

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.

The NVFB is designed for use within cavities up to 600mm wide.

Product Details

- CCPI Verified
- 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
- Tested with 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 (+ required compression) 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 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	Damp Proof Course (DPC)	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	Yes	Vertical	None	10-200	5mm	100	120	120	120
100mm Masonry or Concrete walls	100mm Masonry or Concrete walls	Yes	Vertical	None	201-300	5mm	100	120	120	*
150mm Masonry or Concrete walls	150mm Masonry or Concrete walls	Yes	Vertical	None	301-600	5mm	100 ⁶	120	30	30
SFS System with calcium silicate cement fibre board										
SFS System Walls ¹	150mm Masonry or Concrete walls	Yes	Vertical	75mm thick Rockwool DuoSlab	10-600	5mm	100 ⁶	120	30	30
SFS System Walls ¹	150mm Masonry or Concrete floor	Yes	Horizontal	75mm Rockwool DuoSlab	10-595	5mm	100 ⁶	120	60	60
Rigid Floors - min. 150mm thick										
150mm concrete/masonry floor	150mm concrete/masonry floor	Yes	Horizontal	None	10-100	5mm	100	120	120	120
150mm concrete/masonry floor	150mm concrete/masonry floor	Yes	Horizontal	None	101-200	5mm	100	120	90	90
150mm concrete/masonry floor	150mm concrete/masonry floor	Yes	Horizontal	None	201-300	5mm	100	120	120	*
150mm Masonry or Concrete floor	Masonry or Concrete	Yes	Horizontal	None	301-450	5mm	100 ⁶	120	30	30
150mm Masonry or Concrete floor	Masonry or Concrete floor	Yes	Horizontal	None	451-595	5mm	100 ⁶	60	30	30
Rigid Floors with Masonry Support Brackets										
150mm Masonry or Concrete with masonry support brackets	150mm Masonry or Concrete	Yes	Horizontal	None	200	5mm	100 ⁶	120	120	120
150mm Masonry or Concrete with masonry support brackets	150mm Masonry or Concrete	Yes	Horizontal	None	201-450	5mm	100 ⁶	120	30	30

* This fire resistance performance is based on EN 1366-4 3rd party testing which is outside the scope of Classification Report 4789980605 and AS Assessment Report 4790682420-1

For notes on tested substrates see next page

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)

Inner Leaf Substrate Type (facing cavity) with appropriate fire resistance	Outer Leaf Substrate Type (facing cavity) with appropriate fire resistance	Damp Proof Course (DPC)	Orientation	Insulation Type Within Cavity	To suit cavity widths (in mm)	Minimum Compression Required	Minimum Thickness of NVFB (mm)	Product Fire Resistance Rating	
								Integrity (mins)	Insulation (mins)
SFS System with Render Outer - NVFB Plain only									
SFS System Wall ²	Mineral Fibre / Render Insulation Board ⁵	N/A	Vertical	None	10-60	2mm	100	120	120
SFS System - NVFB Plain only									
SFS System Wall ³	Masonry or Concrete ⁶	Yes	Vertical	Rainscreen Duoslab	10-450	2mm	100	120	30
SFS System Wall ³	Masonry or Concrete ⁶	Yes	Horizontal	Rainscreen Duoslab	10-450	2mm	100	120	30
SFS System (Caledan SFS) - NVFB Plain only									
SFS System Wall ⁴	Masonry or Concrete ⁶	Yes	Vertical	Stone Mineral Wool	10-300	0mm	100	120	30
SFS System Wall ⁴	Masonry or Concrete ⁶	Yes	Horizontal	Stone Mineral Wool	10-300	0mm	100	120	120
SFS System Wall ⁴	Rockpanel Rainscreen (9mm thick)	N/A	Vertical	Stone Mineral Wool	10-320	0mm	100	120	90
Masonry / Concrete - NVFB Plain Only									
Masonry or Concrete min. 100mm thick	Masonry or Concrete ⁶	Yes	Vertical	None	10-300	2mm	100	120	30
Rigid Concrete Floor min. 150mm thick	Masonry or Concrete	Yes	Horizontal	None	10-300	2mm	100	120	30
Masonry or Concrete min. 100mm thick	Masonry or Concrete ⁶	Yes	Vertical	None	10-300	0mm	100	120	15
Timber Frame Systems - NVFB Plain only									
Timber Frame ⁷	Masonry or Concrete	Yes	Vertical	None	10-123	2mm	100	60	60
Timber Frame ⁷	Masonry or Concrete	Yes	Vertical	None	124-299	2mm	100	60	30

NVFB has been tested with a DPC layer for use with external masonry walls. Tested DPC was a combustible polythene based damp proof course (DPC) which also covers the use of non-combustible damp proof course (DPC).

¹SFS 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.

²SFS 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.

³SFS System build up - 125mm overall thickness comprising, 90mm and 94mm Metsec steel profiles and 100mm Rockwool insulation, clad internally with 1 x 12.5mm plasterboard, clad externally with 1 x 12.5mm Siniat Weather Defence gypsum based board.

⁴SFS System build up - 127.5mm overall thickness comprising, 100mm x 35mm Caledan steel profiles and 100mm Rockwool steel frame slab insulation, clad internally with 1 x 15mm British Gypsum Gyproc wallboard, clad externally with 1 x 12.5mm British Gypsum Glasroc X gypsum based sheathing board. Cavity insulation was Rockwool Duoslab, DPC to face of NVFB was Visqueen Polythene Damp proof course, 1mm thick x 150mm wide.

⁵Rockwool DuoSlab / Dual Density 140kg/m³ & 100kg/m³ Mineral Fibre Slab, 90mm thick.

⁶82mm thick option available.

⁷Timber 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.

⁸Fire tested substrate was 100mm thick aerated concrete blocks at 575kg/m³ density, equal or greater thickness and density of masonry or concrete is approved (typical density of house bricks is 1700kg/m³).

Technical Information

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

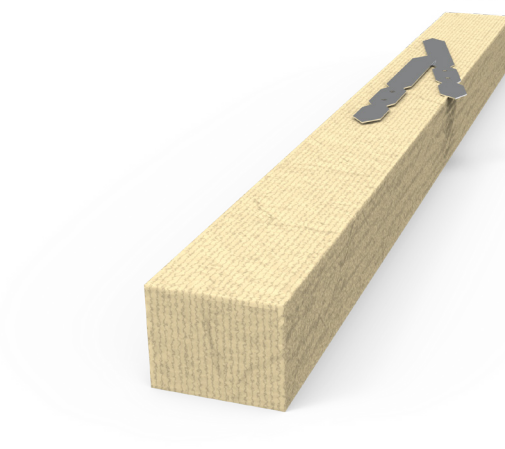
Sizes

Cavity Size (mm)	Product Width Min. to Max. (mm) incl. max. 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	10-80	Vertical or Horizontal	1	Screw	N/A	N/A	250
76-600	76-605	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 National Building Regulations and or NHBC Standards.

The NVFB demonstrates functional compliance for various National Building Codes & Regulations including Approved Document B for England & Wales, Building (Scotland) Regulations 2004, Section 2.4 Cavities and NZ Building Code Clause C3: Fire affecting areas beyond the source

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

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

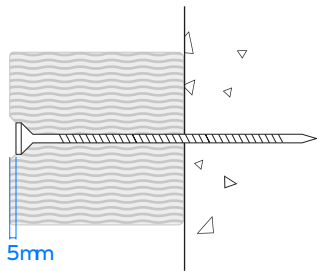
NVFB - Vertical and Horizontal

Cavity Size 10mm up to 75mm equates to product width min. 10mm up to 80mm wide (compression level dependent), 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.



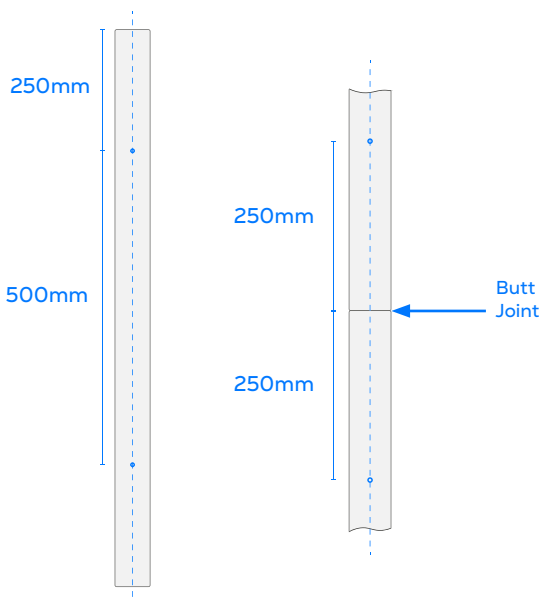
Use stainless steel screws, with a maximum head diameter of 12.5mm and with a length suitable for the cavity barrier and the substrate. Ensure that the screw head fully penetrates the face of the cavity barrier, the screw head should sit at least 5mm behind the face of the cavity barrier. Care should 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.

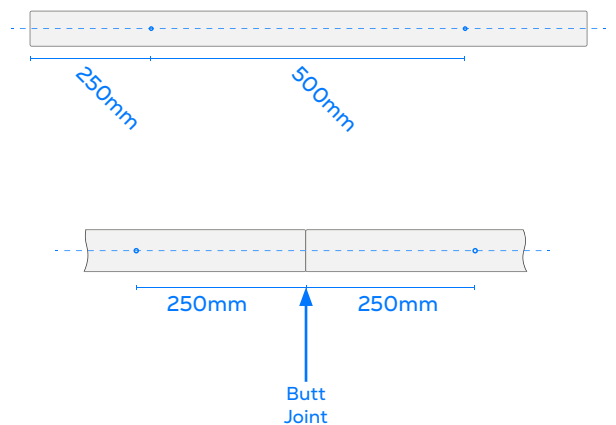
This will ensure that face fixings are positioned at 500mm centres across the continuous run of cavity barrier.

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

Vertical Install



Horizontal Install



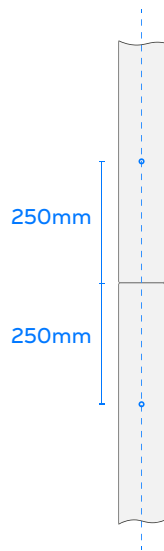
Fitting Instructions

Option 1 (continued)

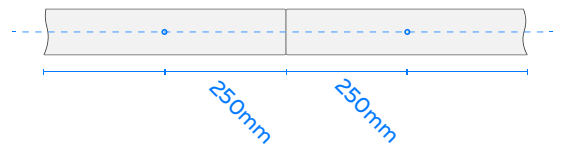
Where sections of cavity barrier are less than 1 linear metre in length, ensure that face fixings are positioned at a maximum 250mm from each end. For cut sections of cavity barrier less than or equal to 500mm in length only one fixing is required.

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

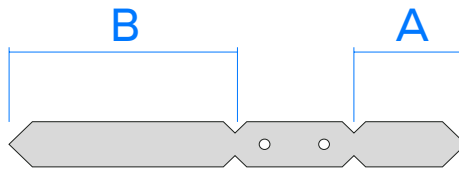
NVFB-Vertical and Horizontal

Cavity Size 76mm up to 600mm equates to product width min. 76mm up to 605mm wide (compression level dependent), 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.

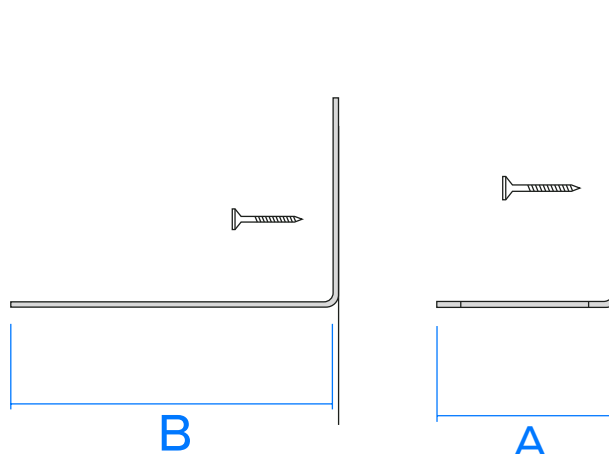
MP brackets are supplied with 2 fixing spikes, one spike is 65mm long (A), the other is 160mm long (B), with a central section for securing the bracket to the substrate. The level of compression required must be considered (see fire test evidence tables), care should be taken to ensure that the end of 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 compression.

To secure the bracket use minimum 1 No. 5mm Ø 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 bracket so that the NVFB sits tight against the substrate leaving no gaps.

If using only one fixing per bracket it must be ensured that the bracket is not at risk of rotating (e.g. for horizontally fixed brackets) and the substrate can accommodate one fixing, if in doubt two fixings should be used.

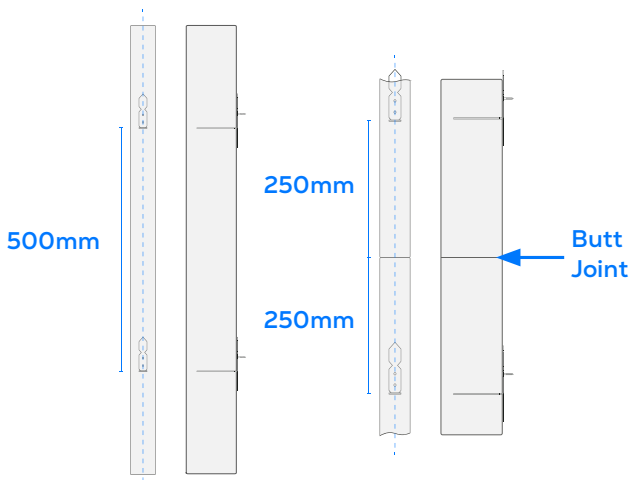


Option 2 (continued)

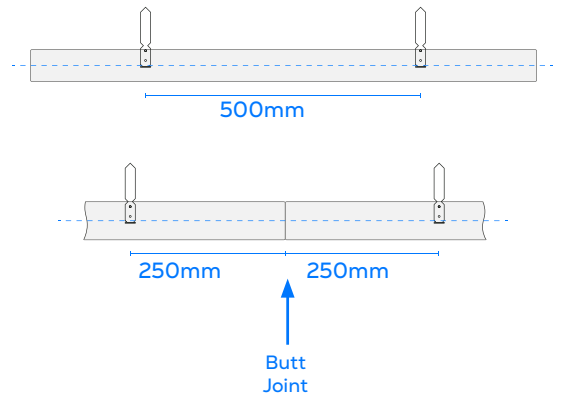
Fix 2 number MP brackets, per linear metre, to the substrate at maximum 250mm from the end of the cavity barrier, with a maximum spacing between brackets of 500mm. Where sections of cavity barrier are less than 1 linear metre in length, ensure that MP brackets are positioned at a maximum 250mm from each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



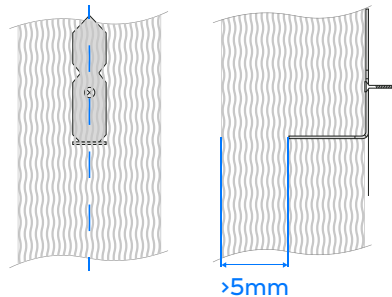
Horizontal Install



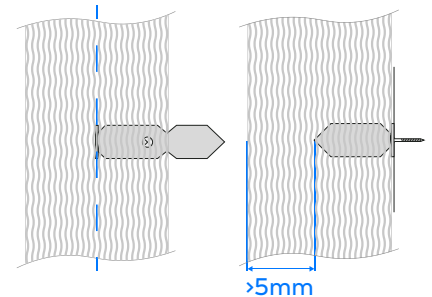
Push the cavity barrier onto the bracket spike, the brackets should impale the NVFB to approximately mid barrier depth and must not protrude through the face of the cavity barrier, remembering to allow for the final compression against the outer substrate also. The cavity barrier should be pushed fully 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.

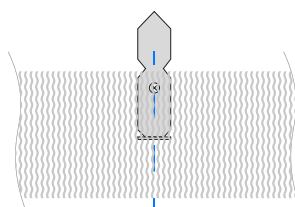
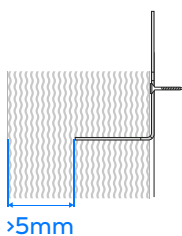
Vertical Install (vertical brackets)



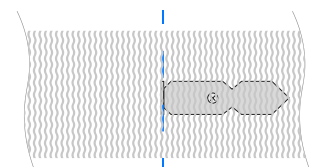
Vertical Install (horizontal brackets)



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.

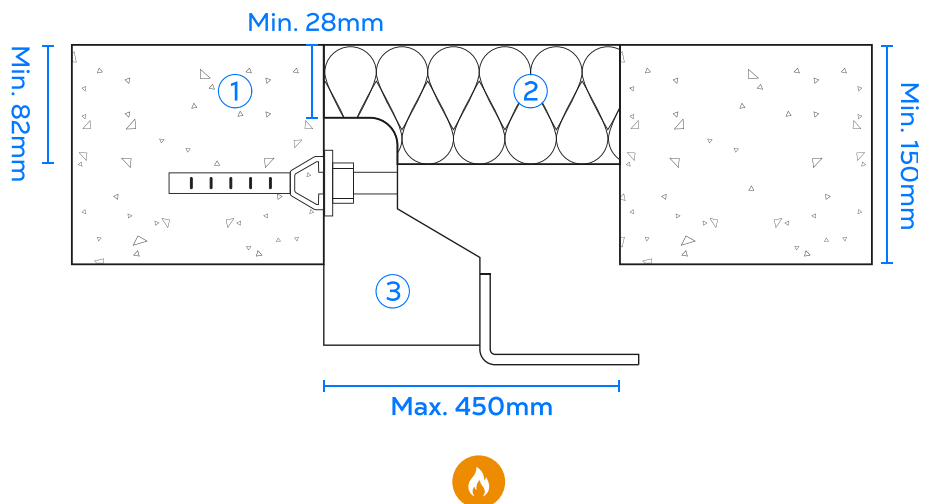
Any cutting of the NVFB on site to suit tolerances, shall be done accurately and kept to a minimum. Ensure that the minimum 5mm extra for the compression is maintained.

Ensure there is a minimum of 28mm of uncut NVFB and 28mm of floor slab from the top of the masonry support bracket.
(NB. take account of potential movement tolerance of masonry support bracket to ensure min. 28mm is maintained)

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.



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

Tools Required

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

PPE Required

- Hand Protection
- Eye Protection

The product is not subject to any warning or ban under Section 26 of the NZ Building Act 2004.

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.

Limitations

To ensure compliance to the relevant test evidence detailed within this Data Sheet the NVFB must be installed as per the fitting instructions by competent installers.

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
-

NVFB

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Advanced materials.
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Diamorph Group

Tenmat warrants the materials it produces will conform to Tenmat specifications and approved drawings where applicable. It is entirely the customer's responsibility to make the final product choice and satisfy themselves of the suitability of the product for the intended application, carrying out testing where required. For construction projects, all products which the customer is intending to use on a particular project must be approved in writing by the customer's building designer, system designer or design control professional, to ensure compliance with the latest regulations.

The information contained in Tenmat data sheets is presented in good faith. Tenmat Limited makes passive fire protection product suggestions based solely upon and limited to the information made available to Tenmat. Tenmat possesses knowledge of fire test data and offers manufacturers installation advice. Within reason, Tenmat is skilled at offering opinion concerning the installations in question, and can comment on interfaces with other construction materials, but this is not a recommendation or decision. Decisions on overall building fire strategy are not made by Tenmat. Tenmat products have been tested for a wide range of construction types, and they must be only used in accordance with Tenmat test evidence. Each specific Tenmat product must be installed into a construction that matches the corresponding test report. Tenmat product performance requires safe and proper handling and correct installation.