

VFB Plus

VFB Plus Ventilated Fire Barrier

Tenmat's VFB Plus Ventilated Fire Barriers are "open state" cavity fire barriers designed to offer fire resistance performance within external wall cavities that require permanent (open-state) ventilation in non-fire conditions.

Product Description

Tenmat's VFB Plus Ventilated Fire Barriers are 'open state' cavity fire barriers for ventilated cavities of up to 450mm.

Each VFB Plus consists of a specially formulated fire rated stone mineral wool section with an integral high expansion intumescent seal fixed to the leading edge.

The VFB Plus then leaves a maximum 44mm air gap to allow for drainage and maintain ventilation in normal use.

In a fire situation the intumescent seal rapidly expands to seal off the air gap and prevent vertical fire spread within the external wall.

The product has undergone extensive fire testing following the principles of BS EN1363-1 and in accordance with ASFP TGD19 (Fire Resistance Test for 'Open-State' Cavity Barriers).

The VFB Plus are mechanically fixed horizontally within ventilated cavities behind the external wall substrate following the fire compartment line.

The VFB Plus are used horizontally and can be installed in conjunction with Tenmat NVFB Non-Ventilated Fire Barriers which provide vertical fire separation along fire compartment party wall lines.

Product Details

- CCPI Verified
- 3rd Party Certification - IFC Certification
- Typical Fire Ratings of minimum 30 to 60 minutes Integrity and Insulation
- Higher Fire Ratings available dependent on application
- Fire Tested on Timber Frame Systems
- Fire Tested on Steel Frame Systems (SFS)
- Maintains a 44mm air gap
- Up to 450mm cavities tested
- Standard thickness of 75mm
- Durability and Age Tested
- Fixing brackets included as standard

Sizes

Thickness (Total Cavity less 44mm Air Gap) x 75mm x 1000mm

Fire Test Evidence

Fire Test performance to BS EN 1363-1 and to the principles of ASFP TGD19

Inner Leaf Substrate Type (facing cavity) with Appropriate minutes Fire Resistance	Outer leaf Substrate Type (facing cavity) With Appropriate Fire Resistance	Orientation	Insulation Type Within Cavity (interrupted)	Maximum Cavity Width (in mm)	Maximum Open State Air Gap (In mm)	Product Dimensions (thickness x height x length in mm)	Product Fire Resistance Rating	
							Integrity	Insulation
10mm Cement Particle Board (Cempanel)	Autoclaved Aerated Concrete	Horizontal	None	60	44	16 x 75 x 1000	180	180
12.5mm Weather Defence Board on SFS	Autoclaved Aerated Concrete	Horizontal	25mm Phenolic	80	44	36 x 75 x 1000	120	90
Autoclaved Aerated Concrete	Autoclaved Aerated Concrete	Horizontal	100mm PIR	300	44	256 x 75 x 1000	60	60
Autoclaved Aerated Concrete	Autoclaved Aerated Concrete	Horizontal	100mm PIR	450	44	406 x 75 x 1000	30	30
12.5mm Weather Defence Board (Siniat Gtec)	Autoclaved Aerated Concrete	Horizontal	100mm PIR	450	44	406 x 75 x 1000	30	30
12.5mm Calcium Silicate Board (Y Wall)	Autoclaved Aerated Concrete	Horizontal	100mm PIR	450	44	406 x 75 x 1000	60	30
Timber Frame*	Autoclaved Aerated Concrete	Horizontal	None	60	44	16 x 75 x 1000	120	90
Timber Frame*	Autoclaved Aerated Concrete	Horizontal	None	300	44	256 x 75 x 1000	30	30

3rd Party Certification:

IFC Certification - Certificate No. IFCC 1750

Fire Test Evidence:

Field of Application Report - PAR22672/01

* 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.

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.

The types of insulation tested do not infer generic approval for these insulation products and approval should be sought from the insulation manufacturers depending upon the particular type of construction being built. Insulation is tested interrupted to prevent the possibility of fire bypassing behind the cavity barrier.

The ASFP-TGD19 test standard allows for insulation to be replaced with insulation that is listed as better using the hierarchy as below and must be installed interrupted. Notes on insulation from TGD19:2017-13.3 Insulation. For interrupted insulation the following hierarchy is used:

Best- stone wool, glass wool, phenolic, PIR, PUR, EPS - Worst

Technical Information

Colour	Red
Finish	Polythene Wrap
Cuttability	Can be cut to length
Storage	Dry, ambient
Transportation Storage Temperature	-20°C to +70°C
Durability	Type X intended for use in conditions exposed to weather (UV, rain, frost)
Fungal Resistance	Protected by polythene
Smoke/Halogen Content	Low Smoke / Zero Halogen
Minimum Total Working Life (Years)	Based on typical climatic conditions UK 60 years Australia 45 years France 60 years New Zealand 60 years Germany 60 years Hong Kong 40 years The Netherlands 60 years
Dimensional Tolerances	Thickness +10/-0mm Width +5/-0mm Length +0/-5mm

Working life, durability, halogen content and smoke emission data refers to the active intumescent component.

General Design & Installation Considerations

Maximum free air gap for this cavity barrier is 44mm, the space in front of the intumescent strip on the face of the cavity barrier to the rear of the external wall surface.

Open state cavity barriers should be installed in a continuous run, (with the exception of abutting up to full fill vertical cavity barriers). 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 cavity barriers should be installed first.

Cavity barriers may be cut to length as required, adjacent lengths must be tightly abutted together.

The intumescent face of the cavity barrier should be unrestricted and free to expand in a fire situation, fully filling the cavity.

An identification label is attached to the intumescent face of the cavity barrier, ensure this faces out into the open cavity. Also ensure the label is visible and legible and reads the right way up.

If the identification label is not legible please contact Tenmat, the label is important in terms of identifying the product in the future, for example during fire risk assessments or fire safety inspections.

Cavity barrier fixing brackets, both multi purpose, (MP bracket) or high performance (HP bracket) 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 horizontal cavity barrier must be installed with the spike inserted centrally (horizontally) to the rock mineral wool section of the cavity barrier with the bracket fixed above and not below the cavity barrier.

For Timber Frame constructions, a minimum 35mm thick timber stud must be in place directly behind the sheathing board following the line with the cavity barrier.

The use of tape is not required over the joints between the lengths of cavity barrier, and if used should not be applied over the face of intumescent material.

The cavity barrier must be installed following the installation methods described below.

The cavity barrier must not be penetrated by any other mechanical or electrical services.

Fitting Instructions

VFB Plus

Fire Barrier Support Details

Cavity Size (mm)	Product Width (mm)	Fitting Option Number	Barrier Support Type	No. of supports per metre	Maximum Centres (mm)
60-120	16-76	1	Screw	4	250
121-134	77-90	2	MP Bracket	2	500
135-259	91-215	3	MP Bracket	2	500
260-300	216-256	4	MP Bracket	3	350
301-450	257-406	5	HP Bracket	2	500

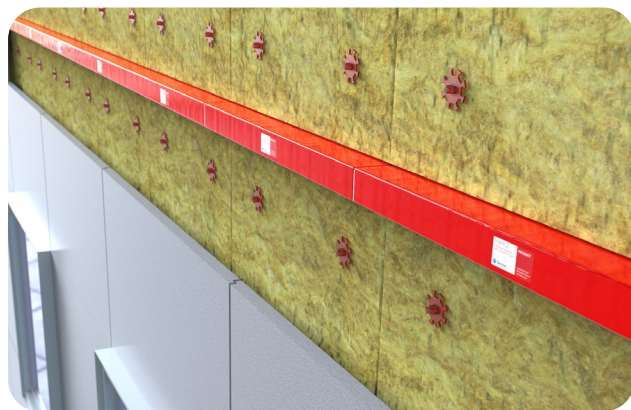
If the barrier is cut to short lengths of <250mm, it should be ensured that each length has at least one fixing holding intumescent seal in place. This can be located on the front edge of the fire barrier underneath the polythene seal. If no fixing is located, then either another section of fire barrier should be used or alternatively a further stainless steel, countersunk head screw with max. 11.5mm head diameter and a min. length of 65mm should be fixed at the mid-point.

No additional fixings to the front face are required for product widths greater than 76mm as the intumescent seal is already mechanically screw fixed during the manufacturing process, unless the product is cut to sections of <250mm. Screws for direct fire barrier fixing refers to stainless steel, countersunk head screws, max. 11.5mm head diameter, suited to the substrate in question.

If fire barrier is directly screw fixed, the screws should penetrate the fire barrier at the mid point and should finish flush or slightly proud of the front face. Care should be taken not to overtighten as this may affect the performance of the intumescent seal. Fixings for brackets should be non-combustible and suited to the substrate.

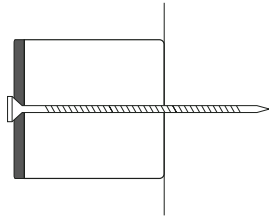
It must also be ensured that any bracket fixing does not prevent the back of the fire barrier from fitting tightly against the substrate ensuring no gaps. Brackets must impale the fire barrier at mid thickness. Brackets should not penetrate the front face of the barrier and if required should be cut down in length to prevent this.

Screws for direct fixing and fixings to secure brackets are not supplied by Tenmat. For fire barriers cut down in length <200mm, minimum one support required. For cut sections >201mm minimum two supports required and/or follow above table. For cavities less than 40mm, contact Tenmat for alternative products.



Option 1

VFB Plus- Product width across cavity 16mm up to 75mm wide, directly faced fixed



Use stainless steel countersunk head screws, with a maximum head diameter of 16mm and with a length suitable for the cavity barrier and the substrate. Ensure that the countersunk screw head does not fully penetrate the face of the cavity barrier, the screw head should sit flush or slightly proud.

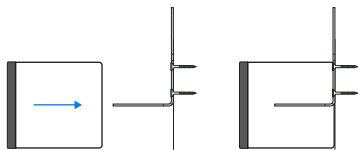
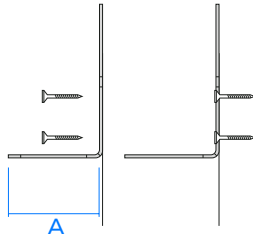
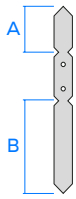


Position the first screw fixing through the centre line of the face of the cavity barrier at a maximum 125mm from one end, continue to face fix through at maximum 250mm centres (4 screws per linear meter), ensuring that the final fixing is a maximum 125mm from the end of the cavity barrier. This will 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 fixing 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.

For Timber Frame constructions, a minimum 35mm thick timber stud must be in place directly behind the sheathing board following the line with the cavity barrier.

Option 2



VFB Plus- Product width across cavity from 76mm up to 90mm, fixed using 2 multi purpose (MP) 65mm brackets.

MP brackets are supplied with 2 fixing spikes, one spike is 65mm long (A), the other is 160mm long (B), with a central pre drilled section for securing the bracket to the substrate.

For cavity barriers 76mm-90mm wide (across cavity) use 2 MP brackets and the 65mm long spike (A).

To secure the bracket use 5mm \varnothing stainless steel countersunk head screws, with a maximum head diameter of 13mm and with a length and type suitable for the substrate.

Ensure that the countersunk screw head sits as flush as possible with the substrate. Fix through both of the fixing holes.

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. For cut sections of cavity barrier less than or equal to 500mm in length only one MP bracket is required.

Push the cavity barrier onto the bracket spike, the brackets should impale the VFB Plus to approximately mid barrier depth and must not protrude through the intumescent element.

The cavity barrier should be pushed fully onto the bracket spike and sit flush with the substrate, at the rear of the cavity barrier.

For Timber Frame constructions, a minimum 35mm thick timber stud must be in place directly behind the sheathing board following the line with the cavity barrier.

Cut Sections

Each metre length of cavity barrier is supplied with 4No. face fixings pre-installed underneath the polythene outer to hold the intumescent strip in place.

It must be ensured that if the cavity barriers are cut to length that sufficient face fixings are in place to hold the intumescent strip to the stonewool backing.

It is not allowable to have any cut sections without a face fixing in place.

For sections 200mm or less, each section must have minimum one face fixing in place, positioned centrally.

Sections 200 to 500mm must have minimum 2No. fixings in place, 500 to 750mm is 3No. and 750 to 1000mm is 4No. fixings and they must be equally spaced with not more than 250mm between fixings and not more than 125mm for either end.

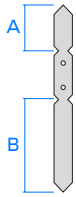
Slitting

If the intumescent face on the front face of the cavity barrier is slit to allow fitting around vertical rails, it must be ensured that every slit section of cavity barrier has face fixings through the face of the intumescent material.

Vertical slits must kept as small as practicable, ensuring no gaps remain and the depth of slit is to minimum the depth of the rail and maximum 10mm deeper than the rail.

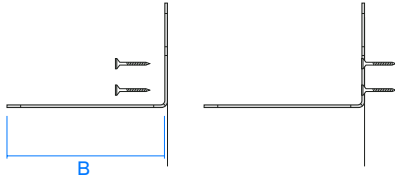
Additional face fixings at maximum 125mm to either side of each cut, and ensure that the factory fitted face fixings are no more than 250mm centres from the additional fixing applied. Suitable face fixings for cut or slit sections are 65mm long stainless steel pig tail screws.

Option 3



VFB Plus – Product width across cavity from 91mm up to 215mm fixed using 2 multi purpose (MP) 160mm brackets.

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.



For cavity barriers 91mm-215mm wide (across cavity) use 2 MP brackets and the 160mm (B) long spike. To secure the bracket use nom. 5mm Ø stainless steel screws/fixings, with a maximum head diameter of 13mm and with a length and type suitable for the substrate.

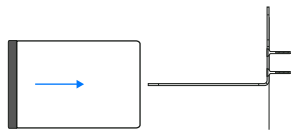
Ensure that the screw head sits as flush as possible with the substrate.

Fix through both of the fixing holes.

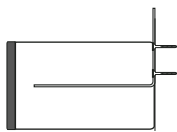
Fixings must have an appropriate fixing depth for the substrate (with a minimum of 50mm for masonry and minimum 25mm for timber unless otherwise specified by the fixing manufacturers guidance for their fixing type).



For cavity barriers 91mm-215mm wide (across cavity) use 2 MP brackets and the 160mm long spike. The 160mm spike will require cutting to size, if used in barriers less than 185mm wide, to ensure that the spike does not pierce through the face of the intumescent material, the bracket should be cut to provide a minimum projection through the barrier to 3/4 of the cavity barrier width and to a maximum of 25mm behind the face of the intumescent strip.



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.



Push the cavity barrier onto the bracket spike, the brackets should impale the VFB to mid barrier depth and must not protrude through the intumescent element.

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 installations in Timber Frame constructions, a minimum 35mm thick timber stud must be in place directly behind the sheathing board following the line with the cavity barrier.

Cut Sections

Each metre length of cavity barrier is supplied with 4No. face fixings pre-installed underneath the polythene outer to hold the intumescent strip in place.

It must be ensured that if the cavity barriers are cut to length that sufficient face fixings are in place to hold the intumescent strip to the stonewool backing.

It is not allowable to have any cut sections without a face fixing in place.

For sections 200mm or less, each section must have minimum one face fixing in place, positioned centrally.

Sections 200 to 500mm must have minimum 2No. fixings in place, 500 to 750mm is 3No. and 750 to 1000mm is 4No. fixings and they must be equally spaced with not more than 250mm between fixings and not more than 125mm for either end.

Slitting

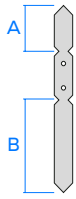
If the intumescent face on the front face of the cavity barrier is slit to allow fitting around vertical rails, it must be ensured that every slit section of cavity barrier has face fixings through the face of the intumescent material.

Vertical slits must kept as small as practicable, ensuring no gaps remain and the depth of slit is to minimum the depth of the rail and maximum 10mm deeper than the rail.

Additional face fixings at maximum 125mm to either side of each cut, and ensure that the factory fitted face fixings are no more than 250mm centres from the additional fixing applied.

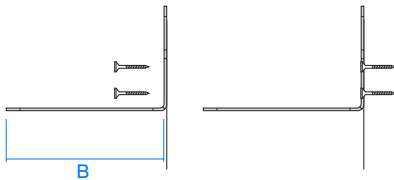
Suitable face fixings for cut or slit sections, are 65mm long stainless steel pig tail screws.

Option 4



VFB Plus -Product width across cavity from 216mm up to 256mm fixed using 3 multi purpose (MP) 160mm brackets.

MP brackets are supplied with 2 fixing spikes, one spike is 65mm long, the other is 160mm long, with a central section for securing the bracket to the substrate.



For cavity barriers 216mm–256mm wide (across cavity) use 3 MP brackets and the 160mm (B) long spike. To secure the bracket use nom. 5mm Ø stainless steel screws/fixings, 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.

Fix through both of the fixing holes.

Fixings must have an appropriate fixing depth for the substrate (with a minimum of 50mm for masonry and minimum 25mm for timber unless otherwise specified by the fixing manufacturers guidance for their fixing type).



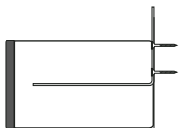
Fix 3 number MP brackets, per linear meter, to the substrate at maximum 150mm from the end of the cavity barrier, with a maximum spacing between brackets of 350mm.

Where sections of cavity barrier are less than 1 linear meter in length, ensure that MP brackets are positioned at a maximum 150mm from each end.



Where the cavity barrier is less than or equal to 350mm in length 1 MP bracket may be used.

Push the cavity barrier onto the bracket spike, the brackets should impale the VFB to approximately mid barrier depth and must not protrude through the intumescent element.



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 installations in Timber Frame constructions, a minimum 35mm thick timber stud must be in place directly behind the sheathing board following the line with the cavity barrier.

Cut Sections

Each metre length of cavity barrier is supplied with 4No. face fixings pre-installed underneath the polythene outer to hold the intumescent strip in place.

It must be ensured that if the cavity barriers are cut to length that sufficient face fixings are in place to hold the intumescent strip to the stonewool backing.

It is not allowable to have any cut sections without a face fixing in place.

For sections 200mm or less, each section must have minimum one face fixing in place, positioned centrally.

Sections 200 to 500mm must have minimum 2No. fixings in place, 500 to 750mm is 3No. and 750 to 1000mm is 4No. fixings and they must be equally spaced with not more than 250mm between fixings and not more than 125mm for either end.

Slitting

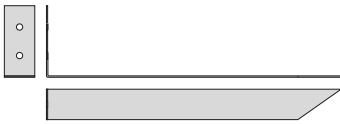
If the intumescent face on the front face of the cavity barrier is slit to allow fitting around vertical rails, it must be ensured that every slit section of cavity barrier has face fixings through the face of the intumescent material.

Vertical slits must kept as small as practicable, ensuring no gaps remain and the depth of slit is to minimum the depth of the rail and maximum 10mm deeper than the rail.

Additional face fixings at maximum 125mm to either side of each cut, and ensure that the factory fitted face fixings are no more than 250mm centres from the additional fixing applied.

Suitable face fixings for cut or slit sections, are 65mm long stainless steel pig tail screws.

Option 5

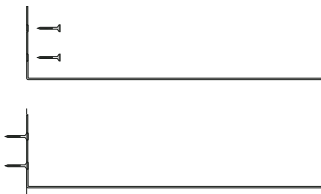


VFB Plus-Product width across cavity from 257mm-406mm wide (across cavity) fixed using 2 high performance (HP) 328mm brackets.

HP brackets are supplied with a single fixing spike, at 328mm long with 6mm \varnothing pre drilled fixing holes and a 90° return angle for securing the bracket to the substrate.

The 328mm spike will require cutting to size, if used in barriers less than 350mm wide, to ensure that the spike does not pierce through the face of the intumescent material.

The bracket should be cut to provide a minimum projection through the barrier to 3/4 of the cavity barrier width and to a maximum of 25mm behind the face of the intumescent strip.



To secure the bracket use nom. 5mm \varnothing stainless steel screws/fixings, 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.

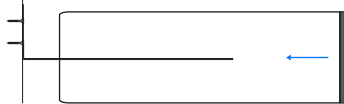
Fix through both of the fixing holes.

Fixings must have an appropriate fixing depth for the substrate (with a minimum of 50mm for masonry and minimum 25mm for timber unless otherwise specified by the fixing manufacturers guidance for their fixing type).



Fix 2 number HP 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 500mm in length 1 HP bracket may be used.



Push the cavity barrier onto the bracket spike, the brackets should impale the VFB Plus to approximately mid barrier depth and must not protrude through the intumescent element. The cavity barrier should be pushed fully onto the bracket spike and sit flush with the substrate, at the rear of the cavity barrier.

Cut Sections

Each metre length of cavity barrier is supplied with 4No. face fixings pre-installed underneath the polythene outer to hold the intumescent strip in place.

It must be ensured that if the cavity barriers are cut to length that sufficient face fixings are in place to hold the intumescent strip to the stonewool backing.

It is not allowable to have any cut sections without a face fixing in place.

For sections 200mm or less, each section must have minimum one face fixing in place, positioned centrally.

Sections 200 to 500mm must have minimum 2No. fixings in place, 500 to 750mm is 3No. and 750 to 1000mm is 4No. fixings and they must be equally spaced with not more than 250mm between fixings and not more than 125mm for either end.

Slitting

If the intumescent face on the front face of the cavity barrier is slit to allow fitting around vertical rails, it must be ensured that every slit section of cavity barrier has face fixings through the face of the intumescent material.

Vertical slits must kept as small as practicable, ensuring no gaps remain and the depth of slit is to minimum the depth of the rail and maximum 10mm deeper than the rail.

Additional face fixings at maximum 125mm to either side of each cut, and ensure that the factory fitted face fixings are no more than 250mm centres from the additional fixing applied.

Suitable face fixings for cut or slit sections, are 65mm long stainless steel pig tail screws.

Scope

The VFB Plus 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.

Limitations

To ensure compliance to the relevant test evidence detailed within this Data Sheet, the VFB Plus must be installed as per the fitting instructions by competent installers. The VFB Plus must not be installed in a vertical 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.

Tools Required

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

VFB Plus

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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.

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