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Agrément Certificate
17/5396
Product Sheet 1

OBEX AIR AND WEATHERTIGHTNESS PRODUCTS

CORTEX MEMBRANE SYSTEMS

This Agrément Certificate Product Sheet(1) relates to the Cortex Membrane Systems, for use as airtight and weathertight seals around glazing units.

(1) Hereinafter referred to as 'Certificate'.

CERTIFICATION INCLUDES:

- factors relating to compliance with Building Regulations where applicable
- factors relating to additional non-regulatory information where applicable
- independently verified technical specification
- assessment criteria and technical investigations
- design considerations
- installation guidance
- regular surveillance of production
- formal three-yearly review.

KEY FACTORS ASSESSED

Weathertightness — the systems will resist the passage of wind-driven rain, snow, run-off water and dust into the interior of the building (see section 6).

Properties in relation to fire — Cortex FR Membranes and Cortex EPDM Membranes are classified as Class B, S3 d0 or above and E respectively in accordance with BS EN 13501-1 : 2018. The use of Cortex EPDM membranes is restricted in some cases by the national Building Regulations (see section 7).

Air barrier continuity — the systems will contribute to maintaining air barrier continuity at lintels, jambs and sills (see section 8).

Resistance to damage — the systems are suitably robust so as not to be damaged during installation (see section 10).

Durability — the systems will continue to function for the lifetime of the frame around which they are installed (see section 12).

The BBA has awarded this Certificate to the company named above for the systems described herein. These systems have been assessed by the BBA as being fit for their intended use provided they are installed, used and maintained as set out in this Certificate.

On behalf of the British Board of Agrément

Date of Fourth issue: 4 June 2020

Originally certificated on 17 February 2017

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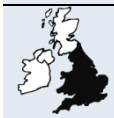
Regulations

In the opinion of the BBA, Cortex Membrane Systems, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements of the following Building Regulations (the presence of a UK map indicates that the subject is related to the Building Regulations in the region or regions of the UK depicted):



The Building Regulations 2010 (England and Wales) (as amended)

Requirement:	**B3(4)**	**External fire spread**
Comment:		The systems can contribute to satisfying this Requirement. See sections 7.1 and 7.4 of this Certificate.
Requirement:	**B4(1)**	**External fire spread**
Comment:		The use of Cortex FR Membranes is unrestricted by this Requirement and the use of Cortex EPDM Membranes is restricted by this Requirement. See section 7 of this Certificate.
Requirement:	**C2(b)**	**Resistance to moisture**
Comment:		The systems will contribute to satisfying this Requirement. See section 6 of this Certificate.
Requirement:	**L1(a)(i)**	**Conservation of fuel and power**
Comment:		The systems can contribute to minimising heat loss at lintels, jambs and sills. See section 8.1 of this Certificate.
Regulation:	**7(1)**	**Materials and workmanship**
Comment:		The systems are acceptable. See section 12 and the *Installation* part of this Certificate.
Regulation:	**26**	**CO_2 emission rates for new buildings**
Regulation:	**26A**	**Fabric energy efficiency rates for new dwellings (applicable to England only)**
Regulation:	**26A**	**Primary energy consumption rates for new buildings (applicable to Wales only)**
Regulation:	**26B**	**Fabric performance values for new dwellings (applicable to Wales only)**
Comment:		The systems can contribute to satisfying these Regulations. See section 8.1 of this Certificate.

The Building (Scotland) Regulations 2004 (as amended)

Regulation:	**8(1)(2)**	**Durability, workmanship and fitness of materials**
Comment:		The use of the systems can contribute to satisfying the requirements of this Regulation. See section 12 and the *Installation* part of this Certificate.
Regulation:	**9**	**Building standards applicable to construction**
Standard:	2.4	Cavities
Comment:		The systems can contribute to satisfying this Standard with respect to clause 2.4.2[(1)(2)]. See sections 7.1 and 7.4 of this Certificate.
Standard:	3.10	Precipitation
Comment:		The systems will resist the effects of driving rain and enable an installation to satisfy the requirements of this Standard, with reference to clause 3.10.1[(1)(2)]. See section 6 of this Certificate.
Standard:	6.1b	Carbon dioxide emissions
Standard:	6.2	Building insulation envelope
Comment:		The systems can contribute to minimising heat loss at lintels, jambs and sills. See section 8.1 of this Certificate.

Standard:	7.1(a)	Statement of sustainability
Comment:		The systems can contribute to meeting the relevant requirements of Regulation 9, Standards 1 to 6 and therefore will contribute to a construction meeting a bronze level of sustainability as defined in this Standard.
Regulation:	**12**	**Building standards applicable to conversions**
Comment:		Comments in relation to the systems under Regulation 9, Standards 1 to 6 also apply to this Regulation, with reference to clause 0.12.1[(1)(2)] and Schedule 6[(1)(2)]. (1) Technical Handbook (Domestic). (2) Technical Handbook (Non-Domestic).

The Building Regulations (Northern Ireland) 2012 (as amended)

Regulation:	**23(a)(i) (iii)(b)(i)**	**Fitness of materials and workmanship**
Comment:		The systems are acceptable. See section 12 and the *Installation* part of this Certificate.
Regulation:	**28**	**Resistance to moisture and weather**
Comment:		The systems have adequate resistance to the ingress of rain and wind-driven spray and so can contribute towards the wall satisfying this Regulation. See section 6 of this Certificate.
Regulation:	**35(4)**	**Internal fire spread - structure**
Comment:		The systems can contribute to satisfying this Regulation. See sections 7.1 and 7.4 of this Certificate.
Regulation:	**39(a)(i)**	**Conservation measures**
Regulation:	**40(2)**	**Target carbon dioxide emission rate**
Comment:		The systems can contribute to minimising heat loss at lintels, jambs and sills. See section 8.1 of this Certificate.

Construction (Design and Management) Regulations 2015
Construction (Design and Management) Regulations (Northern Ireland) 2016

Information in this Certificate may assist the client, designer (including Principal Designer) and contractor (including Principal Contractor) to address their obligations under these Regulations.

See sections: 1 *Description* (1.2) and 3 *Delivery and site handling* (3.2 and 3.4) of this Certificate.

Additional Information

NHBC Standards 2020

In the opinion of the BBA, Cortex Membrane Systems, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements in relation to *NHBC Standards*, Chapters 6.1 *External masonry walls*, 6.2 *External timber framed walls*, 6.7 *Doors, windows, and glazing,* 6.9 *Curtain walling and cladding* and 6.10 *Light steel frame walls and floors.*

Technical Specification

1 Description

1.1 Cortex Membrane Systems consist of:

- Cortex EPDM Membranes (0500, 0600, 0750, 1000, 1200 and 1500) — unreinforced EPDM membranes for use as seals
- Cortex FR Membranes (0200FR and 0500FR) — fire-rated, polymeric unreinforced membranes for use as seals

- Cortex 0860 Adhesive Backed EPDM Membrane (split release liner) — a self-adhesive, unreinforced membrane for use as a seal
- Cortex 0761, 0762, 0763, 0764 and 0768 EPDM Membranes with Gasket — unreinforced EPDM membranes for use as seals, with an extruded gasket to attach to window profiles
- Cortex 0802 EPDM Gasket Carrier — an extruded aluminium profile, with adhesive backing for fixing, for use in conjunction with Cortex 0761 EPDM Membrane
- Cortex 0901 External EPDM Corner and Cortex 0902 Internal EPDM Corner — prefabricated units for detailing
- Cortex 0901FR External Fire-Rated Corner — a prefabricated unit for detailing
- Cortex 0751, 0752 and Cortex 0753 EPDM Membranes — membranes with integral butyl sealant, for use in bonding directly to aluminium substrates without the need for adhesive
- Cortex 0765, 0766 and 0767 Paste Adhesive — for use in adhering EPDM to substrates
- Cortex 0771FR Paste Adhesive — for use in adhering fire rated membranes to substrates
- Cortex 0775 Contact Adhesive — for use in adhering EPDM to substrates, available in a pail
- Cortex 0776 Contact Adhesive — for use in adhering EPDM to substrates, available in a spray canister
- Cortex 0814 Tape — a low-density polyethylene adhesive tape with reinforcing scrim for use in sealing joints in various building boards including cement particle board, calcium silicate board, plywood and flexible vapour control layers
- Cortex 0801 Termination Bar — a black PVC-U profile for use mechanically fastened in securing the header tape.

1.2 Cortex membranes dimensions are given in Table 1.

Table 1 Membrane grades

Cortex membrane grade	Thickness of membrane (mm)	Length (m)	Width (mm)	Mass per unit area ($kg \cdot m^{-2}$)
Cortex EPDM Membrane				
0500	0.50	20	50 to 1500	0.51
0600	0.60	20	50 to 1500	0.61
0750	0.75	20	50 to 1500	0.77
1000	1.00	20	50 to 1500	1.02
1200	1.20	20	50 to 1500	1.22
1500	1.50	20	50 to 1500	1.53
Cortex FR Membrane				
0200FR	0.20	20	50 to 1500	0.27
0500FR	0.50	20	50 to 1500	0.65
Cortex 0860 Adhesive Backed EPDM Membrane (split release liner)	0.75 total thickness	20	50 to 1500	0.61
Cortex EPDM Membranes with Gasket				
0761	1.00	20	50 to 1500	1.02
0762	1.00	20	50 to 1500	1.02
0763	1.00	20	50 to 1500	1.02
0764	1.00	20	50 to 1500	1.02
0768	1.00	20	50 to 1500	1.02
Cortex 0751 EPDM Membrane	0.75	20	50 to 1500	0.77
Cortex 0752 EPDM Membrane	0.75	20	50 to 1500	0.77
Cortex 0753 EPDM Membrane	0.75	20	50 to 1500	0.77

1.3 The following items are for use with the systems:

- Cortex 0785 Primer — for use in surface preparation of porous substrates prior to application of adhesives and Cortex 0860 Adhesive Backed EPDM Membrane (split release liner)
- Cortex 0786 Spray Primer — for use in surface preparation of porous substrates prior to application of adhesives and Cortex 0860 Adhesive Backed EPDM Membrane (split release liner)
- butyl strip — applied to the EPDM for adhering to specific substrates.

1.4 Cortex 0795 Cleaning Wash is for use in surface preparation, but is outside the scope of this Certificate.

2 Manufacture

2.1 Cortex membranes are manufactured by blending polymers, processing oils and other additives. The sheets are produced by calendering or extruding and vulcanising.

2.2 The adhesives are manufactured by a batch mixing process.

2.3 As part of the assessment and ongoing surveillance of product quality, the BBA has:

- agreed with the manufacturer the quality control procedures and product testing to be undertaken
- assessed and agreed the quality control operated over batches of incoming materials
- monitored the production process and verified that it is in accordance with the documented process
- evaluated the process for management of nonconformities
- checked that equipment has been properly tested and calibrated
- undertaken to carry out the above measures on a regular basis through a surveillance process, to verify that the specifications and quality control operated by the manufacturer are being maintained.

3 Delivery and site handling

3.1 The membranes are delivered to site in rolls packed in boxes, palletised and shrink wrapped. The boxes bear the product code, product description, product name, production date and batch number. The inner and outer packaging bears the BBA logo incorporating the number of this Certificate.

3.2 The non-membrane products are packaged as shown in Table 2. The packaging bears the product code, product description, product name, production date, batch number and the BBA logo incorporating the number of this Certificate.

Table 2 Packaging for non-membrane products

Product	Packaging	Unit type	Unit size	Number of units per pack
Cortex 0801 Termination Bar	box	length of profile	18 mm x 3 mm by 3 m	25
Cortex 0802 EPDM Gasket Carrier	—	length of profile	3 m length	1
Cortex 0901 External EPDM Corner	box	—	—	40
Cortex 0902 Internal EPDM Corner	box	—	—	40
Cortex 0901FR External Fire-Rated Corner	box	—	—	40
Cortex 0765 Paste Adhesive	box	cartridge	600 mℓ	24
Cortex 0766 Paste Adhesive	box	cartridge	600 mℓ	24
Cortex 0767 Paste Adhesive	box	cartridge	600 mℓ	24
Cortex 0771FR Paste Adhesive	box	cartridge	600 mℓ	12
Cortex 0775 Contact Adhesive	box	pail	5 ℓ	2
Cortex 0776 Contact Adhesive	box	pressurised canister	6.5 ℓ	1
Cortex 0814 Tape	box	roll	50 mm x 25 m	24
			60 mm x 25 m	20
			75 mm x 25 m	16
			100 mm x 25 m	12
			150 mm x 25 m	8

3.3 All of the systems components should be stored undercover on a dry, even surface.

3.4 The Certificate holder has taken the responsibility of classifying and labelling the systems components under the *CLP Regulation (EC) No 1272/2008 on the classification, labelling and packaging of substances and mixtures.* Users must refer to the relevant Safety Data Sheet(s).

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on Cortex Membrane Systems.

Design Considerations

4 Use

4.1 Cortex Membrane Systems are satisfactory for use in providing a weathertight and airtight seal around glazing units.

4.2 The systems are suitable for use on the following substrates:

- PVC-U
- wood
- aluminium
- galvanized steel
- concrete
- masonry
- cementitious renders
- cement particle board
- other sheathing board.

5 Practicability of installation

The systems are designed to be installed by a trained competent general builder.

6 Weathertightness

6.1 The systems will resist the passage of water, wind-driven rain and dust into the interior of a building.

6.2 An example of the systems was tested in accordance with BS EN 1027 : 2000, no detectable water or moisture penetration occurred up to a pressure of 600 Pa. The systems can therefore satisfy the Class 9A requirements of BS EN 12208 : 2000.

7 Properties in relation to fire

7.1 When classified in accordance with BS EN 13501-1 : 2018**,** the membranes have the following reaction to fire classes:

- Cortex EPDM Membranes — Class E[(1)]
- Cortex 0500FR Membrane — Class B-S3 d0[(2)]
- Cortex 0200FR Membrane — Class A2-s1,d0 [(3)].

(1) Classification Report 11/2217-136, Part 2, by LGAI Technological Center, S.A to BS EN 13501-1 : 2007, available from the Certificate holder.
(2) Classification Report 27/05176BB/10/19 by BTTG to EN 13501-1 : 2018, available from the Certificate holder.
(3) Classification Report FIRES-CR-096-20-AUPE by FIRES s.r.o. to EN 13501-1 : 2018, available from the Certificate holder.

7.2 Cortex EPDM Membranes should not be used on buildings in England and Wales that have a storey at least 18 m above ground level and contain: one or more dwellings, an institution, a room for residential purposes (excluding any room in a hostel, hotel or boarding house), student accommodation, care homes, sheltered housing, hospitals or dormitories in boarding schools.

7.3 The Cortex FR Membranes use is unrestricted by the England and Wales Building Regulations.

7.4 Cavity barriers should be used to satisfy the requirements of the documents supporting the national Building Regulations.

8 Air barrier continuity

8.1 The membranes are air barriers and, when installed correctly, can contribute to elements and junctions, minimising heat loss by unplanned air infiltration. The membranes have been tested according to BS EN 12114 : 2000 and achieved an air permeability of <0.1 $m^3 \cdot (m \cdot h \cdot daPa^{2/3})^{-1}$. In the opinion of the BBA, the air infiltration classification according to BS EN 12207 : 2016 for suitable windows used in combination with the systems components will be Class 4. Guidance documents in this respect can be found in the documents supporting the national Building Regulations.

8.2 When used and installed in accordance with this Certificate and the Certificate holder's instructions, the tapes can contribute towards an exterior building envelope satisfying a minimum air leakage of less than 1 $m^3 \cdot hr^{-1} \cdot m^{-2}$ at 50 Pa, and also less than 0.6 air change per hour at 50 Pa for passive houses.

9 Risk of condensation

The systems will not adversely affect the risk of surface condensation, provided they are used in conjunction with a suitable vapour control layer. The risk of interstitial condensation will depend on the construction and should be assessed for each project.

10 Resistance to damage

As the various components of the systems are suitably robust, they should not be damaged during installation if reasonable care is taken.

11 Maintenance

As the components of the systems are confined within the final construction and have suitable durability (see section 12), maintenance is not required. However, any damage occurring before enclosure must be repaired (see section 15).

12 Durability

The systems will continue to function for the lifetime of the frame around which it is installed.

Installation

13 General

13.1 Installation of Cortex Membrane Systems must be carried out by trained installers working in accordance with the relevant clauses of the Certificate holder's instructions and this Certificate.

13.2 When using bonded components, substrates should be clean, dry and free of loose material prior to the installation of the component, to ensure an effective adhesive bond.

13.3 Application of the adhesives is carried out between temperatures of 5 to 35°C.

13.4 On porous substrates, such as brick or concrete, the minimum width of membrane surrounding the frame is 100 mm. For non-porous substrates the recommended width is approximately 20 to 30 mm. The head detail for all substrates is a minimum 100 mm overlap onto the substrate.

13.5 Porous substrates may require priming using Cortex 0785 Primer or Cortex 0786 Spray Primer. Bond testing must be carried out to ascertain whether priming is required. In cases of doubt the Certificate holder's advice should be sought.

13.6 Joints and fixing points in sheathing boards can be sealed using Cortex 0814 Tape.

13.7 Irrespective of installation method, the membrane must be tension free once installed.

13.8 The Certificate holder's recommendations on compatibility of the adhesives with other building materials must be followed and in cases of doubt the Certificate holder should be consulted.

14 Procedure

14.1 Where priming is required, the total substrate area to which the membranes are to be applied is coated, ensuring a full even coverage, without excess primer. The applied primer is left until touch dry, in normal conditions approximately 10 minutes, prior to application of the adhesive or Cortex 0860 Adhesive Backed EPDM Membrane.

14.2 Bonding of the membranes, other than Cortex 0860 Adhesive Backed EPDM Membrane, is achieved by use of either an adhesive paste or contact adhesive.

14.3 The paste adhesives are applied to the frame and surrounding area to which the membrane is to be bonded using an application gun and spread evenly over the substrates. The membrane is applied and rolled with a silicone or similar suitable roller to ensure the maximum bond.

14.4 When using the contact adhesives, the adhesive is applied by brush or roller to the frame and surrounding area to which the membrane is to be bonded, including both the substrate and the membrane bonded face. The adhesive is left until touch dry, in normal conditions approximately 10 to 15 minutes, before the membrane is pressed firmly and rolled with a silicone or similar suitable roller to ensure the maximum bond.

14.5 Cortex 0860 Adhesive Backed EPDM Membrane is installed by removal of the release paper and firmly pressing down to the substrates.

14.6 Cortex 0751, 0752 and 0753 EPDM Membranes are for use with glazing units with aluminium frames. The integral butyl strips are bonded to the aluminium frame and the membranes are bonded to the surrounding substrate by the same methods as the standard membranes (see sections 13.3 and 13.4).

14.7 Cortex 0761, 0762, 0763, 0764 and 0768 EPDM Membranes with integral gaskets are installed in conjunction with Cortex 0802 EPDM Gasket Carrier or into the channel on the frame. The membranes are bonded to the surrounding substrate by the same methods as the standard membranes (see sections 13.3 and 13.4).

14.8 When using the wider membranes, it may be necessary to temporarily fix the membrane until the adhesive is sufficiently cured to maintain the membrane in position.

14.9 Head details are secured with a mechanically fastened Cortex 0801 Termination Bar.

14.10 The upper edge of the termination bar is sealed using a bead of paste adhesive at a 45° angle. The adhesive is tooled off to ensure a watertight seal.

14.11 Where required, Cortex prefabricated corner units are installed using one of the adhesives.

14.12 The edges of the membranes and corner units are sealed using a bead of paste adhesive. The adhesive is spread to ensure that the membranes and corner units have no open edges.

15 Repair

Any damage to the membranes must be repaired as soon as possible, and before the installation of the outer facade. The membranes may be repaired by applying a patch of membrane over the damaged area. In case of doubt, advice on a suitable repair method should be sought from the Certificate holder.

Technical Investigations

16 Tests

Tests were carried out and the results assessed to determine:

- resistance to peel from a PVC-U substrate
- resistance to air permeability
- weathertightness
- tear resistance of gasket from membrane
- heat ageing for resistance to peel and tear resistance
- peel strength to substrate for Cortex 0814 Tape
- peel strength to substrate for Cortex 0860 Adhesive Backed EPDM Membrane (split release liner).

17 Investigations

17.1 The manufacturing process was evaluated, including the methods adopted for quality control, and details were obtained of the quality and composition of the materials used.

17.2 The method of installation and the installation instructions have been assessed.

17.3 Data on the membranes were examined for the following properties:

- dimensions
- watertightness
- water vapour properties
- tensile strength
- elongation at break
- resistance to nail tear
- static indentation on concrete
- dynamic indentation on aluminium
- bond to:
  - concrete
  - zinc
  - aluminium
  - PVC-U
  - wood.

17.4 Reaction to fire data were examined.

Bibliography

BS EN 12207 : 2016 *Windows and doors — Air permeability — Classification*

BS EN 12208 : 2000 *Windows and doors — Watertightness — Classification*

BS EN 1027 : 2000 *Windows and doors — Watertightness — Test method*

BS EN 12114 : 2000 *Thermal performance of buildings — Air permeability of building components and building elements — Laboratory test methods*

BS EN 13501-1 : 2007 + 2009 *Fire classification of construction products and building elements – Part 1: Classification using data from reaction to fire tests*

BS EN 13501-1 : 2018 *Fire classification of construction products and building elements – Part 1: Classification using data from reaction to fire tests*

18 Conditions

18.1 This Certificate:

- relates only to the product/system that is named and described on the front page
- is issued only to the company, firm, organisation or person named on the front page – no other company, firm, organisation or person may hold or claim that this Certificate has been issued to them
- is valid only within the UK
- has to be read, considered and used as a whole document – it may be misleading and will be incomplete to be selective
- is copyright of the BBA
- is subject to English Law.

18.2 Publications, documents, specifications, legislation, regulations, standards and the like referenced in this Certificate are those that were current and/or deemed relevant by the BBA at the date of issue or reissue of this Certificate.

18.3 This Certificate will remain valid for an unlimited period provided that the product/system and its manufacture and/or fabrication, including all related and relevant parts and processes thereof:

- are maintained at or above the levels which have been assessed and found to be satisfactory by the BBA
- continue to be checked as and when deemed appropriate by the BBA under arrangements that it will determine
- are reviewed by the BBA as and when it considers appropriate.

18.4 The BBA has used due skill, care and diligence in preparing this Certificate, but no warranty is provided.

18.5 In issuing this Certificate the BBA is not responsible and is excluded from any liability to any company, firm, organisation or person, for any matters arising directly or indirectly from:

- the presence or absence of any patent, intellectual property or similar rights subsisting in the product/system or any other product/system
- the right of the Certificate holder to manufacture, supply, install, maintain or market the product/system
- actual installations of the product/system, including their nature, design, methods, performance, workmanship and maintenance
- any works and constructions in which the product/system is installed, including their nature, design, methods, performance, workmanship and maintenance
- any loss or damage, including personal injury, howsoever caused by the product/system, including its manufacture, supply, installation, use, maintenance and removal
- any claims by the manufacturer relating to CE marking.

18.6 Any information relating to the manufacture, supply, installation, use, maintenance and removal of this product/system which is contained or referred to in this Certificate is the minimum required to be met when the product/system is manufactured, supplied, installed, used, maintained and removed. It does not purport in any way to restate the requirements of the Health and Safety at Work etc. Act 1974, or of any other statutory, common law or other duty which may exist at the date of issue or reissue of this Certificate; nor is conformity with such information to be taken as satisfying the requirements of the 1974 Act or of any statutory, common law or other duty of care.