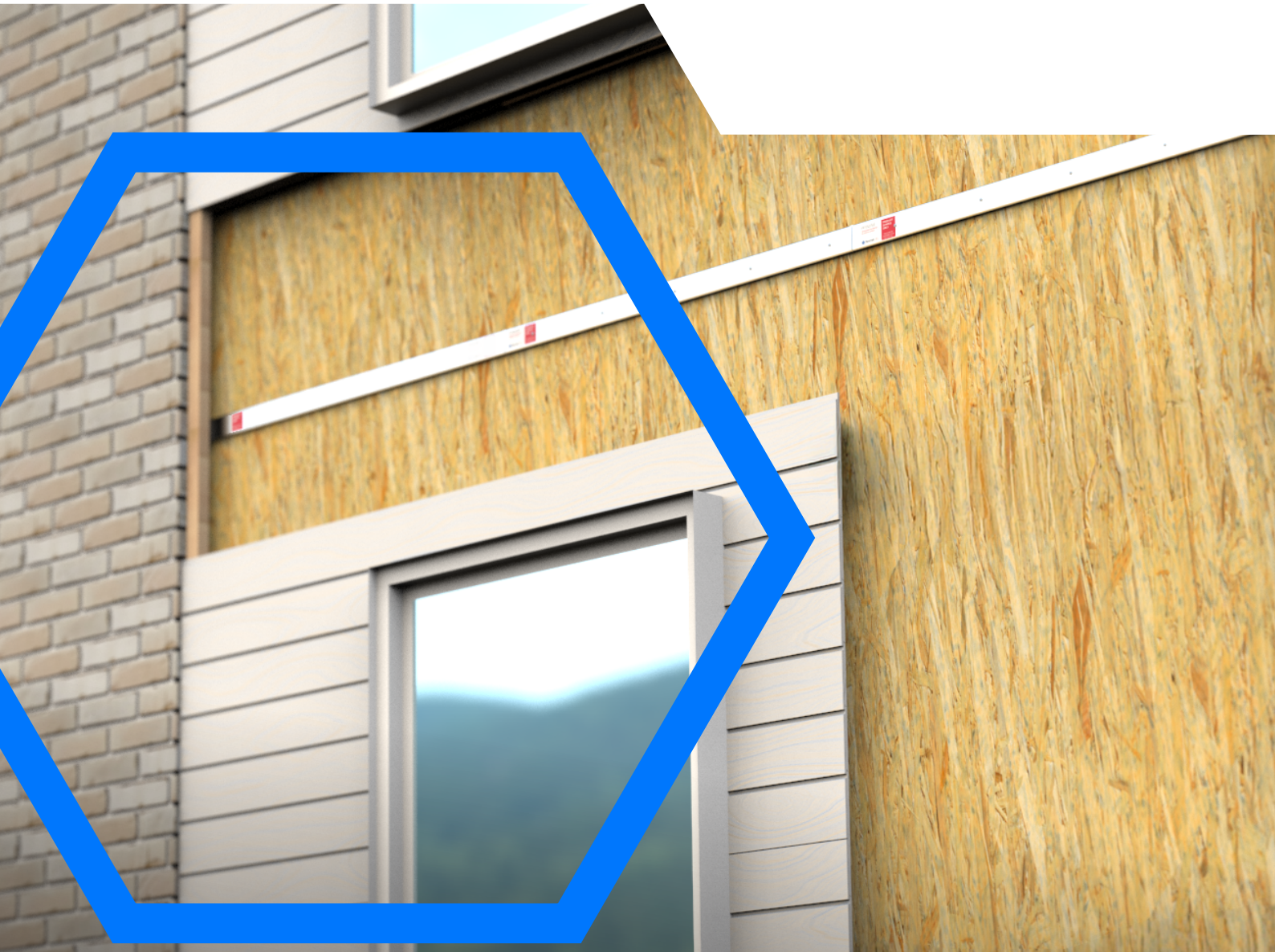
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FF102/50

FF102/50 Ventilated Cavity Fire Barrier

Tenmat's FF102/50 Ventilated Cavity Fire Barriers are designed to reinstate fire resistance performance within external wall cavities that require permanent (open-state) ventilation in non-fire conditions.

Passive Fire Protection - Cavity Barriers

Product Description

Tenmat's FF102/50, Ventilated Cavity Fire Barriers, are manufactured from a low smoke zero halogen high expansion intumescent material. They are designed to be installed horizontally or diagonally/inclined (max. 70° angle) to reinstate fire resisting performance to external wall cavities that are required to be ventilated (open-state) in non-fire conditions.

The FF102/50 is manufactured from a rigid intumescent material supplied in a strip format, it is also covered with a protective layer of aluminium foil for ease of handling.

In the event of a fire the FF102/50 intumescent material will expand to close the external wall cavity, providing effective fire resistance, for integrity and insulation for up to 120 minutes depending upon the construction of the external walls.

The FF102/50 is designed for use within cavities of up to 50mm and once installed will close the remaining free air gap in front of the 6mm cavity barrier of up to a maximum of 44mm (depending on construction type).

Product Details

- CCPI Verified
- An "open state" cavity fire barrier for use horizontally within uninsulated, ventilated and drained cavities
- Approved for use in inclined/diagonal applications (max. 70° angle) such as a gable end under a pitched roof
- Fire Rated for up to 120 minutes for both integrity and insulation when tested to the general principles of BS EN 1363-1 following ASFP TGD 19 guidance
- 3rd Party Certification - IFC Certification
- Tested for : Timber Frame, SIPS Panels, SFS, Concrete, Masonry, Render Systems & External Weatherboards
- Ventilated design – developed to allow maximum ventilation and drainage of cavities reducing the need for cavity trays or weepholes
- Suitable for "open-state" ventilated cavities up to 50mm wide
- Provided in strips of 1m long, 75mm wide and 6mm thick
- Lightweight - designed to be easily and quickly installed
- No maintenance required after installation

IFC Certification

UKAS PRODUCT CERTIFICATION 0175

CCPi ASSESSED PRODUCT INFORMATION 002300002/1227 Cavity Barriers

NBS

Tenmat

Approved Applications

FF102/50 “Open State” Cavity Fire Barrier

Tested to the principals of BS EN 1363-1 and in accordance with ASFP TGD19 guidance

Inner Leaf Substrate Type with Appropriate Fire Resistance	Outer leaf Substrate Type With Appropriate Fire Resistance	Orientation	Insulation Type Within Cavity	Maximum Cavity Width (in mm)	Maximum Open State Air Gap (in mm)	Product Fire Resistance Rating	
						Integrity	Insulation
OSB on Timber Frame [2] [8] or Non-combustible board including Versapanel on SFS [5] [8] or Masonry or Concrete	Knauf Windliner A2 Rated board [7] or Other min. A2 rated boards or Masonry or Concrete	Horizontal / Inclined (max. 70° angle) [10]	None	50	44	120 [2]	120 [2]
SIPS Panel [3]	Knauf Windliner A2 Rated board [7] or Other min. A2 rated boards or Masonry or Concrete	Horizontal / Inclined (max. 70° angle) [10]	None	50	44	120	120
OSB on Timber Frame [2] [8] or Non-combustible board including Versapanel on SFS [5] [8] or Masonry or Concrete	Fibre Cement Weather Boards - Lapped [4]	Horizontal / Inclined (max. 70° angle) [10]	None	25 (+12mm) [1]	19 (+12mm) [1]	120	120
OSB on Timber Frame [2] [8] or Non-combustible board including Versapanel on SFS [5] [8] or Masonry or Concrete	Fibre Cement Weather Boards - Lapped [4]	Horizontal / Inclined (max. 70° angle) [10]	None	38 (+12mm) [1]	32 (+12mm) [1]	120	120
OSB on Timber Frame [2] [8] or Non-combustible board including Versapanel on SFS [5] [8] or Masonry or Concrete	Fibre Cement Weather Boards - Flat [4]	Horizontal / Inclined (max. 70° angle) [10]	None	38	32	120	120
OSB on Timber Frame [2] [8] or Non-combustible board including Versapanel on SFS [5] [8] or Masonry or Concrete	Fibre Cement Weather Boards - Flat [4]	Horizontal / Inclined (max. 70° angle) [10]	None	50	44	120	120
OSB on Timber Frame [2] [8] or Cement particle board or other non-combustible board including Versapanel on SFS [5] [8] [9] or Masonry or Concrete	Rock Mineral Fibre External Wall Slab	Horizontal / Inclined (max. 70° angle) [10]	None - mineral fibre formed outer substrate	15	9	120	120
OSB on Timber Frame [2] [8] or Cement particle board or other non-combustible board including Versapanel on SFS [5] [8] [9] or Masonry or Concrete	Rock Mineral Fibre External Wall Slab	Horizontal / Inclined (max. 70° angle) [10]	None - mineral fibre formed outer substrate	25	19	120	120
OSB on Timber Frame [2] [8] or Cement particle board or other non-combustible board including Versapanel on SFS [5] [8] [9] or Masonry or Concrete	Rock Mineral Fibre External Wall Dual Density (DD) Slab [6]	Horizontal / Inclined (max. 70° angle) [10]	None - mineral fibre formed outer substrate	40	34	120	120

3rd Party Certification
IFC Certification - Certificate No. IFC1753
Fire Test Evidence
Field of Application Report - PAR/22672/04 Revision B
International Fire Consultants Ltd (IFC) part of KIWA UK Group
Technical Assessment Report - 4790359356-1 Issue 2
UL International

Approved Applications

[1] Fibre Cement weatherboards are approved with an overlapping detail resulting in a varying cavity size of up to 12mm greater than the timber batten depth.

[2] Timber Fire Test Evidence:

The fire ratings for OSB on timber frame constructions are not a full specification; the Principal Designer/Project Fire Engineer must confirm suitability of the chosen product or assembly to achieve the desired level of fire resistance.

Testing on timber frame inner substrates was carried out using a minimum 9 mm OSB sheathing board with a minimum 35 mm timber stud positioned directly behind the sheathing and aligned with the cavity barrier.

For OSB outer substrates, the cavity barrier's performance depends on the OSB remaining intact, stable, and in place, without deflection or failure that alters cavity size or compromises the board at the barrier location. Refer to Field of Application Report PAR/22672/04 Revision B.

For SIPs (Structural Insulated Panels) constructions, refer to the tested specification noted in Note [3].

The FF102/50 barrier was also used in a large-scale test simulating a fully developed post-flashover fire in a timber-frame building with timber cladding. Installed between ground and first floor levels, it limited concealed fire spread within the cavity.

Test conclusion: "The intumescent horizontal cavity barrier at first floor level prevented extensive fire spread within the structural frame and met the requirements for a short-duration fire resistance period," where short duration = 30 minutes.

[3] SIPS Panel fire testing consisted of 145mm thick SIPS Panel with 12.5mm thick OSB boards either side of 120mm wide timber studs and filled with PU Foam, Protect TF200 combustible breather membrane, 45mm wide timber stud behind the cavity barrier location, 50mm cavity formed by vertical 25x50mm timber battens stopped and started above and below the cavity barrier, Knauf Windliner 12.5mm thick outer substrate. Test Report 538815A.

[4] Approved Weatherboard parameters:
- Material type – Fibre cement board
- Thickness – 8 mm minimum
- Reaction to fire Class - A2, s1-d0 (or better)

See UL Assessment Report 4790359356-1 for full details.

[5] Non-combustible board on steel framed system (SFS) with direct and applicable fire test evidence to demonstrate that it can provide the level of fire resistance, as applicable, when tested to EN 1364-1 or EN 1365-2 with the selected facing material.

[6] SFS System build up - 118.5mm overall thickness comprising, 94mm wide steel stud profiles and 100mm Rockwool 45kg/m3 insulation, clad internally with 1 x 12.5mm British Gypsum Gyproc wallboard, clad externally with 1 x 12.5mm Versapanel cement bonded particle board with a 40mm cavity and an outer substrate of 80mm thick Rockwool Dual Density (DD) slab. Test Report 544507A.

[7] Knauf Windliner Sheathing Board, A2 s1 d0 Reaction to Fire Rating at 12.5mm thick.

[8] Tested breather membrane was Protect TF200, 0.3mm thick polypropylene sheet with Class 1 surface spread of flame tested to BS476-7 and Class E when tested to BS EN 11925-2. Other membranes of the same or better reaction to fire classification and thickness also approved.

[9] Cement particle boards must be minimum Reaction to Fire Class B s1 d0.

[10] Gable End Walls - Diagonal / Inclined Installation

Kiwa Fire Safety Compliance conclude that any of the above approved applications may be inclined at angles up to 70° from the horizontal without causing deterioration of the test results.

Fire test evidence, safety data sheets and previous versions of product information are all available upon request by contacting Tenmat, please click here

Technical Information

Colour	Silver
Finish	Foil
Storage	Dry, ambient (see Safety Data Sheet)
Weight	0.4kg
Fire Resistance	See Fire Test Evidence table.
Durability to EOTA TR024 (Intumescent/Reactive Seal)	Type X - intended for outdoor use or exposed to free weathering - rain, UV, high temperatures in summer, frost and frost-thaw in winter.[1]
European Product Declaration (EPD)	EPD in accordance with EN15804+A2 & ISO 14025 / ISO 21930[2]
Smoke Generation - BS EN 45545-2	Low Smoke Generation in intumescent material testing[3] Tenmat FF102 Results Ave. Ds(max)20 value =3 Max. limit 300 as per EN45545-2
Halogen Content	Halogen-free Tested Max. Values Fluorine = 0.0006% / 6ppm Bromine = 0.0001% / 1ppm Chlorine = 0.0007% / 7ppm Iodine = 0.0006% / 6ppm Max. limit 0.5% / 5000ppm[4]
Indoor Air Quality (VOC Emissions)	Tested in accordance with UL 2818. TVOC emissions comply with UL 2818 limits and individual VOC emissions comply with applicable CDPH CREL requirements.[5]
Working Life	60 years[6]
Dimensions	Thickness = 6mm Width = 75mm Length = 1000mm

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

[1] Type X testing to EOTA TR024 detailed in Report - (2300/522/18) - 2/2018 - Br/Mü dd. 2018/06/06.

[2] European Product Declaration (EPD) - Report HUB-2489.

[3] Testing for Ds(max)20 records the greatest smoke density generated during twenty minutes, it is a logarithmic expression relating to how much light can be transmitted through the smoke. In the EN45545-2 standard, a maximum value of 300 must be demonstrated for the most demanding applications, typically underground passenger rail with autonomous vehicles. Tenmat's intumescent material can therefore be considered to be low-smoke. Test evidence in Doc. Ref. 396264.

[4] According to the IEC 60754-1 standard, halogen-free equates to less than 0.5% / 5000ppm hydrogen halide gas release on combustion. This means materials must contain below these levels for fluorine, chlorine, bromine, or iodine. Doc. Ref. 3802815

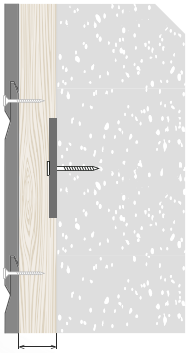
[5] Complies with UL 2818 TVOC emission limits and applicable CDPH Standard Method (CREL) VOC requirements. The test results may be used as supporting evidence for project assessments under BREEAM, LEED, WELL, and other low-emitting materials programmes that recognise CDPH Standard Method and UL 2818 VOC emission testing. Report No: WD-R-260710-0102

[6] Independent 3rd party review of test data confirmed the intumescent would be expected to be capable of performing its function for a period of at least 60 years in an environment which is protected from the elements for normal temperature range of -5C to +30C but can reasonably be expected to cope with intermittent extremes in the range of -20C to +50C. KIWA Technical Report TN/25082/01.

Technical Drawings

Typical Detail behind Fibre Cement Weather Boards





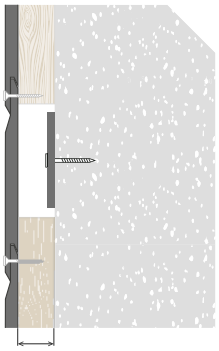
Timber Batten 38/50mm
Max. Air Gap 32/44mm
(from front face of FF102/50)



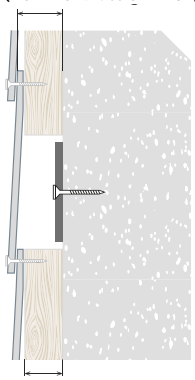
FF102/50 between battens (stop start)

Typical Detail behind Fibre Cement Weather Boards (continuous through battens)

Max. distance to the back
of the cladding 37/50mm
Max. Air Gap 31/44mm
(from front face of FF102/50)



Timber Batten 38/50mm
Max. Air Gap 32/44mm
(from front face of
FF102/50)



Timber Batten 25/38mm

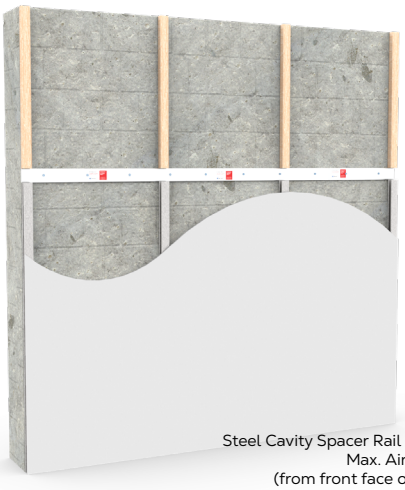
When stopping and starting vertical timber battens, ensure a gap of min. 10mm is left above and below the FF102/50

Recommended installation:

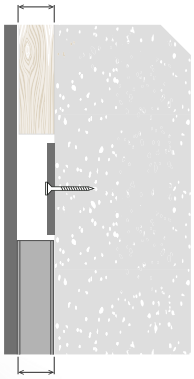


FF102/50 continuous through battens

Typical Detail behind non-combustible external wall substrates



Timber Batten
max. 50mm



Steel Cavity Spacer Rail max. 50mm
Max. Air Gap 44mm
(from front face of FF102/50)

When stopping and starting vertical timber battens, ensure a gap of min. 10mm is left above and below the FF102/50

Tested detail includes for various non-combustible outer substrates including mineral fibre external wall slab (full details can be provided upon request).

Recommended installation:



FF102/50 continuous through battens

It is recommended to ensure the cavity barrier is installed continuously without interruption wherever possible.

The use of timber battens to act as vertical cavity barriers is not approved by Tenmat and must be agreed by others.

If timber battens break the cavity barrier line, the ability of vertical timber battens to fully seal off all gaps against the outer substrate, in particular in the case of lapped cladding, must be considered.

The ultimate acceptance of vertical timber battens to be used as a vertical cavity barrier and sufficiently seal against the outer substrate is the responsibility of the principal designer or project fire engineer.

Tenmat recommends considering the use of the NVFB-WB non-ventilated cavity fire barrier as a fire tested vertical cavity barrier behind external flat or lapped weatherboard cladding.

Pre Installation

The principal designer must approve the use of any cavity barrier, in conjunction with the associated fire test evidence, 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 FF102/50 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 FF102/50 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.

- Project name, location and postcode.
- Building height and use (as per ADB V1/2 2020).
- Fire resistance period/rating required. Integrity and Insulation.
- Composition and construction of external walls, both inner and outer substrates.
- Total external wall cavity size. (Maximum distance from outer face of inner substrate to inner face of inner substrate including tolerances/profiles).
- Type and thickness of cavity insulation if present.
- What ventilation gap is required horizontally?
- Are non-vented cavity barriers required vertically?
- Quantity required to complete project?
- When will materials be required?
- 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

In most circumstances the cavity barrier should be installed uninterrupted in a continuous line. In certain situations, installation in between vertical battens has been tested (see technical detail drawings).

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 the cavity barrier can not expand into.

Intumescent cavity barriers are tested and designed to expand outwards, from the face of the intumescent material only, additional design details will be required to account for external corners.

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.

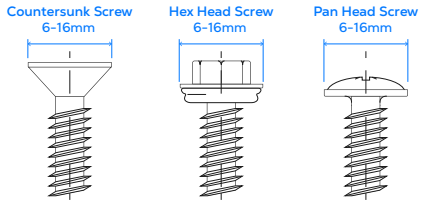
The cavity barrier should be installed onto a flat surface, with no gaps behind the cavity barrier, the maximum space in front of the cavity barrier should not be greater than 44mm (or less depending on construction, see cavity size and air gap details in fire test evidence table).

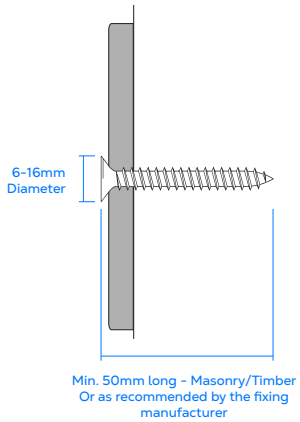
The Tenmat technical team should be consulted in any instance where the principal designer is uncertain as to any issues which may impede the ability of the cavity barrier to perform as expected.

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.

Installation Instructions





1. Check the Area

Make sure the cavity is clear of obstructions.
If any gap or penetration could allow fire to travel vertically, firestop it separately using an approved firestop product.

2. Fixings (Screws)

Use stainless steel screws.
Minimum head diameter: 6mm
Maximum head diameter: 16 mm
(countersunk, hex head, or integrated washer types acceptable, including rubber-sealed washers).

Minimum fixing depth:

50mm into masonry/timber
Unless the fixing manufacturer specifies otherwise.

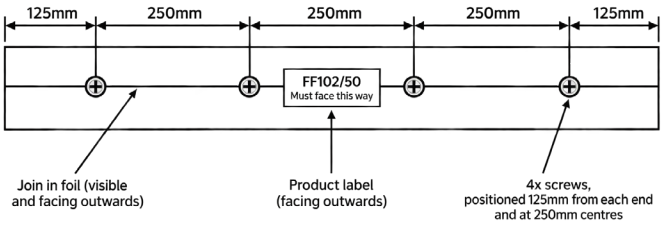
3. Fastening the Product

Tighten fixings only until the head touches the product—do not overtighten to avoid damaging the strip.

Always install the product with the labelled side and visible central foil joint facing the cavity, ensuring the label and foil joint remain visible after installation.

Where lengths are cut and the product label is no longer visible, the central foil joint must still face the cavity to provide a clear indication of the correct installation orientation.

Fix along the centre line of the barrier.



4. Fixing Layout

For full-length sections (1 metre length):

First fixing: maximum 125 mm from one end.
Then fix at max 250 mm centres (4 fixings per metre).
Final fixing: maximum 125 mm from the other end.

For sections under 1 metre:

Place fixings maximum 125 mm from each end.
Add extra fixings in between at maximum 250 mm spacing.
For short cut pieces (≤ 250 mm):
At least one fixing is required, two fixings are recommended.

5. Joining Multiple Lengths

When adding lengths, make sure they are tightly butted together.
No gaps should be visible between sections.

Gable End Walls - Diagonal / Inclined Installation

For diagonal or inclined installations, the maximum angle permitted is 70° from the horizontal. Cavity barriers should be installed continuously and without interruption wherever possible.

Where timber battens interrupt the horizontal cavity barrier line, if agreed by others, it must be confirmed that they can fully seal all gaps against the outer substrate, especially with lapped cladding, where achieving a complete seal may be difficult.

Timber Frame:

When installing on a timber frame inner substrate, ensure the construction includes a minimum 9 mm OSB sheathing board with a minimum 35 mm timber stud positioned directly behind the sheathing board and aligned with the cavity barrier.

Limitations

To ensure compliance to the relevant test evidence detailed within this Data Sheet, the product must be installed as per the fitting instructions by competent installers. The product must only be used in a horizontal or diagonal/inclined (max. 70° angle) orientation.

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.
- Where product(s) is damaged or tampered, new product should be installed in line with installation guidance.

Storage Conditions

- See Safety Data Sheet

Tools Required

- Sharp Knife
- Measuring Tape
- Appropriate drill
- Stainless steel fixings

PPE Required

- Hand protection
- Eye protection
- Follow project site requirements

Disposal

- Outer packaging can be cleaned and recycled.

- Intumescent is non hazardous waste and is categorised as “waste accepted at landfill for non-hazardous waste” and local regulations should be followed.

Please see Safety Data Sheet for more information.

FF102/50

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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.

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Revision: 5	Date: 05/11/26	
PB: CM	CB: CT	AB: DR