

# **Blue Diamond Fire Protection**

## **4. FLEXI COAT**

Product name	Flexi-Coat®
Product Code	Blue Diamond Flexi-Coat / BD-FC2
Revision Date	30/01/2016
Revision number	03



## INTRODUCTION

Flexi-Coat® has been developed for use on stone wool or elastomeric base. Once the Flexi-Coat® is applied it prevents the passage of fire, smoke and sound between fire rated compartments giving a fire resistance tested to EN1366-4: 2009 EI 120. Flexi-Coat has also achieved 600Pa air permeability resistance testing to EN 1026 and 450Pa water permeability resistance testing to EN 1027. Can be installed in to voids / cavities up to 500mm wide.

Flexi-Coat® is a water based an elastomeric acrylic coating, having excellent fire, water, air permeability and elastometric properties offering up to 50% movement. Ideal for spray, trowel, brush & pouring applications. For flexible installations 80kg/m<sup>3</sup> stone wool should be used. At normal temperatures, Flexi-Coat® remains highly flexible to permit thermal and mechanical movement of services and the building structure. The product is unaffected by oil, fungus and contains no halogens, asbestos and contains low VOC's.

### The advantages of the Flexi®-Coat system are as follows:

- Fire resistance testing to EN 1366-3 EI 120, EN 1366-4 EI 120.
- Fire Classification to EN 13501-2.
- Certifire 3rd Party Accreditation CF 5094.
- Acoustic Isolation to EN 10140 to 52dB.
- Air Permeability testing to EN 1026 to 600Pa.
- Water Permeability testing to EN 1027 to 450Pa.
- VOC Tested ASTM D2369-10, LEED 2009-EQ 041 SCAQMD
- Tested with Metallic Pipes, Cables, Cable Bunches, Cable Trays and Cable Ladders.
- Causes no known effects to plastic pipes, plastic cables, sheathing or metallic components.
- Contributes to Green Building.
- Joint movement capability of +/- 50% -10 to +95 °C.
- Dynamic movement testing 500 cycles per 30 minutes.
- Highly flexible and water resistant.
- Halogen free, resists fungi and vermin.
- Can be spray, brush, pour or trowel applied.
- Ideal for slab edge applications, head of wall and movement installations.
- Suitable for voids up to 500mm wide.
- Install on base of 80kg/m<sup>3</sup> stone wool.





**SPECIFICATION**

<b>Description</b>	Water based flexible acrylic coating
<b>Colour</b>	White / Grey / Red (others on request)
<b>Specific Gravity</b>	1.2 – 1.35 g/cm <sup>3</sup>
<b>Cure Rate</b>	0.5mm per day at 50% relative humidity 23°C
<b>Tack Free</b>	6hrs at 23°C, 50% RH
<b>Application Temperature</b>	+0°C to +30°C
<b>Coating Thickness</b>	2.5mm Nominal, wet coating thickness
<b>Coverage</b>	2.8kg/m <sup>2</sup> , 2.24L/m <sup>2</sup>
<b>Fire Resistance</b>	EN 1366-4 EI 120
<b>Insulation</b>	EN 1366-4 120mins
<b>Classification</b>	EN 13501-2
<b>Acoustic Isolation</b>	EN 10140 40dB when installed with 100mm thick 80kg/m <sup>3</sup> stone wool. EN 10140 49dB when installed with 200mm thick 80kg/m <sup>3</sup> stone wool.
<b>Air Permeability</b>	600 Pa EN 1026 - 100Pa 0.4/1.5 m <sup>3</sup> /h/m <sup>2</sup>
<b>Water Permeability</b>	450 Pa EN 1027 - No Leakage
<b>Container Size</b>	2.5kg, 5kg, 10kg, 25kg, 210kg.
<b>Movement</b>	500 cycles per 30 mins - 50% expansion and compression



**INSTALLATION**

Installation details and technical support are available from Blue Diamond technical department or on the internet at [www.bluediamondfireprotection.com](http://www.bluediamondfireprotection.com)

- Use rubber gloves and eye protection to avoid skin and eye contact.
- Apply stone wool to opening, 80kg/m<sup>3</sup>, 100mm thick.
- Apply Flexi-Coat® via spray, brush, pour or trowel application.
- If over 250mm wide install a bracket.
- Maintain record of installation.

For further information see Installation Manual.





### COMPLIANCE

Flexi-Coat® is manufactured in the EU, meeting the highest quality standard in compliance to ISO EN 9001. For fire test certification contact Blue Diamond technical department.  
CERTIFIRE CF 5094.



### STORAGE AND DISPOSAL

For long term storage and ease of installation it is recommended that it should be stored indoors, in dry conditions. Storage temperature between -5°C and +25°C. For health and safety details refer to Blue Diamond technical department.  
Sealant shelf life 12 month from date of manufacture.



### ENVIRONMENT

Blue Diamond contribute to Green Building by having a manufacturing policy of 100% recycle and 0% land fill for all products.

Flexi-Coat contributes to a Green Building :-

Low VOC (air quality).

No Power Tools required for installation (no energy source required).

Dust free.

Low Ozone Depletion Potential (ODP).

Low Global Warming Potential (GWP).

No water pollution.

Smoke and Air Tightness.

Water Tightness

Noise Reduction.

Thermal Insulation.

Recycling of Packaging.

Avoidance of Air Filtration.

Contains no raw materials known to have an estrogenic effect.

The life cycle of Flexi-Coat® is over 25 years.





 **DYNAMIC MOVEMENT TEST**

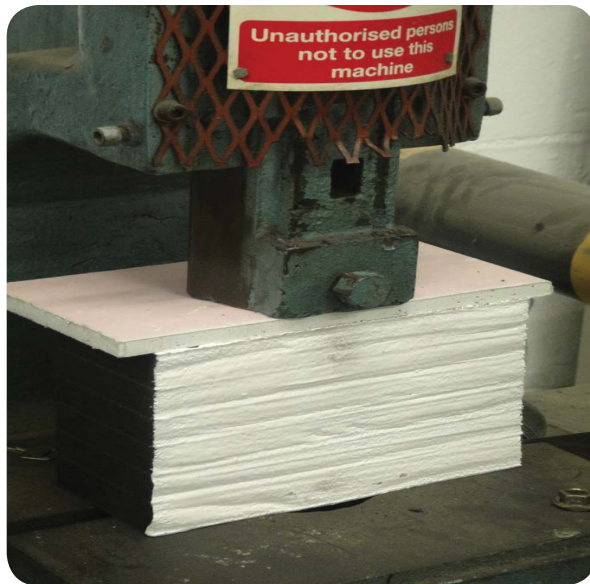


After 1000 cycles there was no visible or physical deterioration of the Flexi®-Coat.

Flexi®-Coat compressed to 80mm

Flexi®-Coat has undertaken dynamic movements tests in excess of 500 per 30 mins cycles extending to 150mm and compressing to 80mm.

Flexi®-Coat extended to 150mm

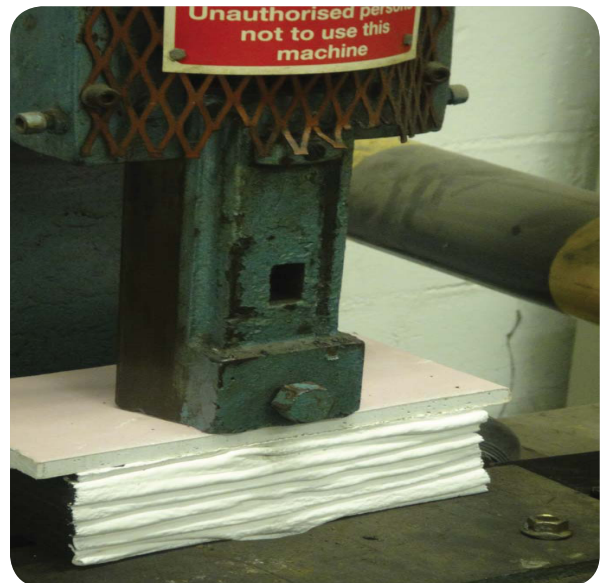


Flexi®-Coat under 7 tonne load pressure allowing compression to less than 80mm.

Flexi®-Coat compressed to <80mm

Flexi®-Coat @ 2.5mm WFT cured on to elastomeric substrate to perform dynamic tests.

Flexi®-Coat compressed to >100mm





Product name	Flexi® Coat
Product Code	Blue Diamond Flexi-Coat / BD-FC2
Revision Date	30/01/2016
Revision number	01

**Section 1: Identification of the substance/mixture and of the company / undertaking**



**1.1 Product identifier**

<b>Product name</b>	Flexi® Coat
<b>Product Code</b>	Blue Diamond Flexi-Coat / BD-FC2



**1.2. Relevant identified uses of the substance or mixture and uses advised against**

<b>Use of Substance/Mixture</b>	PC1: Adhesives, sealants
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**1.3. Details of the supplier of the safety data sheet**

<b>Company name</b>	Blue Diamond Fire Protection Al Quoz -1 P.O.Box: 25468 Dubai - UAE
<b>Tel</b>	(00971) 4 340 3700
<b>Fax</b>	(00971) 4 340 5122
<b>Email</b>	bluedbc@eim.ae



**1.4. Emergency telephone number**

**Section 2: Classification of the substance or mixture**



**2.1. Classification of the substance or mixture**

<b>Classification under CHIP</b>	This product has no classification under Chip
<b>Classification under CLP</b>	This product has no class



**2.2. Label elements**

<b>Label elements</b>	This product has no label elements
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## 2.3. Other hazards

**PBT** | This product is not identified as a PBT substance

## Section 3 Composition/information on ingredients



## 3.2. Mixtures

## Section 4: First aid measures



## 4.1. Description of first aid measures

<b>Skin contact</b>	Wash immediately with plenty of soap and water
<b>Eye contact</b>	Bathe the eye with running water for 15 minutes
<b>Ingestion</b>	Wash out mouth with water
<b>Inhalation</b>	Consult a doctor



## 4.2. Most important symptoms and effects, both acute and delayed

<b>Skin contact</b>	There may be mild irritation at the site of contact
<b>Eye contact</b>	There may be irritation and redness
<b>Ingestion</b>	There may be irritation of the throat
<b>Inhalation</b>	No symptoms



## 4.3. Indication of any immediate medical attention and special treatment needed

**Immediate/special treatment** | Not applicable

## Section 5: Fire-Fighting measures



## 5.1. Extinguishing media

**Extinguishing Media** | Suitable extinguishing media for the surrounding fire should be used. Use water spray to cool containers.



## 5.2. Special hazards arising from the substance or mixture

**Exposure hazards** | In combustion emits toxic fumes



## 5.3. Advice for fire-fighters

**Advice for fire-fighters** | Wear self-contained breathing apparatus. Wear protective clothing to prevent contact with skin and eyes.



**Section 6: Accidental release measures**



**6.1. Personal precautions, protective equipment and emergency procedures**

**Personal precautions**

Refer to section 8 of SDS for personal protection details. Turn leaking containers leak-side up to prevent the escape of liquid.



**6.2. Environmental precautions**

**Environmental**

Do not discharge into drains or rivers. Contain the spillage using Bunding



**6.3. Methods and materials for containment and cleaning up**

**Clean-up procedures**

Absorb into dry earth or sand. Transfer to a closable, labelled salvage container for disposal by an appropriate method



**6.4. Reference to other sections**

**Reference to other sections**

Refer to section 8 of SDS

**Section 7: Handling and storage**



**7.1. Precautions for safe handling**

**Reference to other sections**

Refer to section 8 of SDS



**7.2. Conditions for safe storage, including any incompatibilities**

**Storage conditions**

Store in cool, well ventilated area. Keep container tightly closed



**7.3. Specific end use(s)**

**Specific end use(s)**

No data available

**Section 8: Control parameters**



**8.1. Control parameters**

**Workplace exposure limits**

No data available



**8.1. DNEL/PNEC**

**DNEL/PNEC**

No data available

## Section 9: Physical and chemical properties



## 9.1. Information on basic physical and chemical properties

State	Liquid		
Colour	Various		
Relative density	1.25	pH	Approx. 7



## 9.2. Other information

Other information	No data available
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## Section 10: Stability and reactivity



## 10.1. Reactivity

Reactivity	Stable under recommended transport or storage conditions
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## 10.2. Chemical stability

Chemical stability	Stable under normal conditions
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## 10.3. Possibility of hazardous reactions

Hazardous reactions	Hazardous reactions will occur under normal transport or storage conditions. Decomposition may occur on exposure to conditions or materials listed below.
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## 10.4. Conditions to avoid

Conditions to avoid	Heat
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## 10.5. Incompatible materials

Materials to avoid	Strong oxidising agents. Strong acids
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## 10.6. Hazardous decomposition products

Haz. decomp. products	In combustion emits toxic fumes
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## Section 11: Toxicological information



## 11.1. Information on toxicological effects

Toxicity values	No data available
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## Symptoms/routes of exposure

<b>Skin contact</b>	There may be mild irritation at the site of contact
<b>Eye contact</b>	There may be irritation and redness
<b>Ingestion</b>	There may be irritation of the throat
<b>Inhalation</b>	No symptoms

## Section 12: Ecological information



## 12.1. Toxicity

**Ecotoxicity values** | No data available



## 12.2. Persistence and degradability

**Persistence and degradability** | Biodegradable



## 12.3. Bioaccumulative potential

**Bioaccumulative potential** | No bioaccumulation potential



## 12.4. Mobility in soil

**Mobility** | Readily absorbed into soil



## 12.5. Results of PBT and vPvB assessment

**PBT identification** | This product is not identified as a PBT substance



## 12.6. Other adverse effects

**Other adverse effects** | Negligible ecotoxicity

## Section 13: Disposal considerations



## 13.1. Waste treatment methods

**NB** | The user's attention is drawn to the possible existence of regional or national regulations regarding disposal

## Section 14: Transport information

**Transport class** | This product does not require a classification for transport



## Section 15: Regulatory information



## 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture



## 15.2. Chemical Safety Assessment

## Section 16: Other information



## Other information

**Other information**

This safety data sheet is prepared in accordance with Commission Regulation (EU) No 453/2010.  
\* indicates text in the SDS which has changed since the last revision.

**Legal disclaimer**

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. This company shall not be held liable for any damage resulting from handling or from contact with the above product.





Product name	Flexi® Coat
Product Code	Blue Diamond Flexi-Coat / BD-FC2
Revision Date	30/01/2016
Revision number	01



**INTRODUCTION**

The purpose of this document is to give guidance to approved contractors and suppliers who are engaged in the fire stopping of linear joints and slab edge applications using the Flexi® Coat system.

All linear joints and slab edge applications through compartments must be fire stopped to prevent the passage of fire, heat transfer, smoke, hot gasses and allow mechanical movement of the structure.

**The result of this work will: -**

- Prevent the spread of fire, smoke and hot gases through a building by containing it in the compartment of origin.
- Allow for mechanical movement of the structure.
- Maintain the integrity of escape routes from the building
- Reduce loss or damage to a property from the effect of fire and smoke.
- Maintain pressure differential between compartments and ventilation channels.











**TRAINING**

All operatives to be engaged in the installation of Flexi® Coat must have received relevant training from Blue diamond Technical Department and be certified accordingly. All installation work must be carried out in accordance with the guidelines laid down in this document.

The training facilities are provided by Blue diamond Technical Department to ensure the correct installation procedures are followed to the approved Flexi® Coat specification and to maintain a high standard of workmanship and quality.



**TOOLS AND EQUIPMENT**

	Steel Tape Measure - 2 Metre minimum
	Carpenters Pencil & Straight Edge
	All Purpose Saw
	Hand Brush & Dust Pan
	Bread Knife
	Plastic Sheeting
	Pointing Trowel
	Pallet Knife





**PREPARATION FOR INSTALLATION**

Remove all unnecessary combustible materials from the opening. Using a dust pan and brush, sweep all loose products from the inner surface of the opening and surrounding local to the installation.

Place a plastic sheet beneath the working area to catch any falling materials.



**TYPE OF SEAL AND SIZE**

The suitability of the Flexi<sup>®</sup> Coat System is governed by the recommendations available from the fire test carried out by the independent fire test authority and in house indicative testing. The following are the maximum sizes of openings suitable for the Flexi<sup>®</sup> Coat System.

**ALLOWED SEAL SIZES**

Joint Type	Substrate Type	Deflection	Installation	Maximum Joint Width
Static	Concrete, or concrete to stone/marble cladding	+/- 5%	Stone wool cut to joint size + 10mm over size	250mm (500mm with brackets)
Movement	Concrete to composite/metal cladding/curtain wall	+/- 20%	Stone wool cut to joint size + 20% & installed under compression	250mm (500mm with brackets)
Excessive Movement	Any Substrate that is deemed to require excessive movement	>+/- 20%	Stone wool cut to joint size + 20% and installed under compression. Brackets installed 2 per cut section up to a maximum of 1200mm length or part of i.e. if 2000mm section installed 4 to be installed at equal distances, commencing at 225mm from each start point	500mm

**SEAL TYPES / RATING**

Fire Resistance - BS EN1366 - 4:2006 - 120EI, EN 13501-2, BS 476

Acoustic EN10140 43db and 52db.

Air permeability EN1026 600 pa.

Water permeability EN1027 450 pa.

Considerations to achieve the above ratings are sufficient slab thickness to accept the thickness of the seal and substrate types.





**ADDITIONAL  
MECHANICAL SUPPORTS**

390 x 25 x 1mm Galvanized or Stainless steel brackets if required.



**INSTALLATION OF FLEXI® COAT**

Measure the size of the opening.

Add 10mm to the measured dimensions (length, width) and draw the details onto the stone wool. The stone wool should be cut over size to ensure a friction fit into void. Cut the required section of stone wool using a saw or bread knife. The stone wool should be a minimum of 100mm thick and have a minimum density of 80kg/m<sup>3</sup>.

Place the stone wool into the void ensuring a good friction fit. The top surface of the stone wool should lie 2.5mm below the level of the substrate.

Install brackets, 2 per 1200mm if required over a gap size of 250mm.

Overlap the substrate by 20mm if a movement seal is required.

Using a spray system (tip size 30 thou) or pour and level with trowel a layer Flexi® Coat, to achieve a wet coating thickness of 2.5mm. 3.125 kg/m<sup>2</sup> 2.5 Ltr/m<sup>2</sup>.

The coating should be applied to a consistent thickness and to edges of the surrounding substrate. Once completely installed the finished application of coating should lie level with the supporting substrate.

The Flexi® Coat only requires to be applied to the upper surface of the seal.

# UL-EU CERTIFICATE

**Certificate No.** UL-EU-00937

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**Date of Issue** 2016-02-18

**Certificate Holder** Blue Diamond Fire Protection  
P.O. Box 25468  
Dubai  
UAE

**Manufacturer** A/010

**Certified Product Type** Fire Stop - Coating

**Product Trade Name** BD-FC2

**Trademark** N/A

**Rating/Classification** See Appendix

**Harmonised Technical Specifications** ETAG 026-3 / EN 13501-2

**Supporting Documentation** ETA 13/1057, EC – CERTIFICATE OF CONSTANCY OF PERFORMANCE - 1121 – CPR – JA5010

**Additional information** Additional test evidence is held on file

**Expiry date** 2026-02-17



**Director, Global Market Access Operations**

Helena Y. Wolf

This is to certify that representative samples of the Certified Product listed above have been investigated by Underwriters Laboratories to the Standard(s) indicated on this Certificate, in accordance with the UL Global Services Agreement and the UL-EU Mark Service Terms and Conditions ("Agreement"). The Certificate Holder is entitled to use the UL-EU Mark for the Certified Product listed on the certificate and manufactured at the production site(s) listed, in accordance with the terms of the Agreement. Only those products bearing the UL-EU Mark for Europe should be considered as being covered by UL's UL-EU Mark Service. This Certificate shall remain valid through the Expiration date, unless a Standard identified on this Certificate is amended or withdrawn prior to that date or there is a non-compliance with the Agreement.

[www.ul.com](http://www.ul.com)



# Appendix UL-EU CERTIFICATE

Certificate No. UL-EU-00937  
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This certificate relates to the use of BD-FC2 coating/sealant for fire stopping where there are joints in or between floors and walls. The detailed scope is given in pages 3 to 5 of this Certificate. This shows the thickness and acceptable dimensions, substrates and orientations required to provide fire resistance periods of up to 240 minutes (E 240/ EI 180).

The product is certificated on the basis of:

- i) ETA 13/1057 EC – CERTIFICATE OF CONSTANCY OF PERFORMANCE 1121 – CPR – JA5010
- ii) Inspection and surveillance of factory production control by UL
- iii) Fire resistance test data in accordance with 1366-4: 2006
- iv) Classification in accordance with EN 13501-2
- v) Durability and Servicability as defined in ETAG 026-3

The movement capability of BD-FC2 joint seals is restricted to  $\leq 12.5\%$  (lateral movement)

The durability class of BD-FC2 is Z<sub>1</sub> - intended for use at internal conditions with high humidity, excluding temperatures below 0°C





# Appendix UL-EU CERTIFICATE

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Product-type: Coating		Intended use: Linear Joint & Gap Seal
Basic requirement for construction work	Basic Requirement	Basic requirement for construction work
<b>BWR 1 Mechanical resistance and stability</b>		
-	None	-
<b>BWR 2 Safety in case of fire</b>		
EN 13501-1	Reaction to fire	Class F
EN 13501-2	Resistance to fire	See page 6
<b>BWR 3 Hygiene, health and environment</b>		
EN 1026:2000	Air permeability (material property)	See page 4
ETAG 026-3, Annex C	Water permeability (material property)	No performance determined
Declaration of manufacturer	Release of dangerous substances	Declaration of manufacturer
<b>BWR 4 Safety in use</b>		
EOTA TR 001:2003	Mechanical resistance and stability	No performance determined
EOTA TR 001:2003	Resistance to impact/movement	No performance determined
EOTA TR 001:2003 ISO 11600	Adhesion	No performance determined
<b>BWR 5 Protection against noise</b>		
EN 10140-2/ EN ISO 717-1	Airborne sound insulation	Rw(C;Ctr)= 30 (-2;-8) dB*
EN 10140-3/ EN ISO 717-2	Impact sound insulation	No performance determined
<b>BWR 6 Energy economy and heat retention</b>		
EN 12664, EN 12667 or EN 12939	Thermal properties	No performance determined
EN ISO 12572 EN 12086	Water vapour permeability	No performance determined
<b>General aspects relating to fitness for use</b>		
ISO 8339: 2005, ISO 9046: 2004 & ISO 7389: 2003	Durability and serviceability	Z <sub>1</sub>
<b>BWR 7 Sustainable use of natural resources</b>		
-	-	No performance determined

\* As given in ETA, see page 5 for additional ratings



# Appendix UL-EU CERTIFICATE

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BD-FC2: Air Permeability according to BS EN 1314-1				
Pressure (Pa)	Results under positive chamber pressure		Results under negative chamber pressure	
	Leakage (m <sup>3</sup> /h)	Leakage (m <sup>3</sup> /m <sup>2</sup> /h)	Leakage (m <sup>3</sup> /h)	Leakage (m <sup>3</sup> /m <sup>2</sup> /h)
50	0.1	0.1	1.0	1.4
100	0.3	0.4	1.1	1.5
150	0.6	0.8	1.5	2.1
200	0.8	1.1	0.9	1.3
250	1.1	1.5	1.3	1.8
300	1.2	1.7	1.7	2.4
450	2.4	3.3	3.5	4.9
600	4.5	6.3	5.3	7.4

BD-FC2: Analytical VOC Results				
Solid content % mass	Water content, % mass	Exempt compounds, % mass	VOC less water less exempt compounds, g/l	VOC limit g/l
66.2	7.7*	0***	380	750*

\* VOC limit for other sealants

\*\* Given by client

\*\*\* No information about exempt compounds. Set to zero.

BD-FC2: Water Permeability according to BS EN 1027*		
Pressure (Pa)	Duration	Observations
50	15 minutes	No Leakage Observed
100	5 minutes	No Leakage Observed
150	5 minutes	No Leakage Observed
200	5 minutes	No Leakage Observed
250	5 minutes	No Leakage Observed
300	5 minutes	No Leakage Observed
450	3 minutes 50 seconds	At a total duration of 48 minutes 50 seconds the right hand edge of the sample joint to subframe separated and began to allow water leakage off the sample

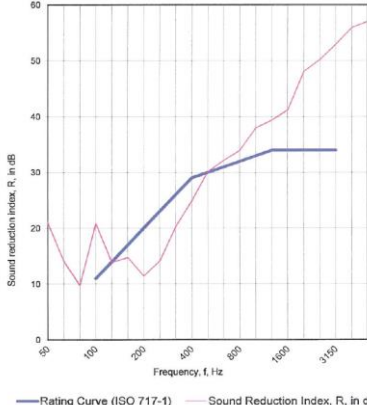
\* Exposure from coated side



# Appendix UL-EU CERTIFICATE

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## BD-FC2: Acoustic performance according to BS EN ISO 10140-2:2010

Configuration	$R_w(C; C_{tr})$ Specimen only, 1m <sup>2</sup>	$D_{new}$ Partition & Specimen, 14.2m <sup>2</sup>
BD-FC2 on source room side of wall, 1mm deep x 500mm wide x 2000mm high, with 100mm deep Stonewool (80kg/m <sup>3</sup> )	30 (-2; -8) 	40 (2; -8)





# Appendix UL-EU CERTIFICATE

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BD-FC2: Linear Gaps in Floors								
Substrate	Minimum Substrate Thickness (mm)	Maximum Gap Size (mm)	Seal Position	Minimum Seal Depth (mm)	Backing Material	Minimum Backing Depth (mm)	Fire Resistance (mins.)	
							E	EI
AAC or Concrete	150	200	Top of floor	1 (DFT)	Stone Mineral Wool* Compressed by 20%	100	240	180

\* 80 kg/m<sup>3</sup>

BD-FC2: Linear Gaps in Walls								
Substrate	Minimum Substrate Thickness (mm)	Maximum Gap Size (mm)	Seal Position	Minimum Seal Depth (mm)	Backing Material	Minimum Backing Depth (mm)	Fire Resistance (mins.)	
							E	EI
AAC or Concrete	150	150	Unexposed face	1 (DFT)	Stone Mineral Wool* Compressed by 20%	100	240	180

\* 80 kg/m<sup>3</sup>





# Appendix UL-EU Certificate

<b>Certification Mark</b>	<b>UL-EU mark</b>
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The UL-EU Mark, as displayed below, shall appear on certified products only. Minimum size is not specified, as long as the Mark is legible. The following is suggested.



The minimum height of the registered trademark symbol ® shall be 1 mm. When the overall diameter of the UL-EU Mark is less than 9.5 mm, the trademark symbol may be omitted if it is not legible to the naked eye.

The UL-EU Mark may appear on a label, nameplate, or may be cast, stamped or molded into the product. When appearing on a label or nameplate, the Manufacturer's name or trademark along with a model number are also required on that same label or nameplate. If cast, stamped or molded, the Certificate Manufacturer's name or trademark and model number shall also appear elsewhere on the product.

All content shall be in accordance with the details provided on this UL-EU Certificate.

## PROCUREMENT

The Production site may reproduce the Mark or obtain it from a UL authorized supplier. The list of UL authorized suppliers can be found on UL's online directory at [www.ul.com](http://www.ul.com).

