



VEDA FRANCE

VEDAFEU C FIRE BARRIERS



Joints bâtiment - Building joints

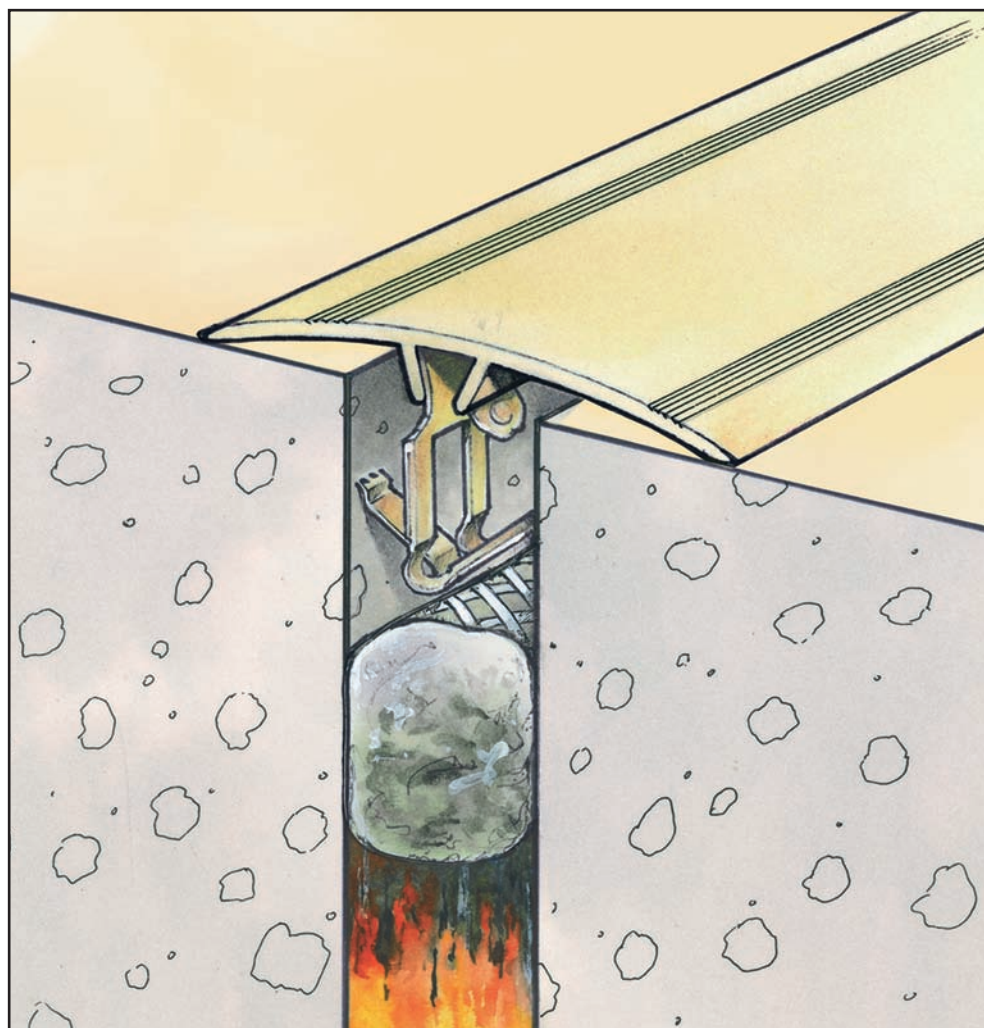
Introduction

The VEDAFEU C fire barrier range is made of compressible, non combustible mineral fibres overbound with glass fibre yarn. It is supplied as a highly flexible, moisture and fungus resistant, cylindrical joint filler.

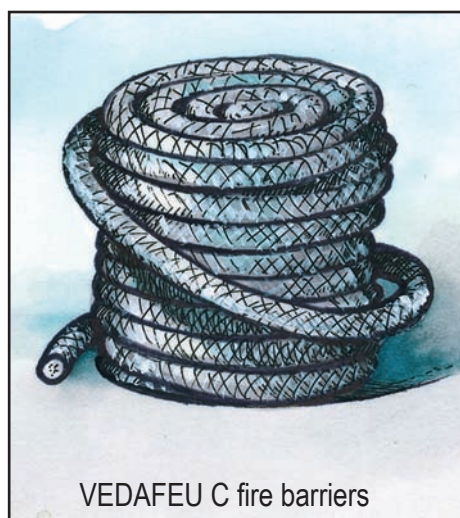
VEDAFEU C guarantees an efficient protection against fire and hot gases up to 6 hours. VEDAFEU C joint filler is easy to install by hand and is available in the range of 12 mm to 170 mm diameters which are suitable for joint widths from 10 to 200 mm. For wider joints where seismic movements are expected VEDAFEU N blankets (for joint widths up to 1200 mm) are recommended.

Applications

The VEDAFEU C range is an excellent **fire barrier which can be used independently** (joint filler glued to both sides of the concrete walls using VEDACOLLE C silicate glue) or in combination with silicone or polyurethane sealant ; expansion or compression joint seals ; clips affixed joint covers ; or any other mechanical protection or waterproofing systems. VEDAFEU C is used for many applications such as structural movement joints in floors, walls and ceilings ; precast panels joints ; protection between horizontal concrete slabs and curtain walls ; head of walls, etc... VEDAFEU C efficiently protects: hospitals, schools, airport terminals, malls and shopping centers, rail terminals, hotels, car parks, stadiums, etc..



STANDARD AND SEISMIC JOINTS



VEDAFEU C fire barriers

Characteristics

- VEDAFEU is manufactured from mineral fibres
- Service temperature : 780°C DIN 52271
- Melting temperature : 1200°C DIN 4102 / T17
- Unaffected by water and humidity DIN 52615
- Easy to install
- Highly flexible
- Resistant to micro organisms, moisture and fungus
- Resistant to a wide range of aggressive agents except hydrochloric acid and concentrated alkalis
- Free of asbestos and ceramic
- VEDAFEU complies with the European guideline N°97/69/CE and is not hazardous for human health.

- **Reaction to fire : Classified M0 at Laboratoire National d'Essais (LNE)**
Report n° E 050815 - August 2004
- **Classified A1 according to DIN 4102**

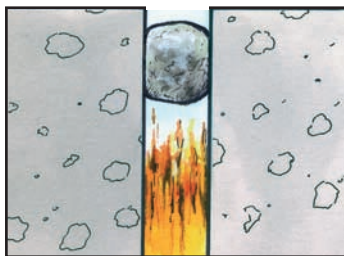


Fig n° 1 : Bonded on both sides of the joint with VEDACOLLE C silicate glue, VEDAFEU C fire barrier ensures an efficient protection against flames and hot gases.



Fig. n° 2 : VEDAFEU C fire barrier + mechanical joint



Fig. n° 3 : VEDAFEU C fire barrier + sealant

VEDAFEU C joint fillers have been tested by the official CSTB Laboratory in 2004, 2005 and 2006. Tests were carried out between 2 horizontal concrete slabs as per figure n° 1.

The figures n° 2 and n° 3 show other possible applications but have not been tested at CSTB.

Users must ensure that technical data available is in compliance with the latest standards and regulations.

Installation of VEDAFEU C fire barrier

Remove and repair all unsound concrete in and around the joint opening. All spalls must be repaired with compatible patching material. The contact surfaces shall be clean, dry and free from contamination, etc...

Apply by brush a layer of VEDACOLLE C non combustible silicate glue on both sides of the structural joint.

It is necessary to bond VEDAFEU C joint fillers to prevent them from dislodging during the potential joint movements. While the adhesive layer is still wet, insert the VEDAFEU C joint filler into the joint opening and firmly press it by hand till perfect fit. Avoid any discontinuity. Installed as per our above recommendations, VEDAFEU C ensures on its own a perfect flame and gas protection barrier without the need for sealant nor complementary protection.

VEDACOLLE C adhesive coverage according to diameter of VEDAFEU C

Based on proven coverage of 400 gr. / square meter

VEDAFEU C Ø	12 – 20 mm	: about 20 g per linear meter (10 g on each side of the joint)
VEDAFEU C Ø	30 – 40 mm	: about 40 g per linear meter (20 g on each side of the joint)
VEDAFEU C Ø	60 – 80 mm	: about 60 g per linear meter (30 g on each side of the joint)
VEDAFEU C Ø	100 – 120 mm	: about 80 g per linear meter (40 g on each side of the joint)
VEDAFEU C Ø	150 – 170 mm	: about 100 g per linear meter (50 g on each side of the joint)

Waterproofing - Protection

Exposed joints in floors, walls and ceilings usually require additional protection. Watertightness can be obtained by filling up the exposed part of the joint with silicone or polyurethane sealant, or by any other means like a waterproofing membrane. A mechanical protection can be obtained by installing a suitable trafficable joint cover

CSTB TEST REPORTS

VEDAFEU C : flames and hot or flammable gas barrier

Product selection

How to choose the right VEDAFEU C fire barrier according to initial joint width

Reports CSTB N°	DATE	Joint gap	VEDAFEU C diameter	Fire and hot gas barrier
RS05-066/A	23/05/2005	10 mm	Ø 12 mm	227 minutes
RS06-100	02/06/2006	15 mm	Ø 20 mm	226 minutes
RS05-066/B	23/05/2005	20 mm	Ø 30 mm	227 minutes
RS06-100	02/06/2006	25 mm	Ø 40 mm	226 minutes
RS06-100	02/06/2006	30 mm	Ø 50 mm	226 minutes
RS04-048/B	05/08/2004	40 mm	Ø 60 mm	360 minutes
RS04-048/A	04/08/2004	60 mm	Ø 80 mm	360 minutes
RS06-100	02/06/2006	80 mm	Ø 100 mm	360 minutes
RS04-098/A	27/01/2005	100 mm	Ø 120 mm	360 minutes
RS06-100	02/06/2006	130 mm	Ø 150 mm	230 minutes
RS06-100	02/06/2006	140 mm	Ø 165 mm	230 minutes
RS05-066/C	23/05/2005	150 mm	Ø 170 mm	230 minutes

VEDAFEU C joint filler is available from stock in all above mentioned diameters. For any other specific section, please refer to us.

VEDAFEU C acoustical properties

Acoustic absorption grading (αs) according to frequencies (Hz) for a 100 mm diameter joint filler	125	250	500	1000	2000	4000
	0,10	0,16	0,38	0,51	0,59	0,61

Internal measurement



VEDA FRANCE

Joints bâtiment - Building joints

VEDAFEU C fire barrier backer rods

Expansion joints, precast joints, head of walls, curtain walls, slab nosings



VEDAFEU C fire barrier backer rod joints opening from 10 to 200 mm, without sealant with or without joint covers

Official European Report N° RS 08-162/A issued on March 26th, 2009
validity September 30th, 2013

This official Report refers to the following European texts:

- **European Standard EN 13501-2 (May 2004) classification standard:** Fire rating of building construction products and systems. That standard details the test procedures: Orientation of the samples, movement capacity, junction types, joint width, etc. (See lexicon)
- **European Standard EN 1366-4 test method (November 2006):** Fire resistance testing of construction systems, part 4: Expansion joints filler. That standard details a test method for fire-resistant joint filler according to their final use, **with or without movements** during the tests.

That standard has been approved by the CEN (European Standards Committee) in April 2006 and then approved as a valid French standard on October 5th 2006 with implementation on November 5th, 2006.

- **Decree dated 22 March 2004 (Ministry of Interior)** related to the fire resistance of construction materials and systems. That Decree put in force the European Standards and cancels the Decree dated August 3rd, 1999. Consequently, the **test reports issued before the March 22th, 2004 are nowadays null and void.**

As a direct consequence, the **Test Reports issued by European Laboratories before November 2006 do not comply with the EN 1366-4 standard requirements.** Nowadays, the concerned European building materials manufacturers must provide **an official european classification report** that summarises the test results as done in officially approved laboratories.

The Vedafeu C fire barriers have been tested by the CSTB in 2008, validated by the European Classification Report N° RS08-162/A, **valid until September 30th, 2013.**

Joint opening: 10 to 120 mm without sealant nor joint cover
Rating as per the current standards: EI 240 – H – M 20 – B – W 10 to 120

Initial joint opening (mm)	Ø VEDAFEU C (mm)	Compression factor of the joint (%)
10	12 *	17
15	20 *	25
20	30 *	33
25	40 *	38
30	50 *	40
35	60 *	42

Initial joint opening (mm)	Ø VEDAFEU C (mm)	Compression factor of the joint (%)
40	70 *	43
50	80 *	38
60	100 *	40
80	120 **	33
100	150 **	33
120	170 **	29

* Jointing method n° 1 (Refer to the related technical data)

** Jointing method n° 2 (Refer to the related technical data), patented method

Joint opening: 10 to 200 mm without sealant, with joint cover
Rating as per the current standards: EI 240 – H – M 20 – B – W 10 à 200

Initial joint opening (mm)	Ø VEDAFEU C (mm)	Compression factor of the joint (%)
10	12 *	17
15	20 *	25
20	30 *	33
25	40 *	38
30	50 *	40
35	60 *	42
40	70 *	43

Initial joint opening (mm)	Ø VEDAFEU C (mm)	Compression factor of the joint (%)
50	80 *	38
60	100 *	40
80	120 **	33
100	150 **	33
120	170 **	29
200	150 (x2) **	33

* Jointing method n° 1 (Refer to the related technical data)

** Jointing method n° 2 (Refer to the related technical data), patented system

Lexicon, results and commentaries:

Testing conditions

- Test performed between 2 concrete slabs (**H**), exposed to fire from the under face (**B**), jointing between 2 backer rod lengths being done by simple overlapping for joints from 10 to 60 mm initial opening, and with a special fibre for joints above 60 mm initial opening.

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 standard.
- **H:** Horizontal 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 our classification report n° RS 08-162/A in its original form.

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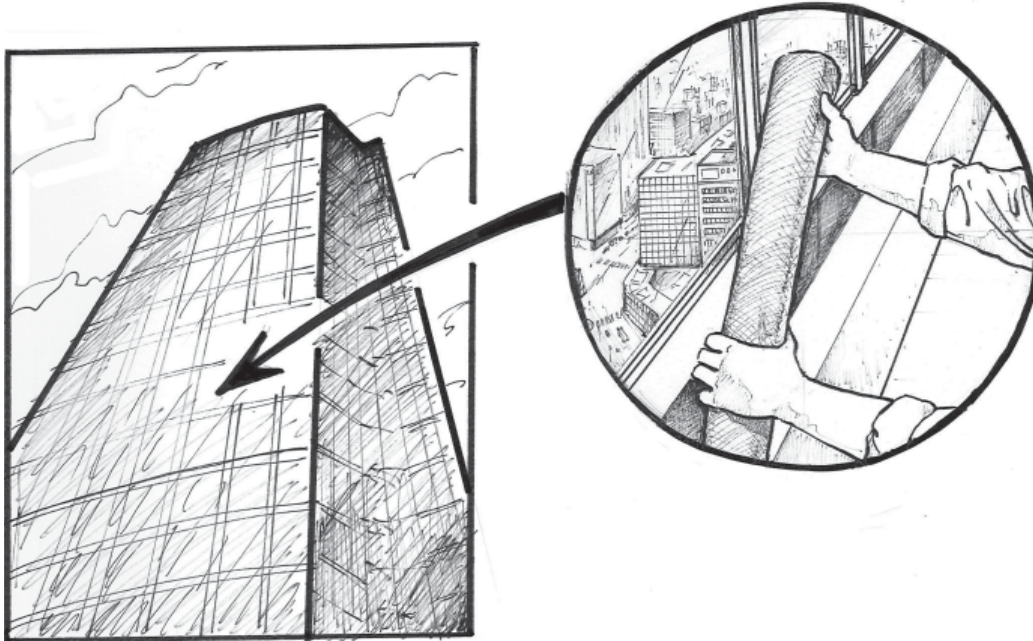
VEDA FRANCE

Joints bâtiment - Building joints

VEDAFEU C Fire stop backer rod Applications



Curtain wall

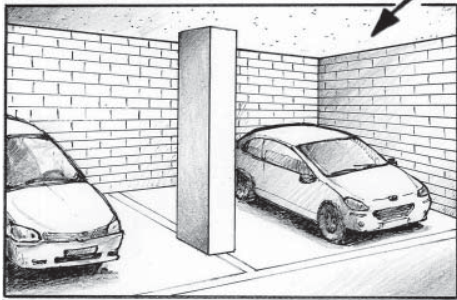


On-going project : the 52-storey Tour Montparnasse building

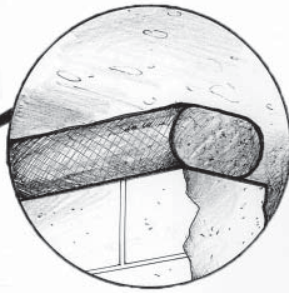


HEAD OF WALL

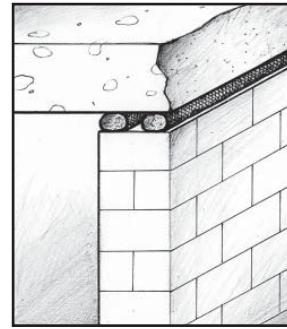
For all types of constructions : carpark, office buildings, warehouses, industrial buildings...



Application in carpark

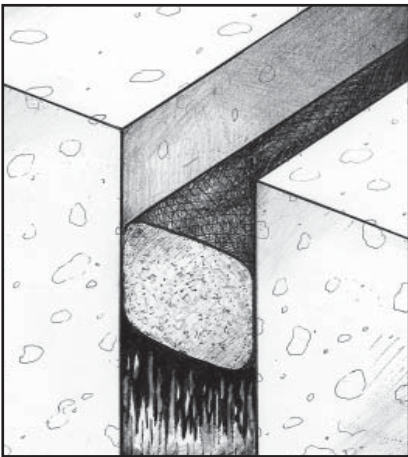


Head of wall : one fire stop backer rod

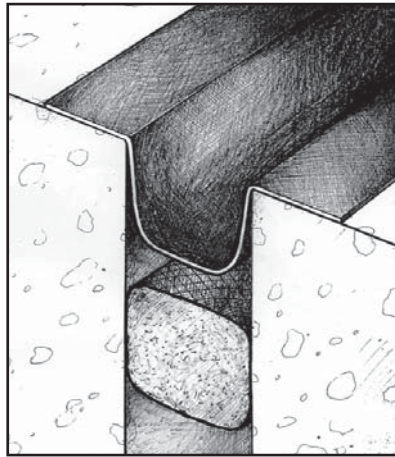


Head of wall : two fire stop backer rods

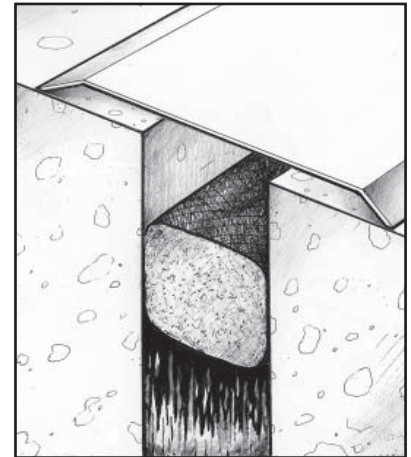
EXPANSION JOINT



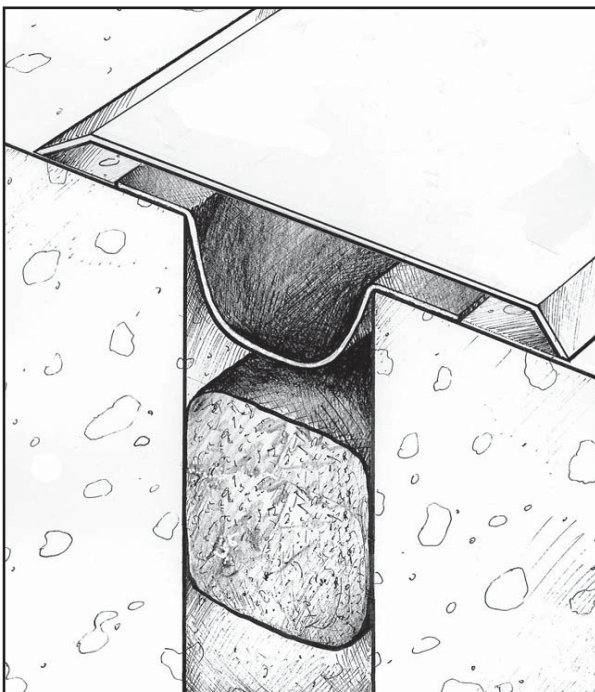
VEDAFEU C fire stop in expansion joint



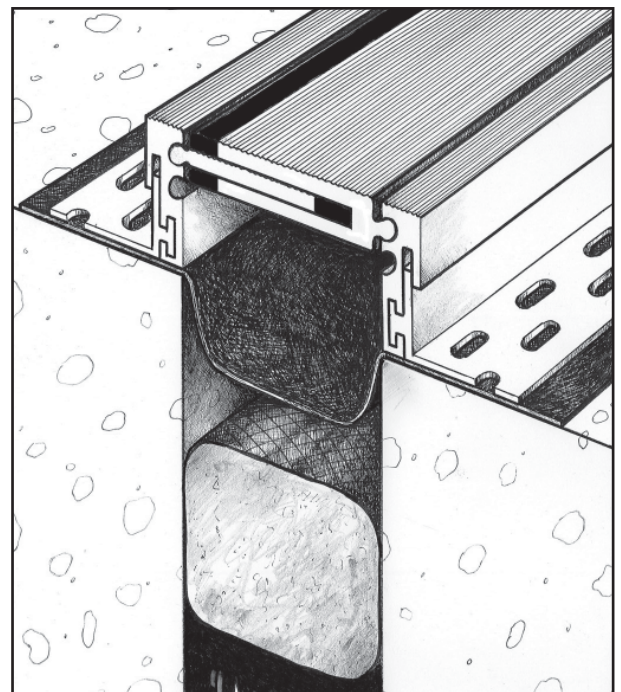
VEDAFEU C fire stop and waterproofing membrane in expansion joint



VEDAFEU C fire stop in expansion joint 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



VEDA FRANCE

Joints bâtiment - Building joints

VEDAFEU N fire barrier blankets

Expansion joints, precast joints, head of walls, curtain walls, slab nosings



VEDAFEU N fire barrier blankets joints opening from 100 to 400 mm

This document refers to the following official French documents:

- **European Standard EN 13501-2 (May 2004) classification standard:** Fire rating of building construction products and systems. That standard details the test procedures: Orientation of the samples, movement capacity, junction types, joint width, etc. (See lexicon)
- **European Standard EN 1366-4 test method (November 2006):** Fire resistance testing of construction systems, part 4: Expansion joints filler. That standard details a test method for fire-resistant joint filler according to their final use, **with or without movements** during the tests.

That standard has been approved by the CEN (European Standards Committee) in April 2006 and then approved as a valid French standard on October 5th 2006 with implementation on November 5th, 2006.

- **Decree dated 22 March 2004 (Ministry of Interior)** related to the fire resistance of construction materials and systems. That Decree put in force the European Standards and cancels the Decree dated August 3rd, 1999. Consequently, the **test reports issued before the March 22th, 2004 are nowadays null and void.**

As a direct consequence, the **Test Reports issued by European Laboratories before November 2006 do not comply with the EN 1366-4 standard requirements.** Nowadays, the concerned European building materials manufacturers must provide **an official european classification report** that summarises the test results as done in officially approved laboratories.

Our Vedafeu N fire barrier blankets have been approved as per the following details:

Vedafeu N fire blanket barrier test results

Initial joint opening (mm)	Movement	Fire rating EI in minutes
100	+ 50 %	180 mn
150	+ 50 %	90 mn
300	+ 50 %	90 mn
400	+ 50 %	60 mn

Lexicon, results and commentaries:

Testing conditions

- Test performed between 2 concrete slabs (**H**), exposed to fire from the under face (**B**), with junction between 2 lengths.

-

Results and Commentaries:

- **EI:** Fireproofing and thermal insulation: as per the 13501-2 standard.
- **H:** Horizontal construction support
- **M:** Movement. The tests were performed with a +50 % movement (the maximum joint opening being reached after 59 minutes of testing).
- **B:** Factory and on-site manufactured connections.
- **W:** Tested openings.

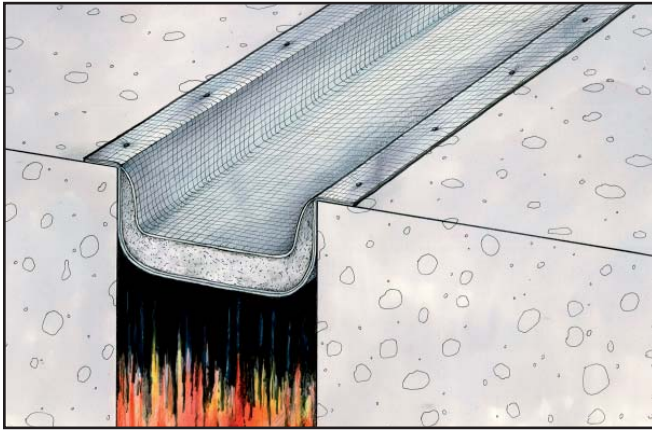


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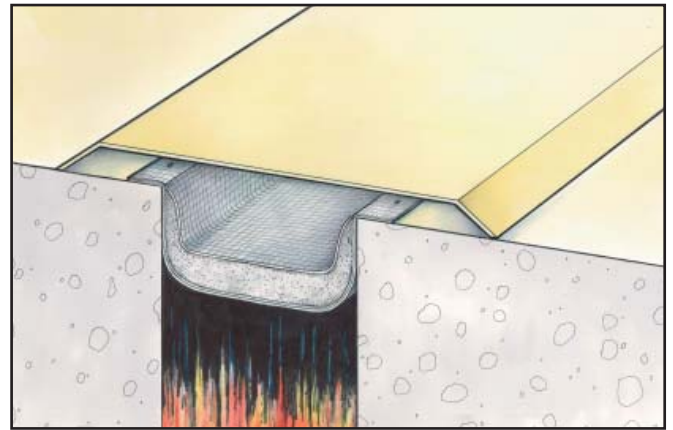
Joints bâtiment - Building joints

VEDAFEU N Fire barrier blanket

Applications

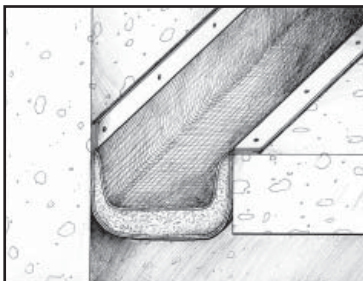


VEDAFEU N fire barrier blanket

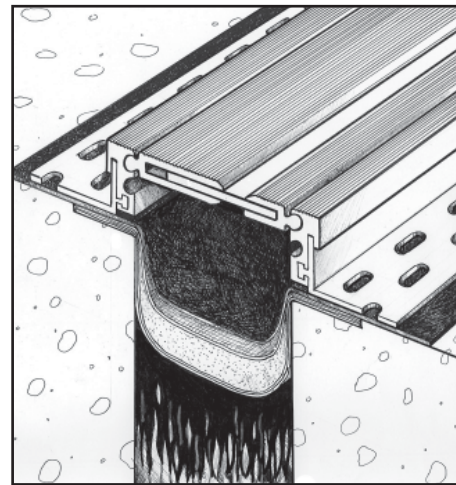


VEDAFEU N fire barrier blanket with joint cover

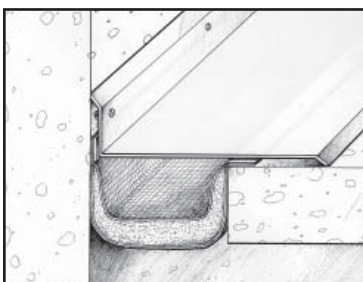
FLOOR TO WALL APPLICATION



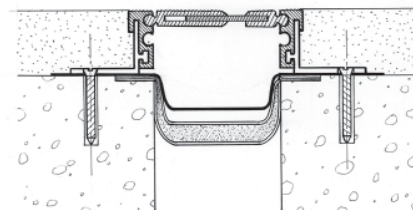
Floor to wall VEDAFEU N fire barrier blanket without joint cover



VEDAFEU N fire barrier blanket with waterproofing membrane and expansion joint



Floor to wall VEDAFEU N fire barrier blanket with joint cover



RATING TEST REPORT No. RS08-162/A CONCERNING A BUILDING ELEMENT

This Test Report attests only to the characteristics of the items submitted for testing and does not prejudge the characteristics of similar products. So it does not constitute a product certification in the sense of Article L 115-27 of the Consumer Code and of the Law of June 3, 1994.

This conformity can be attested to by the qualification certificates recognised by the Ministry of Industry.

In case this Test Report is issued by computer and/or on physical computer medium, only the report in paper medium form, signed by CSTB, is considered to be authentic in case of dispute. This Test Report, in the form of paper medium, is kept at CSTB for at least 10 years.

The reproduction of this Test Report is authorised only in its integral form.

Cancels and replaces the version of January 21st, 2009.

Pages 2/11, 5/11, 6/11 and 11/11 and appendices 1, 2 and 3 were modified on March 26th, 2009.

It contains **11** pages and **3** pages of Appendices.

REQUESTED BY:

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93297 TREMBLAY EN France Cedex

Laboratoire pilote agréé du Ministère de l'Intérieur (Arrêté du 05/02/1959)
Laboratoire agréé du Ministère chargé de la Marine Marchande
et de l'Assemblée Plénière des Sociétés d'Assurance Dommages

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SIÈGE SOCIAL > 84 AVENUE JEAN JAURÈS | CHAMPS-SUR-MARNE | 77447 MARNE-LA-VALLÉE CEDEX 2

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MARNE-LA-VALLÉE | PARIS | GRENOBLE | NANTES | SOPHIA-ANTIPOLIS

SUBJECT

Fire resistance test of linear expansion joint seals

REFERENCE TEXT

Decree of March 22, 2004
NF EN 13501-2 (May 2004)¹

DATES OF THE TESTS

June 28, 2008 | September 30, 2008

VALIDITY DURATION

This Rating Test Report and any extensions to it are valid until:

SEPTEMBER 30, 2013

REFERENCE REPORTS

Test Report no. RS07-145/A | Test Report no. RS07-145/H
Test Report no. RS07-145/G | Test Report no. RS07-145/I

ORIGIN AND CHARACTERISTICS OF THE TEST SPECIMENS

Material presented by: GV2 International / VEDA France
Trademark: VEDAFEU C fire barrier
Manufacturer: GV2 International / VEDA France
Origin: TREMBLAY EN FRANCE (93)

¹ Modified March 26, 2009

1. INTRODUCTION

The Fire Resistance Rating Report defines the rating assigned to the linear expansion joint seals in compliance with the procedures set down in Standard NF EN 13501-2 (May 2004).

2. BRIEF DESCRIPTION OF THE ELEMENT

The underlying structure This structure consists of slabs, thickness 200 mm, of conventional concrete, proportioned at 350 kg/m³, composed of CPJ 32,5R cement, fine gravel 4/20 and Seine River sand.

The expansion joint seals The VEDAFEU cylindrical fire barrier are tubular fire barrier of mineral fibre bound up in a woven glass fibre jacket.

The characteristics and the structural factors describing the installation of the linear joint seals are given below.

⇒ VEDAFEU Ø 12 mm cylindrical fire barrier

The product consists of VEDAFEU Ø 12 mm cylindrical fire barrier, laid end-to-end if necessary. In that case, they are joined by an overlap of two VEDAFEU Ø 12 mm cylindrical fire barrier over a length of about 100. The VEDAFEU Ø 12 mm fire barrier consists of a mineral fibre tubular fire barrier, in a woven glass fibre jacket.

The initial spacing between the two concrete slabs is 10 mm.

⇒ The fire barrier is installed as follows

Step no. 1	The rims of the concrete slabs are dusted off, using a brush.
Step no. 2	The upper part of the rims of the concrete slabs is coated with a layer of VEDACOLLE / C adhesive, over a height of about 20 mm for the Ø 12 mm cylindrical fire barrier.
Step no. 3	The VEDAFEU Ø 12 mm cylindrical fire barrier is forced, through the upper face, into an opening of 10 mm, left between the concrete slabs, for the Ø 12 mm cylindrical fire barrier. The upper part of the joint seal is flush with the upper face of the concrete slabs.

⇒ VEDAFEU Ø 100 mm cylindrical fire barrier

The product consists of two VEDAFEU Ø 100 mm cylindrical fire barrier, laid end-to-end if necessary. In that case, they are joined by an overlap of two VEDAFEU Ø 100 mm cylindrical fire barrier over a length of about 150 mm. The VEDAFEU Ø 100 mm fire barrier consists of a mineral fibre tubular fire barrier, in a woven glass fibre jacket.

The initial spacing between the two concrete slabs is 60 mm.

⇒ The fire barrier is installed as follows

Step no. 1	The rims of the concrete slabs are dusted off using a brush.
Step no. 2	The upper part of the rims of the concrete slabs is coated with a layer of VEDACOLLE / C adhesive, over a height of about 100 mm for the Ø 100 mm cylindrical fire barrier.

⇒ The fire barrier is installed as follows

Step no. 3	The VEDAFEU Ø 100 mm cylindrical fire barrier is forced, through the upper face, into an opening of 60 mm, left between the concrete slabs, for the Ø 100 mm cylindrical fire barrier. The upper part of the joint seal is flush with the upper face of the concrete slabs.
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⇒ **VEDAFEU Ø 170 mm cylindrical fire barrier**

The product consists of VEDAFEU Ø 170 mm cylindrical fire barrier, laid end-to-end if necessary. In this case, the connection is made end-to-end, straight edge, with two VEDAFEU Ø 170 mm cylindrical fire barrier. To join the two cylindrical fire barrier, a strip of special VEDAFEUTRE/S felt is wrapped around the junction of the VEDAFEU Ø 170 mm cylindrical fire barrier. The felt is held in place around the cylindrical fire barrier by VEDACOLLE /C adhesive. The VEDAFEU Ø 170 mm cylindrical fire barrier consists of a mineral fibre tube, bound up in a woven glass fibre jacket.

The initial spacing between the two concrete slabs is 120 mm.

⇒ The fire barrier is installed as follows

Step no. 1	The rims of the concrete slabs are dusted off, using a brush.
Step no. 2	To maintain the VEDAFEU Ø 170 mm cylindrical fire barrier within the spacing of 120 between the two concrete slabs, refractory steel L-sections are installed at an average pitch of 950, using a nail Ø 6 x 22, driven in by a pneumatic nailer.
Step no. 3	The upper part of the rims of the concrete slabs is coated with a layer of VEDACOLLE / C adhesive, over a height of about 100 mm for the Ø 170 mm cylindrical fire barrier.
Step no. 4	The VEDAFEU Ø 170 mm cylindrical fire barrier is forced, through the upper face, into an opening of 120 mm, left between the concrete slabs, for the Ø 170 mm cylindrical fire barrier. The upper part of the joint seal is flush with the upper face of the concrete slabs.

⇒ **VEDAFEU Ø 150 (x2) mm cylindrical fire barrier**

The product consists of VEDAFEU Ø 150 mm cylindrical fire barrier, juxtaposed and laid end-to-end if necessary. The connection is made end-to-end, straight edge, with two VEDAFEU Ø 150 mm cylindrical fire barrier. To join the two cylindrical fire barrier, a strip of special VEDAFEUTRE/S felt is wrapped around the junction of the VEDAFEU Ø 150 mm cylindrical fire barrier without bonding or fixing. The VEDAFEU Ø 150 mm cylindrical fire barrier consists of a mineral fibre tube, bound up in a woven glass fibre jacket.

The initial spacing between the two concrete slabs is 200 mm.

⇒ The fire barrier is installed as follows

Step no. 1	The rims of the concrete slabs are dusted off, using a brush.
Step no. 2	To maintain the VEDAFEU Ø 150 mm cylindrical fire barrier within the spacing of 200 between the two concrete slabs, refractory steel L-sections are installed at an average pitch of 500, using a nail Ø 6 x 22, driven in by a pneumatic nailer.

⇒ The fire barrier is installed as follows	
Step no. 3	The upper part of the rims of the concrete slabs is coated with a layer of VEDACOLLE / C adhesive, over a height of about 100 mm for the Ø 150 mm cylindrical fire barrier.
Step no. 4	The VEDAFEU Ø 150 mm cylindrical fire barrier are forced at the same time, through the upper face, into an opening of 200 mm, left between the concrete slabs, for the Ø 150 mm cylindrical fire barrier. The upper part of the joint seal is flush with the upper face of the concrete slabs.

Cover strip A cover strip, thickness 20/10, of galvanised steel, can overlap the linear joint seal. The joint strip is held in place by a bead of VEDAFLEX SIL mastic.

End-to-end installation **METHOD no. 1: Only for the fire barrier from Ø 12 to Ø 100² mm.**
(Connecting the linear joint seals) The fire barrier are connected by an overlapping of two VEDAFEU cylindrical fire barrier over a length of about 100 mm.

METHOD no. 2: Only for the fire barrier from Ø 120³ to 170 mm.
The fire barrier are connected end-to-end, straight edge, with two VEDAFEU cylindrical fire barrier. To join the two fire barrier, a strip of special VEDAFEUTRE/S felt is wrapped around the junction of the VEDAFEU cylindrical fire barrier. The felt is held in place around the fire barrier by VEDACOLLE /C adhesive.

Support system of the expansion joint seals To hold the VEDAFEU cylindrical fire barrier with diameters equal to or greater than Ø 100 within the space between the two concrete slabs, refractory steel L-sections, thickness 20/10, reference VEDAKER, are installed at an average pitch of 950 with the aid of nails Ø 6 x 22, driven in by a pneumatic nailer.

See the drawings of the element, Appendices no. 1 to 3

3. REPRESENTATIVITY OF THE ELEMENT

With its materials coming from current production, with its *in-situ* installation method the element, installed under the conditions observed by the laboratory in compliance with the installation manual supplied by the manufacturer, can be considered as representative of the present usual installation.

This corroborates the issuing of a confirmed Test Report.

² Modified March 26, 2009

³ Modified March 26, 2009

4. TEST REPORTS AND TEST RESULTS SUPPORTING THIS RATING

4.1. Test Reports

This Rating Test Report is associated with the following Test Reports:

Test Report no. RS07-145/A

Test Report no. RS07-145/G

Test Report no. RS07-145/H

Test Report no. RS07-145/I

Body carrying out the tests	Body's address	Notification No. Body's official status	Reference numbers of the test reports	Date tests carried out
CSTB	84 Avenue Jean Jaurès Champs sur Marne 77447 Marne la Vallée Cedex 2 FRANCE	Laboratory approved by the Ministry of the Interior according to the Decree of February 5, 1959	RS07-145/A RS07-145/G RS07-145/H RS07-145/I	28/06/2008 30/09/2008 30/09/2008 30/09/2008

The test reports were prepared in the name of the requester of this Rating Test Report. The whole of the tests was carried out according to the NF EN 1366-4 (November 2006)⁴.

4.2. Test results

4.2.1 CONCLUSION OF TEST No. RS07-145/A

Exposure conditions:

Temperature / time curve: $T = 345 \log_{10}(8t + 1) + 20$

Test results:

Integrity under fire effects

Sustained flaming at 241 minutes (without failure)

Flaming of cotton pad at 241 minutes (without failure)

Heat insulation

Test stop 241 minutes (without failure)

⁴ Modified March 26, 2009

4.2.2 CONCLUSION OF TEST No. RS07-145/G

Exposure conditions:

Temperature / time curve: $T = 345 \log_{10} (8t + 1) + 20$

Test results:

Integrity under fire effects

Sustained flaming at 241 minutes (without failure)

Flaming of cotton pad at 241 minutes (without failure)

Heat insulation

Test stop 241 minutes (without failure)

4.2.3 CONCLUSION OF TEST No. RS07-145/H (WITH THE PRESENCE OF A COVER STRIP)

Exposure conditions:

Temperature / time curve: $T = 345 \log_{10} (8t + 1) + 20$

Test results:

Integrity under fire effects

Sustained flaming at 241 minutes (without failure)

Flaming of cotton pad at 241 minutes (without failure)

Heat insulation

Test stop 241 minutes (without failure)

4.2.4 CONCLUSION OF TEST No. RS07-145/H (WITHOUT THE PRESENCE OF A COVER STRIP)

Exposure conditions:

Temperature / time curve: $T = 345 \log_{10} (8t + 1) + 20$

Test results:

Integrity under fire effects

Sustained flaming at 241 minutes (without failure)

Flaming of cotton pad at 241 minutes (without failure)

Heat insulation

End of integrity under fire effects 241 minutes (without failure)

4.2.5 CONCLUSION OF TEST No. RS07-145/I (WITH THE PRESENCE OF A COVER STRIP)

Exposure conditions:

Temperature / time curve: $T = 345 \log_{10} (8t + 1) + 20$

Test results:

Integrity under fire effects

Sustained flaming at 241 minutes (without failure)

Flaming of cotton pad at 241 minutes (without failure)

Heat insulation

End of integrity under fire effects 241 minutes (without failure)

5. RATING AND DIRECT APPLICATION FIELD

5.1. Rating reference

This rating was pronounced in compliance with Article 7.5.9.4 of Standard NF EN 13501-2.

5.2. Rating

The element that is the subject of this Test Report is rated according to the following combinations of parameters and of performances. No other rating is authorised.

⇒ **Rating without cover strip**

EI 240 – H – M20 – B – W 10 to 120

Table: Ø of joint seal = f (of the spacing between the slabs)					
Ø of the joint seal (mm)	Spacing between the slabs (mm)	Joint seal's compression rate as a %	Ø of the joint seal (mm)	Spacing between the slabs (mm)	Joint seal's compression rate as a %
12*	10	17	70*	40	43
20*	15	25	80*	50	38
30*	20	33	100*	60	40
40*	25	38	120**	80	33
50*	30	40	150**	100	33
60**	35	42	170**	120	29

* End-to-end connection method no. 1 | ** End-to-end connection method no. 2

NOTE: For all the linear joint seal diameters equal to or greater than 100 mm, the VEDAFEU cylindrical fire barrier support system shall be installed.

⇒ **Rating with cover strip**

EI 240 – H – M20 – B – W 10 to 200

Table: Ø of joint seal = f (of the spacing between the slabs)					
Ø of the joint seal (mm)	Spacing between the slabs (mm) maxi	Joint seal's compression rate as a % mini	Ø of the joint seal (mm)	Spacing between the slabs (mm)	Joint seal's compression rate as a %
12*	10	17	80*	50	38
20*	15	25	100*	60	40
30*	20	33	120**	80	33
40*	25	38	150**	100	33
50*	30	40	170**	120	29
60**	35	42	150 (x 2) **	200	33
70**	40	43			

* End-to-end connection method no. 1 | ** End-to-end connection method no. 2

NOTE: For all the linear joint seal diameters equal to or greater than 100 mm, the VEDAFEU cylindrical fire barrier support system shall be installed.

5.3. Rating validity conditions

5.3.1 AT PRODUCTION AND AT INSTALLATION

The element and its installation shall comply with the detailed descriptions given in the following test reports:

Test Report no. RS07-145/A

Test Report no. RS07-145/H

Test Report no. RS07-145/G

Test Report no. RS07-145/I

These latter can be requested with no obligation of assigning the document in case of dispute over the item's identification.

5.3.2 EXPOSURE CONDITIONS

On the underface of concrete slabs.

5.3.3 DIRECT APPLICATION FIELD

⇒ Orientation

The application field concerning the orientation of the linear joint's seal is given in the Table below.

Orientation tested	Application
A	A ; D

A: Linear joint seal in a horizontal test structure (see Diagram below).

D: Horizontal joint seal of a wall pressed against a floor, a ceiling or a roof (see Diagram below).



Application: **A**



Application: **D**

LEGEND	
	Joint caulking
	Underlying floor – in section

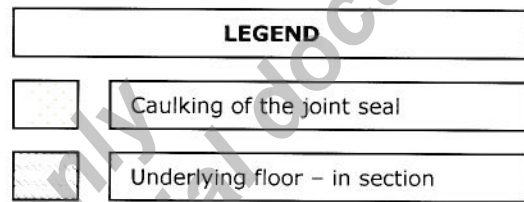
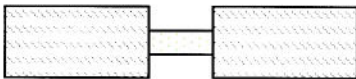
⇒ Underlying structure

The results obtained with standardised underlying structures of normal concrete apply to the separating elements of concrete and of concrete blocks that have a thickness and a density equal to or greater than those tested ($\geq 2300 \text{ kg/m}^3$).

⇒ Position of the caulking

The results are valid only for the positions in which the caulking were tested (Cf. Diagram below).

Position of the caulking tested



⇒ Shift driven by mechanical effects

The results obtained for the shift driven by mechanical effects before and during the tests are only valid for the suitability for the shift tested or for a shorter shift.

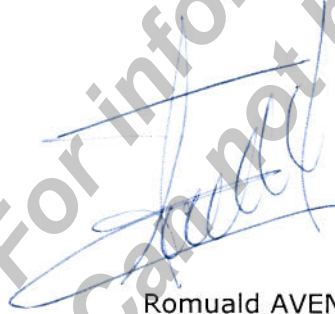
NOTE: Only a lateral shift is allowed.

Warnings:

The ratings pronounced in this document concern the capacity of integrity under fire effects and the capacity of heat insulation of the linear joint seal, to the exclusion of any idea of mechanical strength. In particular, they cannot be extrapolated to a heat-sensitive switch.

Made at Marne-la-Vallée, March 26th, 2009

Technician responsible for the test



Romuald AVENEL

Head of the
"Fire resistance Studies and Tests" Division



Christophe LEMERLE

END OF THE RATING TEST REPORT