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BAB-24-339-P-A-UK
BDA Agrément®
Visqueen Gas Barrier NF-400
Ground Gas Barrier and Damp-Proof Membrane

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SCOPE OF AGRÉMENT

This BDA Agrément® (hereinafter 'Agrément') relates to Visqueen Gas Barrier NF-400 (hereinafter the 'Product'). The Product is a flexible polyethylene gas barrier and damp-proof membrane. The Product provides protection against moisture and ground gases when installed above or below ground-supported concrete ground floors, or above suspended concrete ground floors, in new residential and commercial buildings.

DESCRIPTION

The Product is a 0.4 mm thick flexible, chemically-resistant, co-extruded, multi-layer thermoplastic membrane with a gas resistant core, manufactured in accordance with BS EN 13967. The Product is transparent with a blue tint and has a smooth finish. The Product is installed with taped or heat-welded joints.

ILLUSTRATION



THIRD-PARTY ACCEPTANCE

See Section 3.3 (Third-Party Acceptance).

STATEMENT

It is the opinion of Kiwa Ltd. that the Product is safe and fit for its intended use, provided it is specified, installed and used in accordance with this Agrément.

Craig Devine
Operations Manager, Building Products



Alpheo Mlotha CEng FIMMM MBA
Business Unit Manager, Building Products



SUMMARY OF AGRÉMENT

This document provides independent information to specifiers, specialists, engineers, building control personnel, contractors, installers and other construction industry professionals who are considering the safety and fitness for purpose of the Product. This Agrément covers the following:

- Conditions of use;
- Production Control, Quality Management System and the Annual Verification Procedure;
- Product components and ancillary items, points of attention for the Specifier and examples of details;
- Installation;
- Independently assessed Product characteristics and other information;
- Compliance with national Building Regulations, other regulatory requirements and Third-Party Acceptance, as appropriate;
- Sources.

MAJOR POINTS OF ASSESSMENT

Moisture control - see Section 2.2.7 - the Product, including taped and welded lap joints, provides an effective barrier to:

- the passage of liquid groundwater when not subject to hydrostatic pressure;
- water vapour transmission.

Strength - see Section 2.2.8 - the Product has adequate performance in respect of:

- damage resistance to puncture, impact and static loading;
- tensile strength;
- tensile strength of lap joints;
- resistance to tearing.

Resistance to chemicals and ground gases - see Section 2.2.9 - the Product can provide resistance to:

- radon transmission;
- methane and carbon dioxide ground gas.

Durability - see Section 2.2.10 - the Product shall have a service life durability equivalent to that of the building into which it is incorporated.

UKCA, UKNI and CE marking - see Section 2.2.11 - the Agrément holder has responsibility for conformity marking, in accordance with all relevant British and European Product Standards.

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- 1.2 - Production Control and Quality Management System
- 1.3 - Annual Verification Procedure - continuous surveillance

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- 2.2 - Points of attention to the Specifier
- 2.3 - Examples of typical details
- 2.4 - Installation
- 2.5 - Independently assessed Product characteristics

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- 3.3 - Third-Party Acceptance

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1 GENERAL CONSIDERATIONS

1.1 CONDITIONS OF USE

1.1.1 Limitations

This Agrément has been prepared in accordance with the mandatory requirements defined in the relevant Kiwa Technical Requirement. Some information in this Agrément is provided for guidance or reference purposes only; this information falls outside the scope of the Technical Requirement.

1.1.2 Application

The assessment of the Product relates to its use in accordance with this Agrément and the Agrément holder's requirements.

1.1.3 Assessment

Kiwa Ltd. has assessed the Product in combination with relevant test reports, technical literature, the Agrément holder's quality plan, DoPs and site visit, as appropriate.

1.1.4 Installation supervision

The quality of installation and workmanship shall be controlled by a competent person who shall be an employee of the installation company (hereinafter 'Installer').

The Product shall be installed strictly in accordance with the instructions of the Agrément holder and the requirements of this Agrément.

1.1.5 Geographical scope

The validity of this document is limited to England, Wales, Scotland and Northern Ireland, with due regard to Section 3 of this Agrément (CDM, national Building Regulations and Third-Party Acceptance).

1.1.6 Validity

The purpose of this Agrément is to provide well-founded confidence to apply the Product within the scope described. The validity of this Agrément is as published on www.kiwa.co.uk/bda.

1.2 PRODUCTION CONTROL AND QUALITY MANAGEMENT SYSTEM

Kiwa Ltd. has conducted an audit of the Agrément holder and determined that they fulfil all their obligations in relation to this Agrément in respect of the Product.

The initial audit demonstrated that the Agrément holder has a satisfactory Quality Management System (QMS) and is committed to continuously improving their quality plan. Document control and record-keeping procedures were deemed satisfactory. A detailed Production Quality Specification (PQS) has been compiled to ensure traceability and compliance under the terms of this Agrément.

1.3 ANNUAL VERIFICATION PROCEDURE - CONTINUOUS SURVEILLANCE

To demonstrate that the Product conforms with the requirements of the technical specification described in this Agrément, an Annual Verification Procedure has been agreed with the Agrément holder in respect of continuous surveillance and assessment, and auditing of the Agrément holder's QMS.

2 TECHNICAL ASSESSMENT

This Agrément does not constitute a design guide for the Product. It is intended only as an assessment of safety and fitness for purpose.

2.1 PRODUCT COMPONENTS AND ANCILLARY ITEMS

2.1.1 Components included within the scope of this Agrément

The components listed in Table 1 below are integral to the use of the Product.

Table 1 - Integral components

Product	Description	Dimensions
Visqueen Gas Barrier NF-400	co-extruded, polyethylene based, multi-layer thermoplastic gas membrane, transparent with a blue tint	0.4 mm thick, 2.4 m wide by 43.5 m long roll
VisqueenPro Double-Sided Jointing Tape	double-sided, blue-coloured butyl-based self-adhesive jointing tape with an oversize release film	50 mm wide by 10 m long roll

The following components listed in Table 2 below are used in conjunction with the Product:

Table 2 - Components used in conjunction with the Product

Product	Description	Dimensions
Visqueen NF-60 Lap Tape	single-sided overlap tape, consisting of an orange-coloured polyethylene carrier film coated with a solvent acrylic adhesive and a release film	60 mm wide by 45 m long roll
Visqueen NF-Detailing Strip	white/grey coloured composite strip, consisting of a polymer layer with a butyl compound and a release film, for sealing junctions and complicated detailing	300 mm and 500 mm wide by 10 m long roll

2.1.2 Ancillary items falling outside the scope of this Agrément

The following ancillary items detailed in this Section may be used in conjunction with the Product, but fall outside the scope of this Agrément:

- Visqueen High Performance Vapour Barrier - an air and vapour control layer;
- Visqueen TreadGUARD 300 - a white, non-woven polypropylene geotextile fleece;
- Visqueen TreadGUARD 1500 - an HDPE semi-ridged protection board;
- Visqueen Gas Vent Mat - a vent mat that forms a void to collect exhaust volatile organic compounds (VOCs) and ground gases;
- Visqueen Zedex CPT DPC - a flexible damp proof course (hereinafter 'DPC') and cavity tray;
- Visqueen Preformed Cavity Tray Unit - preformed cavity tray;
- Visqueen Vapour Barrier - an air and vapour control layer;
- Visqueen Ultimate Top Hat Unit - preformed top hat unit;
- Visqueen Pre-formed Units - a range of prefabricated units for complicated junctions e.g. corners;
- Visqueen Gas Resistant DPC - a flexible polymeric DPC;
- Visqueen Gas Resistant Foil Lap Tape;
- rigid insulation - floor insulation;
- beam and block flooring system.

2.2 POINTS OF ATTENTION TO THE SPECIFIER

2.2.1 Design

2.2.1.1 Design responsibility

A Specifier may undertake a project-specific design, in which case it is recommended that the Specifier co-operates closely with the Agrément holder. The Specifier or Installer is responsible for the final as-built design.

2.2.1.2 Basis of design

The characteristics detailed in the section titled 'Major Points of Assessment' shall be considered during the use of the Product.

2.2.1.3 General design considerations

The Product is a Type A membrane in accordance with BS EN 13967, and is for use as a gas-resistant barrier and damp-proof membrane in concrete ground floors above and below slabs, not subject to hydrostatic pressure.

The Product provides protection to the structure against moisture, and restricts the transmission of radon, methane and carbon dioxide gases into buildings from contaminated landfill and naturally occurring sources.

The project-specific design shall achieve complete integrity across the entire building footprint.

The application of the Product shall take account of possible differential movement in the floor due to ground settlement.

The Product shall be designed and installed in accordance with the following minimum recommendations:

- BS 8000-0;
- BS 8000-4;
- BS 8485;
- BRE Report 211;
- BRE Report 414;
- Chartered Institute of Environmental Health publication 'The Local Authority Guide to Ground Gas';
- CIRIA R149;
- CIRIA R152;
- CIRIA C665;
- CIRIA C735;
- CP 102.

The Specifier shall consider the site-specific ground gas regime and purpose criteria in BS 8485 (the complexity of the design and the experience of the workforce).

When medium-to-high levels of ground gases are present, or when the production of gases still occurs, a suspended concrete ground floor should be used. A ventilation void beneath the ground floor will dilute and disperse ground gases to atmosphere. For further details, the Agrément holder can be consulted.

The Product shall be covered by screed or other protective layer immediately after installation to avoid damage during construction.

If the Product is installed below a reinforced ground floor or concrete slab, a protective layer shall be applied prior to placing the reinforcement.

Service ducts shall be vented to prevent the possibility of ground gas accumulating in confined spaces.

The Product laps shall be jointed and sealed:

- by taping with a minimum overlap of 100 mm, or;
- by welding with a minimum overlap of 100 mm.

2.2.1.4 Project-specific design considerations

The project-specific design shall:

- be determined by the Specifier;
- take into account the requirements of the relevant national Building Regulations - see Section 3.2;
- take into account the service life durability required - see Section 2.2.10.

A pre-installation survey is required to allow determination of the project-specific design - see Section 2.4.1.

2.2.2 Applied building physics (heat, air, moisture)

A Specialist shall check the hygrothermal behaviour of a project-specific design incorporating the Product and, if necessary, offer advice on improvements to achieve the final specification. The Specialist can be either a qualified employee of the Agrément holder or a suitably qualified consultant (in which case it is recommended that the Specialist co-operates closely with the Agrément holder).

2.2.3 Permitted applications

Only applications designed according to the specifications given in this Agrément are permitted. In each case, the Specifier and Installer shall co-operate closely with the Agrément holder.

2.2.4 Installer competence level

The Product shall be installed strictly in accordance with the instructions of the Agrément holder and the requirements of this Agrément.

Installation can be undertaken by competent persons experienced in this type of work.

2.2.5 Delivery, storage and site handling

The Product is delivered in suitable packaging bearing relevant identification information (such as the Product name, production identification date or batch number, the Agrément holder's name, etc.) and, where applicable, the BDA Agrément® logo incorporating the number of this Agrément. Each roll is supplied with installation instructions.

Prior to installation, the Product shall be stored in accordance with the Agrément holder's requirements. Good housekeeping protocols shall be followed to avoid damage. In particular, care shall be taken to:

- avoid exposure to direct sunlight for long periods of time;
- avoid exposure to high or low temperatures extended periods of time;
- store in a well-ventilated covered area to protect from rain, frost and humidity;
- store away from possible ignition sources;
- store rolls of the Product horizontally on a flat surface and not stacked;
- keep rolls under cover and protected from mechanical damage.

Care shall be taken to avoid accidental damage to the Product when handling on-site.

2.2.6 Maintenance and repair

Once installed, the Product does not require maintenance as it is confined within the ground floor structure. However, if the Product is damaged during construction, it shall be patched with the same material using VisqueenPro Double-Sided Jointing Tape and sealed with NF-60 Lap Tape, with a minimum of 100 mm overlap beyond the limits of the puncture. For further advice in respect of repair, consult the Agrément holder.

Performance factors in relation to the Major Points of Assessment

2.2.7 Moisture control

When not under hydrostatic pressure, the Product, including taped and welded lap joints, has adequate watertightness to provide a barrier to the passage of water from the ground into the internal environment, in accordance with BS EN 1928.

The Product provides water vapour resistance and can prevent water vapour transmission from the ground into a building, in accordance with BS EN 1931.

2.2.8 Strength

Once installed on a smooth or blinded surface, the Product will not be damaged by normal on-site foot traffic. However, the Product can be punctured by sharp objects during installation, therefore care shall be taken when handling building equipment and materials.

The Product has been tested (as detailed in Section 2.5.2) to determine its:

- static puncture resistance, in accordance with BS EN ISO 12236;
- tensile strength and elongation properties, in accordance with BS EN 12311-2;
- shear resistance of taped or welded lap joints, in accordance with BS EN 12317-2;
- resistance to tearing (nail shank), in accordance with BS EN 12310-1;
- resistance to impact, in accordance with BS EN 12691;
- resistance to static loading, in accordance with BS EN 12730.

2.2.9 Resistance to chemicals and ground gases

The Product, including taped and welded lap joints, will:

- restrict methane and carbon dioxide ground gas ingress and radon transmission into buildings;
- meet the performance criteria for a ground gas resistant membrane as defined in BS 8485.

2.2.10 Durability

The Product shall have a service life durability equivalent to that of the building into which it is incorporated. The expected lifespan of the building itself shall be at least 60 years.

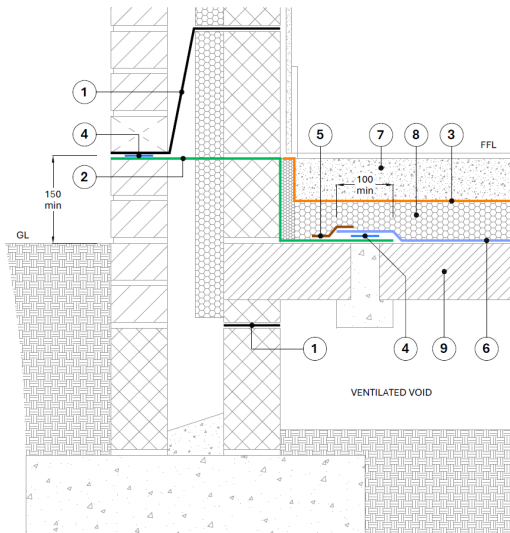
Once installed, the Product is not susceptible to damage from environmental conditions normally encountered in the UK.

2.2.11 UKCA, UKNI and CE marking

The British and European standard for the Product is BS EN 13967.

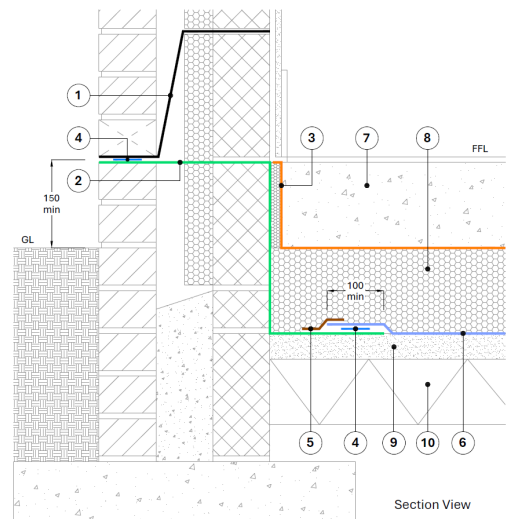
2.3 EXAMPLES OF TYPICAL DETAILS

Diagram 1 - Typical detail above beam and infill block system



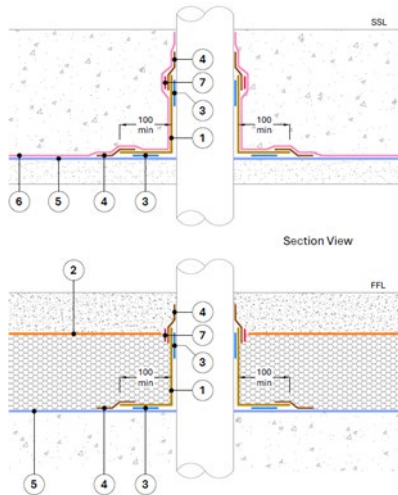
1. Visqueen Zedex CPT DPC
2. Visqueen Ultimate Gas DPC
3. Visqueen Vapour Barrier
4. VisqueenPro Double-Sided Jointing Tape
5. Visqueen NF-60 Lap Tape
6. Visqueen Gas Barrier NF-400
7. Screed layer
8. Insulation layer
9. Beam and block floor system

Diagram 2 - Typical detail below slab and insulation



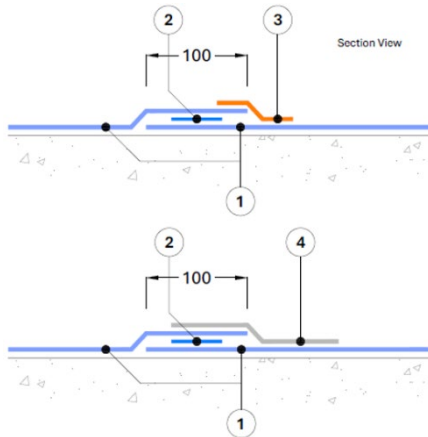
1. Visqueen Zedex CPT DPC
2. Visqueen Ultimate Gas DPC
3. Visqueen Vapour Barrier
4. VisqueenPro Double-Sided Jointing Tape
5. Visqueen NF-60 Lap Tape
6. Visqueen Gas Barrier NF-400
7. Cast in situ RC ground bearing slab
8. Insulation layer
9. Sand blinding layer
10. Hardcore layer

Diagram 3 - Preformed service pipe sleeve detail with top hat



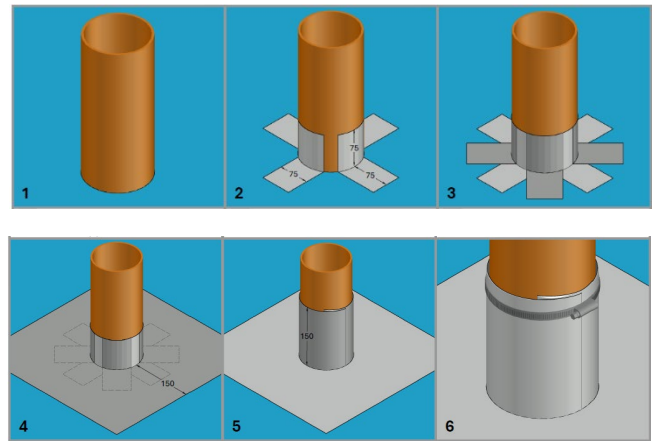
1. Visqueen Ultimate Preformed Pipe Sleeve (top hat)
2. Visqueen Vapour Check or Vapour Barrier
3. VisqueenPro Double-Sided Jointing Tape
4. Visqueen NF-60 Lap Tape
5. Visqueen Gas Barrier NF-400
6. Visqueen TreadGUARD protection
7. Jubilee clip

Diagram 5 - Typical taped joint detail (no hydrostatic pressure)



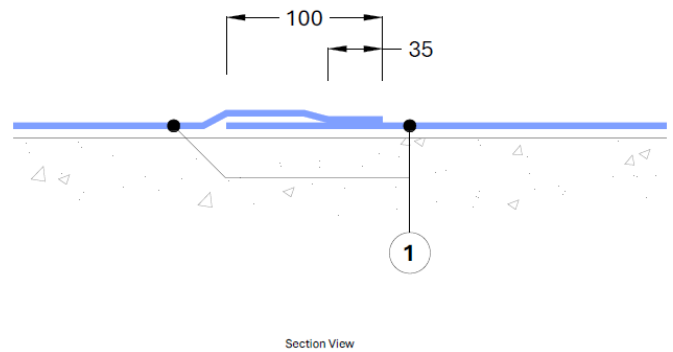
1. Visqueen Gas Barrier NF-400
 2. VisqueenPro Double-Sided Jointing Tape
 3. Visqueen NF-60 Lap Tape
- Dimensions shown in mm

Diagram 4 - Service pipe detail with Visqueen NF-Detailing Strip



1. ensure surface of pipe is clean and free from any contamination. Cut Visqueen Gas Barrier NF-400 to fit tight around base of pipe
2. bond 150 mm by 75 mm strips of Visqueen NF-Detailing Strip as shown. Strips to be bonded 75 mm onto pipe and 75 mm onto barrier
3. bond additional strips overlapping previous strips by minimum 25 mm
4. cut central hole in a square of detailing strip. Square to extend minimum 150 mm beyond base of pipe. Bond over horizontal strips and barrier
5. bond minimum 150 mm detailing strip upstand collar around vertical strips and pipe
6. secure upstand collar with a mechanical fastening

Diagram 6 - Typical welded joint detail (no hydrostatic pressure)



1. Visqueen Gas Barrier NF-400
- Dimensions shown in mm

2.4 INSTALLATION

The Product shall be installed strictly in accordance with the instructions (hereinafter 'Installation Manual') of the Agrément holder, the requirements of this Agrément and the requirements of BS 8000-0.

2.4.1 Project-specific installation considerations

The project-specific design shall be determined from a pre-installation survey.

The Product shall be installed in accordance with the Agrément holder's recommendations, BS 8000-0, BS 8000-4 and BS 8485 as appropriate.

The Product shall only be applied onto ground floor surfaces with a smooth finish, i.e. free from loose aggregates or other sharp protrusions, voids, projections and mortar deposits.

The Product shall not be installed when the air temperature is below 5 °C, to prevent the risk of surface condensation.

Rolls of VisqueenPro Double-Sided Jointing Tape and Visqueen NF-60 Lap Tape should be kept in a warm, dry place, to ensure the tapes are workable and can be more easily applied.

All service penetrations and changes in direction shall be properly detailed in accordance with the Agrément holder's instructions.

The Product shall form a continuous barrier over the footprint of the building using a suitable gas-resistant damp-proof course (GRDPC), overlapping with the Product by a minimum of 100 mm.

Before any welding work is carried out, trials shall be undertaken to ensure all relevant parameters and operations are determined and in line with the Agrément holder's instructions.

2.4.2 Preparation

The following works may be required before installing the Product:

- blind the surface over which the Product is to be applied with compacted soft sand to fill voids in the concrete ground floor, or apply a smooth concrete float finish;
- ground floor surfaces shall be dry and free from protrusions, dust and frost to prevent potential joint contamination.

Any surface over which the Product is to be applied shall be prepared so that there are no voids which the Product would have to span.

2.4.3 Outline installation procedure

Detailed installation procedures can be found in the Agrément holder's Installation Manual.

The outline procedure is as follows:

- roll out the Product, allowing a minimum of 100 mm overlap;
- use VisqueenPro Double-Sided Jointing Tape for bonding the lapped joints together or heat weld the joints with a minimum of 35 mm weld width;
- compress joints firmly using a hand roller and check that integrity and complete adhesion is achieved;
- for taped joints, seal the joints with Visqueen NF-60 Lap Tape to provide smooth finish;
- seal around service penetrations using Visqueen NF-Detailing Strip or Visqueen Ultimate Top Hat Units as appropriate;
- reinforce complicated junctions e.g. corners with Visqueen NF-Detailing Strip. Where this is not possible, reinforce the junctions with Visqueen Pre-formed Units and bond with VisqueenPro Double-Sided Jointing Tape and seal with Visqueen NF-60 Lap Tape.

2.4.4 Finishing

Cover the Product immediately after installation by applying the suitable finishing as per project specification.

2.5 INDEPENDENTLY ASSESSED PRODUCT CHARACTERISTICS

2.5.1 Moisture control

Test		Standard	Result
Watertightness (2 kPa for 24 hours)	plain membrane	BS EN 1928, method A	Pass, dry
	membrane with taped joints [^]		
	membrane with welded joints		
Density of water vapour flow rate (g)	plain membrane	BS EN 1931, method B	9.05 x 10 ⁻¹⁰ kg/(m ² s)
Water vapour resistance			2296 MNs/g
Water vapour diffusion-equivalent air layer thickness (S _d)			459 m

[^] with VisqueenPro Double-Sided Jointing Tape

2.5.2 Strength

Test		Standard	Result
Shear strength of joints	membrane with taped joints [^]	BS EN 12317-2	217 N/50 mm
	membrane with welded joints		401 N/50 mm
Tensile strength	longitudinal	BS EN 12311-2, method B	26.3 N/mm ²
	transverse		29.4 N/mm ²
Elongation	longitudinal		607 %
	transverse		921 %
Tear resistance	longitudinal	BS ISO 34-1, method A (trouser tear)	52.1 N
	transverse		44.5 N
	longitudinal	BS ISO 34-1, method B (angle tear, no nick)	58.8 N
	transverse		59.3 N
	longitudinal	BS EN 12310-1	265 N
	transverse		240 N
Static puncture resistance	Puncture strength	BS EN ISO 12236	1620 N
Hard body impact resistance		BS EN 12691, method A	Pass at drop height 200 mm
Resistance to static loading		BS EN 12730, method C	Pass at 15 kg applied load

[^] with VisqueenPro Double-Sided Jointing Tape

2.5.3 Resistance to chemicals and ground gases

Test		Standard	Result
Determination of gas transmission rate - Methane by differential-pressure methods, at 23 °C, 0 % RH for 24 hours	plain membrane	BS ISO 15105-1	mean 13.2 ml/(m ² .day.atm)
	membrane with taped joints [^]		mean 13.7 ml/(m ² .day.atm)
	membrane with welded joints		mean 15.0 ml/(m ² .day.atm)
Determination of gas transmission rate - Carbon Dioxide by differential-pressure methods, at 23 °C, 0 % RH for 2 days	plain membrane	BS ISO 15105-1	mean 28.7 ml/(m ² .day.atm)
	membrane with taped joints [^]		mean 30.2 ml/(m ² .day.atm)
	membrane with welded joints		mean 22.0 ml/(m ² .day.atm)
Radon transmittance, P	plain membrane	Internal method SP no. 3873	< 3.0 x 10 ⁻⁹ m/s
Radon resistance, Z			> 3.3 x 10 ⁸ s/m
Radon permeability, k			< 1.2 x 10 ⁻¹² m ² /s

[^] with VisqueenPro Double-Sided Jointing Tape

2.5.4 Durability

Test	Standard	Result
Watertightness against artificial heat ageing by 12 weeks at 70 °C, in accordance with BS EN 1296, then exposure to 2 kPa water pressure for 24 hours	BS EN 1928, method A	Pass, dry
Watertightness against chemical ageing (alkali immersion) in a saturated solution of Ca(OH) ₂ for 28 days, in accordance with BS EN 1847, then exposure to 2 kPa water pressure for 24 hours	BS EN 1928, method A	Pass, dry

3 CDM, NATIONAL BUILDING REGULATIONS AND THIRD-PARTY ACCEPTANCE

3.1 THE CONSTRUCTION (DESIGN AND MANAGEMENT) REGULATIONS 2015 AND THE CONSTRUCTION (DESIGN AND MANAGEMENT) REGULATIONS (NORTHERN IRELAND) 2016

Information in this Agrément may assist the client, principal designer/CDM co-ordinator, designer and contractors to address their obligations under these Regulations.

3.2 THE NATIONAL BUILDING REGULATIONS

In the opinion of Kiwa Ltd., the Product, if installed and used in accordance with Section 2 of this Agrément, can satisfy or contribute to satisfying the relevant requirements of the following national Building Regulations.

This Agrément shall not be construed to confer the compliance of any project-specific design with the national Building Regulations.

3.2.1 England

The Building Regulations 2010 and subsequent amendments

- C1(2) Preparation of site and resistance to contaminants - the Product can contribute to separating the occupants from contaminants in the ground
- C2(a) Resistance to moisture - floors incorporating the Product can contribute to protecting a building from ground moisture
- Regulation 7(1) Materials and workmanship - the Product is manufactured from suitably safe and durable materials for the application and can be installed to give a satisfactory performance

3.2.2 Wales

The Building Regulations 2010 and subsequent amendments

- C1(2) Preparation of site and resistance to contaminants - the Product can contribute to separating the occupants from contaminants in the ground
- C2(a) Resistance to moisture - floors incorporating the Product can contribute to protecting a building from ground moisture
- Regulation 7(1) Materials and workmanship - the Product is manufactured from suitably safe and durable materials for the application and can be installed to give a satisfactory performance

3.2.3 Scotland

The Building (Scotland) Regulations 2004 and subsequent amendments

3.2.3.1 Regulation 8(1) Durability, workmanship and fitness of materials

- The Product is durable and fit for its intended purpose

3.2.3.2 Regulation 9 Building standards - Construction

- 3.1 Site preparation - harmful and dangerous substances - the Product can contribute to separating a building and occupants from harmful or dangerous substances
- 3.4 Moisture from the ground - floors incorporating the Product can contribute to protecting a building from moisture penetration from the ground
- 7.1(a)(b) Statement of sustainability - the Product can contribute to 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

3.2.3.3 Regulation 12 Building standards - Conversions

- All comments given under Regulation 9 also apply to this regulation, with reference to Schedule 6 of The Building (Scotland) Regulations 2004 and subsequent amendments, clause 0.12 of the Technical Handbook (Domestic) and clause 0.12 of the Technical Handbook (Non-Domestic)

3.2.4 Northern Ireland

The Building Regulations (Northern Ireland) 2012 and subsequent amendments

- 23(1) Fitness of materials and workmanship - floors incorporating the Product are suitable and can be adequately prepared and applied
- Regulation 26(1)(b) Site preparation and resistance to contaminants - the Product can contribute to separating a building and occupants from harmful contaminants
- Regulation 28(a) Resistance to moisture and weather - floors incorporating the Product can contribute to protecting a building from the passage of moisture from the ground

3.3 THIRD-PARTY ACCEPTANCE

In the opinion of Kiwa Ltd. if installed, used, and maintained in accordance with this Agrément, this Product can satisfy the appropriate structural, moisture and durability requirements of a Structural Warranty provider. Please contact the relevant Structural Warranty provider to ascertain their project specific design requirements and to confirm their acceptance on a case-by-case basis.

4 SOURCES

- BS EN ISO 9001:2015 Quality management systems - Requirements
- BS EN ISO 12236:2006 Geosynthetics. Static puncture test (CBR test)
- 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 1847:2009 Flexible sheets for waterproofing. Plastics and rubber sheets for roof waterproofing. Methods for exposure to liquid chemicals, including water
- BS EN 1928:2000 Flexible sheets for waterproofing. Bitumen, plastic and rubber sheets for roof waterproofing. Determination of watertightness
- BS EN 1931:2000 Flexible sheets for waterproofing. Bitumen, plastic and rubber sheets for roof waterproofing. Determination of water vapour transmission properties
- BS EN 12310-1:2000 Flexible sheets for waterproofing. Determination of resistance to tearing (nail shank). Bitumen sheets for roof waterproofing
- BS EN 12311-2:2013 Flexible sheets for waterproofing. Determination of tensile properties. Plastic and rubber sheets for roof waterproofing
- BS EN 12317-2:2010 Flexible sheets for waterproofing. Determination of shear resistance of joints. Plastic and rubber sheets for roof waterproofing
- BS EN 12691:2018 Flexible sheets for waterproofing. Bitumen, plastic and rubber sheets for roof waterproofing. Determination of resistance to impact
- BS EN 12730:2015 Flexible sheets for waterproofing. Bitumen, plastic and rubber sheets for roof waterproofing. Determination of resistance to static loading
- BS EN 13967:2012+A1:2017 Flexible sheets for waterproofing. Plastic and rubber damp proof sheets including plastic and rubber basement tanking sheet. Definitions and characteristics
- BS ISO 34-1:2022 Rubber, vulcanized or thermoplastic. Determination of tear strength. Trouser, angle and crescent test pieces
- BS ISO 15105-1:2007 Plastics. Film and sheeting. Determination of gas-transmission rate. Differential-pressure methods
- BS 8000-0:2014+A1:2024 Workmanship on construction sites. Introduction and general principles
- BS 8000-4:1989 Workmanship on building sites. Code of practice for waterproofing
- BS 8485:2015+A1:2019 Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings
- BRE Report 211:2023 Radon: Guidance on protective measures for new buildings (including supplementary advice for extensions, conversions and refurbishment projects)
- BRE Report 414:2001 Protective measures for housing on gas-contaminated land
- Chartered Institute of Environmental Health:2008 The Local Authority Guide to Ground Gas
- CIRIA C665:2007 Assessing risks posed by hazardous ground gases to buildings
- CIRIA C735:2014 Good practice on the testing and verification of protection systems for buildings against hazardous ground gases
- CIRIA R149:1995 Protecting development from methane: methane and associated hazards to construction
- CIRIA R152:1995 Risk assessment for methane and other gases from the ground: methane and associated hazards to construction
- CP 102:1973 Code of practice for protection of buildings against water from the ground

Remark - Apart from these sources, technical information and confidential reports have been assessed; any relevant documents are in the possession of Kiwa Ltd. and are kept in the Technical Assessment File of this Agrément. The Installation Manual for the Product may be subject to change; contact the Agrément holder for the clarification of revisions.

5 AMENDMENT HISTORY

Revision	Amendment description	Author	Approver	Date
-	First issue	A Chapman	C Devine	October 2024

6 CONDITIONS OF USE

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