

## CERTIFICATE OF CONFORMITY

**CUSTOMER:** Graham Construction  
Ballygowan Road  
Hillsborough  
Co Down  
BT26 6HX

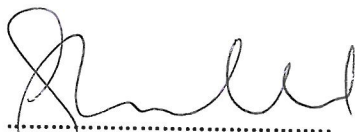
**APPLICATION:** Gas Membrane Installation  
Kingsgate Primary School, Liddell Road, London

**MATERIALS:** RIW Gas Membrane

**UK MEMBRANES LTD** certifies the following:

That the above products conform to the specification and details on the purchase order and despatch documents.

UK Membranes Ltd also confirm, that the method of installation of the above materials conform to the manufacturers recommended installation procedures and with our Certification Quality Standard Procedures.



**PROJECT MANAGER**



**DIRECTOR**

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# 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

- ┆ Methane and carbon dioxide barrier
- ┆ Water and water vapour barrier
- ┆ Factory controlled thickness
- ┆ Elastic and flexible
- ┆ Damage easily repaired
- ┆ No drying time
- ┆ Selvege strip to improve lap sealing

## APPLICATIONS

- ┆ 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 is typically used to reduce the passage of methane gas and carbon dioxide on, or in the vicinity of landfill sites. The membrane is also suitable for use on sites contaminated by town gas installations or where other harmful gases are present. 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 vertical or inclined surfaces, to aid adhesion of the Sheetseal GR membrane.

## 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

Sheetseal GR has been tested by Wimpey Laboratories for methane gas resistance. The test results are included in the performance and composition table.

	
<b>RIW Limited</b> <b>Arc House, Terrace Road South, Binfield,</b> <b>Bracknell, Berkshire, RG42 4PZ, England</b> <b>13</b> 0836-CPR-13/F041	
EN 13967: High performance self-adhesive gas and waterproof membrane	
Reaction to fire:	Class F
Watertightness:	Pass
Durability	
- Watertightness after artificial ageing	Pass
- Watertightness after exposure to chemicals	Pass
Dangerous Substances:	NPD

## PERFORMANCE & COMPOSITION

### SHEETSEAL GR

Form	Self adhesive sheet
Backing material	Cross orientated polyethylene with aluminium laminate
Overall thickness	1.60mm
Applied thickness	1.50mm
Roll size	1050mm x 19.05m long
Weight	1.7kg/m <sup>2</sup>
Laps	150mm
Membrane strength	(ASTM D1000) 3.0N/mm <sup>2</sup>
Elongation	(ASTM D1000) 40%
Puncture resistance	(ASTM E 154) 250N
Adhesion – 180° peel	(ASTM D1000) 2.0N/mm <sup>2</sup>
Water vapour transmission	(ASTM E96) <0.1g/m <sup>2</sup> /24 h
Methane gas permeability	<0.3ml/m <sup>2</sup> /24 h
Minimum application temp.	5°C

### SHEETSEAL PRIMER

Form	Bitumen solution
Flash point	34°C
Coverage*	7m <sup>2</sup> /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.

**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 8102:1990, BRE Report 212: Construction of New buildings on gas contaminated land and CIRIA Report C665, Assessing risks posed by hazardous ground gases to 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 7m<sup>2</sup>/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 selvage 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 150mm wide and end laps 150mm. 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.

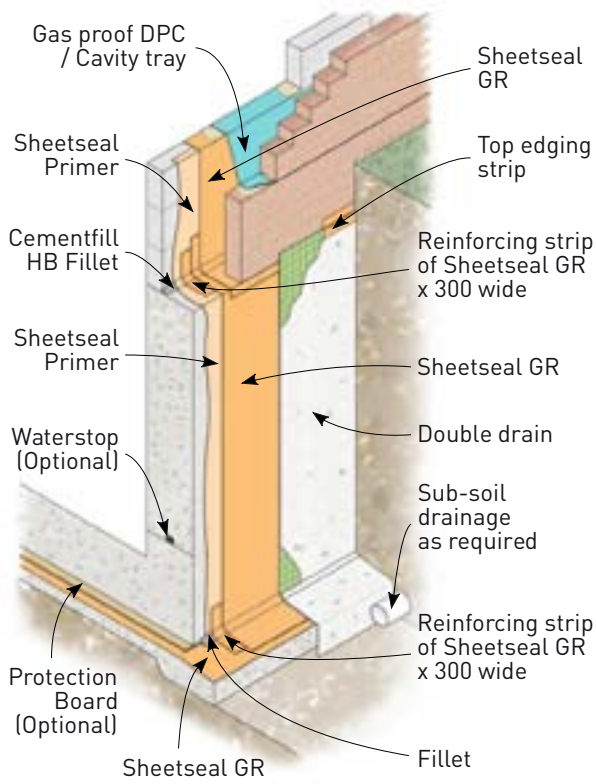
Internal angles and corners should be covered with a 300mm strip of Sheetseal GR applied into the angle. The full membrane should then be dressed into the angle to form a triple layer as illustrated in Details 2 and 5 of this literature.

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.

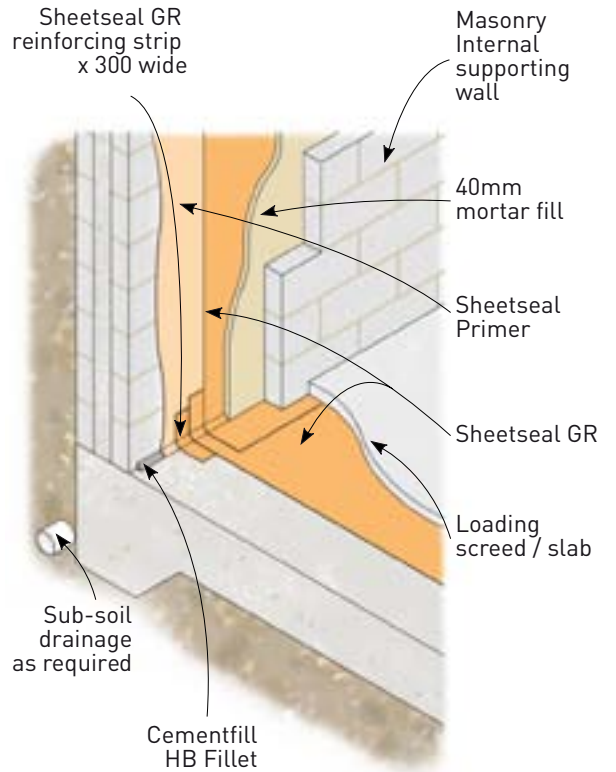
## SPECIFIC USES

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

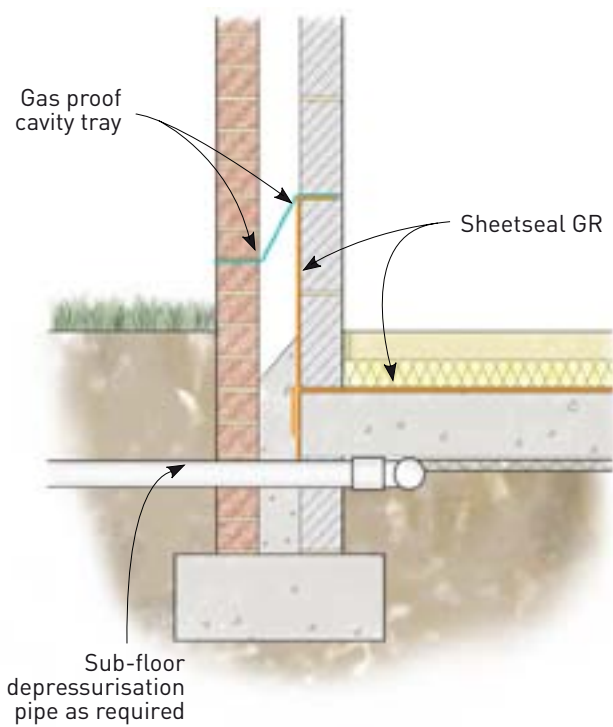
**External Tanking:** Should be carried out as illustrated in Detail 1 of this literature. The horizontal membrane should be laid on a concrete blinding to project at least 200mm beyond the outer face of the structure. The base structural slabs and the walls should be formed, incorporating a fillet at 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.



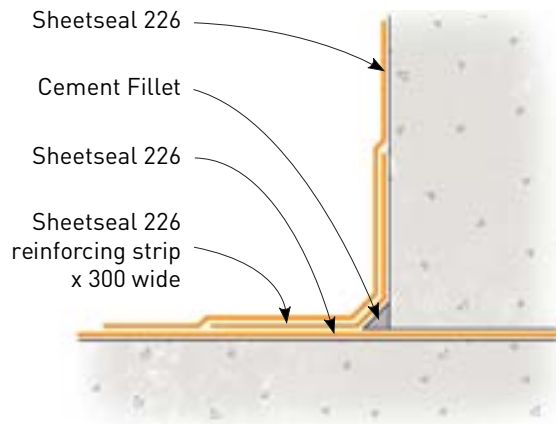
**Detail 1 - External Tanking**



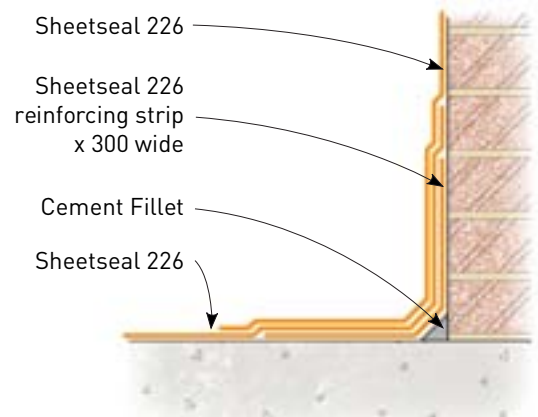
**Detail 2 - Internal Tanking**



**Detail 3 - Ground Floor DPM/Gas Barrier**



**Detail 4 - Internal angle**



**Detail 5 - Internal angle**



## SPECIFIC USES (CONTINUED)

**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	1050mm x 19.05m long rolls
Sheetseal Primer	5 & 25 litre containers

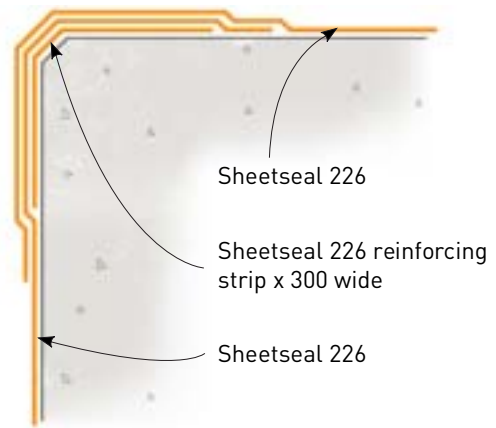
### STORAGE

Sheetseal GR: There are no special requirements, but rolls should be kept upright, under cover and protected from extremes of temperature.

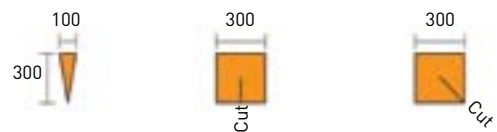
Sheetseal Primer: There are no special requirements. The material may be stored in severe winter environments without any detrimental effect.

## TECHNICAL SERVICES

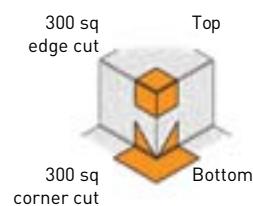
The Technical Department is available to advise on individual projects and to prepare or assist in the preparation of specifications and drawings. A list of experienced applicators of RIW material is available from RIW's office.



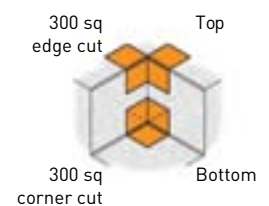
Detail 6 - External angle



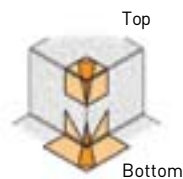
Stage 1



Stage 1

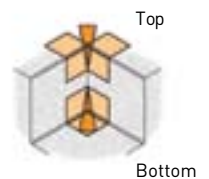


Stage 2

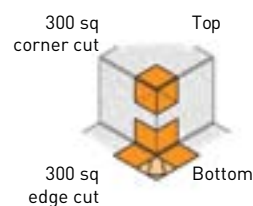


Stage 2

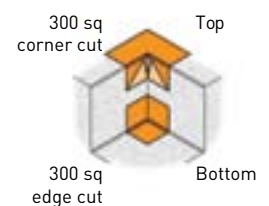
300 long x 100 wide gussets with 25 min'm laps



Stage 3



Stage 3



Exterior Corner

Detail 7

Interior Corner

Detail 7

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.

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**RIW**

Arc House, Terrace Road South, Binfield,  
Bracknell, Berkshire, RG42 4PZ

Technical enquires tel: **01344 397777**

Commercial enquires tel: **01344 397788**

**[www.riw.co.uk](http://www.riw.co.uk)**

REMEMBER IT'S  
**waterproof** **RIW**



CE n55Plus

CI/SfB

Tn6 L14143

November 2014

# RIW GAS SEAL BLACK

Gas Seal Black is a four-layer, low density polyethylene membrane reinforcing grid with an integral aluminium foil.

## BENEFITS

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- l Manufactured from virgin material, not recycled waste
- l Separate damp proof membrane not required
- l Robust jointing and sealing system
- l Welded joints possible
- l Single wound membrane with zero creases
- l Two colour membrane for on-site quality control
- l Suitable for use where radon, carbon dioxide, methane and hydrocarbon vapours are present
- l Complies with latest codes of practice as published by CIRIA and BRE

## APPLICATIONS

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- l Combined ground floor damp proof membrane and gas barrier

## APPLIED TO

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- l Sand blinding
- l Suspended floors
- l Ground bearing slabs

REMEMBER IT'S

*waterproof* **RIW**



# RIW GAS SEAL BLACK

## TYPICAL USES

Gas Seal Black is typically used as a low density, polyethylene gas barrier and damp proof membrane in concrete floors above and below the slab.

The installed product protects the structure against moisture, radon, methane, carbon dioxide and hydrocarbon vapours from the ground.

The product is suitable for use on ground bearing reinforced concrete slabs, suspended beam and block floors or precast concrete slabs.

When used for hydrocarbons, the product must be applied on top of the slab, with the ground below vented.

## DURABILITY

Subject to normal conditions of use Gas Seal Black will remain effective against the ingress of water and water vapour, and will restrict the ingress of radon, methane, carbon dioxide and hydrocarbon vapours during the lifetime of the building.

## SPECIFICATION

J40 Flexible sheet waterproofing / damp proofing

Clause 140 Loose laid polyethylene gas retardant damp proofing.

Please consult RIW for further information.

## INDEPENDENT AUTHORITY

Gas Seal Black has been awarded a BBA Certificate No. 14/5156 covering its use as a low density, polyethylene 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.



**RIW Limited**  
**Arc House, Terrace Road South, Binfield,**  
**Bracknell, Berkshire, RG42 4PZ, England**  
13  
0799-CPR-256

EN 13967:2004 & A1: 2006 High performance loose laid gas & damp proofing barrier.

Reaction to fire:	Class E
Watertightness	Conforming
Maximal tensile force MD/CMD	>500/>380 N/50mm
Joint strength MD/CMD	npd
Resistance to tearing:	>270/>330 N
Resistance to static loading:	>20 kg
Determination of resistance to impact:	450 mm
Durability (artificial ageing)	
- Resistance at elevated temperature:	Conforming
- Resistance to liquid chemicals:	Conforming

## PERFORMANCE & COMPOSITION

Form	loose laid composite sheet
Colour	black/white
Overall thickness	0.6mm
Roll size	2m wide x 50m long*
Weight	350g/m <sup>2</sup> = 35kg/roll
Laps	150mm
Tensile strength MD	600N/50mm
EN 12311-1 CD	480N/50mm
Elongation EN12311-1	20%
Nail tear resistance MD	330N
EN 12311 -1 CD	400N
Radon permeability (m <sup>2</sup> s <sup>-1</sup> Pa <sup>-1</sup> )	8.00 x 10 <sup>-15</sup>
Methane gas permeability (m <sup>2</sup> s <sup>-1</sup> Pa <sup>-1</sup> )	1.56 x 10 <sup>-19</sup>
Carbon dioxide permeability (m <sup>2</sup> s <sup>-1</sup> Pa <sup>-1</sup> )	2.58 x 10 <sup>-19</sup>

The above performance figures are typical values and should not be considered a product specification. \*Other roll sizes available.

## ANCILLARY PRODUCTS

RIW produce a range of ancillary products for use with Gas Seal Black which include:

**Gas Seal Tape** - double-sided self-adhesive butyl tape for sealing between overlaps in the membrane.

**Lap Tape** - single-sided self-adhesive PVC tape for sealing edges of lapped product.

**Lap Tape RB** - reinforced single-sided self-adhesive bitumen tape for sealing edges of lapped product and repairs to membrane.

**Preformed pipe collars** - flexible collar for sealing around pipe penetrations.

**Sheetseal GR** - self-adhesive sheet membrane for gas resistant waterproofing applications.

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

**Geo-vent** - cusped HDPE venting geo-composite incorporating geotextile to one side.

**T connectors** - geo-vent end connector incorporating 25mm slot for geo-vent.

**Peri-vent sets** - periscopic vent complete with airbrick and geo-vent adaptor.

**Pro-fleece** - textile fleece for protection of applied gas membranes.

**Gas cloaks** - standard or bespoke cloak units to facilitate membrane application.

## 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.

### PREPARATION

The membrane should be laid on a smooth surface, free from voids, hollows and objects which may damage the membrane. If used below a ground bearing slab, the product may be laid on a sand blinding.

### APPLICATION

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

Gas Seal Black should be unrolled onto the prepared surface, and be smoothed out as necessary. The product must be installed with the black side uppermost.

Subsequent rolls should then be lapped onto the previous roll by 150mm, and be sealed using Gas Seal Tape placed centrally in the lap. Lap Tape should then be laid over the edge of the upper sheet, by 50mm, and be adhered down onto the lower sheet.

Pipe penetrations should be sealed using Preformed Pipe Collars; sealed to the membrane, and pipe using Gas Seal Tape and Lap Tape; see Pipe Penetration Detail.

Gas Seal GR DPC should be used to provide continuity through the walls, with Gas Seal Black lapped and sealed onto it using Gas Seal Tape and Lap Tape as before.

Damaged areas should be patch repaired as necessary, using similar lapping/sealing details.

Gas Seal Black will achieve 2 Points in accordance with BS8485 when installed by qualified specialists and independently validated. Where additional points are required, our Passive Venting System may need to be incorporated.

## SPECIFIC USES

Gas Seal Black should be installed with the ancillary products required, in accordance with current guidance for gas protection systems; including BRE211 / 414, CIRIA C665 & BS 8485.

## 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

Gas Seal Black 2m wide x 50m long rolls

### STORAGE

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

## TECHNICAL SERVICES

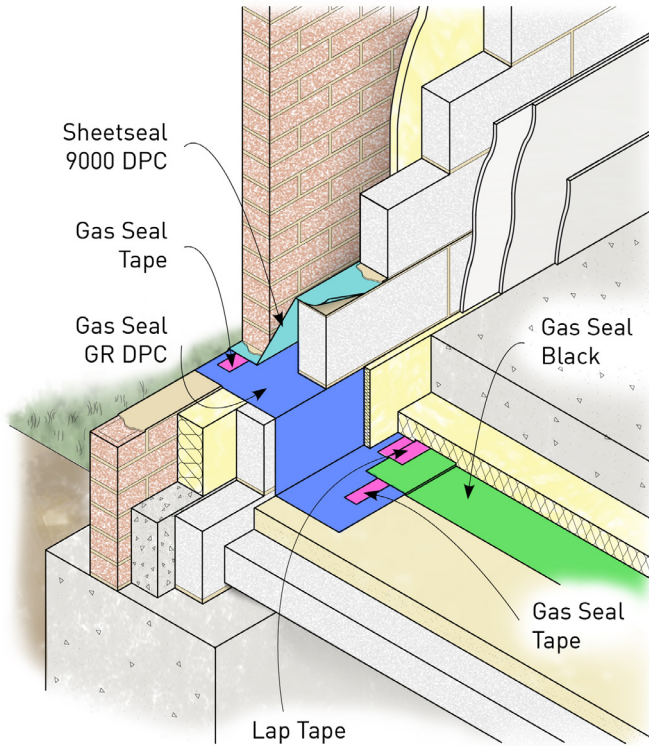
The Technical Department is available to advise on individual projects and to prepare or assist in the preparation of specifications and drawings. We can also offer design guidance to satisfy the requirements of BS8485 and CIRIA C735.

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.

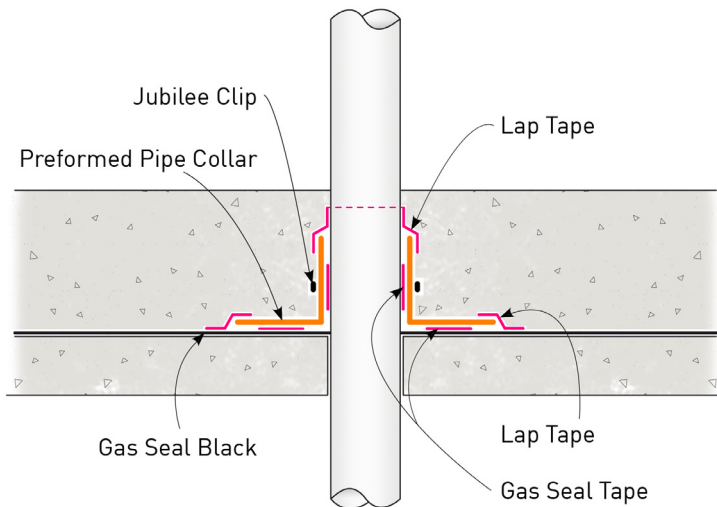
## COMPATIBILITY TABLE

	BRE 211 Radon	CIRIA 665 Characteristic Situation 2	BS8485 Characteristic Situation 2	CIRIA 665 Characteristic Situation 3-6	BS8485 Characteristic Situation 3-6	NHBC Amber 1	NHBC Amber 2 & Red
Radon	YES	n/a	n/a	n/a	n/a	n/a	n/a
Carbon Dioxide	n/a	YES	YES	YES	YES	YES	YES
Methane	n/a	YES	YES	YES	YES	YES	YES
Hydrocarbon Vapours	n/a	YES*	YES*	YES*	YES*	YES*	YES*

\* Suitable in some applications. Contact RIW Technical.



**Typical Ground Bearing Slab**



**Pipe Penetration Detail**

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**RIW**

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