

15 Conditions

15.1 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.

15.2 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.

15.3 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.

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

15.5 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.

15.6 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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Feb 2021

RIW LAC® (LIQUID ASPHALTIC COMPOSITION)

LAC® is a two coat, cold applied damp proof membrane, which dries to a uniform gloss black finish. The coating is a solution of natural and petroleum bitumens in white spirit.

BENEFITS

- | Water and water vapour barrier
- | Radon barrier
- | Elastic and flexible
- | Easily applied and adapted to difficult details
- | Sulphate resistant

APPLICATIONS

- | Ground floors
- | Superstructures
- | Basement and Sub-structures
- | Retaining walls

APPLIED TO

- | Concrete
- | Masonry
- | Steel

REMEMBER IT'S
waterproof RIW

TYPICAL USES

LAC® is typically used as a damp proof membrane to ground floors, as a vapour barrier behind cladding and for tanking of basements. It is also suitable for waterproofing foundation walls, ducts, lintels, columns, beams and similar structures at, above and below ground level.

When designing Type A structures (as classified in BS 8102: 2009), the product applied correctly is capable of providing the levels of protection required for Grades 1, 2 & 3 basements.

LAC® may also be applied to the internal face of external walls above ground level to prevent the penetration of moisture. The membrane can then be plastered or dry lined when dry.

LAC® may also be used to provide a barrier to Radon Gas.

DURABILITY

Subject to normal conditions of use LAC® will provide an effective barrier to the transmission of liquid water and water vapour for the life of the structure.

LAC® retains its elasticity and will not crack or peel provided it is protected from mechanical damage and exposure to U.V. light.

SPECIFICATION

J30 - Liquid Applied Tanking/Damp Proofing in accordance with NBS Clauses.

Please consult RIW for further information.

INDEPENDENT AUTHORITY

LAC® has been awarded British Board of Agrément Certificate No. 89/2278, covering its use for the tanking of basements and as a damp proof membrane for solid floors.

Tests carried out by the National Radiological Protection Board show that LAC® will provide a barrier to the passage of Radon by diffusion.

A copy of their report is available upon request.

ANCILLARY PRODUCTS

RIW produce a range of ancillary products for use with LAC® which include:

Cementfill FC - Cement based waterproof fairing coat and repair mortar for filling minor holes, voids and defects.

PERFORMANCE & COMPOSITION

Form	Bitumen Solution
Colour	Black
Specific gravity	0.95g/ml
Solids Content	71% (w/w)
Flash Point	40°C
Water vapour resistance	590MN/g
Water vapour permeability	0.43g/m² per 24 hours
Diffusion coefficient for radon	1.7 x 10 ⁻¹³ m² s ⁻¹
Diffusion length for radon	0.28mm
Coverage for two coats *	1m²/litre (typical) 1.25m²/litre (steelwork)
Number of coats	Two (One coat only onto render prior to plastering)
DFT of coating	0.75mm for two coats
Curing time	Touch dry: 24 hours
Overcoating time	Minimum: when touch dry
Application temperature limits	5-35°C
Preparation of liquid	None
Sulphate resistance	50,000ppm
U.V. resistance	Low, protect within 28 days
Shelf life (Temperate climate)	24 months

The above performance figures are typical values and should not be considered a product specification.
*Figures quoted are theoretical coverage rates. Actual coverage may vary depending on nature of substrate.

Cementfill HB - Cement based waterproof high build repair mortar for profiling and providing fillets.

Sheetseal 226 - a self-adhesive, flexible sheet membrane for reinforcing areas subject to movement.

Double Drain - a drainage board which protects the membrane during backfilling operations and also promotes drainage of water away from the structure.

Protection Board - a 3mm rot proof bitumen board to prevent damage to the waterproof membrane during backfilling operations.

Adhesive Tape - a 150mm wide double sided tape for temporarily adhering Protection Board or Double Drain to the membrane.

Sheetseal 9000 DPC - a range of high performance polymeric dpc's, and pre-formed cavity trays, compatible for use with all RIW membranes.

CONSTRUCTION

All construction should conform with the Building Regulations, Codes of Practice and British Standards in current use at the time the building is being constructed. In particular it is recommended that reference is made to BS 8102: 2009.

PREPARATION

All Surfaces: Should be smooth, clean, dry (to a depth of 1–2mm), sound and free from frost, oil, grease, condensation and other contamination. Any voids or hollows must be made good to a flush finish, with a suitable filler. Any sharp edges or high points should be eliminated. Powdery or flaking surfaces should be removed by suitable means.

Internal corners should be eased with a cement fillet (see ancillary products), approximately 20mm high to assist application, similarly, external corners should be chamfered or rounded to suit.

Concrete surfaces: Horizontal surfaces should preferably be smooth, however lightly tamped (3–4mm peak to trough profile), brushed or floated surfaces may also be acceptable.

Masonry: Should be sound with joints flush pointed or 'bagged out' with Cementfill or similar before the membrane is applied. Open textured surfaces should be sealed with Cementfill FC or a sand/cement slurry to provide a suitable surface. If existing surfaces are very rough, they may require rendering.

Metal surfaces: Should be wire brushed or sand blasted and pre-treated with a steel primer, prior to the application of the membrane, in two coats, at the rate of 2.5m²/litre per coat. Corroded metal should also be treated with an anti-corrosive primer. LAC® is compatible with all commonly encountered steel primers including alkyd, chlorinated rubber and epoxy based paints.

APPLICATION

General: Application of LAC® should not be attempted in temperatures below 5°C. LAC® should be applied as supplied, however under certain circumstances, such as cold weather conditions, it may be necessary to add up to 10% white spirit to ease application.

LAC® should be applied in two coats at a minimum application rate of 1.7m²/litre for the first coat and 2.5m²/litre for the second coat, unless noted otherwise. Under no circumstances must the liquid be heated or sanded. The coating is not designed for external exposed use, and must be protected from the effects of U.V. light within 28 days of application. Hevisal may be used as an alternative to LAC® where exposure will exceed 28 days.

Manual: LAC® can be applied using a stiff brush or pile roller. The material should be transferred into a suitable container and applied to the substrate by brushing vigorously in all directions to ensure uniform coverage. Do not pour the material onto the substrate or allow it to pool in serrations or depressions.

Good ventilation is necessary to obtain a proper cure. LAC® will require 24 hours minimum before recoating.

Spray: For further information and details of Specialist Applicators, please consult the Technical Department.

COMPATIBILITIES

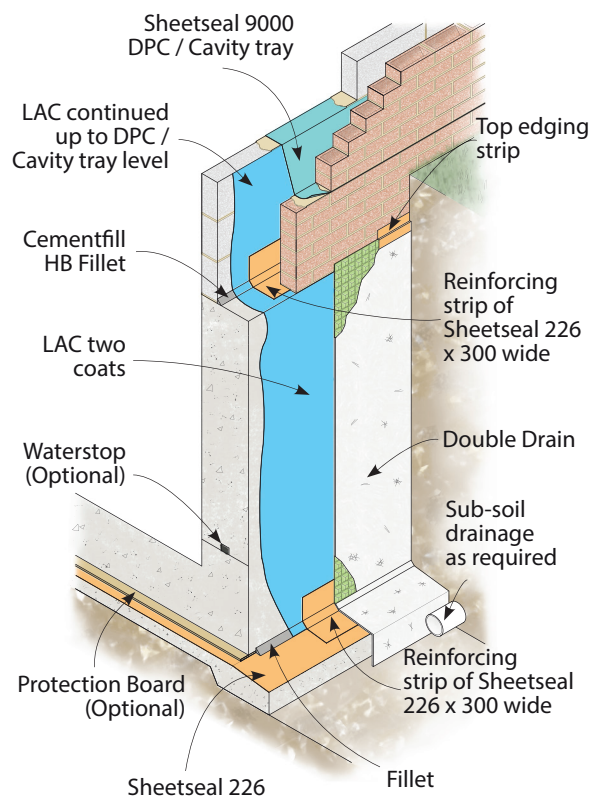
Damp-proof courses : LAC® is compatible for use with Sheetseal 9000 DPC and all commonly used DPC material, except those with a polymer base. Pitch polymer based products contain plasticizers which migrate under pressure into surrounding materials. This effect does not occur with bitumen polymer, polymeric, lead or hessian based DPC materials.

Insulation Boards : When used as a DPM, LAC® is fully compatible with all commonly encountered insulation materials, provided it has dried throughout its thickness before being covered.

SPECIFIC USES

Tanking: LAC® should always be fully supported, to resist hydrostatic pressure, when used for tanking.

External tanking: Should be carried out as illustrated in Detail 1 of this literature. The horizontal membrane should be laid on a concrete blinding projecting beyond the outer face of the structure.



Detail 1 - External Tanking

The base structural slabs and the walls should be formed, incorporating a fillet at the external base of the wall, and the vertical LAC® should then be applied. The internal angle at the base of the wall, and other areas subject to movement, must be reinforced with a 300mm strip of Sheetseal 226. The membrane should then be protected from backfilling using Double Drain or Protection Board to suit.

Internal tanking: Should be carried out as illustrated in Detail 2 of this literature. All internal angles, and other areas subject to movement, must be reinforced with Sheetseal 226 as required. A loading coat of brick, block or concrete should be constructed immediately after the membrane has cured. If brick or block is used, a 20mm minimum cavity should be left between the membrane and the loading skin. This cavity must be filled with a sand/cement mortar fill as work proceeds.

Floating floor construction: LAC® can be used under a floating floor system at ground level, as illustrated in Detail 3 of this literature. When used under insulation the following guidelines should be followed:

- The product must be allowed to dry throughout its thickness before being covered.
- The insulation boards must be laid butt jointed, with corners and arrises kept intact to ensure overall loading of the membrane.
- The floor finish must not displace the insulation boards during laying.

Radon Barrier: Refer to BRE Report 211 – Radon: Guidance on protective measures for new dwellings. LAC® has been successfully tested by the National Radiological Protection Board, as an effective barrier against radon. This gives the specifier the opportunity of using a traditional proven material as both a radon barrier and in its normal use, as a water and water vapour barrier. The principal design objective is to construct an airtight and therefore radon proof barrier across the whole site of the building. This can be achieved without the need for skilled labour, or site welded lap joints, by using LAC®.

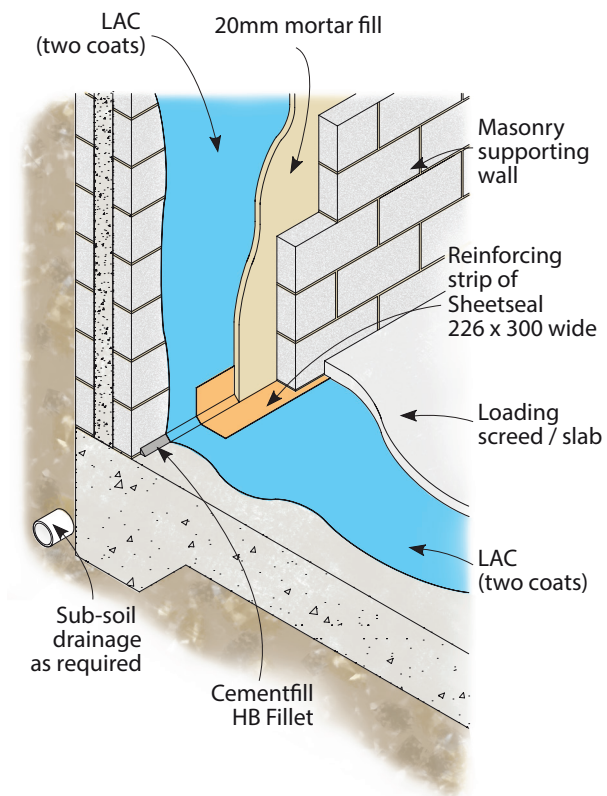
Vapour barrier behind plastering: LAC® is suitable for use under the following plasters, Thistle Bonding or Thistle Universal Onecoat, and only these products can be recommended. Under no circumstances should cement or lime based renders be applied to the vertical membrane.

LAC® should be applied to a correctly prepared surface, including the removal of efflorescence, old plasters, lime washes etc. The second coat, where required should not be applied until the first coat is dry throughout its thickness, and neither coat should be applied so heavily as to form curtains and sags down the face of the wall.

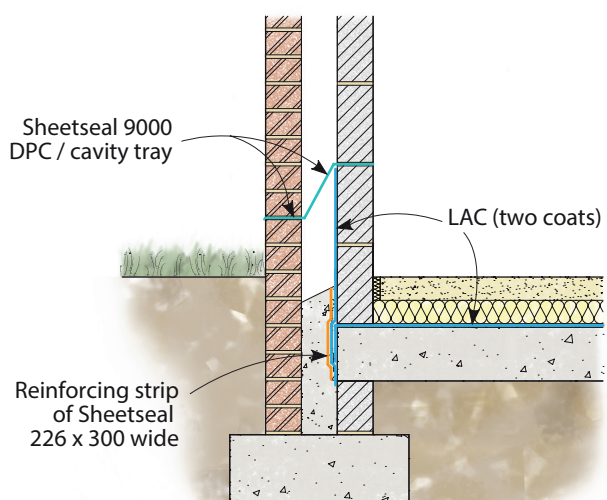
If LAC® is to be applied to dense concrete, sand/cement render or (semi-) engineering brickwork, only one coat of the membrane is required, at a rate of 1.7m²/litre. The membrane should never be sanded, as the recommended plasters will bond directly to the membrane. Plastering should never be carried out until the full treatment (one or two coats) is totally dry throughout its thickness. The

membrane must be reactivated by wiping a rag moistened in white spirit prior to over-plastering if the membrane has been exposed for 21 days (allow to dry for 4 hours).

Points for fixings should be indicated and pockets cut out which should then be filled with mortar after lining with LAC®. Lightweight fixings may be adhered directly to the plaster finish using an appropriate adhesive.



Detail 2 – Internal Tanking



Detail 3 – Ground Floor DPM

SAFETY

LAC® is flammable and should be used in well-ventilated areas away from sources of ignition. The product can effect sensitive skins. Gloves or barrier cream should always be used by operatives and hands thoroughly washed at the end of each working period. Do not allow the product to enter watercourses. Full health and safety instructions are contained on the product material safety data sheets, and these must be referred to before use.

SUPPLY

AVAILABILITY

All RIW products can be obtained through Builders Merchants or approved stockists. A list of approved stockists is available from RIW offices.

PACKAGING

5 & 25 litre containers

STORAGE

Keep container tightly closed. Keep in cool, dry, well ventilated area. Store in correctly labelled containers. Prolonged storage (in excess of 12 months) may result in some loss of solvents, causing an increase in viscosity. The material may be stored in severe winter environments without any detrimental effect.

TECHNICAL SERVICES

The Technical Department is available to advise on individual projects and to prepare or assist in the preparation of specifications and drawings. A list of experienced applicators of our materials is available from RIW's offices.

The information in this literature was correct at the time of going to press. However, we are committed to continually improving our products and reserve the right to change product specifications.

For the latest information, please consult RIW. Conditions of use are beyond our control, therefore we cannot warrant the results to be obtained.

RIW Limited

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Technical enquires tel: **01753 944200**

Commercial enquires tel: **01753 944210**

www.riw.co.uk

REMEMBER IT'S
waterproof **RIW**

RIW SHEETSEAL GR

Sheetseal GR is a cold applied, high density polyethylene film bonded to aluminium foil and coated with a bitumen/rubber self adhesive layer with a removable reinforced silicone release paper.

Sheetseal Primer is a bitumen solution.

BENEFITS

- | Compliant with BS 8485: 2015
- | Methane and carbon dioxide barrier
- | Water and water vapour barrier
- | Factory controlled thickness
- | Elastic and flexible
- | No drying time
- | Seldedge strip to improve lap sealing
- | Complies with latest codes of practice as published by CIRIA & BRE

APPLICATIONS

- | Combined tanking membrane and gas barrier
- | Suppression of methane and carbon dioxide
- | Ground floors
- | Basements and sub-structures
- | Retaining walls

APPLIED TO

- | Concrete
- | Masonry
- | Steel
- | Insulation boards / ICF systems

RIW SHEETSEAL GR

TYPICAL USES

Sheetseal GR protects the structure against methane, carbon dioxide and radon from the ground. In addition, Sheetseal GR provides a water and water vapour barrier. When designing a Type A (barrier) protection (as classified in BS 8102:2009), the product applied correctly is capable of providing the levels of protection required for grades 1, 2 & 3 basements.

Sheetseal Primer is used on all surfaces, to aid adhesion of the Sheetseal GR membrane. Sheetseal Primer must however not be applied to ICF systems.

DURABILITY

Subject to normal conditions of use Sheetseal GR will provide an effective barrier to methane gas, water and water vapour for the life of the structure. The membrane is not designed for permanent exposure and must be protected by a screed, paving slabs, insulation etc.

INDEPENDENT AUTHORITY

Independently tested to ISO 15105 and therefore complies with BS 8485:2015.

For Declaration of Performance see <http://www.riw.co.uk/technical-downloads/ce-marking>

PERFORMANCE & COMPOSITION

SHEETSEAL GR	
Form	Self adhesive sheet
Backing material	Cross orientated polyethylene with aluminium laminate
Overall thickness	1.30mm
Roll size	1m x 20m long
Roll Weight	34kg
Laps	150mm
Tape strength	(EN 12113B) Trans 4.2 N/mm Long 3.9 N/mm
Elongation	(EN 12113B) Trans 8% Long 6%
Puncture resistance	(ASTM E 154) 180 N
Adhesion – 180° peel	(ASTM D1000) 1.8 N/mm
Water vapour transmission	(ASTM E96) <0.1g/m ² /24 h
Application Temperature	+5°C to +35°C

SHEETSEAL PRIMER	
Form	Bitumen solution
Flash point	34°C
Coverage*	7m ² /litre/coat
Drying time	2–4 hours
Overcoating time	Minimum: when touch dry Maximum: 7 days

The above performance figures are typical values and should not be considered a product specification.

SPECIFICATION

J40 – Flexible Sheet Tanking/Damp proofing in accordance with NBS Clause 180.

Please consult RIW for further information.

ANCILLARY PRODUCTS

RIW produce a range of ancillary products for use with Sheetseal GR which include:

Cementfill FC – Cement based waterproof fairing coat and repair mortar for filling minor holes, voids and defects.

Cementfill HB – Cement based waterproof high build repair mortar for profiling and providing fillets.

Gas Seal GR DPC – Gas resistant damp proof course/cavity tray for building into masonry.

Gas Seal Black – 2000g loose laid damp proof/gas resistant membrane.

Double Drain – a drainage board which protects the membrane during backfilling operations, and also promotes drainage of water away from the structure.

Protection Board – a 3mm thick bitumen impregnated fibre board to prevent damage to the membrane during backfilling operations.

Adhesive Tape – a 150mm wide double sided tape for temporarily adhering Double Drain or Protection Board to the RIW membrane.

CONSTRUCTION

GENERAL

All construction should conform with the Building Regulations, Codes of Practice and British Standards in current use at the time the building is being constructed. In particular, it is recommended that reference is made to BS 8102: 2009 Code of Practice for Protection of Below Ground Structures Against Water from the Ground, and BS 8485: 2015 Code of Practice for the Design of Protective Measures for Methane and Carbon Dioxide Gases for New Buildings.

PREPARATION

All Surfaces: Should be smooth, clean, dry (to a depth of 1–2mm), sound and free from frost, oil, grease, condensation and other contamination. Any voids or hollows must be made good to a flush finish with a suitable filler. Any sharp edges or high points should be eliminated. Powdery or flaking surfaces should be removed by suitable means. Internal corners should be eased with a 50 x 50mm cement fillet (see ancillary products), to assist application, similarly, external corners should be chamfered or rounded where required.

Concrete Surfaces: Horizontal surfaces should preferably be smooth, however lightly tamped (3–4 mm peak to trough profile), brushed or floated surfaces may also be acceptable.

Masonry: Should be sound with joints flush pointed or 'bagged out' with Cementfill FC or similar before the membrane is applied. Open textured surfaces should be sealed with Cementfill FC or a sand/cement slurry or render to provide a suitable surface. If existing surfaces are very rough, they may require rendering.

APPLICATION

General: Application of Sheetseal GR and Sheetseal Primer should not be attempted in temperatures below 5°C. Apply one coat of Sheetseal Primer to all vertical or inclined surfaces. The primer should be applied, where required, by brush, roller or spray at a coverage of approximately 7m²/litre. The primer should dry in 2–4 hours depending on site conditions. The primer should be covered as soon as it is dry and should not be left exposed for longer than seven days.

Do not use Sheetseal Primer onto insulation boards or insulated concrete formwork (ICF) systems.

Vertical work should be supported immediately after application, or temporary support provided. **Maximum unsupported height of membrane should not exceed 200mm.**

To apply the Sheetseal GR, remove the separating paper progressively from one end of the roll, and press the adhesive coated surface firmly onto the prepared substrate. Smooth out the membrane working from the centre to the edges to remove air pockets. Any remaining bubbles should be slit with a sharp knife and re-adhered. Patches of sufficient size must then be applied over the slits or any other damaged areas to maintain a minimum overlap of 150 mm. A hard roller should then be used to firm down the whole area. The peel off seldedge strip should then be removed from the top edge to reveal a bitumen surface.

Subsequent rolls should then be lapped onto the previous roll. Edge laps should be a minimum of 50mm wide and end laps 50mm. The overlaps should not be primed, but should be rolled with a hard roller to ensure good adhesion.

Sheetseal GR is not designed to be left exposed and should be protected from UV light within 28 days of application.

Interior and exterior corners should be treated as illustrated in Detail 7 of this literature. The full membrane should then be applied.

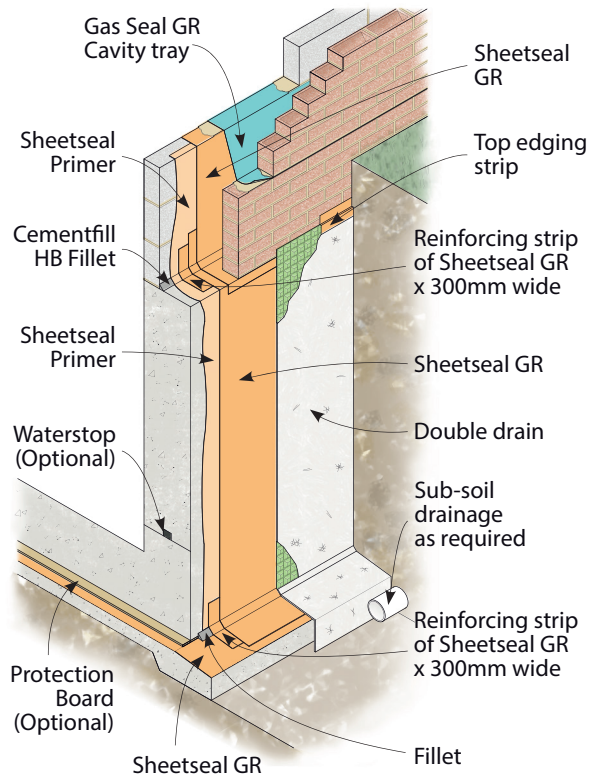
Internal angles and corners should be covered with a 300mm strip of Sheetseal GR applied into the angle. The full membrane should then be dressed into the angle to form a triple layer as illustrated in Detail 5 of this literature. External corners should be covered with a 300mm strip of Sheetseal GR. The full membrane is then applied ensuring that overlaps occur at the angle to give three layer protection as illustrated in Detail 6 of this literature.

SPECIFIC USES

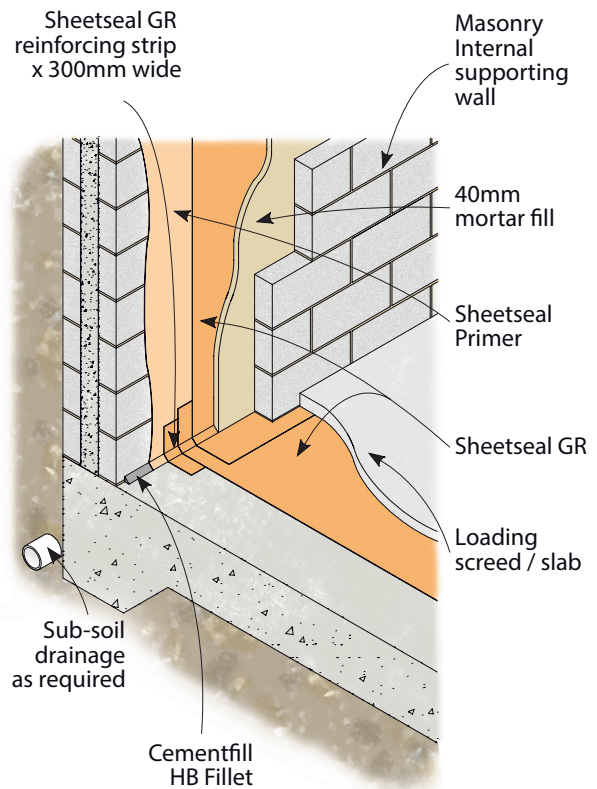
Sheetseal GR should be installed in accordance with the current guidance for gas protection systems, including BRE 211/414, CIRIA C665 & BS 8485: 2015.

Tanking: Sheetseal GR must always be fully supported, to resist hydrostatic pressure, when used for tanking.

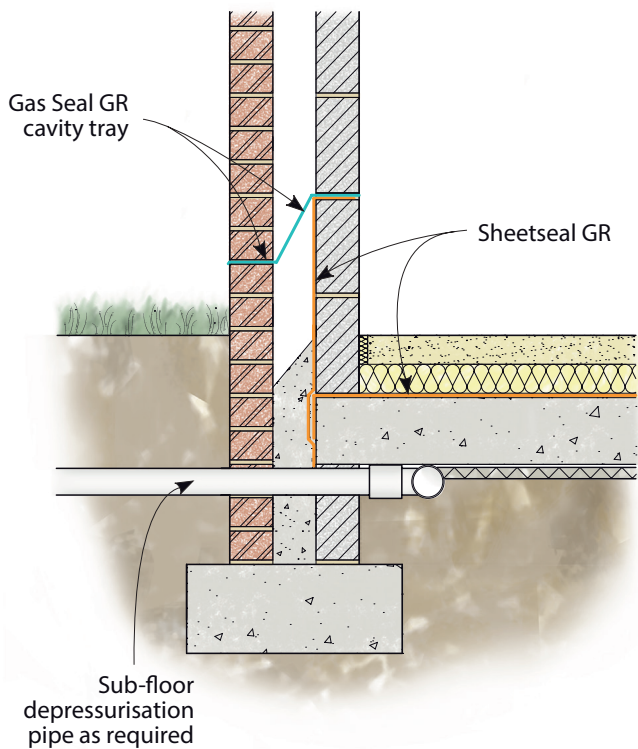
External Tanking: Should be carried out as illustrated in Detail 1 of this literature. The horizontal membrane should be laid on a concrete blinding to project at least 200mm beyond the outer face of the structure.



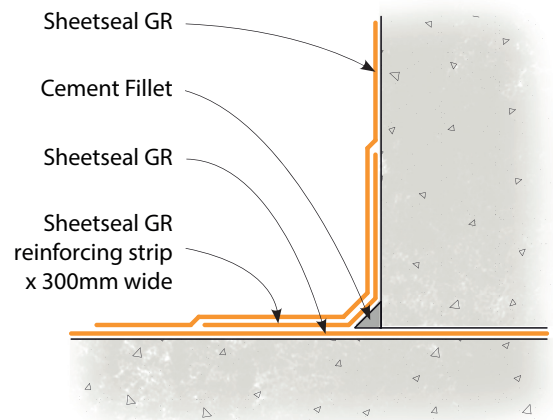
Detail 1 - External Tanking



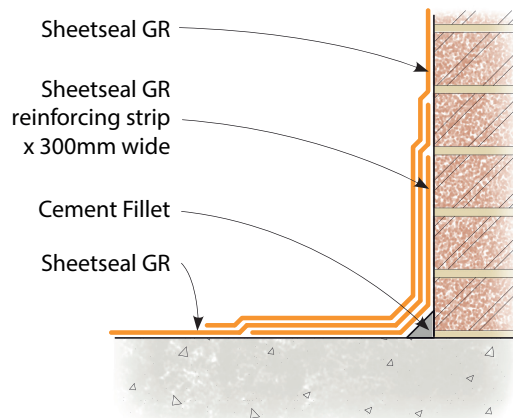
Detail 2 - Internal Tanking



Detail 3 - Ground Floor DPM/Gas Barrier



Detail 4 - External Continuity Detail



Detail 5 - Internal angle

SPECIFIC USES (CONTINUED)

The base structural slabs and the walls should be formed, incorporating a fillet at the external base of the wall, the angle should then be treated as illustrated in Detail 4 of this literature. The remainder of the vertical membrane should then be applied and protected from backfill material using Double Drain or Protection Board to suit.

Internal Tanking: Should be carried out as illustrated in Detail 2 of this literature. A loading coat of brick, block or concrete should be constructed immediately after the membrane has been placed. If brickwork or blockwork has been used a 40 mm minimum cavity should be left between the membrane and the loading skin. This cavity must be filled with a sand/cement mortar fill as the work proceeds.

Floating floor construction: Sheetseal GR can be used to provide a methane barrier under a floating floor system at ground floor level; see Detail 3. When used under insulation the following guidelines should be followed:

- The insulation boards must be laid butt jointed, with corners and arises kept intact to ensure overall loading of the membrane.
- The floor finish must not displace the insulation boards during laying.

SAFETY

Sheetseal Primer is flammable and should be used in well-ventilated areas away from sources of ignition. The product can effect sensitive skins. Gloves or barrier cream should always be used by operatives and hands thoroughly washed at the end of each working period. Do not allow the product to enter watercourses. Full health and safety instructions are contained on the product material safety data sheets, and these must be referred to before use.

SUPPLY

AVAILABILITY

All RIW products can be obtained through Builders Merchants or approved stockists. A list of approved stockists is available from RIW's offices.

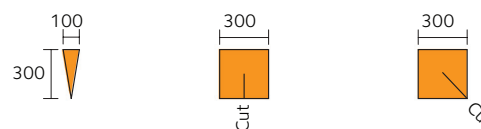
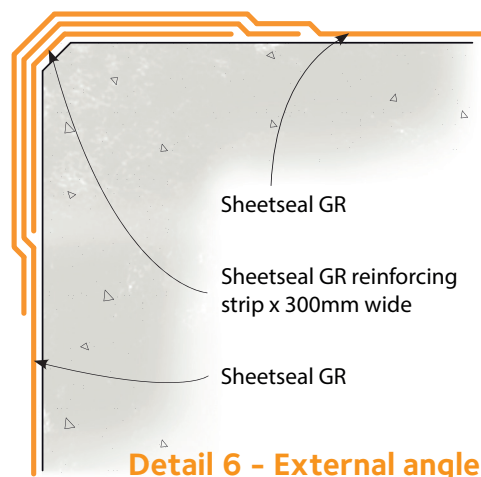
PACKAGING

Sheetseal GR	1m x 20m long roll
Sheetseal Primer	5 & 25 litre containers

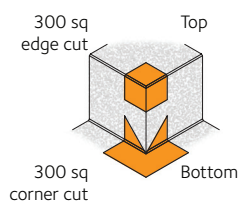
STORAGE

Sheetseal GR: Store upright and under cover in conditions below 30°C.

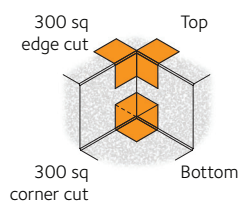
Sheetseal Primer: There are no special requirements. The material may be stored in severe winter environments without any detrimental effect.



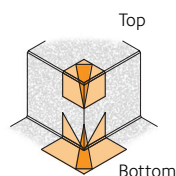
Stage 1



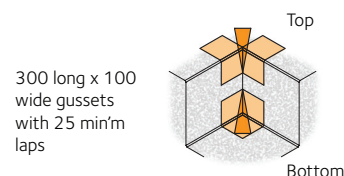
Stage 1



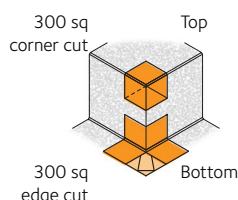
Stage 2



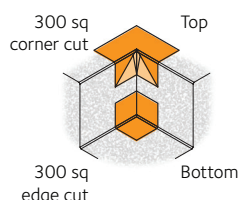
Stage 2



Stage 3



Stage 3



**Exterior Corner
Detail 7**

**Interior Corner
Detail 7**

TECHNICAL SERVICES

The Technical Department is available to advise on individual projects and to prepare or assist in the preparation of specifications and drawings. We can also offer design guidance to satisfy the requirements of BS 8485:2015 and CIRIA C735.

A list of experienced applicators of our materials is available from RIW's offices, along with a list of independent consultants providing validation and integrity testing services.

The information in this literature was correct at the time of going to press. However, we are committed to continually improving our products and reserve the right to change product specifications.

For the latest information, please consult RIW. Conditions of use are beyond our control, therefore we cannot warrant the results to be obtained.

RIW Limited

487-488 Ipswich Road, Slough, SL1 4EP

Technical enquires tel: **01753 944200**

Commercial enquires tel: **01753 944210**

www.riw.co.uk





DECLARATION OF PERFORMANCE – Sheetseal GR

1. Identification code: **High Performance self-adhesive waterproof & gas resistant membrane**
2. Serial number: **Sheetseal GR**
3. Intended use: **Typically applied to concrete, masonry and steel to give protection and to provide a barrier to gas, water and water vapour, where a high performance tanking or damp proofing system is required.**
4. Manufacturer: **RIW Limited, ARC House, Terrace Road South, Binfield, RG42 4PZ**
5. Authorised representative: **Not applicable**
6. Assessment and verification of constancy of performance: **System 2+**
7. Relevant harmonised standard: **EN 13967 : 2012**
Factory Production Control Certificate Number 0836-CPR-13/F041
8. European Technical Assessment: **Not applicable**
9. Declared performance

Essential Characteristics	Performance	Harmonised Standard
Reaction to Fire	F	EN 13967 : 2012
Watertightness	Pass	
Durability		
Watertightness after artificial ageing	Pass	
Watertightness after exposure to chemicals	Pass	
Dangerous substances	NPD	

Specific Technical Documentation: **Not applicable**

10. The performance of the product identified in points 1 and 2 is in conformity with the declared performance in point 9. This declaration of performance is issued under the sole responsibility of the manufacturer identified in point 4.

Signed for and on behalf of the manufacturer by:

Martin Radford (Business Manager)



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RIW STRUCTURESEAL GPT

Structureseal GPT is a 1.5mm thick, unique blended polyethylene membrane with a bonded geotextile for pre-applied waterproofing applications, where ground gas or VOC protection is also required.

BENEFITS

- └ Pre-applied tanking system
- └ Hydrocarbon, VOC, methane & carbon dioxide barrier
- └ Separate tanking or damp proof membrane not required
- └ Robust jointing and sealing system
- └ High puncture resistance
- └ Welded joints possible
- └ Compliant with BS 8485: 2015, BS8102:2009 & CIRIA C748

APPLICATIONS

- └ Basements and sub-structures
- └ Retaining walls
- └ Ground floors

APPLIED TO

- └ Concrete
- └ Formwork
- └ Blinding Layer
- └ Piling

RIW STRUCTURESEAL GPT

TYPICAL USES

Structureseal GPT is typically used as a pre-applied Type A tanking membrane (as defined in BS8102:2009), where protection against the ingress of hazardous ground gases or VOCs and Hydrocarbons is required.

Pre-applied to basement structures, floor slabs at ground level, boundary line applications and concrete formwork.

The installed product protects the structure against water, moisture, hydrocarbons, methane, carbon dioxide and radon from the ground and complies with BS8485:2015 and CIRIA C748.

DURABILITY

Subject to normal conditions of use Structureseal GPT will remain effective against the ingress of water, water vapour and hydrocarbons, and will restrict the ingress of radon, methane and carbon dioxide during the lifetime of the building.

Where protection from hydrocarbons is required the laps in the product must be welded throughout.

SPECIFICATION

J40 Flexible sheet waterproofing / damp proofing

Clause 140 Loose laid polyethylene gas retardant damp proofing.

Clause 145 Loose laid weldable polyethylene gas retardant damp proofing.

Please consult RIW for further information.

INDEPENDENT AUTHORITY

CE Marked to BS EN 13967.

For Declaration of Performance see:

<http://www.riw.co.uk/technical-downloads/ce-marking>

PERFORMANCE & COMPOSITION

Form	Loose laid sheet
Colour	Grey
Overall thickness	1.5mm
Roll size	1.9m wide x 25m long
Weight	33kg/roll
Adjacent laps (welded or taped)	100mm wide (onto selvedge)
End of roll laps: Under taped using Sheetseal GR Welded	300mm 100mm
Tensile Strength EN 12311-1: MD CD	>550 N/50mm >400 N/50mm
Resistance to tearing EN 12310-1: MD CD	300N 400N
Water vapour transmission rate BS EN 1931	0.14g/m ² /day
Radon permeability SP Method 3873	3.0 x 10 ⁻¹² m ² s
Methane gas permeability BS EN ISO 15105-1	0.13ml/m ² /day/atm
Carbon dioxide permeability BS EN ISO 15105-1	3.01ml/m ² /day/atm

The above performance figures are typical values and should not be considered a product specification.

ANCILLARY PRODUCTS

RIW produce a range of ancillary products for use with Structureseal GPT which include:

Structureseal GPT Corner Units - preformed corner units, available for both internal and external corners.

Structureseal GPT Corner Strips - 1m wide rolls of Structureseal GPT, supplied with selvedge strips on both sides, and used at wall/floor junctions and wall/wall corners.

Structureseal GPT Pipe Collars - flexible collar for sealing around pipe penetrations.

Gas Seal Tape HC - 100mm wide self-adhesive butyl tape for sealing laps, onto selvedge strips, where product is not welded.

Sheetseal GR - 300mm wide self-adhesive sheet, used outside at ends of rolls, and to patch over bolt holes, etc.

Gas Seal GR DPC - gas resistant damp proof course / cavity tray for building into masonry.

CONSTRUCTION

GENERAL

All construction should conform with the Building Regulations, Codes of Practice and British Standards in current use at the time the building is being constructed.

Wherever possible, services should enter the building above slab level to avoid penetrating the gas-resistant membrane. However, the water service and soil vent pipes will usually be required to enter the building through the slab and membrane.

PREPARATION

The membrane should be laid on a smooth surface, free from voids, hollows and objects which may damage the membrane.

Floors: Substrate should be smooth and compacted and free of any sharp protrusions which may damage the membrane.

Walls: Structureseal GPT should line the inside face of the concrete formwork before concrete is cast.

Boundary Line Construction: against pile walls a smooth, flat surface should be provided by 'back-blinging' or spray concrete lining the piles before the membrane application.

APPLICATION

The completed gas proofing system must cover the entire footprint of the building.

Starting in the corner, install pre-formed corner units, held in place using Gas Seal Tape HC. Followed by Structureseal GPT Corner Strips in right angle wall/floor junctions, taped or welded onto Corner Units. Laps at end of rolls are to be welded onto an adjacent selvedge by 100mm or butt jointed and taped underneath using a 300mm band of Sheetseal GR.

Structureseal GPT Corner Strips are then positioned vertically at internal and external corners. These strips are welded or taped onto the top selvedge strip of the wall/floor junction Corner Strip previously installed. Drawing numbers RIW/TD/854 & 855 are available for further guidance.

Starting again in the corner, Structureseal GPT should be unrolled onto the prepared surface with the geotextile surface facing towards the concrete to be waterproofed.

The product should be smoothed out as necessary, and be welded or taped onto the selvedge strip of the Corner Strips.

Subsequent rolls should then be lapped by welding or taping onto the 100mm wide selvedge strip of the adjacent roll. Laps at the end of the roll are to be welded or taped onto an adjacent selvedge by 100mm. When used horizontally, laps may be butt jointed and taped underneath using 300mm wide band of Sheetseal GR.

Pipe penetrations should be sealed using Structureseal GPT Pipe Collars, welded or taped to the underside of the main membrane.

Gas Seal GR DPC should be used to provide continuity through walls, with Structureseal GPT lapped and sealed onto it by welding or taping.

Bolt holes should be sealed with a suitable strength mortar, such as Cementfill HB, and patch repaired using a 300 x 300mm piece of Sheetseal GR.

SPECIFIC USES

Structureseal GPT will achieve 2 points according to BS8485:2015 when independently validated.

Structureseal GPT should be installed with the ancillary products required, in accordance with current guidance for waterproofing & gas protection systems; including BRE211 / 414, CIRIA C665, CIRIA C748 BS8102:2009 & BS 8485:2015.

SAFETY

Full health and safety instructions are contained on the product material safety data sheets, and these must be referred to before use.

SUPPLY

AVAILABILITY

All products can be obtained through Builders Merchants or approved stockists. A list of approved stockists is available from RIW's offices.

PACKAGING

Structureseal GPT	1.9m wide x 25m long rolls
Structureseal GPT Corner Units	Internal and External available
Structureseal GPT Corner Strips	1m wide x 25m long rolls
Gas Seal Tape HC	100mm wide x 15m long rolls
Structureseal GPT Pipe Collar	110mmØ 130mmØ 160mmØ

STORAGE

The rolls must be stacked on a flat surface, kept under cover and protected from sunlight and mechanical damage.

TECHNICAL SERVICES

The Technical Department is available to advise on individual projects and to prepare or assist in the preparation of specifications and drawings. We can also offer design guidance to satisfy the requirements of BS8485:2015, BS8102:2009, CIRIA C748 and CIRIA C735.

A list of experienced applicators of our materials is available from RIW's offices, along with a list of independent consultants providing validation and integrity testing services.

The information in this literature was correct at the time of going to press. However, we are committed to continually improving our products and reserve the right to change product specifications.

For the latest information, please consult RIW. Conditions of use are beyond our control, therefore we cannot warrant the results to be obtained.

RIW

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Agrément Certificate

20/5761

Product Sheet 1

RIW GAS-RESISTANT AND DAMP-PROOF SYSTEMS

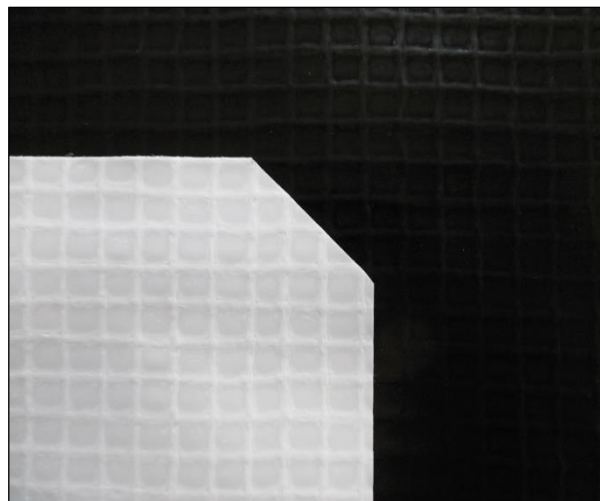
RIW GAS SEAL BLACK

This Agrément Certificate Product Sheet⁽¹⁾ relates to RIW Gas Seal Black, for use as a low-density polyethylene (LDPE) gas barrier and damp-proof membrane in concrete ground floors, above and below the slab not subject to hydrostatic pressure, to protect the building against moisture, radon, methane and carbon dioxide from the ground.

(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

Resistance to water and water vapour — the membrane provides an effective barrier to the passage of liquid water and water vapour from the ground (see section 6).

Resistance to underground gases — the membrane is capable of restricting the ingress of radon, methane and carbon dioxide into the building (see section 7).

Resistance to puncture — the membrane has a high resistance to puncture and on a smooth or blinded surface will not be damaged by foot or site traffic (see section 8).

Durability — under normal service conditions, the membrane will remain effective against the ingress of water and water vapour, and will restrict the ingress of radon, methane and carbon dioxide during the lifetime of the flooring construction in which it is installed (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 First issue: 12 June 2020

Hardy Giesler
Chief Executive Officer

Certificate amended on 1 October 2020 to update general title.

Certificate amended on 20 January 2021 to update company address.

The BBA is a UKAS accredited certification body – Number 113.

The schedule of the current scope of accreditation for product certification is available in pdf format via the UKAS link on the BBA website at www.bbacerts.co.uk

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

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

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Regulations

In the opinion of the BBA, RIW Gas Seal Black, 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:	C1(2)	Site preparation and resistance to contaminants
Comment:		When properly installed in a correctly designed structure, the membrane forms an effective barrier to radon, methane and carbon dioxide, enabling compliance with this Requirement. See section 7.1 of this Certificate.
Requirement:	C2(a)	Resistance to moisture
Comment:		When properly installed in a correctly designed structure, the membrane forms an effective barrier to the movement of water within the ground floor slab, enabling compliance with this Requirement. See sections 6.1 and 6.2 of this Certificate.
Regulation:	7(1)	Materials and workmanship
Comment:		The membrane is an acceptable material. See section 12.1 and the <i>Installation</i> part of this Certificate.



The Building (Scotland) Regulations 2004 (as amended)

Regulation:	8(1)	Durability, workmanship and fitness of materials
Comment:		The membrane can contribute to a construction satisfying this Regulation. See section 12.1 and the <i>Installation</i> part of this Certificate.
Regulation:	9	Building standards applicable to construction
Standard:	3.1	Site preparation – harmful and dangerous substances
Standard:	3.2	Site preparation – protection from radon gas
Comment:		The membrane will enable a floor to satisfy the requirements of these Standards, with reference to clauses 3.1.2 ⁽¹⁾⁽²⁾ , 3.1.6 ⁽¹⁾⁽²⁾ , 3.1.7 ⁽¹⁾⁽²⁾ , 3.1.8 ⁽¹⁾⁽²⁾ , 3.2.1 ⁽²⁾ and 3.2.2 ⁽¹⁾⁽²⁾ . See section 7.1 of this Certificate.
Standard:	3.4	Moisture from the ground
Comment:		When properly installed in a correctly designed structure, the membrane forms an effective barrier to the movement of water within the ground floor slab, enabling compliance with this Standard, with reference to clauses 3.4.2 ⁽¹⁾⁽²⁾ , 3.4.4 ⁽¹⁾⁽²⁾ and 3.4.6 ⁽¹⁾⁽²⁾ . See sections 6.1 and 6.2 of this Certificate.
Standard:	7.1(a)	Statement of sustainability
Comment:		The membrane 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 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)	Fitness of materials and workmanship
Comment:	(iii)(b)(i)	The membrane is acceptable. See section 12.1 and the <i>Installation</i> part of this Certificate.
Regulation:	26	Site preparation and resistance to contaminants
Comment:		When properly installed in a correctly designed structure, the membrane forms an effective barrier to radon, methane and carbon dioxide enabling compliance with this Regulation. See section 7.1 of this Certificate.
Regulation:	28	Resistance to moisture and weather
Comment:		When properly installed in a correctly designed structure, the membrane forms an effective barrier to the movement of water within the ground floor slab, enabling compliance with this Regulation. See sections 6.1 and 6.2 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 section: 1 *Description* (1.2) of this Certificate.

Additional Information

NHBC Standards 2020

In the opinion of the BBA, RIW Gas Seal Black, 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 4.1 *Land quality – managing ground conditions* and 5.1 *Substructure and ground bearing floors*.

CE marking

The Certificate holder has taken the responsibility of CE marking the product, in accordance with harmonised European Standard BS EN 13967 : 2012.

Other information

The product was originally Certificated under BBA Certificate 14/5156 on 12 September 2014.

Technical Specification

1 Description

1.1 RIW Gas Seal Black is a multilayer, LDPE membrane, reinforced with a polypropylene reinforcing grid with an integral aluminium foil.

1.2 The membrane has the following nominal characteristics:

Thickness (mm)	0.6 (including reinforcement scrim)
Effective thickness (mm)	0.4 (measured between the reinforcement scrim)
Roll length (m)	various
Roll width (m)	various
Mass per unit area (g·m ⁻²)	370
Tensile strength (N·50 mm ⁻¹)	
Machine direction	600

Cross direction	480
Elongation (%)	
Machine direction	20
Cross direction	20
Nail tear resistance (N)	
Machine direction	330
Cross direction	400
Watertightness	pass
Colour	
upper surface	black
lower surface	white.

1.3 Ancillary products for use with the membrane include:

- butyl or bitumen tape — for use for joints and laps
- jointing tape — for securing laps and joints.

1.4 Ancillary products for use with the membrane, but outside the scope of this Certificate, include:

- preformed pipe collars — to seal around entry points to the membrane
- Gas Seal GR DPC – gas-resistant damp-proof course (dpc)/cavity tray
- internal corner cloaks — prefabricated corner details
- external corner cloaks — prefabricated corner details
- Geo-Vent — cusped high-density polyethylene (HDPE) drainage core with a non-woven polypropylene geotextile separator/filter bonded to one side
- Sheetseal GR — a gas-resistant self-adhesive membrane.

2 Manufacture

2.1 The membrane is manufactured by an extrusion/coating process.

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 operated by the manufacturer are being maintained.

3 Delivery and site handling

3.1 Rolls are wrapped in polythene film. Each roll has a leaflet enclosed describing the membrane and installation details. The BBA logo and the number of this Certificate are printed on the leaflet and pallet label.

3.2 The rolls must be stacked on a flat surface, kept under cover and protected from sunlight and mechanical damage.

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on RIW Gas Seal Black.

Design Considerations

4 Use

4.1 RIW Gas Seal Black is satisfactory for use as a gas-resistant barrier to restrict the ingress of radon, methane and carbon dioxide into buildings from landfill and naturally occurring sources.

4.2 Buildings in areas of risk should be constructed in accordance with the recommendations of BRE Report BR 211 : 2015 and following the guidance set out in BS 8485 : 2015.

4.3 The membrane is also satisfactory for use as a damp-proof membrane in accordance with CP 102 : 1973 Section 3, BS 8000-0 : 2014 and BS 8000-4 : 1989.

5 Practicability of installation

The membrane is designed to be installed by a competent general builder, or a contractor, experienced with this type of product.

6 Resistance to water and water vapour



6.1 The membrane, including joints, provides an effective barrier to the passage of liquid moisture from the ground.

6.2 The membrane will comply with the minimum sheet thickness detailed in the documents supporting the national Building Regulations.

6.3 The membrane is impervious to water and provides a waterproof layer capable of accepting minor structural movements without damage.

7 Resistance to underground gases



7.1 The membrane will restrict the ingress of radon, methane and carbon dioxide into buildings from landfill and naturally occurring sources and satisfy the performance criteria for a gas-resistant membrane as defined in BS 8485 : 2015.

7.2 Measured gas permeability/diffusion values on unjointed membrane are given in Table 1.

Table 1 Gas permeability of RIW Gas Seal Black

Gas	Method	Result
Methane ⁽¹⁾	BS ISO 15105-1	$<0.09 \text{ ml}\cdot\text{m}^2\cdot\text{day}^{-1}\cdot\text{atm}^{-1}$
Carbon dioxide	BS ISO 15105-1	$<0.09 \text{ ml}\cdot\text{m}^2\cdot\text{day}^{-1}\cdot\text{atm}^{-1}$
Radon	K124/02/95	$8.0 \times 10^{-15} \text{ m}^2\cdot\text{s}^{-1}$

(1) BS 8485 : 2015 requires that the methane transmission measured in accordance with BS ISO 15105-1 :2007 for a gas-resistant membrane is $<40 \text{ ml}\cdot\text{m}^{-2}\cdot\text{d}^{-1}\cdot\text{atm}^{-1}$.

7.3 In the opinion of the BBA, the membrane satisfies the criteria for a radon gas resistant membrane of BRE Report BR 211 : 2015.

8 Resistance to puncture

8.1 The membrane can be punctured by sharp objects and care should be taken when handling building materials over the exposed surface.

8.2 Provided there are no sharp objects present on the membrane's surface prior to and during installation of the protective layer, the membrane will not be damaged by normal foot traffic.

9 Compatibility with other materials

The membrane contains an aluminium foil interlayer which may be subject to corrosion by alkaline conditions if damage to the membrane and exposure occurs. However, under normal circumstances, the polyethylene faces of the membrane are compatible with other materials and products typically used in the same areas, with the exception of those containing pitch.

10 Underfloor heating

There will be no adverse effect on the membrane from the underfloor heating under normal service conditions. In other circumstances, the Certificate holder's advice should be sought.

11 Maintenance

As the membrane is confined within the structure and has suitable durability (see section 12), maintenance is not required. However, any damage occurring before enclosure must be repaired (see section 15).

12 Durability



12.1 The membrane will, in normal circumstances, remain effective against the ingress of water and water vapour, and will restrict the ingress of radon, methane and carbon dioxide during the lifetime of the building.

12.2 Long periods of exposure to ultraviolet light will reduce the effectiveness of the membrane.

Installation

13 General

13.1 RIW Gas Seal Black must be installed and fixed in accordance with this Certificate, the Certificate holder's instructions, the relevant clauses of BRE Report BR 211 : 2015 and the guidance given in BS 8485 : 2015.

13.2 The membrane can be installed in all normal site conditions, provided that the air temperature is not below 5°C to prevent the risk of surface condensation.

14 Procedure

14.1 The membrane must only be applied to surfaces that have a smooth finish, ie they should be free from voids, projections and mortar deposits. Surfaces should be dry and free from dust and frost.

14.2 Concrete surfaces should be dense. Vertical surfaces of brickwork and blockwork must be dry and rendered to provide an even surface. Brickwork or blockwork not rendered must be flush pointed to give a smooth surface without sudden changes in level.

14.3 The membrane is rolled out with the printed side uppermost, ensuring that it is properly aligned. All end and side overlaps should be a minimum of 100 mm where taped and prepared in accordance with the Certificate holder's instructions.

14.4 When the membrane is laid below the concrete slab, it should be loose-laid to accommodate any small movements.

14.5 All surfaces must be dried thoroughly prior to joining. Roll edges can be welded or taped. A strip of the tape is unrolled over the membrane with its nearest edge 50 mm from the membrane edge. The protective paper is removed from the butyl tape prior to rolling an adjacent run of the membrane, which must be carefully unrolled over the jointing tape, ensuring a 100 mm overlap.

14.6 All service penetrations and direction changes should be properly detailed in accordance with the Certificate holder's instructions. Service ducts should be vented to prevent the possibility of gas accumulating in confined spaces.

14.7 The continuity of the gas protection must extend over the footprint of the building, and the membrane must be sealed to a gas-resistant dpc where required.

14.8 The membrane should be covered by a screed or, if necessary, other protective layer as soon as possible after installation. If blockwork protection is used, care must be taken to avoid damage to the membrane during construction.

14.9 The membrane installation should be subject to third-party independent validation, in accordance with BS 8485 : 2015.

15 Repair

Any damage to the membrane must be repaired using a patch of the membrane, and laps welded or sealed with double sided tape and secured with the butyl tape. All patched areas must extend a minimum of 100 mm from the damaged area. If required by the local authority, repair work should be confirmed by an independent validation report, as all gas membrane installations should be subject to third-party validation in accordance with BS 8485 : 2015.

Technical Investigations

16 Tests

16.1 An assessment was made of data to BS EN 13967 : 2012 in relation to:

- tensile strength and elongation
- nail tear resistance
- watertightness
- resistance to static loading.

16.2 Tests were carried out to determine:

- thickness, width, density and mass per unit area
- dimensional stability, low temperature flexibility and water vapour permeability
- tensile strength and elongation (control, heat aged , and UV exposed)
- watertightness (control and heat aged)
- nail tear strength (control and heat aged)
- resistance of joints to air pressure
- tensile strength of joints (control and heat aged)

to assess:

- membrane characteristics
- durability of the membrane and joints.

17 Investigations

17.1 An evaluation was made of the results of the test data regarding permeability of radon, methane and carbon dioxide.

17.2 A site visit was conducted to assess practicability of installation.

17.3 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.