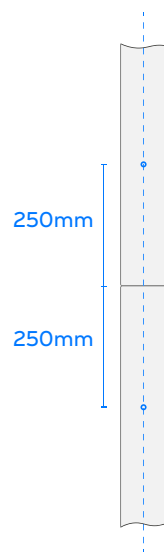
Fitting Instructions

Option 1 (continued)

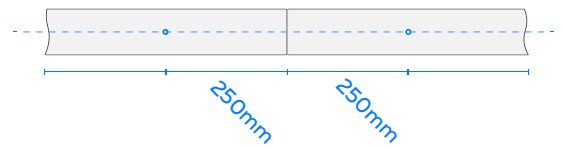
Where sections of cavity barrier are less than 1 linear meter in length, ensure that face fixings are positioned at a maximum 250mm from each end. For cut sections of cavity barrier less than or equal to 500mm in length only one fixing is required.

For vertical installations only in Timber Frame constructions, a minimum 38mm thick timber stud must be in place directly behind the sheathing board following the line with the cavity barrier.

Vertical Install



Horizontal Install



Option 2

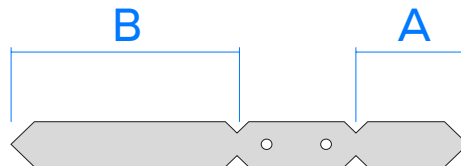
NVFB-Vertical and Horizontal

Cavity size 76–600mm equates to product width across cavity from 81mm up to 605mm fixed using 2 Multi Purpose (MP) 160mm brackets.

Note:

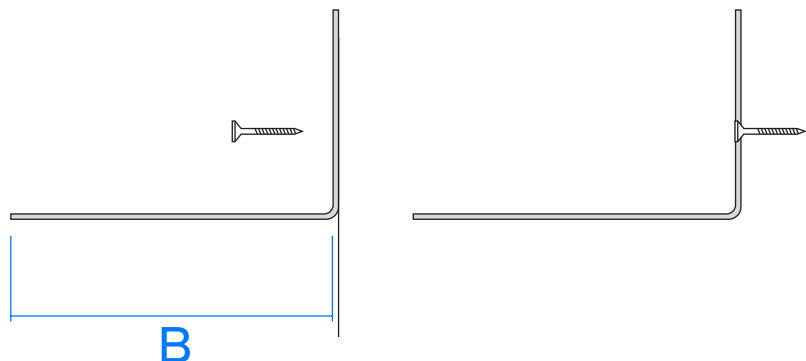
If cutting the NVFB to size from a full slab for the above sizes, care should be taken to ensure cut dimension allows for the minimum compression to be achieved. After cutting, all other instructions and fixings details below should be followed.

MP brackets are supplied with 2 fixing spikes, one spike is 65mm long (A), the other is 160mm long (B), with a central section for securing the bracket to the substrate. The compression allowed for is 5mm, care should be taken to ensure that the end of the bracket will not come into contact with the outer substrate when compression is applied to the NVFB.



For cavity barriers 81mm–95mm wide (across cavity) use 2 MP brackets and the 65mm long spike (A). For cavity barriers 96mm–220mm wide (across cavity) use 2 MP brackets and the 160mm long spike (B). The 160mm spike will require cutting to size, if used in barriers less than 175mm wide, to ensure that the spike does not pierce through the face of the cavity barrier, the bracket should be cut down in size so that it does not impede the minimum 5mm compression.

To secure the bracket use minimum 1 No. 5mm \varnothing stainless steel screws, with a maximum head diameter of 13mm and with a length and type suitable for the substrate. Ensure that the screw head sits as flush as possible with the substrate so that the NVFB sits tight against the substrate leaving no gaps.

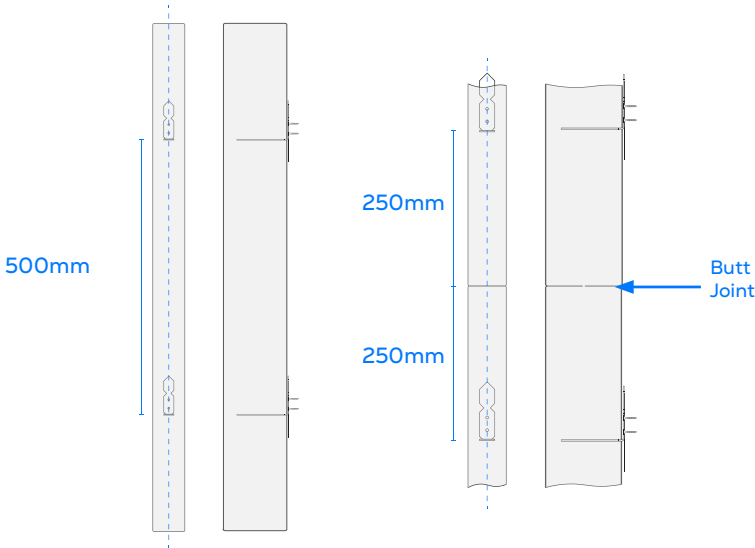


Option 2 (continued)

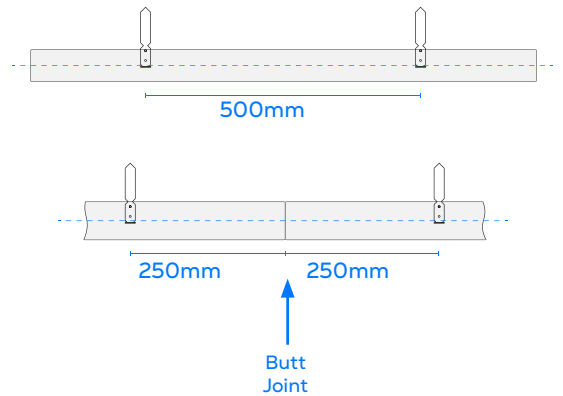
Fix 2 number MP brackets, per linear meter, to the substrate at maximum 250mm from the end of the cavity barrier, with a maximum spacing between brackets of 500mm. Where sections of cavity barrier are less than 1 linear meter in length, ensure that MP brackets are positioned at a maximum 250mm from each end. Where the cavity barrier is less than or equal to 500mm in length 1 MP bracket may be used.

Ensure that all joints and intersections are tightly butted with no gaps.

Vertical Install



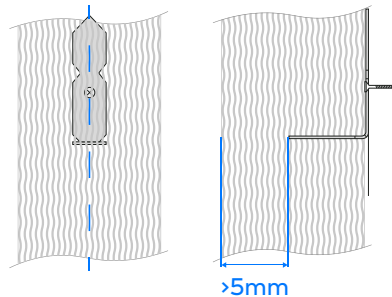
Horizontal Install



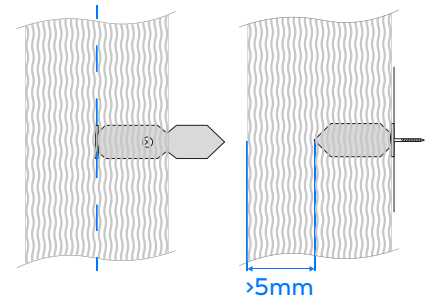
Push the cavity barrier onto the bracket spike, the brackets should impale the NVFB to approximately mid barrier depth and must not protrude through the face of the cavity barrier, remembering to allow for the final compression against the outer substrate also. The cavity barrier should be pushed fully onto the bracket spike and sit flush with the substrate, at the rear of the cavity barrier, ensuring that there are no gaps behind the cavity barrier.

For vertical installations only in Timber Frame constructions, a minimum 38mm thick timber stud must be in place directly behind the sheathing board following the line with the cavity barrier.

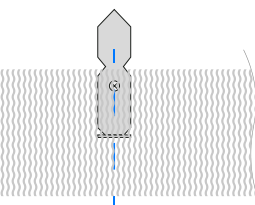
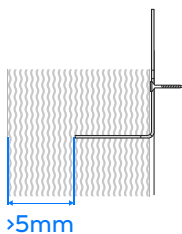
Vertical Install (vertical brackets)



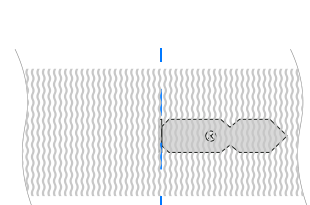
Vertical Install (horizontal brackets)



Horizontal Install (vertical brackets)



Horizontal Install (horizontal brackets)



Option 3

NVFB - Horizontal only

NVFB installed in conjunction with masonry support brackets, use Option 2 for NVFB bracket fixing details.

Any cutting of the NVFB on site to suit tolerances, shall be done accurately and kept to a minimum. Ensure that the minimum 5mm extra for the compression is maintained.

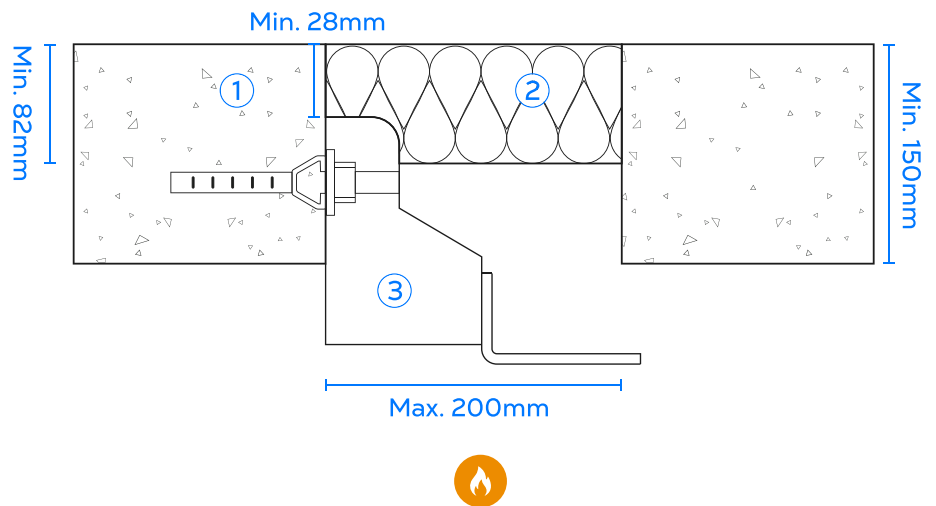
Ensure there is a minimum of 28mm from the top of the masonry support bracket to the top of the floor slab/NVFB.

Mark where the brackets meet the NVFB and cut a notch into the NVFB. Making the notch as small as is practicable.

Compress the NVFB and push into the cavity, ensuring the top of the NVFB sits flush with the top surface of the floor slab.

When extending the length of the NVFB, ensure the adjacent lengths have their joints tightly abutted together and are aligned flush with each other to give the appearance of a continuous strip with no gaps.

Diagram of Tested Detail



- ① 150mm thick lightweight concrete floor
- ② Tenmat NVFB
- ③ Ancon masonry MDC/P support system

Tools / Fittings

- PPE as required by installers employer
 - Masonry drill
 - Screwdriver
 - Saw/Knife for cutting product
 - Measuring tape
 - Access equipment as required
 - Stainless steel fixings suited to the substrate
-

Intended Use

As a cavity barrier, within external wall cavities at the junction of compartment floors, compartment/party walls and around openings, to maintain fire resistance performance of cavities of up to 600mm, in fire conditions.

Maintenance

No active maintenance required, where alterations are made around the product it should be checked visually to ensure that the product is still installed as per the approved original design and fitting instructions at the time of original installation.

Storage

- To be stored in a dry location
- Take care not to exceed safe working loads and heights for storage shelves and racks

Notes

A series of horizontal dashed lines for taking notes.

NVFB

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Advanced materials.
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Diamorph Group

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