



# 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.

## 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 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 allowing it to be provided 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
- 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



## 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<br>Substrate Type<br>(facing cavity) with<br>Appropriate minutes (EI)<br>Fire Rating   | Outer leaf<br>Substrate Type (facing cavity)<br>With Appropriate Fire Resistance | Orientation | Insulation<br>Type<br>Within Cavity                  | Maximum Cavity<br>Width<br>(in mm) | Maximum<br>Open State<br>Air Gap (in<br>mm) | Product Fire<br>Resistance Rating |                  |
|---------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|-------------|------------------------------------------------------|------------------------------------|---------------------------------------------|-----------------------------------|------------------|
|                                                                                                   |                                                                                  |             |                                                      |                                    |                                             | Integrity                         | Insulation       |
| OSB on Timber Frame <sup>2</sup> ,<br>Non-combustible board<br>on SFS**** or concrete/<br>masonry | Masonry                                                                          | Horizontal  | None                                                 | 50                                 | 44                                          | 120 <sup>2</sup>                  | 120 <sup>2</sup> |
| SIPS Panel <sup>3</sup>                                                                           | Knauf Windliner A2 Rated<br>Sheathing Board                                      | Horizontal  | None                                                 | 50                                 | 44                                          | 120                               | 120              |
| Masonry                                                                                           | Hardie® Plank and alternative<br>lapped weatherboards <sup>4</sup>               | Horizontal  | None                                                 | 25 (+8mm) <sup>1</sup>             | 19 (+8mm) <sup>1</sup>                      | 120                               | 120              |
| Masonry                                                                                           | Hardie® Plank and alternative<br>lapped weatherboards <sup>4</sup>               | Horizontal  | None                                                 | 38 (+8mm) <sup>1</sup>             | 32 (+8mm) <sup>1</sup>                      | 120                               | 120              |
| Masonry                                                                                           | Hardie® VL Plank and alternative<br>flat weatherboards <sup>4</sup>              | Horizontal  | None                                                 | 38                                 | 32                                          | 120                               | 120              |
| Masonry                                                                                           | Hardie® VL Plank and alternative<br>flat weatherboards <sup>4</sup>              | Horizontal  | None                                                 | 50                                 | 44                                          | 120                               | 120              |
| CP Board on SFS                                                                                   | Mineral Fibre<br>External Wall Slab                                              | Horizontal  | None -<br>mineral fibre<br>formed outer<br>substrate | 15                                 | 9                                           | 120                               | 120              |
| CP Board on SFS                                                                                   | Mineral Fibre<br>External Wall Slab                                              | Horizontal  | None -<br>mineral fibre<br>formed outer<br>substrate | 25                                 | 19                                          | 120                               | 120              |

#### 3rd Party Certification

IFC Certification – Certificate No. IFC1753

#### Fire Test Evidence

Field of Application Report – PAR/22672/04

International Fire Consultants Ltd (IFC) part of KIWA UK Group

Technical Assessment Report – 4790359356-1

UL International

<sup>1</sup>Hardie® Plank, Hardie® VL Plank and other weatherboards are approved with an overlapping detail resulting in a varying cavity size of up to 8mm greater than the timber batten depth.

<sup>2</sup>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.

<sup>3</sup>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

<sup>4</sup>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.

<sup>5</sup>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.

#### Timber/Timber Test Evidence

Timber Frame inner substrate tested with min. 9mm thick OSB Sheathing Board with a minimum 35mm thick timber stud that must be in place directly behind the sheathing board in line with the cavity barrier. For timber SIPS Panel tested specification see note <sup>3</sup>.

The FF102/50 was a component within a large scale simulation test of a fully developed post flashover fire within a timber frame building with timber cladding. The FF102/50 was fitted between ground and first floor levels within the cavity to prevent the unseen spread of fire.

The report stated:

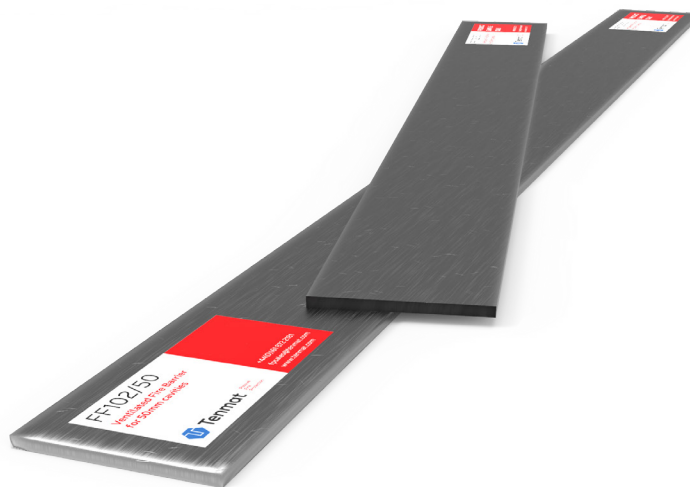
‘The intumescent horizontal cavity barrier at fire floor level prevented extensive fire spread within the structural frame. The barrier met the requirements in relation to a short duration fire resistance period.’ Short duration in this context meaning 30 minutes.’

## Technical Information

|                                    |                                                                                                                                                                                                                                                                                                                                                                                     |    |          |           |          |        |          |             |          |         |          |           |          |                 |          |
|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----------|-----------|----------|--------|----------|-------------|----------|---------|----------|-----------|----------|-----------------|----------|
| Property                           | FF102/50                                                                                                                                                                                                                                                                                                                                                                            |    |          |           |          |        |          |             |          |         |          |           |          |                 |          |
| Free Expansion                     | 26:1 Ratio                                                                                                                                                                                                                                                                                                                                                                          |    |          |           |          |        |          |             |          |         |          |           |          |                 |          |
| Colour                             | Silver                                                                                                                                                                                                                                                                                                                                                                              |    |          |           |          |        |          |             |          |         |          |           |          |                 |          |
| Finish                             | Aluminium Foil                                                                                                                                                                                                                                                                                                                                                                      |    |          |           |          |        |          |             |          |         |          |           |          |                 |          |
| Cuttability                        | Can be cut to length                                                                                                                                                                                                                                                                                                                                                                |    |          |           |          |        |          |             |          |         |          |           |          |                 |          |
| Working Life                       | 60 years (see below)                                                                                                                                                                                                                                                                                                                                                                |    |          |           |          |        |          |             |          |         |          |           |          |                 |          |
| Long Term Storage Conditions       | Dry, ambient                                                                                                                                                                                                                                                                                                                                                                        |    |          |           |          |        |          |             |          |         |          |           |          |                 |          |
| Transportation Storage Temperature | -20°C to +70°C                                                                                                                                                                                                                                                                                                                                                                      |    |          |           |          |        |          |             |          |         |          |           |          |                 |          |
| Durability                         | Type X intended for use in conditions exposed to weather (UV, rain, frost)                                                                                                                                                                                                                                                                                                          |    |          |           |          |        |          |             |          |         |          |           |          |                 |          |
| Smoke/Halogen Content              | Low Smoke / Zero Halogen                                                                                                                                                                                                                                                                                                                                                            |    |          |           |          |        |          |             |          |         |          |           |          |                 |          |
| Minimum Total Working Life (Years) | Based on typical climatic conditions <table> <tr> <td>UK</td><td>60 years</td></tr> <tr> <td>Australia</td><td>45 years</td></tr> <tr> <td>France</td><td>60 years</td></tr> <tr> <td>New Zealand</td><td>60 years</td></tr> <tr> <td>Germany</td><td>60 years</td></tr> <tr> <td>Hong Kong</td><td>40 years</td></tr> <tr> <td>The Netherlands</td><td>60 years</td></tr> </table> | UK | 60 years | Australia | 45 years | France | 60 years | New Zealand | 60 years | Germany | 60 years | Hong Kong | 40 years | The Netherlands | 60 years |
| UK                                 | 60 years                                                                                                                                                                                                                                                                                                                                                                            |    |          |           |          |        |          |             |          |         |          |           |          |                 |          |
| Australia                          | 45 years                                                                                                                                                                                                                                                                                                                                                                            |    |          |           |          |        |          |             |          |         |          |           |          |                 |          |
| France                             | 60 years                                                                                                                                                                                                                                                                                                                                                                            |    |          |           |          |        |          |             |          |         |          |           |          |                 |          |
| New Zealand                        | 60 years                                                                                                                                                                                                                                                                                                                                                                            |    |          |           |          |        |          |             |          |         |          |           |          |                 |          |
| Germany                            | 60 years                                                                                                                                                                                                                                                                                                                                                                            |    |          |           |          |        |          |             |          |         |          |           |          |                 |          |
| Hong Kong                          | 40 years                                                                                                                                                                                                                                                                                                                                                                            |    |          |           |          |        |          |             |          |         |          |           |          |                 |          |
| The Netherlands                    | 60 years                                                                                                                                                                                                                                                                                                                                                                            |    |          |           |          |        |          |             |          |         |          |           |          |                 |          |

## Sizes

6mm (thick) x 75mm (wide) x 1000mm (long)

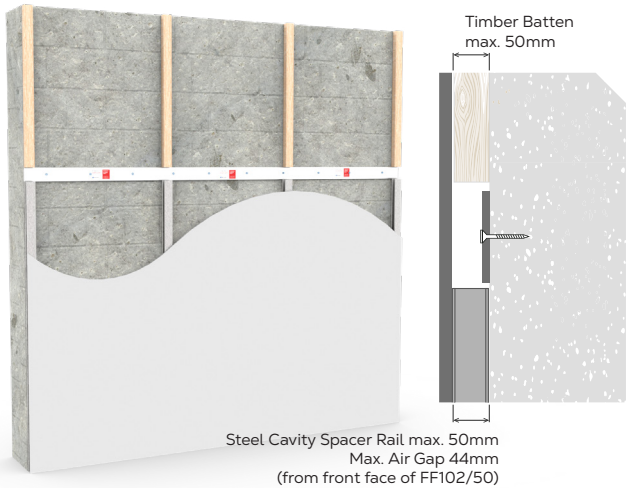


Technical Drawings

Typical Detail behind Hardie® VL Plank and other generic weatherboards



Typical Detail behind non-combustible external wall substrates



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

Recommended installation:

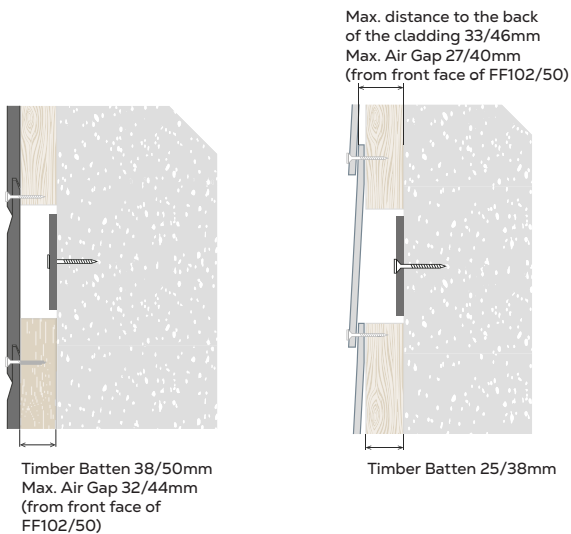


It is recommended to ensure the cavity barrier is installed continuously without interruption wherever possible.

Typical Detail behind lapped Hardie® Plank and other generic weatherboards (between battens)



Typical Detail behind Hardie® Plank and other generic weatherboards (continuous through battens)



Recommended installation:



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

## Pre Installation

The principal designer must approve the use of any cavity barrier, in conjunction with the products fire test 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 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.

## Tools Required

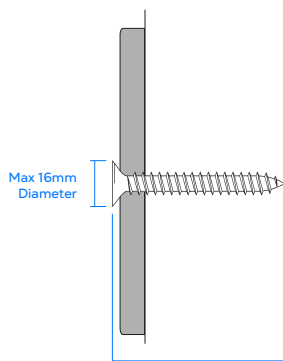
- Sharp Knife
- Measuring Tape
- Stainless Steel screws or nails - Stainless Steel Screws or Nails with a maximum head diameter of 16mm
- Appropriate drill for fixing type if using screws

## PPE Required

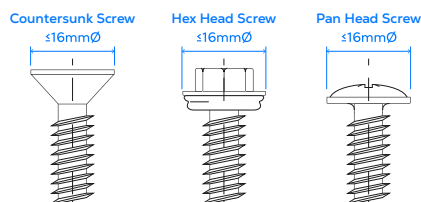
- Hand protection
- Eye protection

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

## Installation Instructions



Min. 25mm long - Timber  
Min. 50mm long - Masonry  
Or as recommended by the  
fixing manufacturer



- Double check for any obstructions, ensure that if there are any that could allow fire to pass vertically, they are firestopped separately using an approved and applicable firestop product.
- Affix the product using stainless steel screws or nails at a maximum spacing of 250mm with a maximum head diameter of 16mm (screws can be countersunk, hex head and with integrated washer as long as the overall diameter is max. 16mm. Integrated washers with rubber gasket seal also tested). Fixing lengths should be suited to the substrate with a recommended minimum fixing depth of 50mm in masonry and 25mm into timber unless otherwise specified by the fixing manufacturer.
- Tighten any fastenings until the head is just touching the product, it should not be overtightened as this may damage the strip. If using nails, then care should be taken to ensure that the nail finishes flush with the front face of the fire barrier and is not recessed or does not pull through. No damage should be caused to the fire barrier when fixing with nails. Nail guns, if used, must have the pressure sufficiently reduced to take this guidance into account.
- When attaching to a solid substrate ensure that the fixings are along the centre line of the fire barrier and the labelled side is facing out into the cavity. (So that you can read the label once the fire barrier is installed).
- Position the first screw fixing at a maximum 125mm from one end, continue to face fix through at maximum 250mm centres (4 screws per linear meter), ensuring that the final fixing is a maximum 125mm from the end of the cavity barrier. This will ensure that face fixings are positioned at 250mm centres across the continuous run of cavity barrier. Where sections of cavity barrier are less than 1 linear meter in length, ensure that face fixings are positioned at a maximum 125mm from each end with additional fixings being positioned at maximum 250mm centres between the end fixings.
- For cut sections of cavity barrier less than or equal to 250mm in length only one fixing is required. If adding additional lengths, ensure they are tightly butted up against each other.

### Intended Use

As a cavity barrier, within external wall cavities requiring permanent (open-state) ventilation, to reinstate fire resistance performance of uninsulated cavities of up to 50mm, 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

- Take care not to exceed safe working loads and heights for storage shelves and racks



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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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