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BBA APPROVAL INSPECTION TESTING CERTIFICATION
TECHNICAL APPROVALS FOR CONSTRUCTION

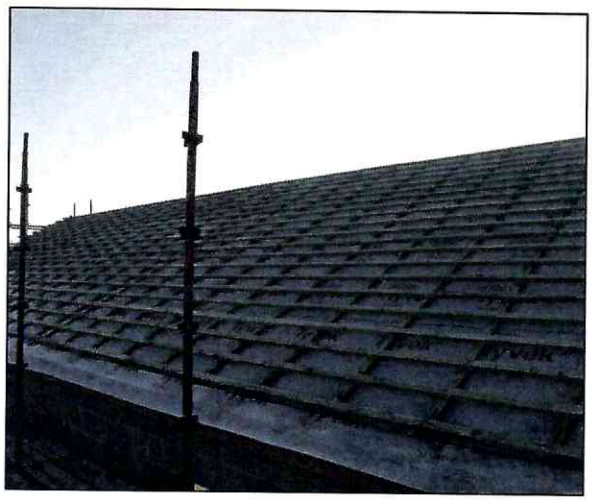
Agrément Certificate
08/4548
Product Sheet 1

TYVEK ROOF LINING SYSTEMS

TYVEK SUPRO ROOF TILE UNDERLAY FOR USE IN WARM NON-VENTILATED ROOFS

This Agrément Certificate Product Sheet(1) relates to TYVEK(2) Supro Roof Tile Underlay for use in warm non-ventilated roofs. Use of the product in cold non-ventilated systems is covered in Product Sheet 2 and in cold ventilated systems in Product Sheet 8.

(1) Hereinafter referred to as 'Certificate'.
(2) TYVEK is a registered trademark of E.I DuPont de Nemours & Co or its affiliates.



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 — as part of a complete roof, the product will resist the passage of water, wind-blown rain/snow and dust into the interior of the building (see section 6).

Risk of condensation — the product is a low water vapour resistance (Type LR) underlay and can be used as part of a non-ventilated warm roof system (see section 7).

Wind loading — when installed on appropriately spaced battens and/or rafters, the product's physical properties are adequate to resist the wind loads imposed on the underlay. The product will reduce the wind uplift forces acting on the roof covering (see section 8).

Strength — the product has adequate strength to resist the loads associated with the installation of the roof (see section 9).

Properties in relation to fire — the product is classified as Class E in accordance with EN 13501-1 : 2018 and its use is restricted in some cases by the national Building Regulations (see section 10).

Durability — under the normal conditions found in a roof space, the product will have a service life comparable to a traditional roof tile underlay (see section 12).

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, used and maintained as set out in this Certificate.

On behalf of the British Board of Agrément

Date of Fifth issue: 2 October 2020

Originally certificated on 8 April 2008

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Regulations

In the opinion of the BBA, TYVEK Supro Roof Tile Underlay for use in warm non-ventilated roofs, 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:	**B4(1)**	**External fire spread**
Comment:		The product, in some circumstances, is restricted by this Requirement. See sections 10.1 and 10.2 of this Certificate.
Requirement:	**C2(b)**	**Resistance to moisture**
Comment:		The product will contribute to a roof satisfying this Requirement. See section 6.1 of this Certificate.
Regulation:	**7(1)**	**Materials and workmanship**
Comment:		The product is acceptable. See section 12 and the *Installation* part of this Certificate.

The Building (Scotland) Regulations 2004 (as amended)

Regulation:	**8(1)**	**Durability, workmanship and fitness of materials**
Comment:		The product can contribute to a roof satisfying this Regulation. See section 12 and the *Installation* part of this Certificate.
Regulation:	**9**	**Building standards applicable to construction**
Standard:	3.10	Precipitation
Comment:		The product will contribute to a roof satisfying clauses 3.10.1[(1)(2)] and 3.10.8[(1)(2)] of this Standard. See section 6.1 and the *Installation* part of this Certificate.
Standard:	7.1(a)	Statement of sustainability
Comment:		The product will contribute to a roof satisfying 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 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(a)(i) (iii)(b)(i)**	**Fitness of materials and workmanship**
Comment:		The product is acceptable. See section 12 and the *Installation* part of this Certificate.
Regulation:	**28(b)**	**Resistance to moisture and weather**
Comment:		The product will contribute to a roof satisfying this Regulation. See section 6.1 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* (3.3) of this Certificate.

Additional Information

NHBC Standards 2020

In the opinion of the BBA, TYVEK Supro Roof Tile Underlay for use in warm non-ventilated roofs, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements in relation to *NHBC Standards*, Chapter 7.2 *Pitched roofs.*

CE marking

The Certificate holder has taken the responsibility of CE marking the product in accordance with harmonised European Standard EN 13859-1 : 2014.

Technical Specification

1 Description

1.1 TYVEK Supro Roof Tile Underlay for use in warm non-ventilated roofs is a vapour permeable, high-density polyethylene (HDPE) membrane backed with a polypropylene scrim. The product is available with or without an integral adhesive tape (the product incorporating adhesive tape is known as TYVEK Supro Plus).

1.2 The product has the following nominal characteristics:

Thickness (mm)	0.45
Mass per unit area ($g \cdot m^{-2}$)	145
Roll length (m)	50
Roll width (m)	1.0, 1.5
Equivalent air layer thickness – S_d (m)	0.025
Watertightness	
unaged	Class W1
aged(1)	Class W1
Tensile strength (N per 50 mm)	
longitudinal	300
transverse	245
Elongation (%)	
longitudinal	14
transverse	23
Nail tear (N)	
longitudinal	190
transverse	205
Reaction to fire	E
Colour	White underside, grey top side and red logo.

(1) Aged in accordance with EN 13859-1 : 2014, Annex C.

1.3 The following products are used in conjunction with TYVEK Supro Roof Tile Underlay:

- Air and Vapour Control Layers (AVCLs) are recommended for use in conjunction with the product (see Product Sheets 3, 4 and 9 of this Certificate).
- Tyvek 2060B Tape is a single-sided tape for use at joints, laps and repairs (see section 16)
- Tyvek FLEXWRAP EZ (2064FW) is a flexible sealing tape for use in building penetrations.

2 Manufacture

2.1 The product is manufactured by spinning strands of HDPE and bonding them with heat and pressure to form a flexible sheet. A polypropylene scrim is glued to one side.

2.2 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 being operated by the manufacturer are being maintained.

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

3 Delivery and site handling

3.1 Rolls of membrane are delivered to site in packages that carry a label bearing the Certificate holder's name, the grade identification and the BBA logo incorporating the number of this Certificate.

3.2 The rolls should be stored flat on their sides, on a smooth, clean, dry surface, under cover and protected from sunlight.

3.3 The Certificate holder has taken the responsibility of classifying and labelling the product 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 TYVEK Supro Roof Tile Underlay for use in warm non-ventilated roofs.

Design Considerations

4 Use

The product is satisfactory for use as a fully supported or unsupported (draped) underlay over counterbatten specifications in tiled and slated pitched roofs constructed in accordance with the relevant clauses of BS 5534 : 2014.

5 Practicability of installation

The product is designed to be installed by competent slaters/tilers experienced with this type of product.

6 Weathertightness

6.1 The product is Class W1 in accordance with EN 13859-1 : 2014 and will resist the passage of water, wind-blown rain/snow and dust into the interior of a building under all conditions to be found in a roof constructed in accordance with the relevant clauses of BS 5534 : 2014.

6.2 The product resists penetration of liquid water and consequently may be used as temporary waterproofing prior to the installation of slates or tiles. The period of such use should, however, be kept to a minimum. Further information is given in BBA Information Bulletin No. 2 *Permeable Roof Tile Underlay – Guide to Good Site Practice*.

7 Risk of condensation

7.1 For design purposes, the product's water vapour resistance may be taken as not more than 0.25 $MN \cdot s \cdot g^{-1}$ and for roofs designed in accordance with BS 5534 : 2014 or BS 5250 : 2011 Annex H, it may be regarded as a Type LR underlay.

7.2 In common with all roofs, care must be taken in the overall design and installation to minimise the risk of water vapour coming into contact with cold parts of the construction. Factors to be considered and minimised include moisture diffusion through the ceiling, infiltration through unsealed openings/penetrations in the ceiling and services evaporating or venting moisture into cold spaces.

7.3 The risk of condensation is highest in new-build construction during the first heating period, where there is high moisture loading owing to wet trades, such as in-situ cast concrete slabs or plaster. The risk of condensation diminishes as the building dries out. See BBA Information Bulletin No. 1 *Roof Tile Underlays in Cold Roofs during the Drying-out Period.*

Inclined ceiling and insulation (warm roof)

7.4 For roofs with an insulated inclined ceiling, ventilation above or below the underlay will not be required provided that the passage of moisture by diffusion and by convection is controlled, eg by a vapour control layer (such as DuPont AVCL) or a continuous envelope of insulation with a high vapour resistance and with sealed joints. Ventilation may be required if specified by the tile manufacturer or where the roof covering is airtight, as described in BS 5250 : 2011.

Partially inclined ceiling and insulation (warm and cold roof)

7.5 Where an insulated ceiling spans only part of the roof line, resulting cold roof spaces should be installed in accordance with Product Sheet 2 of this Certificate.

8 Wind loading

8.1 Project design wind speeds for the roof in which the product is to be installed should be determined, and wind uplift forces calculated, by a suitably experienced and competent individual, in accordance with BS EN 1991-1-4 : 2005 and its UK National Annex.

Unsupported

8.2 The product is satisfactory for use in unsupported systems, in the geographical Wind Zones given in Table 1, where a well-sealed ceiling is present and the roof has a ridge height ≤15m, a pitch between 12.5 and 75°, and a site altitude ≤100 m, and where topography is not significant. For all other cases, the required uplift resistance should be determined using BS 5534 : 2014 and the Certificate holder's declared wind uplift resistances given in Table 2.

Table 1 Zones of applicability of Tyvek Supro Roof Tile Underlay, with battened laps and taped laps, according to BS 5534 : 2014, clause A.8

Product	≤345 mm batten gauge with battened lap	≤250 mm batten gauge with battened lap	≤345 mm batten gauge with taped lap	≤345 mm batten gauge with 2060B tape lap
Tyvek Supro	Zones 1 to 5	Zones 1 to 5	—	Zones 1 to 5
Tyvek Supro Plus(1)	Zones 1 to 5	Zones 1 to 5	Zones 1 to 5	—

(1) The laps were taped using the integral adhesive tape.

Table 2 Declared wind uplift resistance (Pa)

Product	≤345 mm batten gauge with battened lap(2)	≤250 mm batten gauge with battened lap(2)(3)	≤345 mm batten gauge with taped lap(3)	≤345 mm batten gauge with 2060B tape lap
Tyvek Supro	1643	2332	—	3371
Tyvek Supro Plus(1)	1750	—	3204	—

(1) The laps were taped using the integral adhesive tape.
(2) Mean of test results.
(3) Underlays with a wind uplift resistance at a 250 mm batten gauge that satisfies the minimum design wind pressure of 820 Pa for Zone 1 are considered to satisfy the requirements for use at a 100 mm batten gauge in all Wind Zones.

Supported

8.3 The product, when fully supported, has adequate resistance to wind uplift forces.

8.4 The product may be used at any batten gauge in all Wind Zones when laid over nominally airtight timber based sarking and insulation for warm-roof design. It may also be used in applications where slates are nailed directly onto sarking boards.

19 Conditions

19.1 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.

19.2 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.

19.3 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.

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

19.5 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.

19.6 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.

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