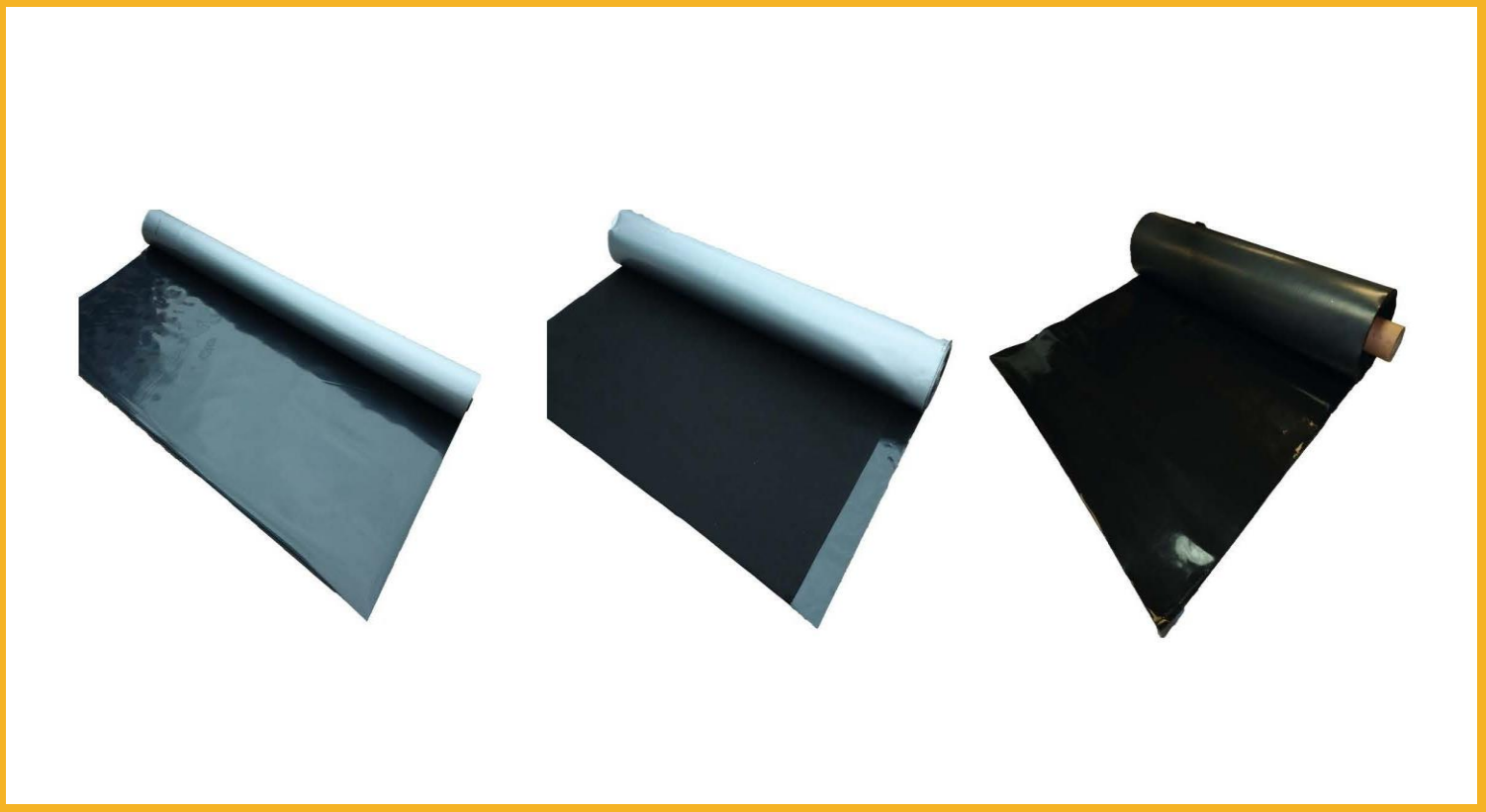

METHOD STATEMENT
Sikaplan® VOC Gas Barrier

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BUILDING TRUST

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1 SCOPE

This method statement describes the procedure for installing the range of Sikaplan® VOC Gas Barrier.

2 SYSTEM DESCRIPTION

Characteristic properties:

- High chemical resistance
- High resistance to ground gasses
- Long term durability
- Waterproofing Barrier (TYPE A – BS8102:2009)
- Gas Barrier (Radon – BRE211, Methane / Carbon Dioxide - BS8485:2015+A1 2019)
- Hydrocarbon (Liquid and Vapour phase) and VOC barrier (C748)

Sikaplan® VOC Gas Barriers are extensively tested and proven to withstand the most aggressive environments.

Providing a robust, durable and flexible membrane, Sikaplan® VOC Gas Barriers are the ideal gas and waterproofing barrier.

In all cases it is recommended the installation of Sikaplan® VOC Gas membranes are completed by a suitably qualified and accredited installer (NVQ level 2). Sika Ltd can offer advice as to suitable/recommended installers.

2.1 SIKAPLAN® 1651 LOOSE VOC GAS BARRIER

A loose laid VOC Gas Barrier which has exceptionally high resistance to ground gas and VOCs. Sikaplan® 1651 Loose VOC Gas Barrier is typically used for the gas and waterproofing of ground level structures where harmful ground gasses are anticipated.

2.2 SIKAPLAN® 1652 BONDED VOC GAS BARRIER

A pre-applied fully bonded waterproofing membrane incorporating the Sikaplan® 1651 VOC Gas Barrier and a heavy-duty virgin polypropylene geotextile. The geotextile is laminated to the membrane to provide a dual function; protecting the membrane from damage, and providing an integrated bond to poured concrete, ensuring a fully bonded waterproofing barrier which has exceptionally high resistance to ground gas and VOCs. Sikaplan® 1652 Bonded VOC Gas Barrier is used for the gas and waterproofing of underground structures where harmful ground gasses are anticipated.

2.3 SIKAPLAN® 1653 ADHERED VOC GAS BARRIER

A self-adhesive version of the Sikaplan® VOC Gas Barrier. It is composed of Sikaplan® 1651 VOC Gas Barrier with a self-adhesive bitumen surface finish covered by a protective release film. Sikaplan® 1653 Adhered VOC Gas Barrier is used for the gas and waterproofing of underground structures where harmful ground gasses are anticipated, as a post-applied bonded membrane.

Material Code	Material	Rolls Size		Roll Weight
608496	Sikaplan® 1651 Loose VOC Gas Barrier	2.0m x 50m	100 m^2 / roll	50kg
609581	Sikaplan® 1652 Bonded VOC Gas Barrier	1.9m x 25m	47.5 m^2 / roll	36kg
609580	Sikaplan® 1653 Adhered VOC Gas Barrier	0.9m x 20m	20 m^2 / roll	25kg

NOTE – Installation guidance is provided for information only and should be read in conjunction with standard details. Site specific detailing and installation methodology should be considered on a case by case basis.

2.4 AVAILABLE SYSTEM COMPONENTS AND ACCESSORIES:

Material Code	Material	Rolls Size		Roll Weight
609582	Sikaplan® 1652 VOC Edge Strip	1.0m x 25m	25 m^2 / roll	19kg
514907	Sikadrain 850 geo	2.44m x 12.5m	30.5 m^2 / roll	30kg
608549	Sikaplan® 1651 VOC Int corner	0.495m x 0.495m	0.245 m^2 / pc	0.12kg
608562	Sikaplan® 1651 VOC Ext corner	0.495m x 0.495m	0.245 m^2 / pc	0.12kg
609629	Sikaplan® 1652 VOC Weld Strip	0.1m x 10m	1 m^2 / pc	0.76kg
628448	Sikaplan® VOC Pipe Penetration Top Hat	Box of 10 units	Pipe Sleeve Diameter – 110mm Collar Depth – 150mm Base Plate – 300mm x 300mm	0.07kg / pc
516977	Sika Bentoshield Paste			15 kg / pc
564721	Sikadur-32			5 kg / pc
469680	Sika Bituseal Primer			25 ltr

Sikaplan® 1652 VOC Edge Strip – 1m wide strip of Sikaplan® 1652 Bonded VOC Gas Barrier for use on edges and kicker details to facilitate the transition from horizontal to vertical application. Used in conjunction with the corner units.

Sikaplan® 1651 VOC External and Internal Corners – Available in a 495mm x 495mm internal and external corners.

SikaDrain 850 Geo – 2.44m wide protection membrane to provide protection to the membrane and provide a drainage pathway to a maintainable land drain to alleviate pore water pressure on the structure.

Sikaplan® VOC Pipe Penetration Top Hat – pre-formed collar for 110mm diameter pipe penetrations, compatible with Sikaplan 1651/2/3

Sika BentoShield Paste – Water resistant bentonite grout, for use around penetrations and perforations.

Sikadur-32 – Gas resistant epoxy resin for sealing over pile heads.

Sika BituSeal Primer – to prime substrate prior to application of the Sikaplan® 1653 Adhered VOC Gas Barrier.

Sikaplan® 1652 VOC Weld Strip – as an option strip for welding membranes.

2.5 SUBSTRATE PREPARATION:

Substrates for installation of the membrane system need to have enough stability to avoid movement during the installation and subsequent construction works, including the concreting. The substrate preparation should include the following:

- A clean, uniform, smooth surface free from debris, ponding water (damp or slightly wet is acceptable), oil and grease.
- Voids (> 12mm depth or width) must be filled before the installation of the membrane system.
- Voids can be filled with suitable sub-grade fill material, or repair mortar of the vertical walls.

- Where the substrate contains changes in elevation of >12mm, or particle protrusions from the substrate exceed 12mm, a protection fleece should be utilised to protect the membrane from damage from the substrate. Consult Sika's technical team for advice as to the most appropriate grade of protection fleece.

2.6 GENERAL INSTALLATION PROCEDURE SIKAPLAN® 1652 BONDED VOC GAS BARRIER:

Installation works should begin at the perimeter detail (edges), followed by the floor (horizontal) and then the wall (vertical) application.

Installation works should only begin on a suitably prepared substrate. Note – defects in the membrane are most commonly caused by penetrations owing to insufficient surface preparation.

Install the Sikaplan® 1652 Bonded VOC Gas Barrier pre-fabricated internal and external corner units to all corners; then install the Sikaplan® 1652 VOC Edge Strip to the perimeter edges and connections on the walls and upstands and joint the corner units to the edge strip.

Lay out the Sikaplan® 1652 Bonded VOC Gas Barrier membrane sheets in the floor area, overlapping to cover the 100mm selvedge on all rolls (horizontal) and weld all joints.

Form all the necessary details to the floor area (horizontal), such as pipe penetrations, connections, sumps or lift pits, pile caps, expansion joints and any others that are required using the appropriate accessory items.

For preformed pipe penetration Top Hats, cut the membrane using a star-cut to 5mm less than the diameter of the pipe and place over it. Carefully remove the fleece from the membrane to allow for the 300mm x 300mm base plate, without damaging it, using a flame or scraper. Place the Top Hat over the pipe and hot-air weld the entire base to the membrane. Overlap the pipe to Top hat joint with Sikaplan 1653 adhesive VOC membrane.

Hang the Sikaplan® 1652 Bonded VOC Gas Barrier membrane sheets to the wall area (vertical) overlapping to cover the 100mm selvedge on all rolls and weld the joints. Note – fixing for vertical application should be restricted above the top of the formwork or to the selvedge. Mechanical fixing should never occur through the geotextile covered area of the Sikaplan® 1652 Bonded VOC Gas Barrier.

Periodic validation and inspection should occur in accordance with C735.

All membranes to be protected against backfill damage.

2.7 GENERAL INSTALLATION PROCEDURE SIKAPLAN® 1653 ADHERED VOC GAS BARRIER:

Installation works should only begin on a suitably prepared substrate. Note – defects in the membrane are most commonly caused by penetrations owing to insufficient surface preparation.

All corners should be smoothed and chamfered to reduce point loading and stress on the membrane. Internal corners can be provided with a mortar fillet prior to application.

All surfaces to receive the Sikaplan® 1653 Adhered VOC Gas Barrier shall be primed using Sika BituSeal Primer to aid adhesion to the surface.

Install the Sikaplan® 1653 Adhered VOC Gas Barrier vertically in 1.0m wide panels (roll width) ensuring a minimum 50mm overlap to each adjacent panel. All laps should be welded.

Form all the necessary details to the wall area (vertical), such as pipe penetrations, connections, expansion joints and any others that are required using the appropriate accessory items.

For preformed pipe penetration Top Hats, cut the membrane using a star-cut to 5mm less than the diameter of the pipe and place over it. Place the Top Hat over the pipe and hot-air weld the entire base to the membrane. Overlap the pipe to Top hat joint with Sikaplan 1653 adhesive VOC membrane.

Periodic validation and inspection should occur in accordance with C735.

All membranes to be protected against backfill damage.

2.8 JOINTING AND SEALING USING WELDING:

For applications with elevated VOC/Hydrocarbon concentrations, welded joints are necessary to provide an effective seal.

Before welding work is carried out trials must be completed to determine the operating window for the welding equipment and materials. It is noted that ambient air temperature, power supply and the condition of welding equipment can affect the working window.

Welding window for Sikaplan® VOC Gas Barriers is 180-240°C at a suggested rate of 1.5 metres/minute on low air flow.

Sika Ltd recommends that any heat welding is carried out by a Construction Skills NVQ Level 2 qualified installer (or equivalent).

A minimum welded overlap joint of 50mm wide should be achieved – it should be noted that the suitability of the welded joint is defined by the joint integrity, as tested in accordance with C735 (most commonly air lance – ASTM D4437-08:2013), if a welded joint passes integrity testing, it would be deemed acceptable.

A 100mm overlap selvedge is provided on all rolls of Sikaplan® 1652 Bonded VOC Gas Barrier, and Sikaplan® 1652 VOC Edge Strip.

A 50mm overlap selvedge (minimum) is provided on all rolls of Sikaplan® 1653 Adhered VOC Gas Barrier.

2.9 REPAIRING PUNCTURES:

Should tears, or punctures occur in the membrane, these can be patched using a piece of the appropriate membrane sized to overlap at least 100mm beyond the extent of the puncture/tear, the patch being welded on all sides.

2.10 PILE HEAD/REBAR PENETRATIONS:

Sealing around pile heads and concrete reinforcement is achieved by application of Sikadur-32 applied over the surface to achieve a coating thickness of at least 1mm (two coats). Sika® BentoShield® Paste should be applied in a 40mm x 40mm fillet to link between the penetration and the Sikaplan® VOC Gas Barrier.

Fleece must be removed from the membrane prior to applying the Sika BentoShield Paste.

2.11 STANDARD DETAILS

Standard installation details are available from Sika Ltd (sikawaterproofing.co.uk). Be advised that standard details are not always relevant or applicable to bespoke site-specific conditions. We would recommend consulting with Sika Ltd, or an appropriately qualified installer with regards to site specific detailing.

2.12 ADDITIONAL INFORMATION

For additional information or assistance, please contact Sika Ltd.

2.13 LIMITATIONS

- It is recommended that membrane systems are installed in ambient air temperatures in excess of -5°C.
- Ingress of water into the installation area should be prevented.
- In all cases the surface onto which the membrane is to be laid or applied should be clean and free from debris and have no standing water which may cause damage to the Barrier.
- In all cases it is recommended the installation of Sikaplan® VOC Gas membranes are completed by a suitably qualified and accredited installer (NVQ level 2). Sika Ltd can offer advice as to suitable/recommended installers.

- Appropriate PPE should always be worn during handling, placement and fixing of the Barrier.
- Vehicular traffic directly on top of the membrane should be avoided.
- Foot traffic directly on top of the membrane should be restricted.
- Where either Vehicular or Foot traffic is unavoidable, additional protective measures may be required to prevent damage to the membrane. (Use of protection fleece and/or protection boards)
- Smoking, and naked flames are strictly prohibited.

3 LEGAL NOTE

The information, and, in particular, the recommendations relating to the application and end-use of Sika products, are given in good faith based on Sika's current knowledge and experience of the products when properly stored, handled and applied under normal conditions in accordance with Sika's recommendations. in practice, the differences in materials, substrates and actual site conditions are such that no warranty in respect of merchantability or of fitness for a particular purpose, nor any liability arising out of any legal relationship whatsoever, can be inferred either from this information, or from any written recommendations, or from any other advice offered. The user of the product must test the products suitability for the intended application and purpose. Sika reserves the right to change the properties of its products. The proprietary rights of third parties must be observed. All orders are accepted subject to our current terms of sale and delivery. Users must always refer to the most recent issue of the local Product Data Sheet for the product concerned, copies of which will be supplied on request.

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