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Agrément Certificate
21/5964
Product Sheet 1 Issue 2

DUPONT AIR VAPOUR CONTROL LAYERS

DUPONT TYVEK AIRGUARD SMART

This Agrément Certificate Product Sheet(1) relates to DuPont Tyvek AirGuard(2) Smart, a humidity-variable air and vapour control layer (AVCL), for use in roofs, walls and suspended floors, in domestic and non-domestic buildings up to and including humidity Class 3 (as defined in BS 5250 : 2021).

(1) Hereinafter referred to as 'Certificate'.
(2) Tyvek and AirGuard are registered trademarks of E.I. du Pont de Nemours & Co. or its affiliates.



The assessment includes

Product factors:

- compliance with Building Regulations
- compliance with additional regulatory or non-regulatory information where applicable
- evaluation against technical specifications
- assessment criteria and technical investigations
- uses and design considerations

Process factors:

- compliance with Scheme requirements
- installation, delivery, handling and storage
- production and quality controls
- maintenance and repair

Ongoing contractual Scheme elements†:

- regular assessment of production
- formal 3-yearly review

KEY FACTORS ASSESSED

Section 1. Mechanical resistance and stability
Section 2. Safety in case of fire
Section 3. Hygiene, health and the environment
Section 4. Safety and accessibility in use
Section 5. Protection against noise
Section 6. Energy economy and heat retention
Section 7. Sustainable use of natural resources
Section 8. Durability

The BBA has awarded this Certificate to the company named above for the product described herein. This product has been assessed by the BBA as being fit for its intended use provided it is installed and used as set out in this Certificate.

On behalf of the British Board of Agrément

Date of Second issue: 8 November 2024
Originally certified on 17 November 2021

Hardy Giesler
Chief Executive Officer

This BBA Agrément Certificate is issued under the BBA's Inspection Body accreditation to ISO/IEC 17020. Sections marked with † are not issued under accreditation.

The BBA is a UKAS accredited Inspection Body (No. 4345), Certification Body (No. 0113) and Testing Laboratory (No. 0357).

Readers MUST check that this is the latest issue of this Agrément Certificate by either referring to the BBA website or contacting the BBA directly.

The Certificate should be read in full as it may be misleading to read clauses in isolation.

Any photographs are for illustrative purposes only, do not constitute advice and should not be relied upon.

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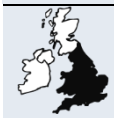
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SUMMARY OF ASSESSMENT AND COMPLIANCE

This section provides a summary of the assessment conclusions; readers should refer to the later sections of this Certificate for information about the assessments carried out.

Compliance with Regulations

Having assessed the key factors, the opinion of the BBA is that DuPont TYVEK AirGuard Smart, if installed and used in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements of the following Building Regulations:



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

Requirement:	**B3(4)**	**Internal fire spread**
Comment:		The product can contribute to satisfying this Requirement. See section 2 of this Certificate.
Requirement:	**B4(1)**	**External fire spread**
Comment:		The product is restricted by this Requirement. See section 2 of this Certificate.
Requirement:	**C2(c)**	**Resistance to moisture**
Comment:		The product can contribute to limiting the risk of interstitial condensation. See sections 3 and 9 of this Certificate.
Requirement:	**L1(a)(i)**	**Conservation of fuel and power**
Comment:		The product can contribute to satisfying this Requirement. See sections 3 and 6 of this Certificate.
Regulation:	**7(1)**	**Materials and workmanship**
Comment:		The product is acceptable. See sections 8 and 9 of this Certificate.
Regulation:	**25B**	**Nearly zero-energy requirements for new buildings**
Regulation:	**26**	**CO_2 emission rates for new buildings**
Regulation:	**26A**	**Fabric energy efficiency rates (applicable to England only)**
Regulation:	**26A**	**Primary energy rates for new buildings (applicable to Wales only)**
Regulation:	**26B**	**Fabric performance values for new dwellings (applicable to Wales only)**
Regulation:	**26C**	**Target primary energy rates for new buildings (applicable to England only)**
Regulation:	**26C**	**Energy efficiency rating (applicable to Wales only)**
Comment:		The product can contribute to satisfying these Regulations. See sections 3 and 6 of this Certificate.



The Building (Scotland) Regulations 2004 (as amended)

Regulation:	**8(1)**	**Fitness and durability of materials and workmanship**
Comment:		The product can contribute to a construction satisfying this Regulation. See sections 8 and 9 of this Certificate.
Regulation:	**9**	**Building standards – construction**
Standard:	2.4	Cavities
Comment:		The product can contribute to satisfying this Standard, with reference to clause 2.4.2[(1)(2)]. See section 2 of this Certificate.
Standard:	3.15	Condensation
Comment:		The product can contribute to limiting the risk of interstitial condensation, with reference to clauses 3.15.1[(1)(2)] and 3.15.5[(1)(2)] of this Standard. See sections 3 and 9 of this Certificate.

Standard:	6.1(b)(c)	Energy demand
Standard:	6.2	Building insulation envelope
Comment:		The product can contribute to satisfying these Standards, with reference to clauses 6.1.1(1), 6.1.2(2), 6.2.4(1) and 6.2.5(2). See sections 3 and 6 of this Certificate.
Standard:	7.1(a)b)	Statement of sustainability
Comment:		The product can contribute to satisfying the relevant requirements of Regulation 9, Standards 1 to 6, and therefore will contribute to a construction meeting at least a bronze level of sustainability as defined in this Standard. In addition, the product can contribute to a construction meeting a higher level of sustainability as defined in this Standard, with reference to clauses 7.1.4(1), 7.1.6(1) 7.1.7(1), 7.1.9(2) and 7.1.10(2). See sections 3 and 6 of this Certificate.
Regulation:	**12**	**Building standards – conversion**
Comment:		All comments given for the product 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(1)(a)(i)**	**Fitness of materials and workmanship**
Comment:	**(iii)(b)(i)(ii)**	The product is acceptable. See sections 8 and 9 of this Certificate.
Regulation:	**29**	**Condensation**
Comment:		The product can contribute to limiting the risk of interstitial condensation. See sections 3 and 9 of this Certificate.
Regulation:	**35(4)**	**Internal fire spread – structure**
Comment:		The product can contribute to satisfying this Regulation. See section 2 of this Certificate.
Regulation:	**36(a)**	**External fire spread**
Comment:		The product is restricted by this Regulation. See section 2 of this Certificate.
Regulation:	**39(a)(i)**	**Conservation measures**
Regulation:	**40(2)**	**Target carbon dioxide emission rate**
Regulation:	**43(1)(2)**	**Renovation of thermal elements**
Regulation:	**43B**	**Nearly zero-energy requirements for new buildings**
Comment:		The product can contribute to satisfying these Regulations. See sections 3 and 6 of this Certificate.

Additional Information

NHBC Standards 2024

In the opinion of the BBA, DuPont TYVEK AirGuard Smart, if installed and used 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*, 6.9 *Curtain walling and cladding*, 6.10 *Light steel framed walls and floors*, 7.1 *Flat roofs, terraces and balconies*, 7.2 *Pitched roofs* and 9.2 *Wall and ceiling finishes*.

In NHBC projects where the product is used in conjunction with a vapour-closed insulation, a diffusion-open membrane must be used on the cold side of the insulation.

Fulfilment of Requirements

The BBA has judged DuPont TYVEK AirGuard Smart (2009B) to be satisfactory for use as described in this Certificate. The product has been assessed as a humidity-variable AVCL, for use in roofs, walls and suspended floors, in domestic and non-domestic buildings up to and including humidity Class 3 (as defined in BS 5250 : 2021).

ASSESSMENT

Product description and intended use

The Certificate holder provided the following description for the product under assessment. DuPont TYVEK AirGuard Smart (Style 2009B) consists of a spun-bond polyethylene coated with polyethylene copolymer. It is an AVCL with a resistance to vapour diffusion that depends on the moisture content of the air adjacent to the membrane. In summer conditions, where solar radiation is incident on the element, the vapour resistance reduces and facilitates the inward diffusion/escape of accumulated moisture.

The product has the nominal characteristics given in Table 1.

Table 1 Nominal characteristics

Characteristic (unit)	DuPont TYVEK AirGuard Smart
Thickness (mm)	0.2
Mass per unit area ($g \cdot m^{-2}$)	92
Roll length (m)	50
Roll width (m)	1.5
Colour	White

Ancillary Items

The following ancillary items are essential to use with the product and have been assessed with the product:

- Tyvek Butyl Tape (1311B) – a double-sided tape for sealing the membrane to membrane at laps, adjacent walls, floors and the ceiling/roof, and for sealing around windows and doors
- Tyvek Acrylic Tape (2060B) – a single-sided tape for sealing joints
- Tyvek Double-sided Tape (1310D) – an acrylic tape for use in sealing the membrane to membrane at adjacent walls, floors and the ceiling/roof
- Tyvek FlexWrap EZ (2064FW) – a single-sided tape for sealing building penetrations.

The Certificate holder recommends the following ancillary items for use with the product, but these materials have not been assessed by the BBA and are outside the scope of this Certificate:

- Tyvek Airguard Tape (1310V) –for sealing of membrane laps, joints, junctions, windows and doors and sealing around penetrations.

Applications

The product is intended for use as an AVCL for the building envelope in new-build and refurbishments, in domestic and non-domestic buildings up to and including humidity class 3, in the following specifications:

- at the rafter line in slated or tiled pitched timber warm roof constructions, in conjunction with an HR or LR underlay
- at ceiling level in warm pitched roof constructions
- at ceiling level in slated or tiled pitched ventilated cold roof constructions
- in walls in timber, masonry and steel-frame constructions
- ground bearing floors (insulation above floor slab, damp proof membrane below)
- suspended floors
- conventional flat roofs.

Definitions for products and applications inspected

Pitched roofs are defined for the purpose of this Certificate as those having a fall in excess of 1:6.

Product assessment – key factors

The product was assessed for the following key factors, and the outcome of the assessment is shown below. Conclusions relating to the Building Regulations apply to the whole of the UK unless otherwise stated.

1 Mechanical resistance and stability

Not applicable.

2 Safety in case of fire

Data were assessed for the following characteristic.

2.1 Reaction to fire

2.1.1 The result of a reaction to fire test is given in Table 2.

Table 2 Reaction to fire

Product assessed	Assessment method	Requirement	Result
DuPont TYVEK AirGuard Smart	Reaction to fire classification in accordance with EN 13501-1 : 2018, tested in accordance with EN ISO 11925-2 : 2020	Value achieved	Class E(1)(2)

(1) Classification reports MA 39 - 23-08500, issued by Stadt Wien; copies available from the Certificate holder on request.
(2) The classification applies to all practical applications with or without a substrate (without mounting). In end-use conditions, no open edges are permitted.

2.1.2 On the basis of data assessed, the product will be restricted in use under the documents supporting the national Building Regulations in some cases.

2.1.3 In England, Wales and Northern Ireland, the product must not be used on external walls of buildings that have a storey at least 18 m above ground level and which contain one or more dwellings, an institution, a room for residential purposes (excluding, in Wales and Northern Ireland only, any room in a hostel, hotel or boarding house), student accommodation, care homes, sheltered housing, hospitals or dormitories in boarding schools and, additionally in Northern Ireland, nursing homes and places of lawful detention.

2.1.4 In Scotland, the use of the products is unrestricted with respect to building height and proximity to a relevant boundary. However, restrictions on the overall construction may apply, depending on the reaction to fire classification achieved by the build-up, which must be established on a case-by-case basis.

2.1.5 Designers must refer to the relevant national Building Regulations and guidance for alternative approaches and detailed conditions of use, particularly in respect of requirements for cavity closers and barriers, fire stopping of service penetrations and combustibility limitations for other materials and components used in the overall wall construction.

2.1.6 When the product is used unsupported, there is a risk that fire can spread if it is accidentally ignited during building and maintenance works, eg by a roofer's or plumber's torch. As with all types of membrane, care must be taken during building and maintenance to avoid ignition.

3 Hygiene, health and the environment

Data were assessed for the following characteristics.

3.1 Resistance to water and water vapour

3.1.1 Results of water vapour resistance tests are given in Table 3.

Table 3 Resistance to water and water vapour

Product assessed	Assessment method	Requirement	Result[(1)]
DuPont TYVEK AirGuard Smart	Resistance to water penetration to DIN EN 1928 : 2000 (A) 2 kPa for 24 hrs	No leakage	Pass
	Water vapour diffusion - equivalent air layer thickness (s_d) (m) to BS EN 12572 : 2016 at 23°C	Value achieved	
	RH 0/50% (25%)		36.5
	RH 50/94% (72%)		0.5
	RH 85/94% (89.5%)		0.4

(1) Water vapour resistance may be taken as 5 x s_d value.

3.1.2 A condensation risk analysis was carried out based on the result given in Table 3 and satisfactory conclusions were drawn.

3.1.3 On the basis of data assessed, the product provides an effective control to the passage of liquid water and water vapour and will contribute to limiting the risk of interstitial condensation. It is suitable for use as an AVCL in roofs, ceilings and floors and can contribute to satisfying the relevant requirements of the national Building Regulations.

3.1.4 The product is a variable AVCL that alters its vapour resistance according to the direction of heat flow and the relative humidity between the two sides of the membrane. It has an s_d value of between 0.4 and 36.5 m according to the direction of heat flow and the relative humidity between both sides of the product. In summer, the product's vapour resistance decreases, allowing moisture to pass through the product back into the room. In winter, the product's vapour resistance increases to minimise vapour transfer into the construction.

3.1.5 The risk of interstitial condensation occurring will depend upon the properties and vapour resistance of other materials used in the construction, the internal and external conditions and the effectiveness of the product's installation.

3.2 Airtightness

3.2.1 Results of airtightness tests are given in Table 4.

Table 4 Airtightness

Product assessed	Assessment method	Requirement	Result
DuPont TYVEK AirGuard Smart with a PVC-U window, using Tyvek Acrylic (2060B) and Butyl (1311B) tapes	Air permeability of joints to BS EN 12114 : 2000 and BS EN 1026 : 2016 at 50 to 600 Pa	No leakage	Pass

3.2.2 On the basis of data assessed, the product's joints can have a satisfactory resistance to air movement.

3.2.3 When the product is installed on the warm side of the construction with a diffusion-tight layer on the outer face (eg waterproofing membranes, green roofs, HR underlay as defined in BS 5250 : 2021), a dynamic condensation assessment in accordance with BS EN 15026 : 2023 must be carried out for each particular situation, using an appropriate dynamic modelling package and considering parameters of:

- vapour diffusion resistance values as given in section 3.1
- hygrothermal properties of all other materials in the construction, in particular vapour resistances in the cold side
- type of insulation
- element location, orientation and pitch
- rainfall and water absorption coefficient of the outermost external layer
- shading and solar absorptivity
- internal humidity conditions
- degree of airtightness of the construction.

3.3 Resistance to mechanical damage

3.3.1 Results of resistance to mechanical damage tests are given in Table 5.

Table 5 Resistance to mechanical damage

Product assessed	Assessment method	Requirement	Result
DuPont TYVEK AirGuard Smart	Nail tear to DIN EN 12310-1 : 1999	Declared values	
	Longitudinal direction	75 N	Pass
	Transverse direction	65 N	Pass
DuPont TYVEK AirGuard Smart	Tensile strength to DIN EN 12311-2 : 2013	Declared values	
	Longitudinal direction	390 N·(50 mm)$^{-1}$	Pass
	Transverse direction	380 N·(50 mm)$^{-1}$	Pass
DuPont TYVEK AirGuard Smart	Elongation at maximum load to DIN EN 12311-2 : 2013	Declared values	
	Longitudinal direction	16%	Pass
	Transverse direction	19%	Pass
DuPont TYVEK AirGuard Smart	Shear resistance of joints to DIN EN 12317-2 : 2010	Value achieved 358 N	Pass
DuPont TYVEK AirGuard Smart with Tyvek Acrylic Tape (2060B)	T Peel to BS EN 12316-2 : 2013	Value achieved	54.2 N·(50 mm)$^{-1}$
DuPont TYVEK AirGuard Smart with Tyvek FlexWrap EZ (2064FW)			27.3 N·(50 mm)$^{-1}$
DuPont TYVEK AirGuard Smart with Tyvek Butyl Tape (1311B)	Peel from substrate to MOAT 67 : 4.3.3 : 2001	Value achieved	
	Concrete		116.7 N·(50 mm)$^{-1}$
DuPont TYVEK AirGuard Smart with Tyvek Double-sided Tape (1310D)	Concrete		58.5 N·(50 mm)$^{-1}$
DuPont TYVEK AirGuard Smart with Tyvek Double-sided Tape (1310D) and FlexWrap EZ (2064FW)	PVC-U		53.3 N·(50 mm)$^{-1}$

3.3.2 On the basis of data assessed, the product has adequate strength to resist the loads associated with installation and service.

4 Safety and accessibility in use

Not applicable.

5 Protection against noise

Not applicable.

6 Energy economy and heat retention

The product is an air barrier and, when lapped, fixed and taped correctly, can contribute to elements and junctions minimising heat loss by unplanned air infiltration. Guidance in this respect can be found in the relevant supporting documents to the national Building Regulations.

7 Sustainable use of natural resources

Not applicable.

8 Durability

8.1 The potential mechanisms for degradation and the known performance characteristics of the materials in the product were assessed.

8.2 Specific test data were assessed as given in Table 6.

Table 6 Results of durability tests

Product assessed	Assessment method	Requirement	Result
DuPont TYVEK AirGuard Smart	Water vapour diffusion - equivalent air layer thickness (s_d) (m) to BS EN 12572 : 2016, aged to BS EN 1296 : 2001 at 80°C for 168 days, measured at 23°C	Values achieved	
	RH 0/50% (25%)	57.7	Pass
	RH 50/94% (72%)	0.5	Pass
	RH 85/94% (89.5%)	0.3	Pass
DuPont TYVEK AirGuard Smart	Tensile strength to BS EN 12311-1 : 2000 aged to BS EN 13859-1 : 2005 (C) UVA at 50°C for 336 hours followed by 70°C for 90 days	Values achieved	
	Longitudinal direction		340 N·(50 mm)$^{-1}$
	Transverse direction		340 N·(50 mm)$^{-1}$
DuPont TYVEK AirGuard Smart	Elongation to BS EN 12311-1 : 2000 aged to BS EN 13859-1 : 2005 (C) UVA at 50°C for 336 hours followed by 70°C for 90 days	Values achieved	
	Longitudinal direction		11%
	Transverse direction		14%
DuPont TYVEK AirGuard Smart with Tyvek Acrylic Tape (2060B)	T Peel to BS EN 12316-2 : 2013, aged to BS EN 1296 : 2001 at 70°C for 168 days	Value achieved	27.9 N·(50 mm)$^{-1}$
DuPont TYVEK AirGuard Smart with Tyvek FlexWrap EZ (2064FW)	T Peel to BS EN 12316-2 : 2013, aged to BS EN 1296 : 2001 at 70°C for 168 days	Value achieved	23.5 N·(50 mm)$^{-1}$
DuPont TYVEK AirGuard Smart with Tyvek Butyl Tape (1311B)	Peel to MOAT No 67 : 2001, aged to BS EN 1296 : 2001 at 70°C for 168 days from concrete	Value achieved	60.6 N
DuPont TYVEK AirGuard Smart with Tyvek Double-sided Tape (1310D)	Peel to MOAT No 67 : 2001, aged to BS EN 1296 : 2001 at 70°C for 168 days	Value achieved	
	From concrete		33.7 N
- with Tyvek Double-sided Tape (1310D) and FlexWrap EZ (2064FW)	PVC		35.5

8.3 Service life

Under normal service conditions, the product will have a life equivalent to the structure in which it is incorporated, provided it is designed, installed and maintained in accordance with this Certificate and the Certificate holder's instructions.

PROCESS ASSESSMENT

Information provided by the Certificate holder was assessed for the following factors:

9 Design, installation, workmanship and maintenance

9.1 Design

9.1.1 The design process was assessed by the BBA, and the following requirements apply in order to satisfy the performance specified in this Certificate.

9.1.2 Where constructions need to comply with *NHBC Standards* 2024, specifiers must observe the requirements given in Chapters 6.1, 6.2, 6.9, 6.10, 7.1, 7.2 and 9.2 of that document.

9.1.3 It is essential that proper care and attention is given to maintaining the product's integrity and continuity.

9.1.4 New elements must incorporate the product on the warm side of the insulation, and the overall construction must be designed and constructed in accordance with the relevant good practice, statutory Regulations and Standards.

9.1.5 Existing elements must be in a good state of repair without evidence of rain penetration, damp or frost damage.

9.1.6 Roofs, walls and floors must be designed and constructed in accordance with BS 5250 : 2021. Additional information for roofs can be found in BS 5534 : 2014.

9.1.7 Walls in new buildings must be designed and constructed in accordance with the relevant recommendations of BS EN 1996-1-1 : 2022 and BS EN 1996-2 : 2006, and their UK National Annexes.

9.1.8 Consideration must be given in the overall installation to minimising penetrations by services. Joints at ceilings/ walls and wall/floor junctions must be sealed to offer significant resistance to water vapour transmission. Sealing must also be carried out in accordance with the Certificate holder's instructions.

9.1.9 NHBC will only accept the use of the product as a variable resistance AVCL when used in conjunctions with vapour open insulations such as mineral wool. When used in conjunction with a vapour closed insulation, a diffusion open membrane must be used on the cold side of the insulation.

9.1.10 Where incidence of solar radiation is low, such as in the Highlands of Scotland or north of Inverness, the potential for back drying is reduced and the advice of the Certificate holder must be sought. Such advice is outside the scope of this Certificate.

9.2 Installation

9.2.1 Installation instructions provided by the Certificate holder were assessed and judged to be appropriate and adequate.

9.2.2 Installation must be carried out in accordance with this Certificate and the Certificate holder's instructions. A summary of instructions and guidance is provided in Annex A.

9.2.3 Where wood preservatives and damp-proofing treatments containing solvents have been applied, sufficient time must be allowed for solvents to disperse before the product is installed.

9.2.4 Surfaces to which the product is adhered must be sound, dry, frost-free and smooth, and free from dust, silicone and grease.

9.2.5 The product must be installed with the printed side facing the installer on the warm side of the insulation.

9.2.6 Internal linings must be set on spacer battens, leaving a minimum gap of 25 mm behind the lining in order to accommodate wiring and other services and reduce the need for penetration of the AVCL.

9.2.7 The product, when used in floors, is either installed above or beneath the floor boarding and beneath the internal floor finishes.

9.2.8 For timber, initial fixing is by stainless steel staples at approximately 500 mm centres, positioned within the overlap, to the substructure. Alternative, Tyvek Butyl Tape (1311B) can be used to minimise fixing penetrations. The product must then be permanently fixed using timber battens, metal channels or the internal lining.

9.2.9 For concrete, the surface must be clean and dry before installation commences. The membrane is bonded to the substrate using TYVEK Butyl Tape (1311B).

9.2.10 For steelwork, temporary fixing is achieved using either TYVEK Double-sided Tape (1310D) or TYVEK Butyl Tape (1311B). The product must then be permanently fixed using timber battens, metal channels or the internal lining.

9.2.11 Adjacent membranes must be overlapped by 100 mm over a support, and sealed without strain or load with a strip of TYVEK Butyl Tape (1311B), TYVEK Double-sided Tape (1310D) or TYVEK Acrylic (2060B) Tape in accordance with the Certificate holder's instructions.

9.2.12 For vertical installations, it is best practice for the overlaps to be placed in line with studs.

9.2.13 At all penetrations and abutments, the product is cut neatly to fit as closely as possible, and joints are sealed with TYVEK FlexWrap EZ (2064FW). Penetrations must be kept to a minimum.

9.2.14 The product is made convection-tight at all window and door openings and at other detailing. The membrane is sealed tight against the frame with TYVEK FlexWrap EZ (2064FW).

9.2.15 Detailing/overlapping of the product at ceiling/wall and floor/wall junctions must be carried out in accordance with the Certificate holder's instructions to ensure airtightness of the building envelope.

9.2.16 Sealing to other construction material is carried out in accordance with the Certificate holder's installation instructions, using TYVEK Butyl Tape (1311B) at floors and TYVEK Double-sided Tape (1310D) at ceilings. The substrate must be clean and dry; in the case of concrete substrates, a primer may be required to promote adhesion. In cases of doubt, the advice of the Certificate holder or their UK representative must be sought, but such advice is outside the scope of this Certificate.

9.3 Workmanship

Practicability of installation was assessed by the BBA, on the basis of the Certificate holder's information. To achieve the performance described in this Certificate, installation of the product must be carried out by a competent general builder, or a contractor, experienced with this type of product.

9.4 Maintenance and repair

9.4.1 As the product is confined within the roof/wall/floor structure and has suitable durability, maintenance is not required.

9.4.2 Damage to the product can be repaired with a patch of DuPont Tyvek AirGuard Smart (2009B) with an overlap of at least 100mm in all directions from damage. The perimeter must then be sealed with Tyvek Acrylic Tape (2060B) or Tyvek AirGuard Tape (1310V). The repair must then be sealed in accordance with section 9.2 of this Certificate. Small linear tears can be repaired by patching with Tyvek Acrylic Tape (2060B) or Tyvek AirGuard Tape (1310V).

10 Manufacture

10.1 The production processes for the product have been assessed, and provide assurance that the quality controls are satisfactory according to the following factors:

10.1.1 The manufacturer has provided documented information on the materials, processes, testing and control factors.

10.1.2 The quality control operated over batches of incoming materials has been assessed and deemed appropriate and adequate.

10.1.3 The quality control procedures and product testing to be undertaken have been assessed and deemed appropriate and adequate.

10.1.4 The process for management of non-conformities has been assessed and deemed appropriate and adequate.

10.1.5 An audit of each production location was undertaken, and it was confirmed that the production process was in accordance with the documented process, and that equipment has been properly tested and calibrated.

†10.2 The BBA has undertaken to review 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.

11 Delivery and site handling

11.1 The Certificate holder stated that the product is delivered to site in rolls with polythene wrappings with an insert sheet bearing the Certificate holder's name, the grade identification, the technical specifications, installation instructions and the BBA logo incorporating the number of this Certificate. A label is placed inside the core giving the batch number and roller number.

11.2 Delivery and site handing must be performed in accordance with the Certificate holder's instructions and this Certificate, including:

11.2.1 Rolls must be stored flat on their sides, on a smooth, clean, dry surface, under cover and protected from direct sunlight.

ANNEX A – SUPPLEMENTARY INFORMATION †

Supporting information in this Annex is relevant to the product but has not formed part of the material assessed for the 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.

CE marking

The Certificate holder has taken the responsibility of CE marking the product in accordance with harmonised European Standard EN 13984 : 2013.

Management Systems Certification for production

The management system of the manufacturer has been assessed and registered as meeting the requirements of EN ISO 9001 : 2015 by DQS GmbH (Certificate 000093 QM15).

Additional information on installation

Further information on the use of AVCLs in new-build and refurbishments, in domestic and non-domestic buildings up to and including humidity class 3, can be found in BRE Report BR 262 : 2002.

Bibliography

BRE Report BR 262 : 2002 *Thermal insulation : avoiding risk*

BS 5250 : 2021 *Code of practice for control of condensation in buildings*

BS 5534 : 2014 *Slating and tiling for pitched roofs and vertical cladding – Code of practice*

BS EN 1026 : 2016 *Windows and doors – Air permeability – Test method*

BS EN 1296 : 2001 *Flexible sheets for waterproofing – Bitumen, plastic and rubber sheets for roofing – Method of artificial ageing by long term exposure to elevated temperature*

BS EN 1996-1-1 : 2022 *Eurocode 6 – Design of masonry structures – General rules for reinforced and unreinforced masonry structures*
BS EN 1996-2 : 2006 *Eurocode 6 – Design of masonry structures – Part 2: Design considerations, selection of materials and execution of masonry*

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

BS EN 12311-1 : 2000 *Flexible sheets for waterproofing – Determination of tensile properties – Bitumen sheets for roof Waterproofing*

BS EN 12316-2 : 2013 *Flexible sheets for waterproofing – Determination of peel resistance of joints – Part 2: Plastic and rubber sheets for roof waterproofing*

BS EN 12572 : 2016 *Hygrothermal performance of building materials and products – Determination of water vapour transmission properties – Cup method*

BS EN 13859-1 : 2005 *Flexible sheets for waterproofing – Definitions and characteristics of underlays – Underlays of discontinuous roofing*

BS EN 15026 : 2023 *Hygrothermal performance of building components and building elements – Assessment of moisture transfer by numerical simulation*

DIN EN 1928 : 2000 *Flexible sheets for waterproofing – Bitumen, plastic and rubber sheets for roof waterproofing – determination of watertightness*

DIN EN 12310-1 : 1999 *Flexible sheets for waterproofing – Part 1: Bitumen sheets for roof waterproofing – Determination of resistance to tearing (nail shank)*

DIN EN 12311-2 : 2013 *Flexible sheets for waterproofing – Determination of tensile properties – Part 2: Plastic and rubber sheets for roof waterproofing*

DIN EN 12317-2 : 2010 *Flexible sheets for waterproofing – Determination of shear resistance of joints – Part 2: Plastic and rubber sheets for roof waterproofing*

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

EN 13984 : 2013 *Flexible sheets for waterproofing – plastic and rubber vapour control layers – Definitions and Characteristics*

EN ISO 9001 : 2015 *International standard for quality management systems*

EN ISO 11925-2 : 2020 *Reaction to fire tests – Ignitability of products subjected to direct impingement of flame – Part 2: single-flame source test*

MOAT 67 : 2001 *UEAtc Technical Guide for the Assessment of Non-reinforced, Reinforced and/or Backed Roof Waterproofing Systems made of FPO*

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