

# GB-600

## HIGH PERFORMANCE GAS VAPOUR BARRIER

### DESCRIPTION

GB-600 is a 600 micron thick, multi-layer, polyethylene membrane, reinforced with a polypropylene reinforcing grid and an integral aluminium foil. GB-600 is specifically designed to perform as a barrier to ground gases such as methane, carbon dioxide and radon, plus volatile organic compounds (VOCs).

GB-600 fully complies with the latest codes of practice as published by BRE, CIRIA and BSI (BS 8485:2015), and is suitable for use as a gas protection system for NHBC AMBER 1 and AMBER 2 site characterisations.

### APPLICATIONS

GB-600 is designed for use as a gas vapour resistant barrier to restrict the ingress of radon, methane and carbon dioxide gases into buildings from landfill and naturally-occurring sources. GB-600 can be installed on sites where passive or active ventilation measures are required; used in conjunction with GEOVENT ventilation composite and relevant vent connectors as applicable. Where continuous or intermittent hydrostatic conditions exist, GB-600 should be overlaid with an appropriate CETCO waterproofing membrane. Contact CETCO for further information in terms of waterproofing membrane selection.

### INSTALLATION

**General:** GB-600 and accessory products should be installed in accordance with the manufacturer's installation guidelines, and in accordance with BS 8485:2015 – Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings. Install GB-600 with the green printed side facing towards the concrete requiring gas protection, and the white side facing towards the substrate / backfill. Protect installed GB-600 from on-site damage with PROTECTION FLEECE GB or CETCO waterproofing membrane, as applicable.

**Preparatory Work:** Under Slab: Substrate should be smooth, clean, even textured, free from voids and sharp protrusions. GB-600 should be installed over a sand blinding layer or concrete blinding with a smooth float finish. For well compacted ground or gravel substrates, install GB-600 over PROTECTION FLEECE GB. The substrate should be dry and free from standing water or frost prior to installation. Where a ventilation layer

is required, GB-600 should be installed over GEOVENT ventilation composite or suitably designed ventilation media.

Vertical brickwork and blockwork surfaces must be dry and either rendered or flush pointed to provide a smooth surface without sudden changes in level.

**Jointing and Sealing of Membrane Overlaps:** Heat-Welded Overlap Installation – It is recommended that GB-600 membrane overlaps plus overlaps with accessory products (i.e. GB-600 PREFORMED CORNERS, GB-600 PENETRATION FLASHINGS) are sealed by heat welding where possible. Heat-welded GB-600 roll-sides and roll-ends should be overlapped by minimum 100 mm. Overlaps with aforementioned accessory products should also be minimum 100 mm. Heat-welding should be carried out by trained competent personnel with suitable qualifications in accordance with best practice, and guidance contained within BS 8485:2015. GB-600 membrane overlaps should be dry and clean prior to heat-welding. Ensure that the air temperature does not fall below +4°C to prevent the risk of surface condensation forming on GB-600.

Taped-Overlap Installation – Where GB-600 membrane overlaps plus overlaps with accessory products (i.e. GB-600 PREFORMED CORNERS, GB-600 PENETRATION FLASHINGS) are to be sealed by taping, GB-600 roll-sides and roll-ends should be overlapped by minimum 150 mm. Overlaps with aforementioned accessory products should also be minimum 150 mm. GB-600 installation should be carried out by trained competent personnel, and guidance contained within BS 8485:2015. GB-600 membrane overlaps should be dried thoroughly prior to taping. When membrane overlaps are taped, temperature should not be below +5°C. All 150 mm GB-600 membrane overlaps plus 150 mm overlaps with aforementioned accessory products should be sealed inside laps with DS30 BUTYL TAPE. Using a silicone roller, apply pressure to GB-600 working along the taped overlap to ensure removal of all entrapped air. All exposed leading edge GB-600 overlaps (green pre-printed membrane side facing installer) should be overtaped with SS80 SEAMTAPE; centred along the overlap edge with its nearest edge 50 mm past the membrane edge. Using a silicone roller, apply pressure to SS80 SEAMTAPE working along the overtaped

overlap to ensure complete adhesion and removal of all entrapped air.

**Corner Details, Service Penetrations:** All internal / external corners, direction changes and service penetrations should be properly detailed in accordance with the manufacturer's installation guidelines. CETCO pre-formed flashing details should be used as applicable at critical locations and heat-welded to the main GB-600 membrane field installation in order to provide continuity of ground gas protection. CETCO GB-600 PREFORMED CORNERS are used at internal / external corners. GB-600 PENETRATION FLASHINGS are used for sealing around service penetrations. Service ducts should be vented to prevent the possibility of gas accumulating in confined spaces.

### UNDER CONCRETE GROUND FLOOR SLABS

**Ground Gas Protection and Damp Proofing Applications:** Install GB-600 with the green printed side facing the installer, ensuring it is loose-laid to accommodate any small movement. All end and side overlaps should be a minimum of 100 mm and prepared in accordance with the manufacturer's installation guidelines prior to heat-welding (or taping of 150 mm overlaps). All sharp edges or sudden changes in direction should be prepared and smoothed-out prior to installation. Continuity of ground-gas protection must extend over the footprint of the building, and where applicable GB-600 membrane should be sealed to a gas-resistant damp-proof course.

The integrity of the completed GB-600 installation should be validated by an independent third-party inspection in accordance with BS 8485:2015 and CIRIA Report C735. All defects or damaged sections identified during the independent third-party inspection must be repaired using a patch of GB-600, extending a minimum of 150 mm from the damaged area, with all laps heat welded or taped. All completed repair work should then be further validated by a final third-party independent inspection.

GB-600 should be covered by PROTECTION FLEECE GB as soon as possible after final inspection, taking care to avoid any damage to GB-600 during placement.

## GB-600

### HIGH PERFORMANCE GAS VAPOUR BARRIER

**Ground Gas Protection and Waterproofing Applications:** Where continuous or intermittent hydrostatic conditions exist (i.e. under footings, ground beams, pile caps, pad foundations and lift pits etc.), install GB-600 following the aforementioned installation guidelines followed by overlaying with an appropriate CETCO waterproofing membrane. Contact CETCO for further information in terms of waterproofing membrane selection.

The integrity of the completed GB-600 installation should be validated by an independent third-party inspection in accordance with BS 8485:2015 and CIRIA Report C735 prior to installing the CETCO waterproofing membrane. All defects or damaged sections identified during the independent third-party inspection must be repaired using a patch of GB-600, extending a minimum of 150 mm from the damaged area, with all laps heat welded or taped. All completed repair work should then be further validated by a final third-party independent inspection.

As soon as possible after final inspection, install appropriate CETCO waterproofing membrane against the printed green GB-600 surface. Secure CETCO waterproofing membrane in place plus membrane overlaps in accordance with the manufacturer's installation guidelines, taking care not to puncture the underlying GB-600 installation during placement. NOTE: - In locations where a CETCO waterproofing membrane is to be installed over GB-600, an additional protective layer of PROTECTION FLEECE GB is not required.

### LIMITATIONS

GB-600 should only be installed after substrate preparation has been properly completed and is suitable to receive the gas protection system. GB-600 contains an integral aluminium foil which may be subject to corrosion if exposed to alkaline conditions should damage to the membrane occur. Under normal service circumstances, the low density polyethylene faces of the membrane are compatible with most other construction materials with the exception of products containing pitch. For further information, please contact CETCO.

GB-600 is specifically designed for use as a combined gas vapour resistant and damp-

proof barrier. GB-600 is not designed to provide waterproofing protection. Where continuous or intermittent hydrostatic conditions exist, please contact CETCO for guidance.

### SIZE AND PACKAGING

Roll size 2.0 m x 50.0 m. Typical roll weight is 35 kg. GB-600 is packaged 25 rolls per pallet (2,500 sqm).

### STORAGE

GB-600 rolls should be stored on stable/level ground and loaded not more than five rolls high, with no other material stacked on top. The rolls can be stored outdoors when packaged, but must be stored off the ground and protected from exposure to UV.

### ACCESSORY PRODUCTS

Install GB-600 in accordance with manufacturer's installation guidelines and details. Primary accessory products include:

#### GB-600 PENETRATION FLASHING

**Description** - Prefabricated service penetration flashing manufactured from 600 micron thick multi-layer polyethylene with a polypropylene reinforcing grid and integral aluminium foil.

**Application** - Used for detailing GB-600 membrane around service penetrations.

**Installation** - GB-600 PENETRATION FLASHINGS should be installed in accordance with the manufacturer's guidelines in order to provide continuity of the GB-600 membrane field application.

**Size** - 100 to 150 mm diameter flashings; prefabricated on to 400 mm square GB-600 membrane patch.

#### GB-600 PREFORMED CORNERS

**Description** - Prefabricated corner unit flashings manufactured from 600 micron thick multi-layer polyethylene with a polypropylene reinforcing grid and integral aluminium foil.

**Application** - Used for detailing GB-600 membrane at internal / external corners.

**Installation** - GB-600 PREFORMED CORNERS should be installed in accordance with the manufacturer's guidelines in order to provide continuity of the GB-600 membrane field application at internal / external corners as applicable.

**Size** - 225 mm square flashing; prefabricated to form universal corner detail.

#### DS30 BUTYL TAPE

**Description** - Double-sided high-tack butyl tape.

**Application** - Used for sealing inside GB-600 membrane overlaps as applicable

**Installation** - DS30 BUTYL TAPE should be installed in accordance with the manufacturer's instructions in order to form GB-600 taped membrane overlaps (minimum 150 mm wide)

**Size** - 30 mm wide x 30.0 Inm roll; packaged 10 rolls per box

#### SS80 SEAMTAPE

**Description** - Single-sided high-tack butyl tape.

**Application** - Used for overtaping GB-600 membrane overlaps as applicable

**Installation** - SS80 SEAMTAPE should be installed in accordance with the manufacturer's instructions in order to form GB-600 taped membrane overlaps (minimum 150 mm wide)

**Size** - 80 mm wide x 35.0 Inm roll; packaged 4 rolls per box

#### PROTECTION FLEECE GB

**Description** - Non-woven polypropylene geotextile protection fleece

**Application** - Used for protecting GB-600 as per applicable project requirements.

**Installation** - PROTECTION FLEECE GB should be installed in accordance with the manufacturer's instructions in order to protect GB-600 as per applicable project requirements.

**Size** - 2.0 m x 100.0 m roll size

#### GEOVENT

**Description** - Cusped high density polyethylene ventilation composite core with a non-woven polypropylene geotextile bonded to one side.

**Application** - Installed underneath GB-600 where passive or active ventilation measures are required as per applicable project requirements. Use with relevant vet connectors as applicable.

**Installation** - GEOVENT should be installed in accordance with the manufacturer's instructions in conjunction with GB-600 as per applicable project requirements.

**Size** - GEOVENT is available in 25 mm profile (0.9 m x 50.0 m roll size) or 40 mm profile (0.97 m x 25.0 m roll size)

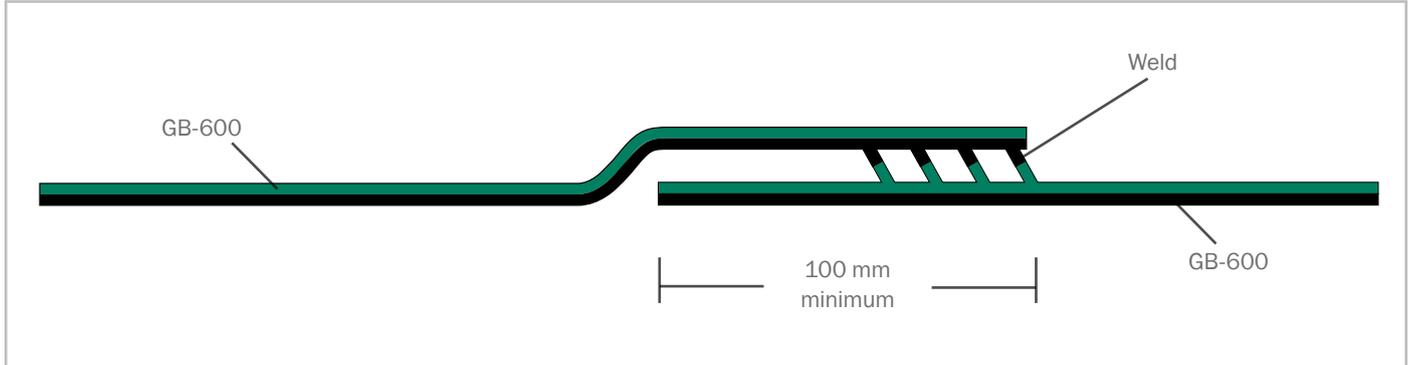
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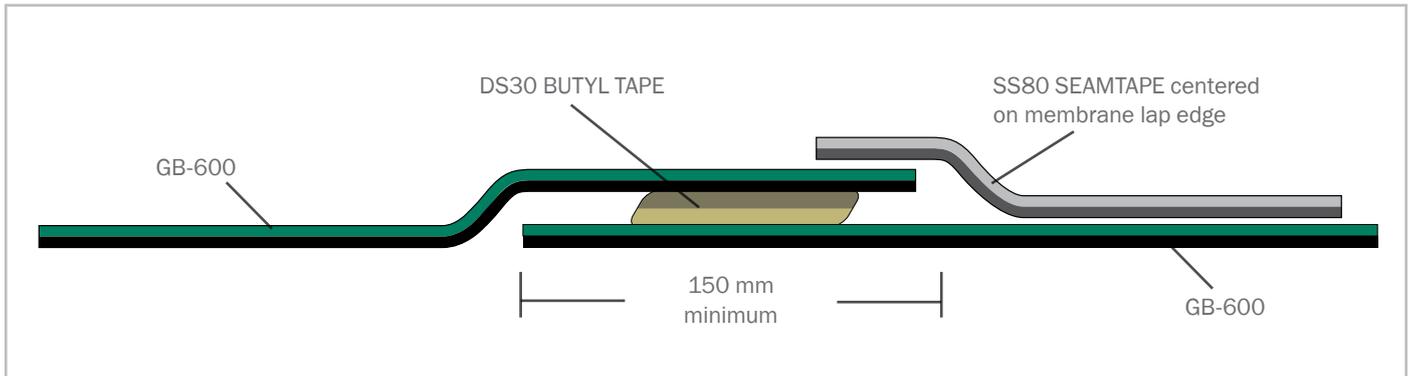
TECHNICAL DATA			
CHARACTERISTIC	TEST METHOD	UNIT	VALUE
<b>PHYSICAL PROPERTIES</b>			
Thickness	EN 1849-2	mm	0.6
Width	EN 1849-2	m	2.0
Length	EN 1849-2	m	50.0
Weight	EN 1849-2	g/m <sup>2</sup>	350
<b>HYDRAULIC PROPERTIES</b>			
Water Column	EN 20811	-	>300
Resistance to water penetration	EN 13967, EN 1928	-	PASS
Water tightness	EN 1296, EN 1367, EN 1928	-	PASS
<b>MECHANICAL PROPERTIES</b>			
Resistance to Static Load	EN 12730-B	kg	20
Tensile Strength (MD)	EN 12311-1	N/50mm	600
Tensile Strength (CMD)	EN 12311-1	N/50mm	480
Tensile Elongation (MD)	EN 12311-1	%	20
Tensile Elongation (CMD)	EN 12311-1	%	20
Puncture Resistance	EN 12236	kN	1.25
Resistance to tearing (nail shank) MD	EN 12310-1	N	330
Resistance to tearing (nail shank) CMD	EN 12310-1	N	400
<b>DURABILITY AND CHEMICAL RESISTANCE</b>			
Transmission rate of volatile liquids - Diesel	ISO 6179:2010 (B)	g/m <sup>2</sup> /h	0.246
Transmission rate of volatile liquids - Xylene	ISO 6179:2010 (B)	g/m <sup>2</sup> /h	0.571
Transmission rate of volatile liquids - Toluene	ISO 6179:2010 (B)	g/m <sup>2</sup> /h	0.583
Transmission rate of volatile liquids - Petrol	ISO 6179:2010 (B)	g/m <sup>2</sup> /h	0.135
<b>GAS PERMEABILITY</b>			
Methane Permeability	BS EN ISO 15105-1	ml/m <sup>2</sup> /day/atm	<0.09 *
Carbon Dioxide Permeability	BS EN ISO 15105-1	ml/m <sup>2</sup> /day/atm	<0.09 *
Radon Permeability	K124/02/95	m <sup>2</sup> /s	8.0 x 10 <sup>-15</sup>

\* BS 8485:2015 states that a gas vapour barrier with a methane gas transmission rate of <40.0 ml/day/m<sup>2</sup>/atm (average) for sheet and joints (tested in accordance with the manometric method in BS ISO 15105-1) is usually considered sufficient

## GB-600 HIGH PERFORMANCE GAS VAPOUR BARRIER



Heat welded seam



Taped seam



0799-CPR-278  
EN 13967:2012

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