



VEDA FRANCE

Joints bâtiment - Building joints

# VEDAFEU Fire Stop

*For expansion joints, precast joints, head of walls, curtain walls, slab nosings*





VEDA FRANCE

Joints bâtiment - Building joints

## VEDAFEU

### Fire stop systems for expansion joints, precast joints, head of walls, curtain walls, slab nosings

#### Reminder of the European Legislation :

- **European Classification Standard EN 13501-2 (May 2004):** Fire rating of building construction products and systems. This standard details the test procedures: orientation of the samples, movement capacity, junction types, joint width, etc.
- **European Test Method Standard EN 1366-4 (November 2006):** Fire resistance testing of construction systems, part 4: Expansion joints filler. This standard details a test method for fire-resistant joint filler according to their final use, **with or without movements** during the tests.  
This standard has been approved by the CEN (European Committee for Standardization) in April 2006 and then approved as a valid French standard on October 5<sup>th</sup> 2006 with implementation on November 5<sup>th</sup>, 2006.
- **Decree dated 22 March 2004 (French Ministry of Interior)** related to the fire resistance of construction materials and systems.  
This Decree put in force the European Standards and cancels the former Decree dated August 3<sup>rd</sup>, 1999.

#### Direct consequences of legislation :

As a direct consequence, the **Test Reports issued by European Laboratories before November 2006 do not comply with the EN 1366-4 standard requirements**. Therefore, the concerned European building material manufacturers of fire stop systems for expansion joints must provide **an official European classification report** either issued by French Laboratories CSTB or EFECTIS ; British Laboratories Warrington Fire Research or Chiltern International Fire Ltd. ; German Laboratories MPA NRW or F.M.P.A. Baden-Württemberg or MFPA-Leipzig ; Spanish Laboratories AFITI/LICOF or L.G.A.I. ; Italian Laboratories CSEA or C.S.I. S.p.A. ; etc... that summarises the performances on the tests.

Any reports issued before November 05, 2006 which don't comply with above mentioned European Norms cannot be approved. The use of products and systems not in accordance with the current legislation would raise penal sanctions in case of fire.

The Vedafeu fire stop systems have been officially tested and validated as per latest European standards.



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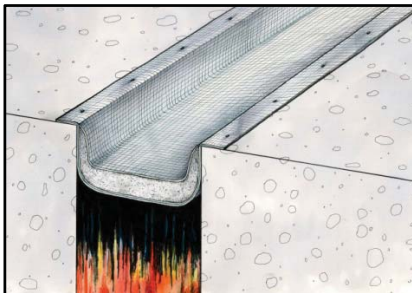
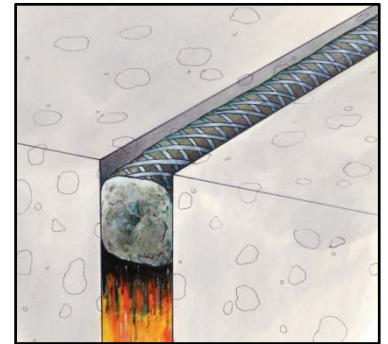
## VEDAFEU Fire stop for expansion joints

### VEDAFEU RANGE

For standard and seismic joints, officially tested and approved for joint widths from 10 to 840 mm

#### VEDAFEU C fire stop backer rods

- For joint widths from 10 to  $\leq 120$  mm, with or without waterproofing system, with or without joint cover.  
Officially Rated EI 240 minutes.
  - For joint widths  $> 120$  mm and  $\leq 200$  mm, without sealant, with joint cover.  
Officially Rated EI 240 minutes.
- Tests carried out according to latest European Legislation.**



#### VEDAFEU N fire stop blankets

For initial joint widths from 100 to 560 mm.  
Officially rated from EI 60 to 240 minutes depending on initial joint width and blanket composition.

**Tests carried out according to latest European Legislation.**

The new and innovative VEDAFEU N products, systems and installation methods have been patented.



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Joints bâtiment - Building joints

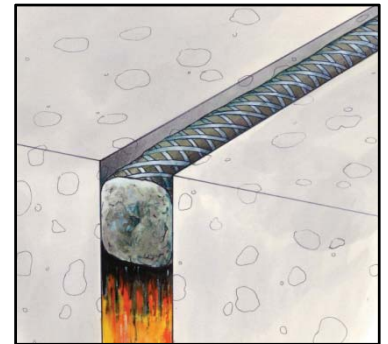
## VEDAFEU Fire stop for expansion joints

### VEDAFEU C FIRE STOP BACKER RODS

For standard and seismic joints, officially tested and approved for joint widths from 10 to 200 mm

- For joint widths from 10 to  $\leq 120$  mm, with or without waterproofing system, with or without joint cover. Officially Rated EI 240 minutes.
- For joint widths  $> 120$  mm and  $\leq 200$  mm, with or without waterproofing system, with joint cover. Officially Rated EI 240 minutes.

**Tests carried out according to latest European Legislation.**





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# VEDAFEU C FIRE STOP SYSTEMS



Joints bâtiment - Building joints

## Introduction

The VEDAFEU C fire stop backer rods are made of compressible, non combustible, binder free, mineral fibres overbound with glass fibre yarn. It is supplied as a highly flexible, moisture, fungus and micro-organisms resistant, cylindrical backer rod.

Insensitive to water and humidity, it is also resistant to most of aggressive chemicals except hydrochloric acid and concentrated alkalis. VEDAFEU C is free from asbestos and ceramic. **Certificate n° RS 08-162/A dated March 26th 2009 and valid until September 30th 2013.**

The VEDAFEU C systems comply with **the latest European Legislation and Standards** : BS United Kingdom – NF France – DIN Germany - UNE Spain - UNI Italy - NEN Netherlands, etc.

- European Classification Standard EN 13501-2 (May 2004)
- European Test Method Standard EN 1366-4 (Novembre 2006)
- French Ministry of Interior Decree dated March 2004, 22nd

All the VEDAFEU C systems for initial joint widths of 10 mm to 200 mm have been tested without any sealant and with a lateral movement of + 20 % during testing.

All the VEDAFEU C systems have been rated EI 240 which means that they successfully stopped the fire and flames, guaranteed thermal protection during the maximum duration of the test without failure : 240 minutes or 4 hours, which is the highest possible rating as per latest European Standard 13501-2 and 1366-4.

The VEDAFEU C fire stop backer rods have also been tested for their acoustic properties, compressibility etc... Please refer to the concerned specific data sheet.

Economical and easy to install, the VEDAFEU C fire stop backer rods are available from stock in the range of 12 mm to 180 mm diameters, which are suitable for joint widths from 10 to 200 mm. For initial joint widths  $\geq 100$  mm, we have developed some unique, innovative and patented blankets. Please refer to VEDAFEU N blanket data sheet for further details.

## Applications

- The VEDAFEU C fire stop backer rods systems are used for **horizontal and vertical** structural movement joints in floors, walls, ceilings, precast panels joints, heads of walls, between curtain walls and horizontal slabs, etc..
- For stop fire walls, sheathing passway and conduit
- The VEDAFEU C fire stop backer rod systems efficiently protect all types of buildings and civil works : hospitals, schools, airport terminals, malls and shopping centres, high rise buildings, hotels, carparks, stadiums, etc.

## Installation of VEDAFEU C fire stop backer rod is fast and economical.

According to the Classification Certificate n° RS08-162/A, the installation of VEDAFEU C fire stop backer rods depends on the initial width of the joints.

For joints with an initial width from 10 mm to  $\leq 120$  mm, follow instructions as per Installation Method n° 1

For joints with an initial width from 120 mm to  $\leq 200$  mm, follow instructions as per Installation Method n° 2

Installed as per instructions, the VEDAFEU C systems ensure a perfect flame barrier and thermal insulation without the need of sealant nor complementary protection.

## Waterproofing - Protection

Exposed joints in floors, walls and ceilings usually require additional protection.

Watertightness will be obtained by filling in the exposed part of the joint with VEDAFLEX SIL silicone or VEDAFLEX PU polyurethane sealants, or by any other means like our special EPDM waterproofing membrane.

A mechanical protection will be obtained by installing a suitable joint cover, especially designed for floors, walls or ceilings.

**According to part Q of the European guideline n° 97/69/CE, VEDAFEU C fire stop backer rods are not classified hazardous for human health.**

# Extract of VEDAFEU C Fire Stop backer rods Official European Classification

## Certificate n° RS 08-162/A dated March 26th 2009

### Validity September 30th, 2013

**Joint opening: 10 to 120 mm without sealant, without joint cover**

**VEDAFEU C Official Classification : EI 240 – H – M 20 – B – W 10 à 120 (with backer rod  $\varnothing$  60 instead of  $\varnothing$  70 mm initial joint opening)**  
**EI 240 – V – M 20 – B – W 20 à 120**

Initial joint opening (mm)	Ø VEDAFEU C (mm)	Compression factor of the joint (%)
10	12 *	17
20	30 *	33
40 <sup>1</sup>	60 *	33
60	90 *	33

Initial joint opening (mm)	Ø VEDAFEU C (mm)	Compression factor of the joint (%)
80	120 *	33
100	150 *	33
120	180 *	33

<sup>1</sup> Except for  $\varnothing$ 60mm backer rod in 40mm opening : EI 180 - H - M20 - B - W 40

For all other gaps, from 20 to 120 mm, apply a 33% compression factor minimum.

**Joint opening: 10 to 200 mm without sealant, with joint cover**

**VEDAFEU C Official Classification : EI 240 – H – M 20 – B – W 10 à 200**  
**EI 240 – V – M 20 – B – W 20 à 120**

Initial joint opening (mm)	Ø VEDAFEU C (mm)	Compression factor of the joint (%)
10	12 *	17
20	30 *	33
40	60 *	33
60	90 *	33

Initial joint opening (mm)	Ø VEDAFEU C (mm)	Compression factor of the joint (%)
80	120 *	33
100	150 *	33
120	180 *	33
200	150 (x2) **	33

#### Glossary, results and commentaries:

##### Testing conditions

- Test performed between 2 horizontal concrete slabs (**H** or **V**), exposed to fire from the under face (**B**), jointing between 2 backer rod lengths being done with a special linking piece for all joints openings.

##### Results and Commentaries:

- **EI**: Fireproofing and thermal insulation: 241 minutes without failure for all the diameters. This corresponds to the maximum possible rating as per the 13501-2 European standard.
- **H**: Horizontal construction support
- **V**: Vertical construction support
- **M**: Movement. The tests were performed with a + 20 % movement (the maximum joint opening being reached after 59 minutes of testing).
- **B**: Factory and on-site manufactured connections.
- **W**: Tested openings. The report N° RS 08-162/A is valid for all initial joint openings from 10 to 200 mm.

**Refer to the classification report n° RS 08-162/A in its original form.**

\* Refer to installation method n°1

\*\* Refer to installation method n°2



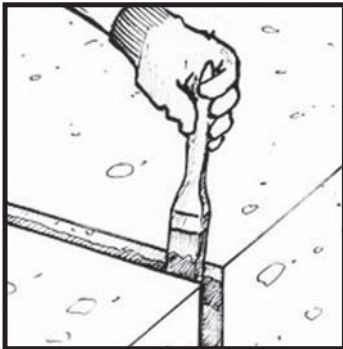
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## Installation method n° 1 VEDAFEU C fire stop backer rod for joints with an initial width from 10 to ≤ 120 mm

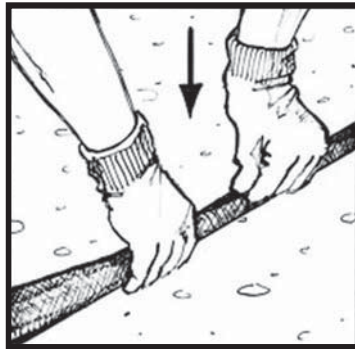


### Joints bâtiment - Building joints

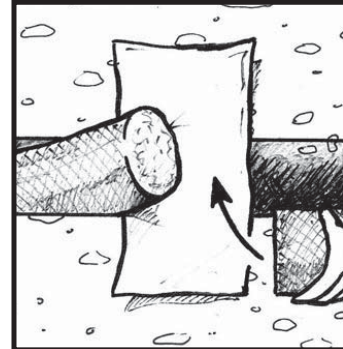
If necessary, remove formwork material such as polystyrene, VEDAPLAQUE honeycomb cardboard, etc.  
Repair all unsound concrete in and around the joint opening with compatible patching material. The contact surfaces must be clean, dry and free from contamination. Remove dust, using a brush or a broom.



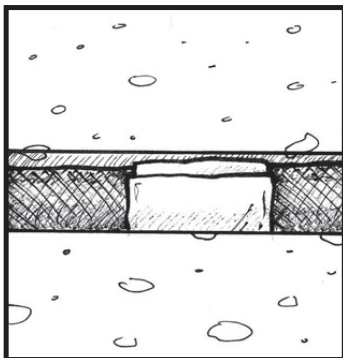
Apply by brush a layer of VEDACOLLE C on both sides of the joint



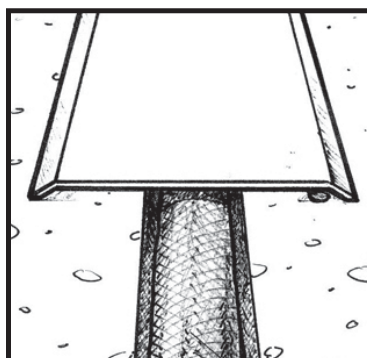
While the adhesive is still wet, insert VEDAFEU C and firmly press it by hand till perfect fit



At length ends, use special linking piece (patented)



Connected fire stop backer rod lengths



Joint cover in option

### Rated EI 240 without sealant, with or without joint cover \*

#### VEDACOLLE C adhesive coverage according to diameter of VEDAFEU C

Based on proven coverage of 400 gr/ square meter for economical use and twice for generous application.

VEDAFEU C Ø 12 - 20 mm. Minimum 20 to 40 g per linear meter (10 g on each side of the joint)

VEDAFEU C Ø 30 - 40 mm. Minimum 40 to 80 g per linear meter (20 g on each side of the joint)

VEDAFEU C Ø 50 - 80 mm. Minimum 60 to 120 g per linear meter (30 g on each side of the joint)

VEDAFEU C Ø 100 - 120 mm. Minimum 80 to 160 g per linear meter (40 g on each side of the joint)

VEDAFEU C Ø 150 - 180 mm. Minimum 100 to 200 g per linear meter (50 g on each side of the joint)

**VEDAFEU C fire stop backer rod must be glued on both sides of the joint to prevent it from dislodging during joint movements.**

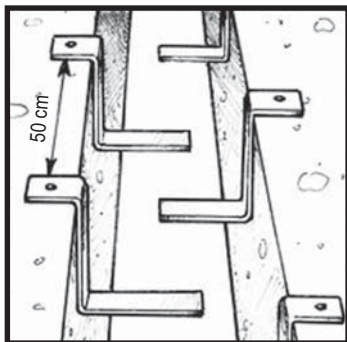
\*EI 180 for a backer rod Ø 60 and EI 240 for a backer rod Ø 70 in a 40 mm gap.

## Installation method n° 2

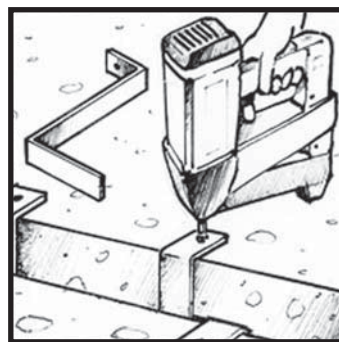
VEDAFEU C fire stop backer rod for joints  
with an initial width > 120 and ≤ 200 mm



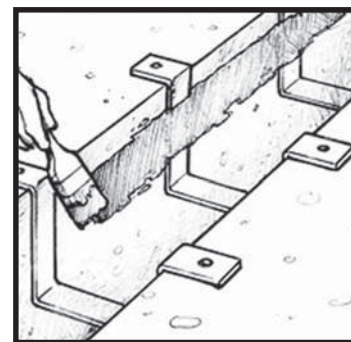
If necessary, remove formwork material such as polystyrene, VEDAPLAQUE honeycomb cardboard, etc. Repair all unsound concrete in and around the joint opening with compatible patching material. The contact surfaces must be clean, dry and free from contamination. Remove the dust, using a brush or a broom.



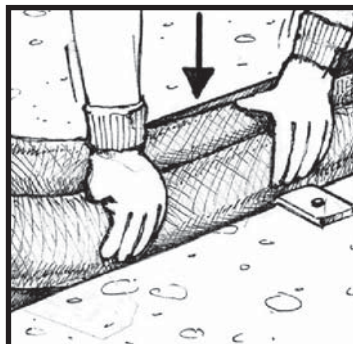
Install the special brackets in alternate fashion every 50 centimetres



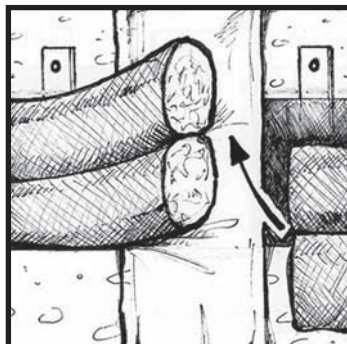
Fasten the brackets using a pneumatic gun or screws and plugs



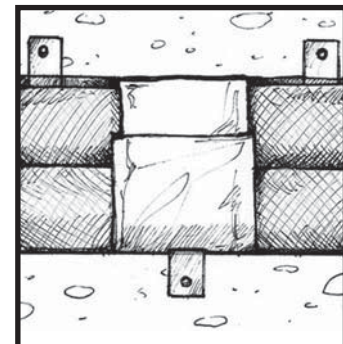
Apply by brush a layer of VEDACOLLE C on both sides of the joint



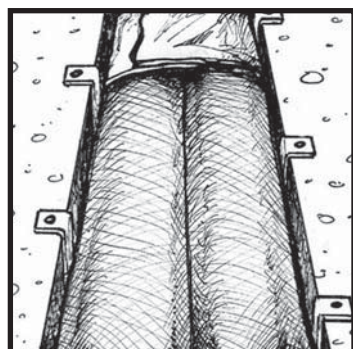
Press down the VEDAFEU C backer rod



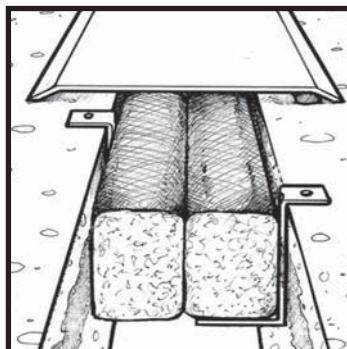
At length ends, use the special linking piece (patented)



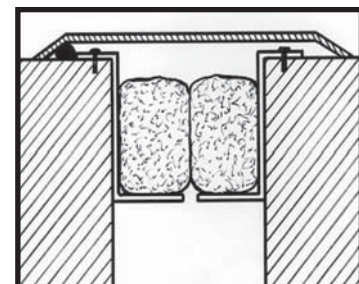
Connected fire stop backer rod lengths



Installed VEDAFEU C backer rod



Rated EI 240 i.e 4 hours with joint cover



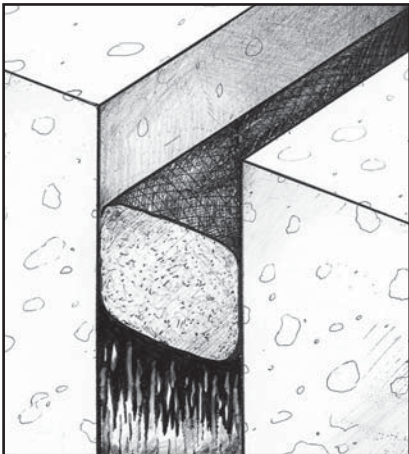
Detail : Joint cover, or fixed with VEDAFLEX SIL sealant or screws and plugs

**Rated EI 240 without sealant, with joint cover**

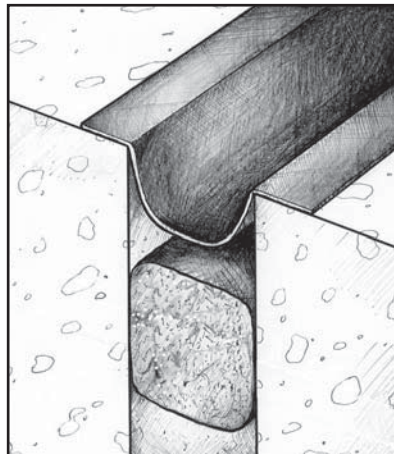




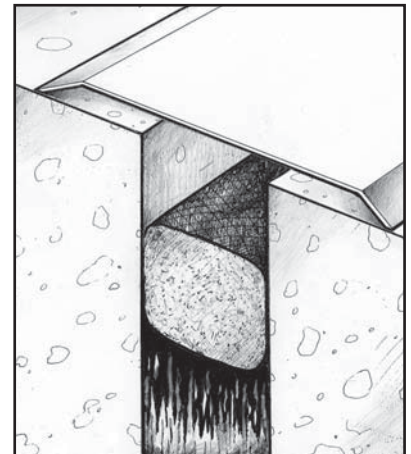
## Expansion joints



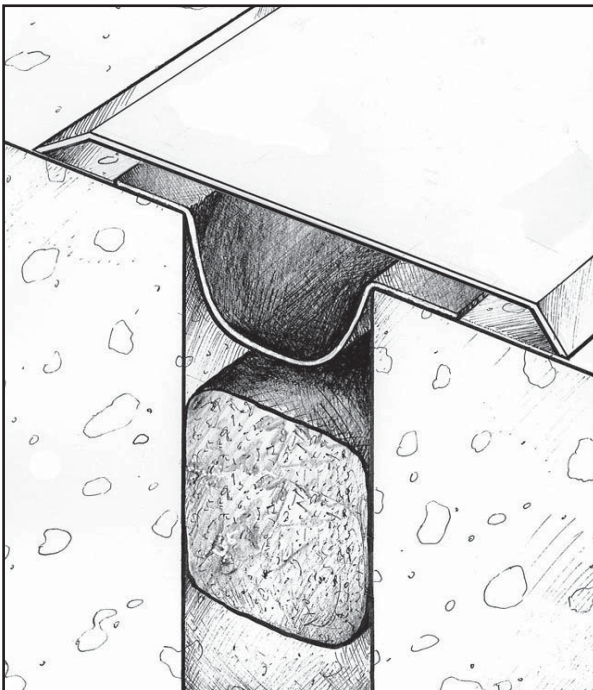
VEDAFEU C fire stop in expansion joint



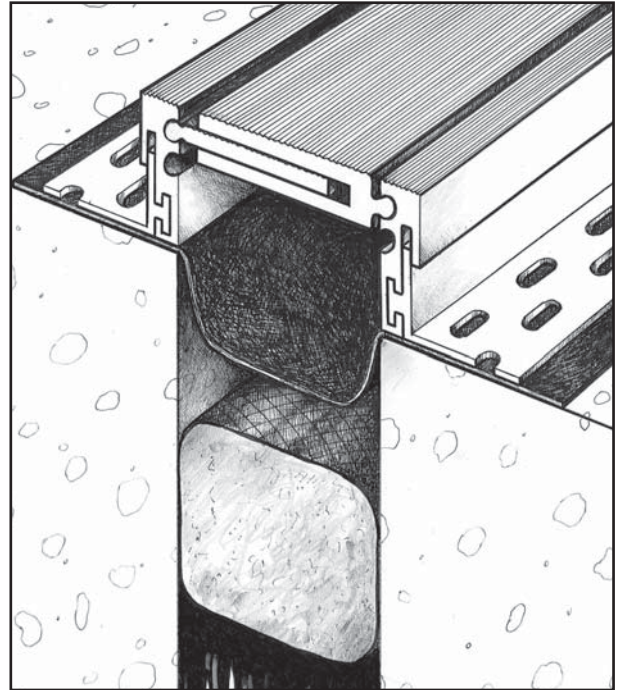
VEDAFEU C fire stop and waterproofing membrane



VEDAFEU C fire stop protected with joint cover

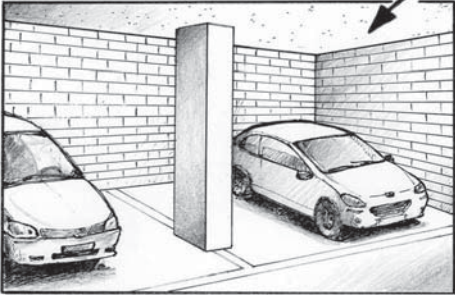


VEDAFEU C fire stop and waterproofing membrane protected with joint cover

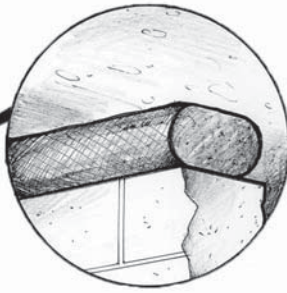


VEDAFEU C fire stop and waterproofing membrane protected with mechanical joint

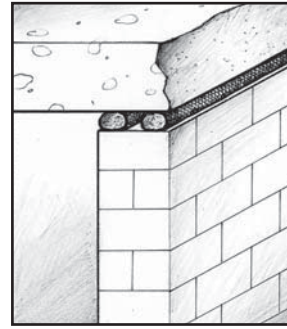
## Head of wall



Application in carpark

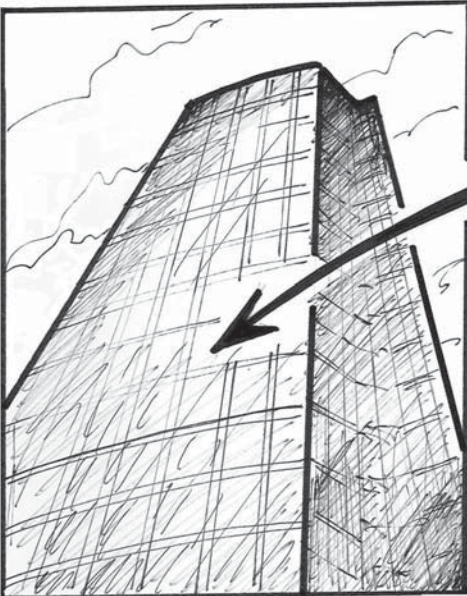


Head of wall : one fire stop backer rod



Head of wall : two fire stop backer rods

## Curtain wall



On going renovation project : the 52 storey Tour Montparnasse building





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Joints bâtiment - Building joints

## VEDAFEU Fire Stops for expansion joints

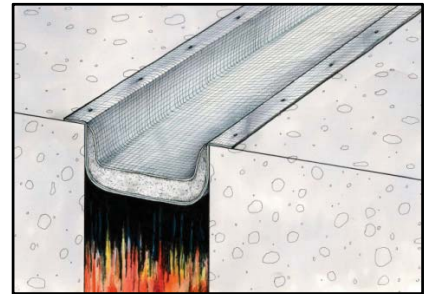
### VEDAFEU N blankets (patented)

**For standard and seismic joins, officially tested and approved for joint widths from 100 to 840 mm**

For initial joint widths from 100 to 560 mm.  
Officially rated from EI 60 to 240 minutes depending on initial joint width and blanket composition.

**Tests carried out according to latest European Legislation.**

**The new and innovative VEDAFEU N products,  
systems and installation methods have been patented.**



# «VEDAFEU N» Fire Stop blankets

## Patented system

Initial joint opening (mm)	Movement * min. - max. (mm)	Joint cover	Official EI classification
150	from 75 to 225	yes	120 min
150	from 75 to 225	yes	180 min (H) / 240 min (V)
200	from 100 to 300	yes	180 min
400	from 200 to 600	optional	60 min
400	from 200 to 600	yes	120 min
560	from 280 to 840	yes	240 min

\* Movements : all tests have been performed with a +50% movement.

Reference, initial width, maximum width and official EI classification :

N 150	EI 120 with joint cover	150 - 225	EI 120 - H - M50 - B - W 150 to 225
N 150	EI 180 with joint cover	150 - 225	EI 180 - H - M50 - B - W 150 to 225
N 150	EI 240 with joint cover	150 - 225	EI 240 - V - M50 - B - W 150 to 225
N 200	EI 180 with joint cover	200 - 300	EI 180 - H - M50 - B - W 200 to 300
N 400	EI 60 without joint cover	400 - 600	EI 60 - H - M50 - B - W 400 to 600
N 400	EI 120 with joint cover	400 - 600	EI 120 - H - M50 - B - W 400 to 600
N 560	EI 240 with joint cover	560 - 840	EI 240 - H - M50 - B - W 560 to 840

### Glossary, results and comments:

#### Testing conditions

- Tests performed between 2 horizontal or vertical concrete slabs (H or V), exposed to fire from the under face, jointing between 2 lengths done by overlapping the different layers.

#### Results and Comments :

- **EI** : Fireproofing and thermal insulation according to EN-13501-2 European standard.
- **H** : Horizontal construction support
- **V** : Vertical construction support
- **M** : The tests were performed with a Movement of + 50 %.
- **B** : Connections manufactured in factory and on site.
- **W** : Tested openings.

#### Comments:

1/ Different EI ratings were obtained for a same initial joint opening : for example, **EI 120** and **EI 180 for an initial joint opening of 150 mm** ; **EI 60** and **EI 120 for an initial joint opening of 400 mm**. The dissimilar composition of the blanket layers and the utilisation (or not) of a protective cover joint to close the system (or not) are the consequences of these different ratings.

Obviously, a EI 120 minutes rating corresponds to a more elaborated technical solution and a higher cost compared to a EI 60 minutes rating for a similar initial joint width and movement.

Therefore, it is recommended to carefully select the "VEDAFEU N" blanket which will suit the best the jobsite and which will meet the expected specifications required by the specifier.

All tested "VEDAFEU N" blankets are standard factory blankets with length ends prepared in factory and assembled on site.

**All tests were carried out according to latest available European standards.**

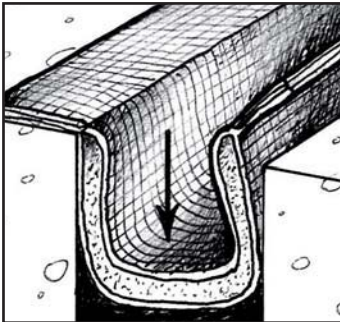
#### 2/ Main Advantages of VEDAFEU N blankets:

- Fully patented.
- Specially designed for standard and seismic movement + / - 50 %.
- Easy to install.
- Not hazardous for human health: do not contain any asbestos nor classified ceramic fibres. «VEDAFEU N are composed by > 6 µm non penetrating into breath system.
- Standard range for initial joint widths from 100 mm to 560 mm. Other widths upon study.



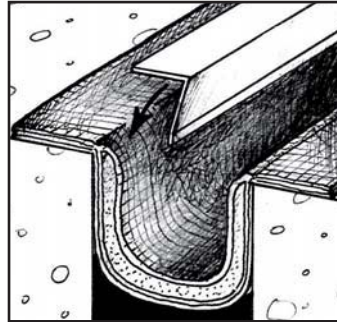
The VEDAFEU N Fire Stop blanket are easy and fast to install.

Repair all unsound concrete in and around the joint opening with compatible patching material. The contact surfaces must be clean, dry and free from contamination. Remove the dust, using a brush or a broom.



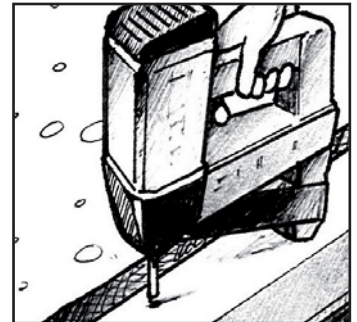
**1. Blanket cold side up**

Make sure that the joint edges are straight and clean to get a good contact between the blanket and its supports.



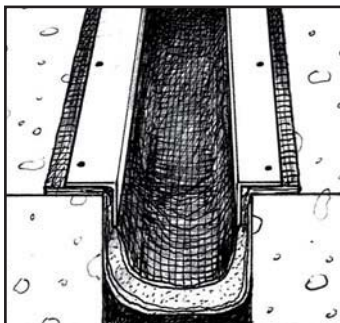
**2. Position the flange**

Flatten the blanket against the concrete with the flange

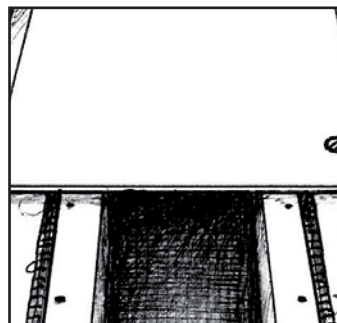


**3. Fix flange and blanket together**

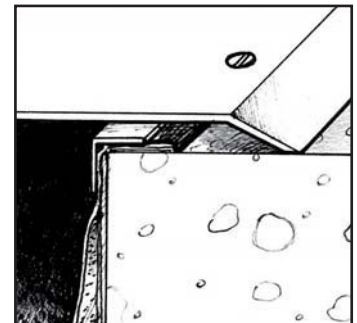
Maintain the pressure on the flange before fixing with pneumatic hammer



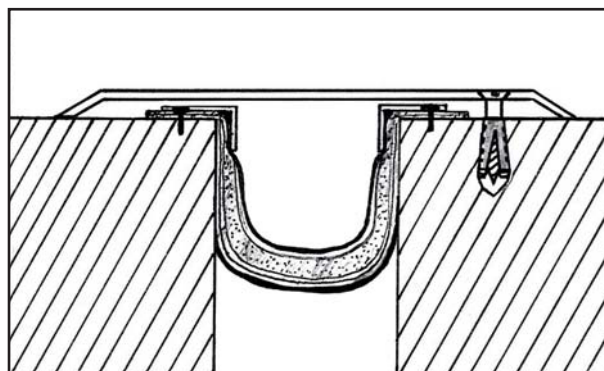
**4. VEDAFEU N blanket in place**



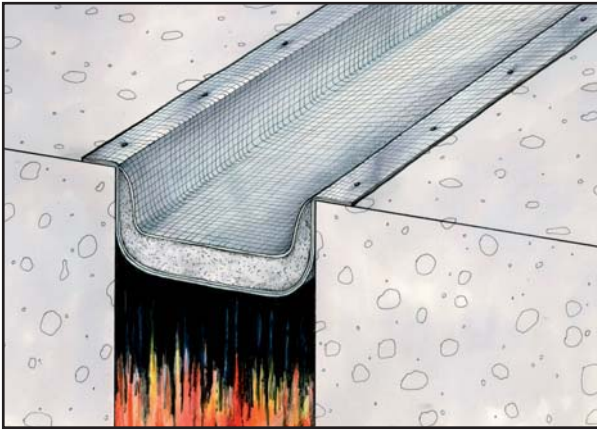
**5. VEDAFEU N blanket with joint cover**



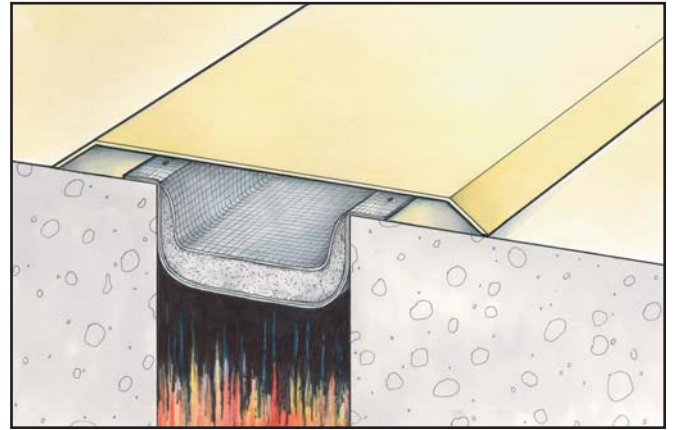
**6. Detail**



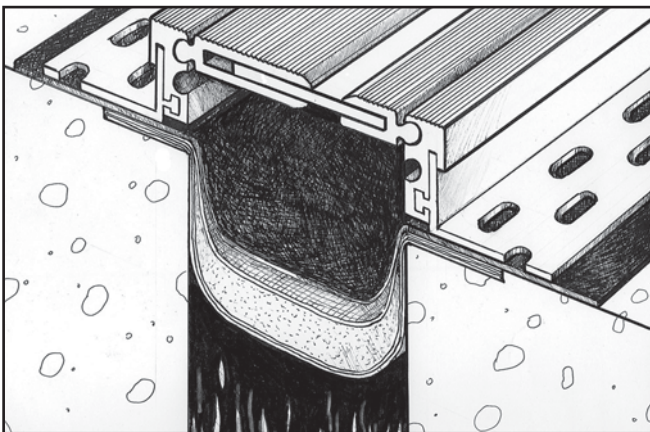
**6. Section**



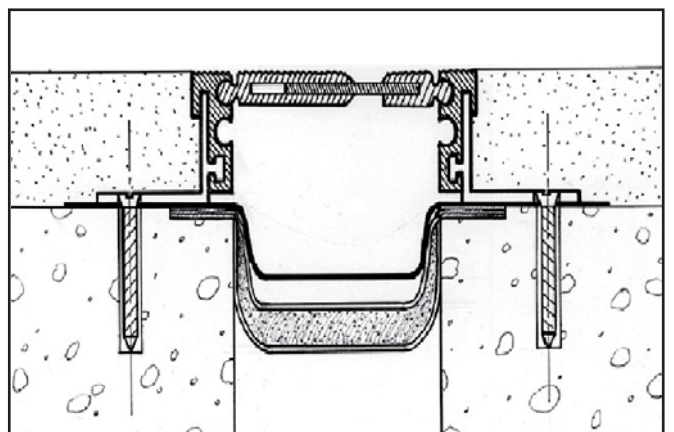
VEDAFEU N Fire Stop blanket



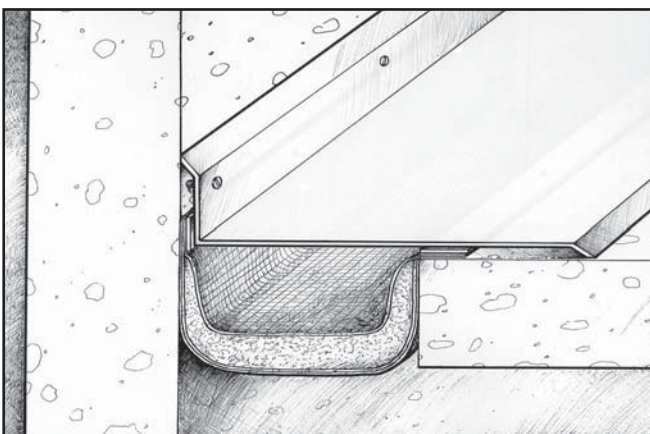
VEDAFEU N Fire Stop blanket protected with joint cover



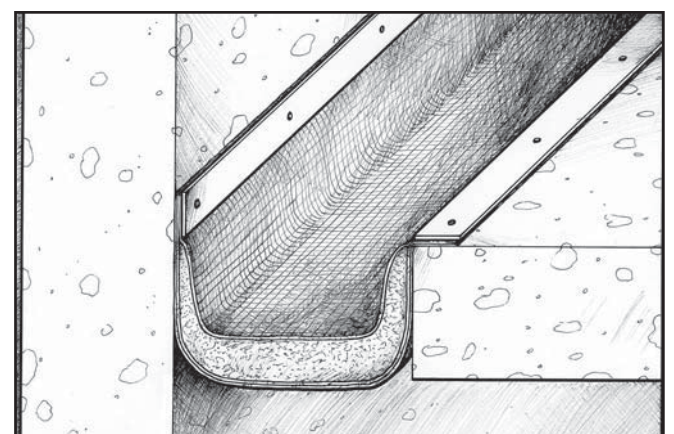
VEDAFEU N Fire Stop blanket and waterproofing membrane protected with mechanical joint



VEDAFEU N Fire Stop blanket and waterproofing membrane protected with mechanical joint



VEDAFEU N Fire Stop blanket floor to wall with joint cover



VEDAFEU N Fire Stop blanket floor to wall