Hydrocarbon Resistant Membrane Validation Report

Blocks A - C
8 New Lane
Havant
PO9 2JJ

A11274

Prepared for

REL Winchester Ltd
The House
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Omnia ref: A11274/1.0 (Blocks A, B & C)
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Quality Assurance

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1.0 INTRODUCTION

1.1 Background

Omnia Environmental Consulting (OEC) were commissioned by REL Winchester Ltd to undertake validation of hydrocarbon resistant gas protection membranes at the site comprising Block A, Block B and Block C at the site of the Former Wessex Yard, 8 New Lane, Havant, Hampshire, PO9 2JJ. OEC's role was to confirm the installation hydrocarbon and gas resistant membranes undertaken by a third-party membrane installer (NEA Contracts Ltd) and validation of the membranes by an independent third-party validator (Membrane Testing Services Ltd).

The RMS (Ref: A10708/4.1 '*Remediation Method Statement*' dated November 2019) stipulated based on the findings of the investigation that the following remedial works were required at the site.

1) Removal of all impacted soils and liquids from Gasholder 1 for off-site disposal; Backfilling of the excavation; and,
2) Backfilling of the excavation; and,
3) Installation of a hydrocarbon vapour resistant membrane within building footprints.

The validation of Points 1 and 2 are detailed within OEC Report A11216/200217/L1 dated February 2020.

This report focuses on Point 3 comprising the validation of the installation of hydrocarbon resistant gas protection membranes within Block A, Block B and Block C.

Installation of the hydrocarbon and ground gas resistant membranes was undertaken in three (3no.) phases with the membrane installation works subcontracted to NEA Contracts by the client.

Inspections of the cavity closers and internal membrane installations and detailing works were validated as follows:

- Block A - cavity closers and internal membrane installations inspected by Membrane Testing Services Ltd (MTS) and independently witnessed by OEC.

- Block B
  - Cavity Closers - inspected by Membrane Testing Services Ltd (MTS) and independently witnessed by OEC.
  - Internal Membrane – Inspected by OEC
- Block C
  - Cavity Closers - inspected by Membrane Testing Services Ltd (MTS) and independently witnessed by OEC.
  - Internal Membrane – Inspected by OEC

A site proposed development layout showing the extent of gas protection measures is presented as Figure 1.0 within Appendix III.

1.2 Proposed Development

It is understood that the proposed development consist of the construction of three (3no.) low-rise blocks of residential apartments with associated vehicular access infrastructure and parking.

1.3 Report Objectives

The objective of this report is to detail the successful implementation of the required remedial actions at the Former Wessex Yard, 8 New Lane, Havant, PO6 9JJ as set out by the agreed RMS (A10708/4.1).

The agreed RMS (A10708/4.1) stipulated that the mitigation measures required should include:

- Installation of hydrocarbon vapour resistant gas protection measures within building footprints.

A gas membrane method statement and specification document was also requested by HBC to provide additional detail regarding membrane design and installation methodology. The gas membrane specification (A11274/191129/L1) and set out the following requirements to achieve a gas protection score of 3.5 for the site in accordance with BS8485:2015.

- A cast in situ 375mm thick reinforced concrete slab with minimal service penetration points;
- Visqueen GX DPM and Ultimate HC Blok Membrane System;
- Membrane Installation undertaken by suitably qualified and experienced installers; and,
- Independent 3rd-Party Internal Membrane Validation.

1.4 Scope of Work

The specific scope of validation works for Blocks A – C at the Former Wessex Yard Site comprises:

- Visual verification, by OEC and MTS, that membrane installation works undertaken by NEA Contracts Ltd are in line with technical drawing 15.2094.310 P1 produced by PLC Architects and dated November 2019
- Joints between sheets are acceptable and heat-bonded with no gaps present between the sheets;
- Identification of any damage (i.e. tears or breaks) within the installed membrane;
- Confirmation that “Top Hats” have been satisfactorily installed at all service penetration points; and,
- Confirmation of the rectification of any identified defects.

1.5 Confidentiality

OEC has prepared this report solely for the use of the Client and those parties with whom a warranty agreement has been executed, or with whom an assignment has been agreed. Should any third party wish to use or rely upon the contents of the report, written approval must be sought from OEC; a charge may be levied against such approval.

2.0 SITE CHARACTERISTICS

2.1 Site Details

Site Address	Blocks A – C, Former Wessex Yard, 8 New Lane, Havant, Hampshire, PO9 2JH
Grid Reference	472127, 106610

2.2 Current Site Use

At the time of the validation works, the site at 8 New Lane, Havant comprised a wedge shaped plot of land located immediately to the east of New Lane and immediately south of Eastern Road with the intersection of New Land and Eastern Road marking the northwest corner of the site.

At the time of site visits, the site was within the construction phase with the ground floor slab having been cast. At the time of the Stage 1 site visits to Blocks A (13/01/2020), Block B (11/12/2019) & Block C (05/12/2019), to inspect cavity wall closers, the ground floor had been cast with a single course of blockwork laid around the perimeter of the building.

During Stage 2 site visits to Block A (19/06/2020), Block B (26/03/2020) and Block C (26/03/2020) building construction had progressed to the first floor with the internal membranes being fitted and validated prior to the installation of ground floor insulation and floor screed.

The build programme progressed during the Covid-19 situation, but unfortunately MTS were unavailable to undertake validation works between March and May 2020. Due to the ongoing construction programme and in line with OEC's role acting as independent verifier for other domestic schemes it was necessary for OEC to undertake membrane inspection and validation works on 26/03/2020 and 08/04/2020, with MTS undertaking third-party validation works on Block A on 19/06/2020.

A site layout plan is present as Figure 1.0 in Appendix III.

3.0 GAS MEMBRANE INSTALLATION

Remedial measures within the building footprints Block A, Block B and Block C comprised the installation of a Visqueen GX hydrocarbon resistant Damp Proof Membrane (DPM) across the cavity space with Visqueen Ultimate HC Blok Flexible Hydrocarbon Barrier across the internal floor space within the footprint of Block A, Block B and Block C, which was installed by a suitably qualified installer in accordance with schematics provided by PLC Architects, Drawing No: 15.2094.310 P1 (Attachment III).

Membrane specification sheets and manufacturer installation details are provided in Attachment IV.

3.1 Remedial Measures Installation Stages

The hydrocarbon resistant gas resistant membrane was installed in two (2no.) separate stages adopting a perimeter and infill approach by installers from NEA Contracts Ltd as outlined below;

- **Stage 1 – Cavity Wall Closer (Perimeter) Membrane Installation** – Installation of membrane around the perimeter of the building footprint from the top of the first course of external concrete block work and through the cavity wall space leaving sufficient overlap to extend beyond the internal cavity wall and into the internal floorspace to allow jointing to the internal membrane; and,
- **Stage 2 – Internal (Infill) Membrane Installation** – Installation of Membrane across the internal footprint following casting of the reinforced concrete floor slab and lapping onto membranes protruding from internal cavity and party walls by qualified installer.

Each stage was photographed with the record presented in Section 4.0.

The membrane installation schematics are presented as PLC Architects, Drawing No: 15.2094.310 P1 (Attachment III).

4.0 INSPECTION

4.1 Hydrocarbon Resistant Gas Membrane Inspection

OEC undertook site visits in two (2no.) phases and were accompanied by MTS on Stage 1 validations on all three (3no.) blocks but undertook Stage 2 validations on Block B and Block C unaccompanied due to the Covid-19 situation. However, the Stage 2 validation of Block A was undertaken with both MTS and OEC in attendance, as summarised in Table 4.1 below.

Table 4.1 Summary of Membrane Validation Dates

Block	Membrane Installation Stage	Validator(s)	Dates
A	Stage 1 – Cavity Wall Closer (Perimeter)	OEC & MTS	13/01/2020
	Stage 2 – Internal Membrane (Infill)	OEC & MTS	19/06/2020
B	Stage 1 – Cavity Wall Closer (Perimeter)	OEC & MTS	11/12/2019
	Stage 2 – Internal Membrane (Infill)	OEC	26/03/2020
C	Stage 1 – Cavity Wall Closer (Perimeter)	OEC & MTS	05/12/2019
	Stage 2 – Internal Membrane (Infill)	OEC	26/03/2020

4.1.1 Stage 1 – Perimeter Hydrocarbon Resistant Cavity Closer Validation Procedure

Validation was undertaken by an independent 3rd party, Membrane Testing Solutions Ltd (MTS) who undertook a testing procedure to validate the installation of the hydrocarbon resistant and gas membrane, as detailed below:

- A visual check of the installed Visqueen GX damp proof membrane spanning the wall cavity;
- Mechanical point stress tests with pick or other similar instrument to identify any un-bonded or poorly bonded areas of the membrane along the taped and /or welded seams and joints;
- High pressure air lancing with an air lance producing an air flow of 3.5 bar of pressure on a continual stream. This equipment was traced over all seams and joints to identify any imperfections, un-bonded or poorly bonded sections of the membrane.

Any areas where the above testing failed were highlighted as an area of concern and mitigated by the installers. All mitigation measures were then re-tested under the above testing criteria. Once the membrane had been deemed to pass all the above criteria, the property was signed off by MTS.

4.1.2 Stage 2 – Infill (Internal) Hydrocarbon Resistant Gas Membrane Validation Procedure

OEC undertook a testing procedure to validate the installation of the hydrocarbon resistant gas protection membrane on Block B and Block C as detailed below:

- A visual check of the installed membrane for damage across the whole building footprint; and,
- Mechanical point stress tests with pick or other similar instrument testing to identify any un-bonded areas of the membrane along the taped seams and joints.

The membrane validation of Block A was undertaken by MTS Ltd and comprised the above validation procedures but also included the following:

- High-Pressure Air-Lance testing of taped seams, joints and service penetration points.

The following sections are set out to give an overview of each procedure of the validation process across the site.

4.2 Block A, Block B and Block C – Perimeter Validation

MTS undertook inspections of the installation of the perimeter installation of the Visqueen GX Damp Proof Membrane used to form the cavity closers in Block A, Block B and Block C on 13/01/2020, 11/12/2019 and 05/12/2019 respectively.

4.2.1 Stage 1 - Perimeter Installation of Visqueen GX Damp Proof Membrane (DPM)

A selection of photographs showing the perimeter DPM installation from each block are presented within the following section.

Photograph 1
Block A - Stage 1 – Showing Perimeter Installation of Visqueen GX DPM



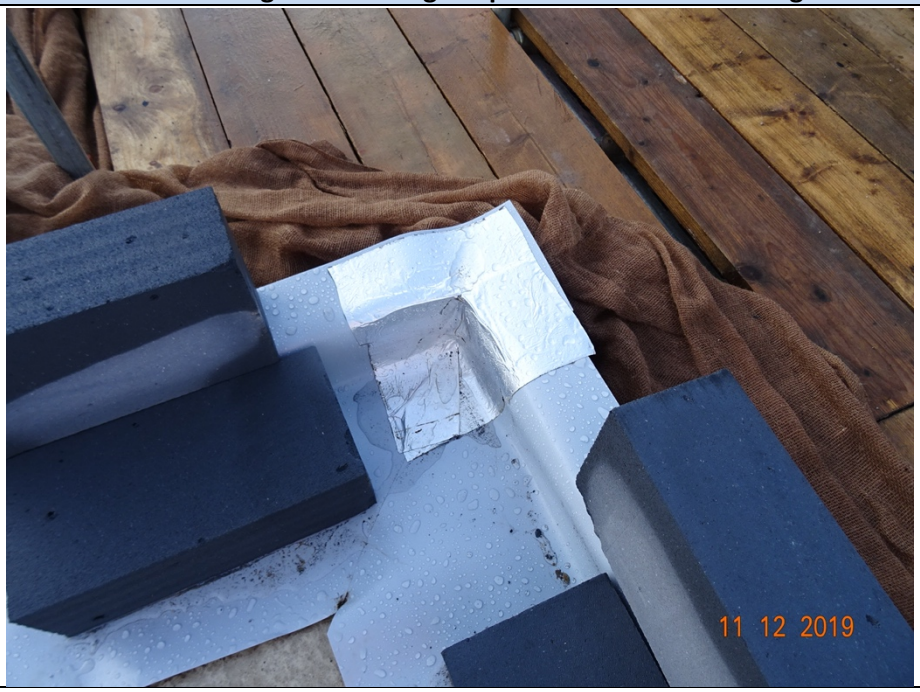
Photograph 2
Block A – Stage 1 – Showing Visqueen GX Corner Detailing



Photograph 3
Block B - Stage 1 Showing Perimeter Installation of Visqueen GX DPM



Photograph 4
Block B - Stage 1 - Showing Visqueen GX Corner Detailing



Photograph 5
Block C - Stage 1 - Showing Perimeter Installation of Visqueen GX DPM



Photograph 6
Block C - Stage 1 – Showing Visqueen GX Corner Detailing



4.2.1.1 Stage 1 - Validation of Condition of External Membrane

Defects identified during the membrane inspections undertaken by MTS were generally noted to be caused by de-bonding due to moisture ingress caused by prevailing weather conditions.

All defects identified during the inspection were highlighted to the installers and were immediately rectified with GRSAM which was applied after heating with a blow torch. The repairs were then re-inspected and signed off by MTS.

Photograph 7
Stage 1 – Showing Example of Marked Up Defect (Pre-Repair)



Photograph 8
Stage 1 – Showing Example of Defect (Post-Repair)



4.2.2 Stage 2 - General Condition of Internal Hydrocarbon Resistant Membrane (Infill)

Validation of the Phase 2 membrane installations in Block B and Block C were undertaken by OEC on 26th March 2020 and 8th April 2020 using a combination of visual inspection and mechanical stress testing using a pick.

Phase 2 membrane installation in Block A, and the outstanding areas of Block B and Block C was undertaken by MTS using a combination of visual inspection, mechanical stress testing using a pick and high-pressure air lance testing, with validation works independently witnessed by OEC on the 19th June 2020.

Photograph 9
Block A – Stage 2 - General Overview of Internal Visqueen Ultimate HC Blok Membrane (19/06/2020)



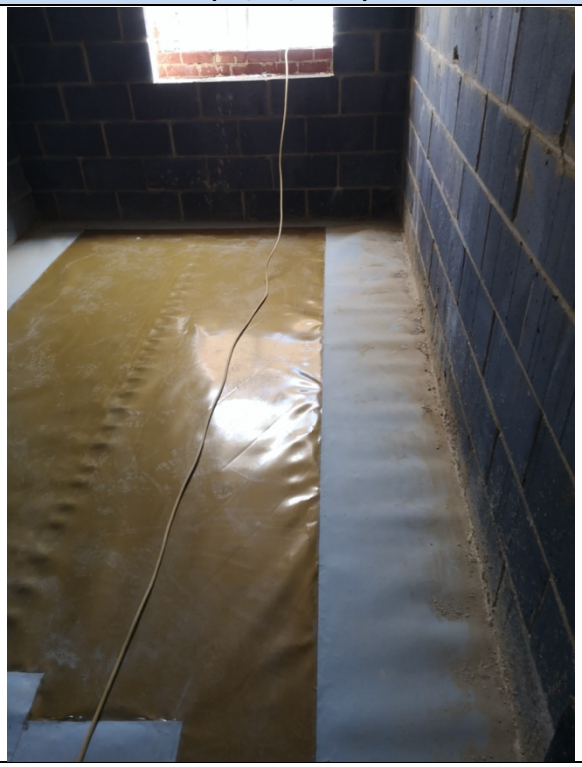
Photograph 10
Block A – Stage 2 - General Overview of Visqueen Ultimate HC Blok Internal Membrane (19/06/2020)



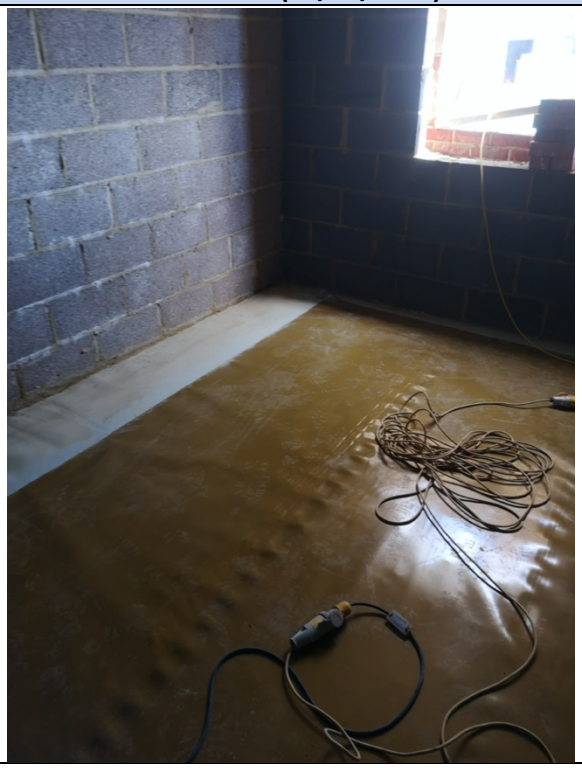
Photograph 11
Block A – Stage 2 - General Overview of Visqueen Ultimate HC Blok Internal Membrane (19/06/2020)



Photograph 12
Block B – Stage 2 - General Overview of Visqueen Ultimate HC Blok Internal Membrane (26/03/2020)



Photograph 13
Block B – Stage 2 – Showing General Overview of Visqueen Ultimate HC Blok Internal Membrane (26/03/2020)



Photograph 14
Block C – Stage 2 – Showing General Overview of Visqueen Ultimate HC Blok Internal Membrane (26/03/2020)



Photograph 15
Block C – Stage 2 – Showing General Overview of Visqueen Ultimate HC Blok Internal Membrane (26/03/2020)



4.2.3 Stage 2 - Internal Installation and Corner Detailing

Due to the nature of the perimeter and infill installation, with the internal membrane joined directly to the DPM installed through the cavity space and beneath internal partition walls, there was no need to form complex corners within Stage 2 of the installation.

4.2.4 Stage 2 - Validation of Service Penetration Points

As part of the membrane validation testing, service entry points within Block A, Block B and Block C were also subject to scrutiny, as set out in Section 5.1.1.

Service penetration points were sealed through the formation of free-form “Top Hats” fabricated from Gas Resistant Self-Adhesive Membrane (GRSAM) in line with guidance set out in CIRIA C735.

Photograph 16
Block A – Stage 2 –Example of Free-Form Service Pipe Top Hat



Photograph 17
Block B – Stage 2 – Example of Internal Free-Form Service Pipe Top Hat



Photograph 18
Block C – Stage 2 – Example of Internal Free-Form Service Pipe Top Hat



4.2.6 Stage 2 - Validation of Condition of Internal Membrane

During the validation exercise undertaken on the internal membrane of Block A, Block B and Block C on the 26/03/2020 and 19/06/2020, a number of defects were noted and were brought to the attention of the installers (NEA Contracts Ltd). All defects were rectified and subjected to further inspection before being signed off as complete.

Examples of defects and repairs encountered within the interior of Block A, Block B and Block C are shown in the following photographs.

Photograph 19 – Stage 1 – Block A – Example of Defect Repair



Photograph 20 – Stage 1 – Block B – Example of Defect Repair



Photograph 21 – Stage 1 – Block C – Example of Defect Repair



Photograph 22 – Stage 2 – Example of Defect Repair (Block A)



Photograph 23 – Stage 2 – Example of Defect Repair (Block B)


5.0 CONCLUSION

5.1 Validation Conclusion

In accordance with the gas protection measures set out within PLC Architects, Drawing No: 15.2094.310 P1, have been installed and were subject to third-party validation testing undertaken by OEC and MTS using a high-pressure air lance and independent observation by OEC.

Based on observations made during inspection visits undertaken as summarised in Table 5.1 below, OEC consider that protection measures have been installed in accordance with the agreed remedial measures and that the installation of the Flexible Hydrocarbon resistant Gas Membrane protection system severs the exposure pathway for any potential hydrocarbon vapours, VOCs, ground gases and radon rendering the pollution linkage inactive.

Table 5.1 Block A - Membrane Validation Dates

Membrane Installation Stage	Validator(s)	Dates
Stage 1 – External Membrane / Cavity Wall	MTS & OEC	13/01/2020
Stage 2 – Internal Membrane Validation	MTS & OEC	19/06/2020

Table 5.2 Block B - Membrane Validation Dates

Membrane Installation Stage	Validator(s)	Dates
Stage 1 – External Membrane / Cavity Wall	MTS & OEC	11/12/2019
Stage 2 – Internal Membrane Validation	OEC	26/03/2020

Table 5.3 Block C - Membrane Validation Dates

Membrane Installation Stage	Validator(s)	Dates
Stage 1 – External Membrane / Cavity Wall	MTS & OEC	05/12/2019
Stage 2 – Internal Membrane Validation	OEC	26/03/2020

Validation certificates provided by MTS for the Stage 1 validations in Block A, Block B and Block C and the Stage 2 Validation in Block C are presented as Appendices V, VI and VII.

APPENDIX I

LIMITATIONS

1. This report and its findings should be considered in relation to the terms of reference and objectives agreed between OE Ltd and the Client as indicated in Section 1.2.

2. For the work, reliance has been placed on publicly available data obtained from the sources identified. The information is not necessarily exhaustive and further information relevant to the site may be available from other sources. When using the information, it has been assumed it is correct. No attempt has been made to verify the information.

3. This report has been produced in accordance with current UK policy and legislative requirements for land and groundwater contamination, which are enforced, by the local authority and the Environment Agency. Liabilities associated with land contamination are complex and requires advice from legal professionals.

4. During the site walkover reasonable effort has been made to obtain an overview of the site conditions. However, during the site walkover no attempt has been made to enter areas of the site that are unsafe or present a risk to health and safety, are locked, barricaded, overgrown, or the location of the area has not been made known or accessible.

5. Access considerations, the presence of services and the activities being carried out on the site limited the locations where sampling locations could be installed and the techniques that could be used.

6. Site sensitivity assessments have been made based on available information at the time of writing and are ultimately for the decision of the regulatory authorities.

7. Where mention has been made to the identification of Japanese Knotweed and other invasive plant species and asbestos or asbestos-containing materials this is for indicative purposes only and do not constitute or replace full and proper surveys.

8. The executive summary, conclusions and recommendations sections of the report provide an overview and guidance only and should not be specifically relied upon without considering the context of the report in full.

9. OE cannot be held responsible for any use of the report or its contents for any purpose other than that for which it was prepared. The copyright in this report and other plans and documents prepared by OE is owned by them and no such plans or documents may be reproduced, published or adapted without written consent. Complete copies of this may, however, be made and distributed by the client as is expected in dealing with matters related to its commission. Should the client pass copies of the report to other parties for information, the whole report should be copied, but no professional liability or warranties shall be extended to other parties by OE in this connection without their explicit written agreement there to by OE.

10. New information, revised practices or changes in legislation may necessitate the re-interpretation of the report, in whole or in part.

APPENDIX II

GLOSSARY

AST	ABOVE GROUND STORAGE TANK
BGS	BRITISH GEOLOGICAL SURVEY
BSI	BRITISH STANDARDS INSTITUTE
BTEX	BENZENE, TOLUENE, ETHYLBENZENE, XYLENES
CIEH	CHARTERED INSTITUTE OF ENVIRONMENTAL HEALTH
CIRIA	CONSTRUCTION INDUSTRY RESEARCH ASSOCIATION
CLEA	CONTAMINATED LAND EXPOSURE ASSESSMENT
CSM	CONCEPTUAL SITE MODEL
DNAPL	DENSE NON-AQUEOUS PHASE LIQUID (CHLORINATED SOLVENTS, PCB)
DWS	DRINKING WATER STANDARD
EA	ENVIRONMENT AGENCY
EQS	ENVIRONMENTAL QUALITY STANDARD
GAC	GENERAL ASSESSMENT CRITERIA
GL	GROUND LEVEL
GSV	GAS SCREENING VALUE
HCV	HEALTH CRITERIA VALUE
ICSM	INITIAL CONCEPTUAL SITE MODEL
LNAPL	LIGHT NON-AQUEOUS PHASE LIQUID (PETROL, DIESEL, KEROSENE)
ND	NOT DETECTED
LMRL	LOWER METHOD REPORTING LIMIT
NR	NOT RECORDED
PAH	POLY AROMATIC HYDROCARBON
PCB	POLY-CHLORINATED BIPHENYL
PID	PHOTOGRAPH IONISATION DETECTOR
QA	QUALITY ASSURANCE
SGV	SOIL GUIDELINE VALUE
SPH	SEPARATE PHASE HYDROCARBON
SP.TPH (CWG)	TOTAL PETROLEUM HYDROCARBON (CRITERIA WORKING GROUP)
SPT	STANDARD PENETRATION TEST
SVOC	SEMI VOLATILE ORGANIC COMPOUND
UST	UNDERGROUND STORAGE TANK
VCCS	VIBRO CONCRETE COLUMNS
VOC	VOLATILE ORGANIC COMPOUND
WTE	WATER TABLE ELEVATION

UNITS

M	METRES
KM	KILOMETRES
%	PERCENT
%V/V	PERCENT VOLUME IN AIR
MB	MILLI BARS (ATMOSPHERIC PRESSURE)
L/HR	LITRES PER HOUR
µG/L	MICROGRAMS PER LITRE (PARTS PER BILLION)
PPB	PARTS PER BILLION
MG/KG	MILLIGRAMS PER KILOGRAM (PARTS PER MILLION)
PPM	PARTS PER MILLION
MG/M^3	MILLIGRAM PER METRE CUBED
M BGL	METRES BELOW GROUND LEVEL
M BCL	METRE BELOW COVER LEVEL
MAOD	METRES ABOVE ORDNANCE DATUM (SEA LEVEL)

KN/M^2	KILO NEWTOWNS PER METRE SQUARED
µM	MICRO METRE

APPENDIX III

DRAWINGS

Areas Requiring installation of Hydrocarbon Resistant Membrane

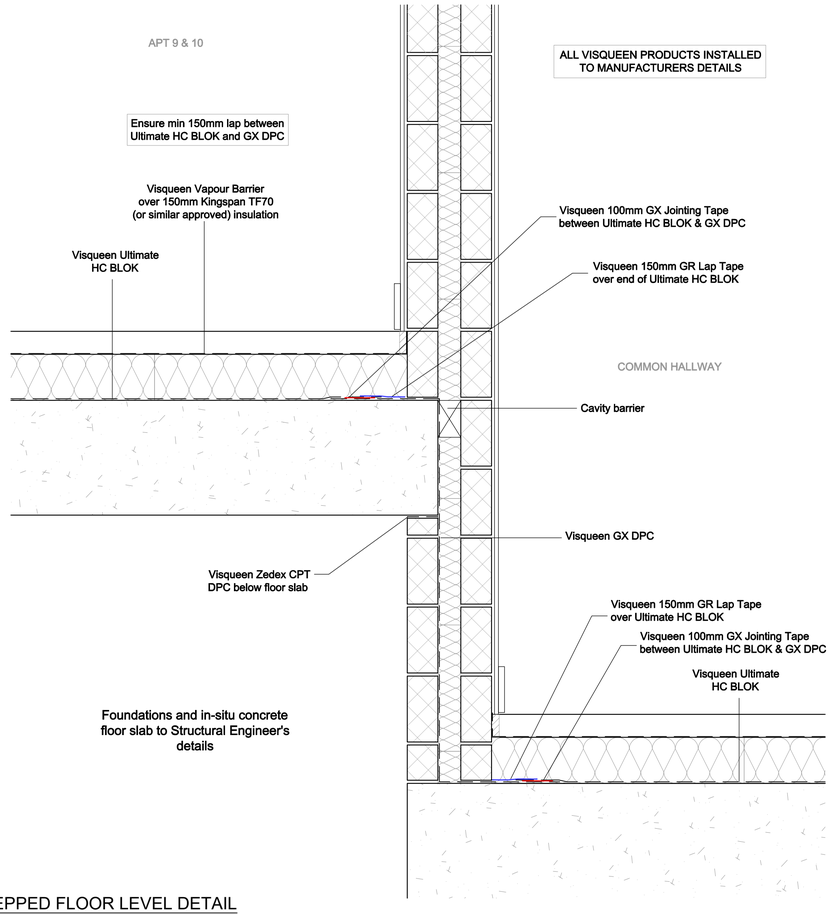


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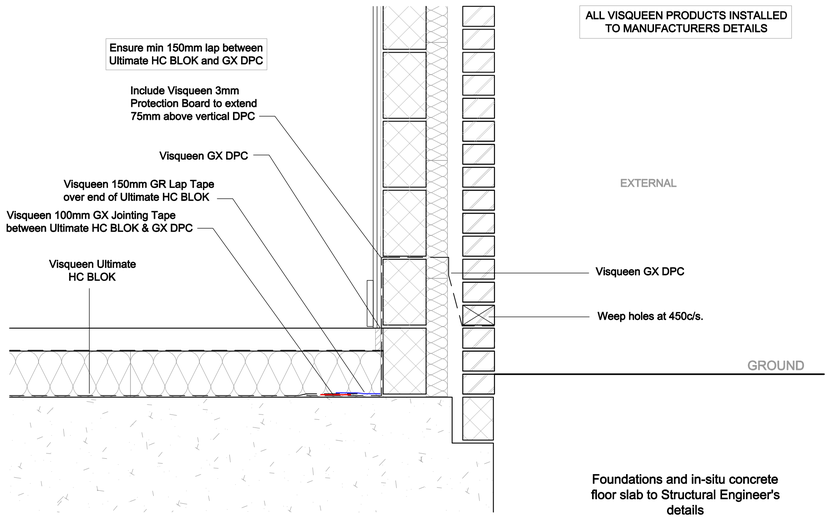
Job Title: Former Wessex Yard	Client: REL Winchester Ltd	Job No: A11274	DATE 03/10/2019	Drawing Title: Figure 1.0 Areas Requiring Hydrocarbon Resistant Membranes
		Drawn by: AK		
		Approved by: TM		
		Scale: Scale Bar		

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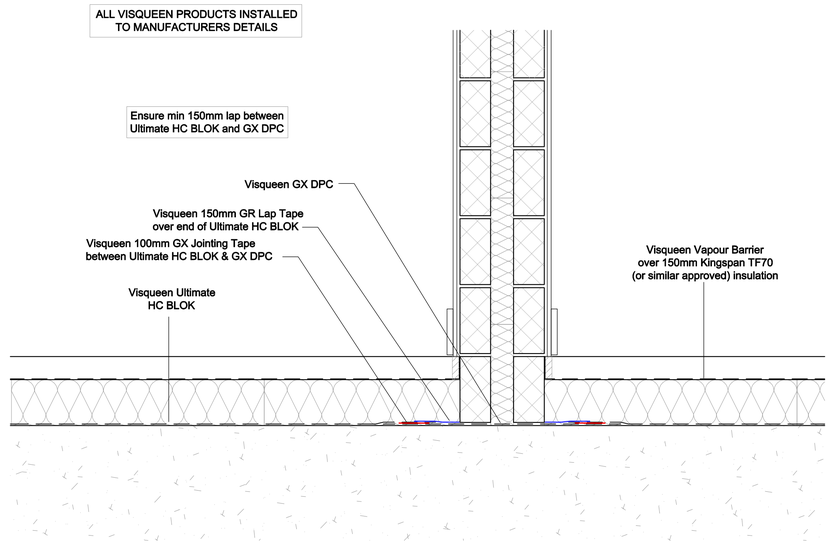
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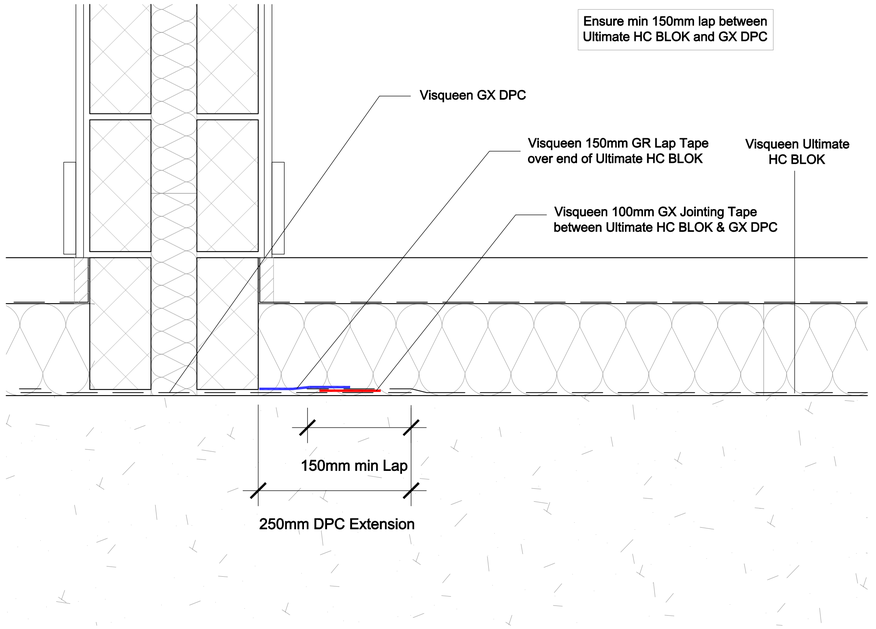
STEPPED FLOOR LEVEL DETAIL
(Block B - 1:10)



EXTERNAL WALL JUNCTION
(1:10)



PARTY WALL JUNCTION
(1:10)



TYPICAL LAP DETAIL
(1:5)

GENERAL NOTES

WARNING TO PROPERTY PURCHASERS - Property Misdescriptions Act 1991

Buyers are warned that this is a working drawing and is not intended to be treated as a descriptive material describing, in relation to any particular property or development, any of the specified matters prescribed by any order made under the above act. The contents of this drawing may be subject to change at any time and alterations and variations can occur during the process of the works without revision of the drawing. Consequently the layout, form, content and dimensions of the finished construction may differ materially from those shown. Nor do the contents of this drawing constitute a contract, part of any contract or a warranty.

This drawing is to be read in conjunction with the clients standard specification, Structural Engineers and Mechanical & Electrical engineers design and details. Do not scale off this drawing. Use figured dimensions only. All dimensions discrepancies to be brought to the immediate attention of Design Team.

The contractor is to ensure that proposed Works will be executed in accordance with any relevant Conditions appended to the Local Planning Authority's Decision Notice; the current Building Regulations and N.H.B.C. Standards; the requirements of the Fire Officer; the Institute of Electrical Engineers handbook (current edition); the requirements of the local Water Authority.

Materials and workmanship should, where applicable, comply with the current British Standards Institute specifications and Codes of Practice. Where such guidance does not exist, materials and workmanship should conform to established good practice.

The location of existing services should be established prior to the commencement of any works - if discovered to be at variance with that shown on the Engineering drawings, the Architect and Engineer must be notified immediately.

The contractor is to check all dimensions, both internal and external, prior to the commencement of any works, including the ordering of materials - and any errors must be reported to the Architect or Engineer.

Where proprietary materials, fixtures or fittings are used, they must be placed / fitted strictly in accordance with the manufacturers written instructions and published details pertaining to circumstance in which they are to be used.

This specification must be read in conjunction with all the other drawings, schedules and documents which form part of this Building Regulations submission.

The setting - out of the unit is to be checked prior to any work commencing.

Ensure all blockwork is tooth and bonded together at corners where different densities of blocks meet.

Ensure All joints are taped / sealed in walls, floors and ceilings.

Any variations carried out on site should be brought to the attention of the Design Team for verification of compliance with statutory requirements and regulations.

PRELIMINARY

Avoid areas of unsupported membrane.

Ultimate HC BLOK should not be taken through masonry wall. DPC should extend 250mm min across floor slab and be jointed to membrane.

Lap Tape

Jointing Tape

Revision	Date	Description	Dwn	Chkd

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Client :

Project :
41No. New Build Apartments at New Lane, Havant

Drawing Title :
Membrane Details

Drawn By	Date	Checked By	Date	Approved By	Date
KW	NOV 19				

Drawing No.	Revision:	Scale:
15.2094.310	P1	As Stated @ A1

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APPENDIX IV

MEMBRANE SPECIFICATION SHEETS

CI/SfB | | (21.9) | | (L34) | MAY 2010

LARGEST EUROPEAN PRODUCER OF HIGH PERFORMANCE BUILDING FILMS

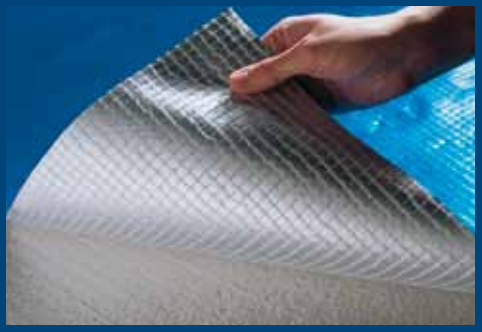
VISQUEEN BUILDING PRODUCTS

SPECIFIER'S GUIDE TO

STRUCTURAL WATERPROOFING & GAS PROTECTION SYSTEMS











VISQUEENBUILDING.CO.UK



SUSTAINABLE CONSTRUCTION

Our ongoing programme of capital investment has enabled us to become one of the European leaders in the field of plastics recycling, reprocessing over 64,000 tonnes of polyethylene each year thereby diverting valuable raw materials from landfill.

64 ktes

OF WASTE PLASTIC IS REPROCESSED IN OUR UK PLANTS

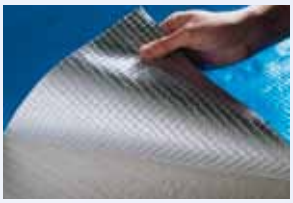
RECYCLING WASTE PLASTIC IN THE UK



DAMP PROOF COURSES 7



DAMP PROOF MEMBRANES 23



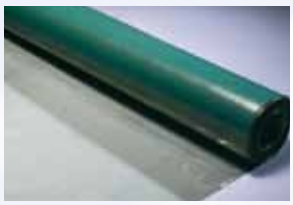
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VAPOUR CONTROL LAYERS 75



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PLASWOOD RECYCLED FURNITURE 99

PRODUCT INDEX 104

The information given in this brochure is based on data and knowledge correct at the time of printing. Statements made in this brochure are of a general nature and are not intended to apply to any use or application outside any referred to in the literature. As conditions of usage and installation are beyond our control we do not warrant performance obtained but strongly recommend that our installation guidelines and the relevant Codes of Practice are adhered to. The values given in technical tables are indicative and correspond to typical results obtained in laboratories and testing institutes.

Please contact us if you are in any doubt as to the suitability of application.

Printed on 150gsm Cocoon Silk and 350gsm Cocoon Silk - 100% recycled, using vegetable based inks – 100% recycled (80% de-inked post-consumer waste, 20% mill broke). Chlorine free.

VISQUEEN BUILDING PRODUCTS

For more than 50 years Visqueen Building Products, part of BPI PLC, has been recognised as the leader in the development, production and supply of high performance, high quality construction materials.

Our unrelenting strategy of product innovation has resulted in our extensive market leading range of damp proof courses and membranes, gas proof courses and below ground waterproofing systems.

For high quality protection against gas and damp ingress on increasingly demanding site conditions, only Visqueen Building Products offers you a complete solution.

Plaswood from visqueen building products

Plaswood from Visqueen Building Products is the long established market leader in the production and supply of recycled plastic products. Plaswood is an award winning, long life environmental alternative to traditional materials such as wood, metal and concrete. Due to its versatility, Plaswood can be fabricated into numerous products including;

— Landscaping products including fencing and gates.
— School and playground furniture.
— Highways products such as bollards.
— Decking and waterways.

VISQUEEN DAMP PROOF COURSES

VISQUEEN DAMP PROOF MEMBRANES

VISQUEEN GAS PROTECTION

VISQUEEN VAPOUR CONTROL

VISQUEEN TANKING MEMBRANES

VISQUEEN STORMWATER PROTECTION

VISQUEEN FLOOR PROTECTION

THE VISQUEEN SPECIFIER'S GUIDE
The Visqueen Specifier's Guide is the perfect introduction to Visqueen's comprehensive support service.
The guide provides an overview of our complete range and details installation instructions for all our products. It is designed to be closely used in association with our website visqueenbuilding.co.uk

ELECTRONIC NBS SPECIFICATIONS
To assist with preparing specifications, Visqueen's products are available in NBS format. These can be downloaded from our website or emailed to you upon request.

INTERACTIVE WEBSITE
visqueenbuilding.co.uk provides detailed product and technical information. The site contains downloadable information including product technical datasheets and standard details from our extensive library covering typical DPC, tanking and gas protection applications.

CAD SUPPORT SERVICE
Our computer aided design department will assist in the design of Preformed Units to ensure 100% protection at complex three dimensional damp proof and gas proof detailing.

TECHNICAL SITE SUPPORT SERVICE
Visqueen's national team of Technical Support Managers provide comprehensive backup to specifiers and end users which includes assistance with product selection, system design and on site installation training. The service is free and is provided by support personnel with extensive experience in the construction industry.

CPD TRAINING SEMINARS
To encourage the widespread use of good practice, Visqueen offers a range of Continuing Professional Development Seminars for specifiers such as Protection of Buildings on Gas Contaminated Land. During these one hour approved seminars, presenters provide key learning and critical up-to-date information for those involved in new-build construction or refurbishment.

COMPLETE RANGE COMPLETE SERVICE







Above: Visqueen CPD Seminar on gas contaminated land including new guidance

CPD MEMBER
Construction CPD Certification Service



IMAGE ILLUSTRATES HIGH IMPACT STRENGTH OF VISQUEEN ZEDEX DPC

08 Visqueen Zedex CPT DPC
12 Visqueen Zedex High Bond DPC
14 Visqueen Preformed Unit
16 Visqueen Zedex Housing Grade DPC
18 Visqueen Polyethylene DPC
20 Visqueen GX Hydrocarbon DPC
21 Visqueen Gas Resistant DPC

DAMP PROOF COURSES

Visqueen Zedex High Performance DPC is thinner than traditional damp proof courses without compromising performance. This helps reduce material usage, manufacturing energy and lowers transportation miles.

RECYCLING WASTE PLASTIC IN THE UK

DAMP PROOF COURSES
VISQUEEN ZEDEX CPT DAMP PROOF COURSE

— **EXCELLENT PEFORMANCE UNDER HIGH COMPRESSIVE LOADS.**
— **OUT PERFORMS ALL OTHER HIGH PERFORMANCE FLEXIBLE DPC AND CAVITY TRAY SYSTEMS.**
— **CONTAINS NO HAZARDOUS PITCH OR PVC PLASTICIZERS MAKING IT SAFE AND CLEAN TO HANDLE.**
— **SYSTEM COMPONENTS FOR ALL APPLICATIONS INCLUDING STANDARD AND BESPOKE PREFORMED CAVITY TRAY (CLOAK) UNITS.**
— **LOW PERMEABILITY TO RADON AND CARBON DIOXIDE GAS.**

DESCRIPTION
Visqueen Zedex CPT High Performance Damp Proof Course (DPC) and cavity tray system is manufactured from co-polymer thermoplastic (CPT) providing all the characteristics necessary for it to perform effectively for the lifetime of the building in which it is incorporated.

Visqueen Zedex CPT DPC provides superior strength, tear resistance and flexibility and is compatible with all other Visqueen damp proofing, gas proofing and tanking protection systems.

APPLICATION
Visqueen Zedex CPT DPC is suitable for use as a DPC in all types of building construction and can be used in vertical, horizontal, stepped and cavity tray applications.

ON SITE
High tear and puncture resistant characteristics help avoid the failures caused by damage during installation, such as clearing mortar droppings out of the cavity, general manhandling on site and during transport. Independent testing shows the tear strength of Visqueen Zedex CPT DPC to be many times that of traditional pitch polymer DPCs.

AESTHETICS
Visqueen Zedex CPT DPC is also available in a range of colours to match the mortar or outer leaf. The most popular colours are white and sandstone. Our technical department will be happy to assist you with product specifications.

MORTAR ADHESION
Visqueen Building Products commissioned CERAM Building Technology to test Visqueen Zedex CPT DPC under BSI's DD86 Part 1 1983 for flexural bond strength and shear strength. These independent tests show that Visqueen Zedex CPT DPC has excellent mortar adhesion characteristics. With DPCs being used extensively outside the original ground level applications, understanding the effect of a damp proof course on wall strength becomes increasingly important.



COMPATIBILITY
Visqueen Zedex CPT DPC avoids the risks of any incompatibility between the damp proof course and other damp or waterproofing materials. It can be used with a wide range of products such as silicon mastics without causing discolouration, and bituminous liquid DPMs. Such compatibility is essential to ensure a continuous waterproof barrier for the lifetime of the building.

Clean and safe to handle, the materials used in Visqueen Zedex CPT DPC are chemically stable and inert, free of both solvents and aggressive chemicals. Visqueen Zedex CPT DPC is also clean and safe to use, requiring no special conditions for storage, transportation, handling, usage or recycling.

— Fully recyclable.
— Strong and flexible.
— Robust and puncture resistant.
— High tear strength.
— Excellent workability in winter conditions.

IMPORTANT
Full technical information is available at www.visqueenbuilding.co.uk/dpc

REQUIRED COMPONENTS
AVAILABLE AS A DOWNLOAD FROM VISQUEENBUILDING.CO.UK/DPC

DL VISQUEEN ZEDEX JOINTING SYSTEM
DL VISQUEEN HP TANKING PRIMER
P14 VISQUEEN ZEDEX PREFORMED CAVITY TRAY UNITS
P87 VISQUEEN ZEDEX FIXING STRIPS/PINS

SPECIFICATION SUPPORT
THE FOLLOWING ITEMS ARE AVAILABLE TO VIEW ONLINE OR TO DOWNLOAD FROM VISQUEENBUILDING.CO.UK/DPC

- TECHNICAL DATASHEETS
- TYPICAL INSTALLATION CAD DETAILS
- HEALTH & SAFETY DATA
- AGRÉMENT CERTIFICATE

BBA BRITISH BOARD OF AGREMENT ASSESSMENT OF PRODUCTS FOR CONSTRUCTION CERTIFICATE No. 94/3059

MANUFACTURED IN THE UK

nbsPlus

CPD MEMBER Construction CPD Certification Service

TESTED AND COMPARED

To prove and verify its high performance status Visqueen Zedex CPT DPC has undergone a range of independent tests, covering all aspects of its performance.

We have used test methods from Britain, South Africa and the USA to prove that Visqueen Zedex CPT DPC is the best all round flexible high performance DPC. For example, Tensile Strength and Elongation assess the suitability of damp proof courses in withstanding the stresses and movement of buildings.

Such performance is critical; even in a typical house there is, on average, a weight of over 3 tonnes per linear metre in the load bearing wall. A further test for durability is the ability of the material to perform throughout the lifetime of the building.

Visqueen Building Products, in addition to the normal heat ageing tests, has assessed the Tensile Strength and Elongation of Visqueen Zedex CPT DPC by using an American test method for Accelerated Weathering (ASTM G53).

TECHNICAL DETAILS

COMPARATIVE PERFORMANCE

Test	Product A	Product B	Visqueen Zedex	Product C	Best Performance
	Leading Pitch Polymer DPC	Polymeric DPC	Co-Polymer Thermoplastic DPC	Bitumen Polymer DPC	Visqueen Zedex
Tensile Strength BS 2782 : 320A : 1986 N/mm2	9·1	12·9♦	20·5▼	5l5♦	Visqueen Zedex
Elongation at Break BS 2782 : 320A : 1986 %	200%♦	415%♦	539%▼	510%♦	Visqueen Zedex
Tear Strength BS 2782 : 360B : 1991	27·8▼	122.0♦	175·0▼	64·0♦	Visqueen Zedex
Accelerated Weathering Test (ASTM G53 - 1984) Tensile Strength (BS 2782 : 320A : 1986) N/mm2	8·5▼	12·9♦	18·9▼	N/A	Visqueen Zedex
Accelerated Weathering Test (ASTM G53 - 1984) % Elongation at Break (BS 2782 : 320A : 1986)	60%▼	415%▼	462%▼	N/A	Visqueen Zedex
Water Vapour Permeability BS 3177 : 1959 (25°C / 75%RH) g/m2/day	2·0♦	0·28♦	0·21*	0·5♦	Visqueen Zedex

♦ Manufacturer's published information ▼ University of London * BBA
Tensile Strength, Elongation and Tear Strength tests were conducted along the longitudinal direction of the material.

DAMP PROOF COURSES
VISQUEEN ZEDEX CPT DAMP PROOF COURSE

INSTALLATION

INSTALLATION STEPS

- Visqueen Zedex CPT DPC must extend through the full thickness of the wall, including pointing, applied rendering or other facing materials.
- Visqueen Zedex CPT DPC must be laid on an even bed of wet mortar, and perforations in adjacent courses of brickwork must be completely filled with mortar.
- Visqueen Zedex CPT DPC must not be damaged by cavity cleaning after installation.
- **Further information is available from BBA Certificate (94/3059), available from our website visqueenbuilding.co.uk**

JOINTING

All DPC laps must be a minimum of 100mm and bonded together with Visqueen Zedex DPC Jointing Tape.

All cavity tray laps to Preformed Cavity Tray (Cloak) Units must be a minimum of 100mm and bonded using Visqueen Zedex DPC Jointing Tape. Visqueen Zedex DPC Joint Support Boards are also available to support the formation and long term integrity of these joints.

SURFACE FIXING

Visqueen Zedex DPC Fixing Strip should be used when the construction programme or the design require the DPC to be post or surface fixed to the cavity face of the inner leaf. The surface should first be primed, the DPC then bonded to the inner leaf using Visqueen Zedex DPC Jointing Tape and finally permanently secured using Visqueen Zedex DPC Fixing Pins at 150mm intervals.

Visqueen Zedex DPC Fixing Pins for Masonry can be used for surface fixing to solid substrates such as blockwork or concrete whereas the rigid urethane foam insulation of composite inner leafs require Visqueen Zedex DPC Fixing Pins for Insulation.

Image illustrates built in cavity tray



Image illustrates built in cavity tray above opening



REQUIRED COMPONENTS
AVAILABLE AS A DOWNLOAD FROM
VISQUEENBUILDING.CO.UK/DPC

DL VISQUEEN ZEDEX JOINTING SYSTEM
DL VISQUEEN HP TANKING PRIMER
P14 VISQUEEN ZEDEX PREFORMED CAVITY TRAY UNITS
P87 VISQUEEN ZEDEX FIXING STRIPS/PINS

BBA BRITISH BOARD OF AGREMENT
ASSESSMENT OF PRODUCTS FOR CONSTRUCTION
CERTIFICATE No. 94/3059

MANUFACTURED IN THE UK

SPECIFICATION SUPPORT
THE FOLLOWING ITEMS ARE AVAILABLE TO VIEW ONLINE OR TO DOWNLOAD FROM VISQUEENBUILDING.CO.UK/DPC

- TECHNICAL DATASHEETS
- CAD TYPICAL INSTALLATION CAD DETAILS
- H&S HEALTH & SAFETY DATA
- AGRÉMENT CERTIFICATE

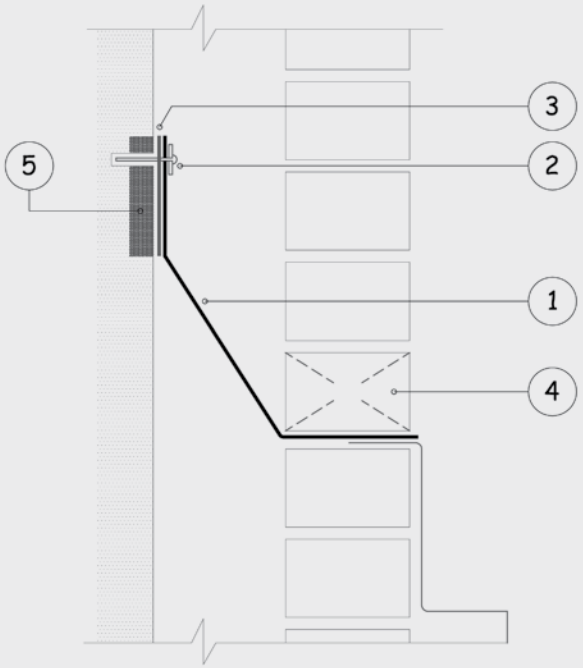
nbsPlus

CPD MEMBER Construction CPD Certification Service

TECHNICAL DATA

Tensile Strength	20.5 N/mm^2
Elongation at Break	539%
Tear Strength	175.0 N/mm^2
Water Vapour Permeability	0.21 g/m^2/day
Radon Permeability (k)	17x10^{-12} m^2/s
Radon Transmittance (P)	22x10^{-9} m^2/s
Gas (CO_2) Permeability Test in accordance with ISO 2782: 1995	
Permeability Value	1.58x10^{-16} m^2/sec/Pa
ROLL DIMENSIONS	
Nominal Thickness	0.8mm
Nominal Weight	0.75 kg/m^2
Roll Length	20m
Available Widths	100mm to 1400mm

STANDARD SURFACE FIXING DETAIL — MASONRY (SF-01)



KEY:
1) VISQUEEN ZEDEX HIGH PERFORMANCE DPC (PREFORMED CAVITY TRAYS TO SUIT).
2) VISQUEEN ZEDEX DPC FIXING STRIP AND ZEDEX FIXING PINS FOR MASONRY.
3) VISQUEEN ZEDEX DPC JOINTING TAPE ON PRIMED, FLUSH INNER SKIN.
4) WEEPHOLES AT 900MM CENTRES (MIN 2NO. PER OPENING).
5) VISQUEEN HP TANKING PRIMER.

DAMP PROOF COURSES
VISQUEEN ZEDEX HIGH BOND DPC

- **A HIGH PERFORMANCE DPC.**
- **SUPERIOR PERFORMANCE IN LOW COMPRESSIVE LOAD APPLICATIONS.**
- **EXCELLENT MORTAR ADHESION PROPERTIES.**
- **INSTALLATION OPTIONS INCLUDING HOT BONDING.**
- **LOW PERMEABILITY TO METHANE, RADON AND CARBON DIOXIDE GASES.**
- **CONTAINS NO PITCH OR PLASTICISERS.**

DESCRIPTION
Visqueen Zedex High Bond DPC is a high performance heavy duty DPC suitable for general cavity tray applications including parapet walls, beneath copings and cappings, in gas resistant DPC applications and complex detailing work at ground level. Visqueen Zedex High Bond DPC can be torch bonded to masonry units and all laps are homogenously sealed during the torch bonding process.



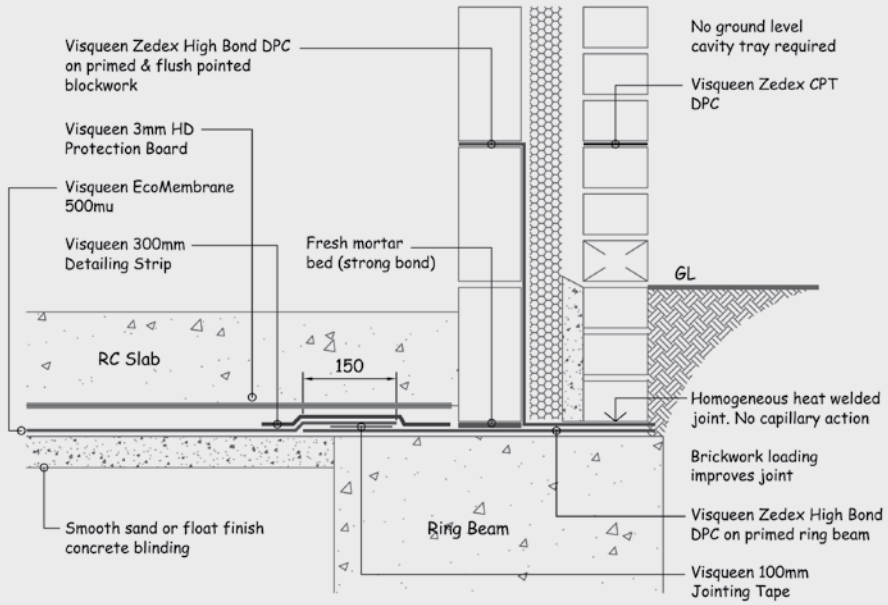
TYPICAL PROPERTIES
Visqueen Zedex High Bond DPC is manufactured from a seamless roll of aluminium, bonded to a tough polyester carrier and coated with SBS modified bitumen, which is then finished with silica sand.

- **Compatibility** – Visqueen Zedex High Bond DPC is compatible with all materials used within normal construction, with the exception of timber preservatives based on creosotes or tar oils, however, it is unaffected by water based or salt solution timber preservatives.
- **Durability** – When correctly specified, detailed and installed, Visqueen Zedex High Bond will last the lifetime of the building provided it is not damaged by subsequent building operations.
- **Compressive Strength** – Visqueen Zedex High Bond DPC is capable of withstanding the loading applied by brickwork, blockwork, or stonework walls up to three storeys.

APPLICATIONS
Visqueen Zedex High Bond DPC can be used horizontally at door and window jambs, over lintels, vertically bonded to the cavity face of the inner leaf to facilitate requirements for level access and wherever a flexible and adaptable gas or damp proof course and cavity tray system is required.

TYPICAL USES:
- Wet bedded coping stone and parapet wall applications where a low imposed load occurs but a high mortar bond is required. Reduces likelihood of slippage due to wind loading.
- Hot bonded detail work at complex cavity tray detailing. The Visqueen Zedex High Bond DPC can be torch bonded together and heat sealed to primed concrete or steel columns using a gas torch.
- Torch bonded to primed reinforced concrete slabs and primed down-turn concrete beams.
- Torch bonded to primed steel lintels reducing the risk of the DPC slipping forward during application of Pistol bricks.
- Ground level tanking applications when used in conjunction with Visqueen TorchOn Tanking Membrane.
- Speeds up procurement times as Preformed Cloak Units are not required. Visqueen Zedex High Bond cloaks can be made on site as laps are all homogenously sealed.

STANDARD DETAIL — MASONRY (SW-31)



REQUIRED COMPONENTS
AVAILABLE AS A DOWNLOAD FROM
VISQUEENBUILDING.CO.UK/DPC

DL VISQUEEN ZEDEX JOINTING SYSTEM
DL VISQUEEN HP TANKING PRIMER
P14 VISQUEEN ZEDEX PREFORMED CAVITY TRAY UNITS
P87 VISQUEEN ZEDEX FIXING STRIPS/PINS

SPECIFICATION SUPPORT
THE FOLLOWING ITEMS ARE AVAILABLE
TO VIEW ONLINE OR TO DOWNLOAD FROM
VISQUEENBUILDING.CO.UK/DPC

- TECHNICAL DATASHEETS
- CAD TYPICAL INSTALLATION CAD DETAILS
- H&S HEALTH & SAFETY DATA

MANUFACTURED IN THE UK

INSTALLATION

GUIDELINES

Installation must follow normal good practice as per BS 5628 3:2005 and must be in accordance with BS 8215 revised edition.

- Visqueen Zedex High Bond DPC must extend through the full thickness of the wall leaf, including pointing, applied rendering or other materials.
- It is to be laid on a wet, even bed of mortar and perforations in adjacent courses of block work must be completely filled with mortar.
- All lap joints in Visqueen Zedex High Bond DPC must have a minimum 100mm overlap.
- Visqueen Zedex High Bond DPC site formed cloaks must be used at stop ends and all corners or changes in level of cavity trays must not be damaged by cavity cleaning after installation.
- A sharp knife is necessary to cut the material.
- Work can be carried out under all weather conditions normal to the construction of the wall and Visqueen Zedex High Bond DPC maintains sufficient flexibility to be installed at low temperatures.

Full technical datasheets, including hot bonding installation, are available from our website www.visqueenbuilding.co.uk/dpc

TECHNICAL DATA

TYPICAL PROPERTIES	
Tensile Strength(BS EN12311-1)	675N/50mm
Elongation Control (BS EN12311-1)	34%
Water Vapour Permeability (BS 3177)	0.06g/m^2/day
Nail Tear (BS EN 12310-1)	156N
Methane Gas Permeability	0.06 ml/m^2/day
Transverse	17.4
ACCELERATED WEATHERING	
Tensile Strength(BS EN12311-1)	675N/50mm
Elongation Control (BS EN12311-1)	34%
ROLL DIMENSIONS	
Nominal Thickness	3mm
Nominal Weight	3.8kg/m^2
Roll Length	8m
Available Widths	450mm, 600mm, 1m

DAMP PROOF COURSES
VISQUEEN PREFORMED CAVITY TRAY UNITS

- **MANUFACTURED IN THE UK FROM SPECIALLY FORMULATED, FLEXIBLE CO-POLYMER MATERIAL.**
- **DESIGNED TO SIMPLIFY THE DAMP PROOFING OF COMPLEX CAVITY TRAY JUNCTIONS.**
- **SPEEDS UP CAVITY TRAY INSTALLATION AND ELIMINATES LEAKAGE PATHS.**
- **ENSURES COMPLIANCE WITH INDUSTRY RECOMMENDATIONS AND STANDARDS.**
- **BUILT-IN AND SURFACE FIXED UNITS AVAILABLE.**
- **FREE ON-SITE SERVICE FOR DESIGN OF PROJECT SPECIFIC PREFORMED UNITS.**

MANUFACTURED IN THE UK

INTRODUCTION
British Standard 5628: Part 3 code of practice for the use of masonry (materials and components, design and workmanship) offers guidance and recommendations on the damp proofing of structures. It recognises that the penetration of water into the fabric of a building has serious consequences for the health of the occupants and for the long term serviceability of the structure.

The numerous bridges of the cavity wall commonly require damp proofing protection in the form of a cavity tray and where a flexible damp proof course material is used, the British Standard recognises that many common details cannot be satisfactorily formed on site and that preformed units should be specified for these complex junctions.

DESCRIPTION
An integral part of the Visqueen Zedex Damp Proofing System is the range of Visqueen Preformed Cavity Tray Units. The units simplify cavity tray detailing at columns, corners, windposts, change of levels, etc, and so greatly reduce the time required on site to install a cavity tray at these complex junctions.

Visqueen Preformed Cavity Tray Units are factory manufactured from specially formulated, tough, co-polymer material, which is sufficiently flexible to accommodate normal construction tolerances. The units can be produced for any width of cavity and in formats suitable to be either built-in or surface fixed to the inner leaf.

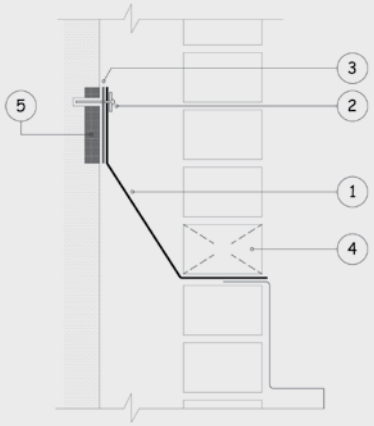
APPLICATION
Visqueen Preformed Cavity Tray Units are generally installed prior to the main run of Visqueen Zedex DPC Cavity Tray. The Visqueen Zedex DPC Cavity Tray should overlap the Preformed Unit by minimum 100mm, the lap being bonded with Visqueen Zedex DPC Jointing Tape.

When surface fixing, the Preformed Unit should be bonded and then mechanically fixed to the inner leaf using the same taping/fixing system as the Visqueen Zedex DPC Cavity Tray.

In accordance with industry recommendations and guidance, Visqueen Zedex DPC Joint Support Boards should be positioned beneath unsupported laps in order to provide support for the initial formation of the bonded lap and its long term integrity.

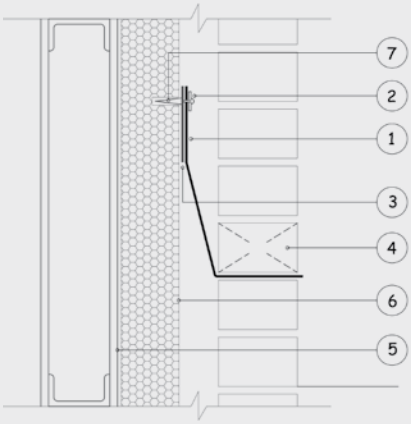
FIXING PINS FOR MASONRY (SF-01)

KEY: 1) Visqueen Zedex CPT DPC (preformed cloaks to suit). 2) Visqueen Fixing Strip (25x2mm, pre-drilled with 8mm Ø holes). 3) Visqueen Zedex 100mm Jointing Tape on primed, flush inner skin. 4) Weepholes at 900mm centres (min 2no. per opening). 5) Visqueen HP Tanking Primer.



FIXING PINS FOR INSULATION (SF-02)

KEY: 1) Visqueen Zedex CPT DPC (preformed cloaks to suit). 2) Visqueen Fixing Strip (25x2mm, pre-drilled with 8mm Ø holes) Visqueen Fixing Pins at 150mm centres. 3) Visqueen Zedex 100mm Jointing Tape. 4) Weepholes at 900mm centres (min 2 no. per opening). 5) Metal frame construction by specialist. 6) Rigid insulation board. 7) Visqueen No.2 Fixings.



DESIGN SUPPORT

Visqueen Technical Support Managers have specialist knowledge and experience in designing and producing isometric drawings of the complex shapes required to allow continuity of cavity trays in buildings. The incorporation of these units into the cavity tray system ensures that common leakage paths are sealed, thereby eliminating both potential damp problems and the resulting costly remedial works on site.

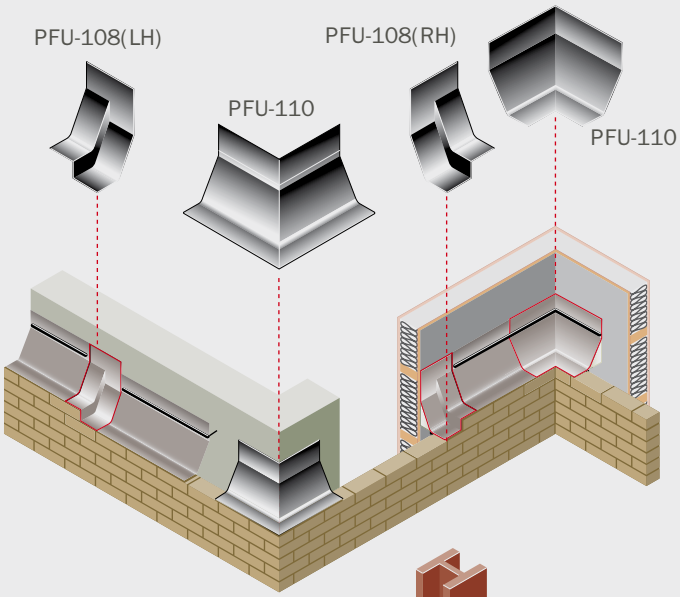
The design support service is available free of charge to both specifiers and end-users.

The following table lists some typical applications for Visqueen Preformed Cavity Tray Units. Please contact your local Visqueen Technical Support Manager for assistance in the design of project specific units.

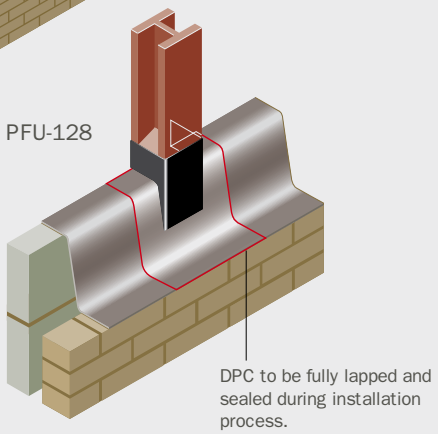
TECHNICAL DATA

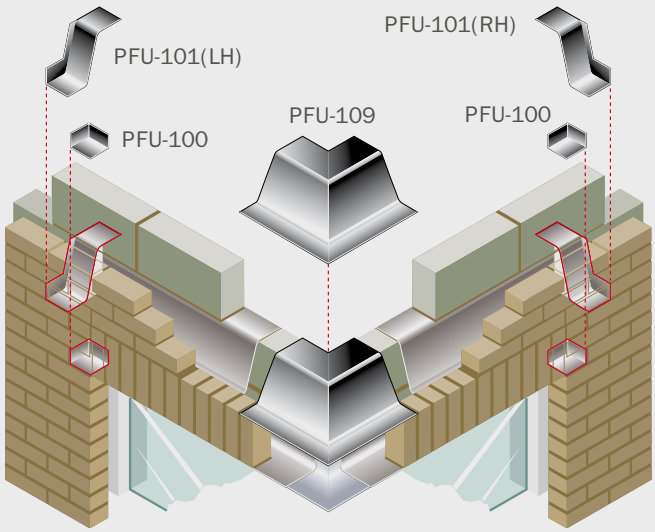
Preformed Unit	Built-in	Surface fixed
Lintel stop end	PFU-100	PFU-100
Stop end	PFU-101	PFU-102
Jambs	PFU-104	PFU-104
Change of level	PFU-107	PFU-108
Internal/ external corner	PFU-109	PFU-110
Windpost	PFU-125	PFU-125
Column	PFU-128	PFU-130
External corner column	PFU-129	PFU-131
Arched window	PFU-145	PFU-145

SURFACE FIXED & BUILT-IN APPLICATIONS



IMPORTANT
During installation DPC must overlap Preformed Unit by 100mm and be fully sealed with Visqueen Zedex DPC Jointing Tape.





DAMP PROOF COURSES
VISQUEEN ZEDEX HOUSING GRADE DPC

- **SUITABLE FOR HOUSING CONSTRUCTIONS UP TO THREE STOREYS.**
- **OUT PERFORMS ALL OTHER HOUSING GRADE FLEXIBLE DPCS.**
- **CONTAINS NO HAZARDOUS PITCH OR PVC PLASTICIZERS MAKING IT SAFE AND CLEAN TO HANDLE.**
- **A SUPERIOR ALTERNATIVE TO BRITISH STANDARD DPCS.**
- **STRONG, PUNCTURE RESISTANT WITH EXCELLENT WORKABILITY IN WINTER CONDITIONS.**
- **BRITISH BOARD OF AGRÉMENT (BBA) APPROVED.**

DESCRIPTION

Visqueen Zedex Housing Grade DPC is based on the same polymer technology as Visqueen Zedex CPT DPC. It is designed to provide housebuilders with a robust, higher performing and cost effective alternative to traditional British Standard DPCs.

Visqueen Zedex Housing Grade DPC is strong and flexible remaining workable throughout the seasons. It can be used with a wide range of products such as silicon mastics without causing discolouration, and bituminous liquid DPMs. Such compatibility is essential to ensure a continuous waterproof barrier for the lifetime of the building.

APPLICATION

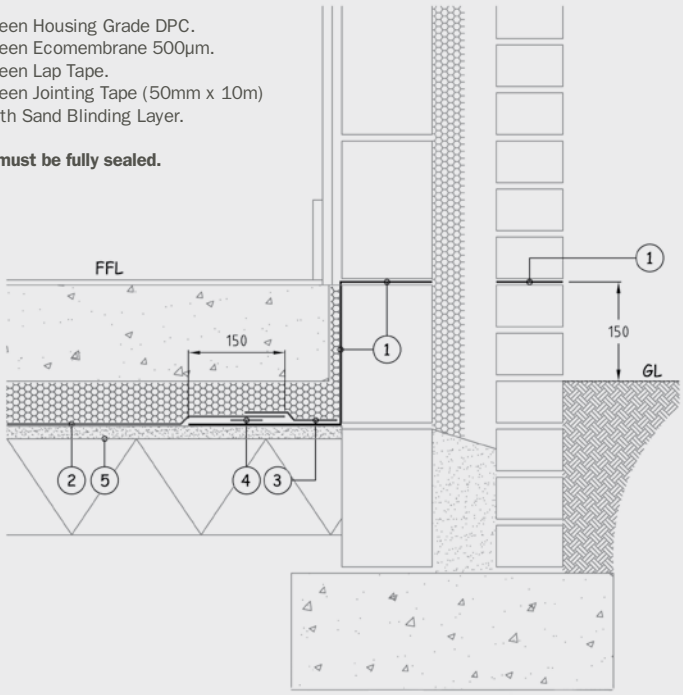
Visqueen Zedex Housing Grade DPC is suitable for use as a DPC in domestic and residential construction in vertical, stepped and horizontal applications. The DPC may be used in conjunction with beam and block flooring and if used as a cavity tray, the DPC should be fully supported along its length i.e. supported by the lintel. For other applications use Visqueen Zedex CPT DPC. Installed in accordance with our instructions,Visqueen Zedex Housing Grade DPC provides an effective barrier against the passage of moisture.



STANDARD DETAIL - TYPICAL GROUND BEARING SLAB EDGE DETAIL (SW-30)

KEY:
1) Visqueen Housing Grade DPC.
2) Visqueen Ecomembrane 500µm.
3) Visqueen Lap Tape.
4) Visqueen Jointing Tape (50mm x 10m)
5) Smooth Sand Blinding Layer.

All laps must be fully sealed.



REQUIRED COMPONENTS
AVAILABLE AS A DOWNLOAD FROM
VISQUEENBUILDING.CO.UK/DPC

DL	VISQUEEN ZEDEX JOINTING SYSTEM
DL	VISQUEEN HP TANKING PRIMER
P14	VISQUEEN ZEDEX PREFORMED CAVITY TRAY UNITS
P87	VISQUEEN ZEDEX FIXING STRIPS/PINS

SPECIFICATION SUPPORT
THE FOLLOWING ITEMS ARE AVAILABLE
TO VIEW ONLINE OR TO DOWNLOAD FROM
VISQUEENBUILDING.CO.UK/DPC

- TECHNICAL DATASHEETS
- TYPICAL INSTALLATION CAD DETAILS
- HEALTH & SAFETY DATA
- AGRÉMENT CERTIFICATE

BBA BRITISH BOARD OF AGREMENT
ASSESSMENT OF PRODUCTS FOR CONSTRUCTION
CERTIFICATE No. 94/3059

MANUFACTURED IN THE UK

INSTALLATION

Installation must be in accordance with BS5628-3:2005, BS8000-3:2001, BS8215:1991, BRE Digest 380 Damp Proof Course and the procedures set out in BBA 94/3059 Detail Sheet 3.

Co-polymer thermoplastic is now widely recognised for its ease of use on site, due to its flexibility even in cold weather conditions.

INSTALLATION STEPS

- The DPC must extend through the full thickness of the wall, including pointing, applied rendering or other facing materials.
- The DPC must be laid on an even bed of wet mortar, and perforations in adjacent courses of brickwork must be completely filled with mortar.
- The DPC must not be damaged by cavity cleaning after installation.
- All laps in the DPC must be a minimum of 100mm and sealed using Visqueen Zedex DPC Jointing Tape. For further information refer to the BBA Certificate (94/3059).

STORAGE AND HANDLING

The materials used in Visqueen Zedex Housing Grade DPC are chemically stable and inert and are free of both solvents and aggressive chemicals. The DPC is also clean and safe to use and contains no volatiles to 'leach' out. Due to its robust nature, the DPC requires no special conditions for storage, transport, handling, usage and recycling.

TECHNICAL DATA

Tensile Strength BS 2782:320A	20.4 N/mm^2
Elongation at Break BS 2782:320A	515%
Tear Strength BS 2782 360B	135N/mm^2
Water Vapour Permeability BS 3177 250C/75% RH	0.3g/m^2/day
ROLL DIMENSIONS	
Nominal Thickness	600µm
Nominal Weight	0.6kg/m^2
Roll Length	20m
Available Widths	100mm to 1400mm

DAMP PROOF COURSES
VISQUEEN POLYETHYLENE DPC

- **CONFORMS TO THE REQUIREMENTS OF BS 6515.**
- **COST EFFECTIVE DAMP PROOF COURSE FOR DOMESTIC CONSTRUCTION.**
- **EMBOSSED TO ASSIST MORTAR ADHESION.**
- **PROVEN PERFORMANCE OVER MANY YEARS.**
- **MANUFACTURED FROM HIGHEST QUALITY REPROCESSED MATERIALS.**
- **SAFE AND CLEAN TO HANDLE.**

DESCRIPTION
Visqueen Polyethylene DPC is designed to prevent the passage of moisture in brick and block work from external sources. Visqueen Polyethylene DPC is manufactured from high quality reprocessed materials to provide a cost effective and durable domestic grade DPC.

APPLICATION
Visqueen Polyethylene DPC is suitable for use in vertical and horizontal applications throughout two storey domestic constructions. Visqueen Polyethylene DPC is produced to stringent performance standards and includes a pronounced emboss to improve mortar adhesion. (Note: in minimal stress applications Visqueen Zedex High Bond DPC should be used.) Visqueen Polyethylene DPC has good cold weather flexibility properties, remaining workable at low temperatures. Visqueen Polyethylene DPC is manufactured to the requirements of BS 6515.

IMPORTANT
BS6515 states Polyethylene DPC is not suitable for water movement downwards eg. above lintels in cavity walls. Please use Visqueen Zedex CPT DPC or Visqueen High Bond DPC for this application.





REQUIRED COMPONENTS
AVAILABLE AS A DOWNLOAD FROM
VISQUEENBUILDING.CO.UK/DPC

VISQUEEN ZEDEX JOINTING SYSTEM

SPECIFICATION SUPPORT
THE FOLLOWING ITEMS ARE AVAILABLE
TO VIEW ONLINE OR TO DOWNLOAD FROM
VISQUEENBUILDING.CO.UK/DPC

TECHNICAL DATASHEETS
HEALTH & SAFETY DATA

MADE WITH UK WASTE PLASTIC

LOW CARBON FOOTPRINT PRODUCT

INSTALLATION

Installation should be in accordance with Code of Practice CP102:1973 as amended. Normal good practice and damp proof course detailing should be followed as described in BS 5628: Part 3. Work may be carried out in all weathers normal to the construction of walls.

JOINTING

All laps and joints in discontinuous lengths of DPC should be fully lapped by at least 100mm and fully sealed using Visqueen Zedex DPC Jointing Tape.

STORAGE AND HANDLING

Visqueen Polyethylene DPC is classified non-hazardous, and is chemically inert. The product requires no special storage conditions, although measures should be made to keep it clean and dry.

TECHNICAL DATA

Tensile Strength BS2782 (320A)	Long: 20.3N/mm² Trans: 11.2N/mm²
Elongation BS2782 (320A)	Long: 301% Trans: 274%
Tear Strength MOAT 27:5:4.1	Long: 169N Trans: 145N
Water Vapour Permeability	0.28g/m²/day
DIMENSIONAL DETAILS	
Length (m)	30
Available Widths	100mm – 1200mm

DAMP PROOF COURSES
VISQUEEN GX HYDROCARBON DPC

VISQUEEN GX DPC

— **SUITABLE FOR USE ON HYDROCARBON CONTAMINATED SITES.**
— **HIGH PUNCTURE AND TEAR RESISTANCE.**
— **EXCELLENT CHEMICAL RESISTANCE.**

REQUIRED COMPONENTS
AVAILABLE AS A DOWNLOAD FROM VISQUEENBUILDING.CO.UK/DPC

P36 VISQUEEN GX GEOMEMBRANE
VISQUEEN GX JOINTING SYSTEM

SPECIFICATION SUPPORT
THE FOLLOWING ITEMS ARE AVAILABLE TO VIEW ONLINE OR TO DOWNLOAD FROM VISQUEENBUILDING.CO.UK/DPC

- TECHNICAL DATASHEETS
- TYPICAL INSTALLATION CAD DETAILS
- HEALTH & SAFETY DATA

DESCRIPTION
Visqueen GX DPC is a blend of ethylene co-polymers suitable for use on brownfield sites that require protection from dangerous contaminants such as hydrocarbons and methane, together with excellent damp proofing properties. GX DPC is available in 30m lengths and in two widths, 645mm or 970mm.

APPLICATION
Visqueen GX DPC has a proven track record as a barrier membrane on gas contaminated and hydrocarbon contaminated brownfield sites. Visqueen GX DPC combines high strength with flexibility.

INSTALLATION

All joints in lengths of DPC must be a minimum of 100mm lapped and sealed with Visqueen GX Jointing Tape. Visqueen GX DPC should be installed in accordance with BS 8215: 1991, BS 8000: Part 3, 2001 and BS 5628: Part 3: 2005. Visqueen GX DPC must be bedded on both sides with fresh mortar and must project through the full width of the wall, including any externally applied rendering and project 5mm beyond the finished external face.

STORAGE AND HANDLING
Visqueen GX DPC is classified as non-hazardous when used in accordance with the relevant British Standards.
The product is chemically inert and is not affected by acids and alkalis that may be present in the sub-soils.

TECHNICAL DATA

Thickness (ASTM D5199)	1.15mm
Density (ASTM D792)	>1000 kg/m³
Puncture Resistance (FTMS 101C Method 2031)	1340N
Tear Resistance (ASTM D751 Method B)	289N
Break Strength/Reinforcement (ASTM D751 Method A)	1000N
Low Temperature Flexibility (ASTM D2136)	- 40°C
Hydrostatic Resistance (ASTM D751 Method A)	Pass
Water Absorption (ASTM D471)	<1%

DAMP PROOF COURSES
VISQUEEN GAS RESISTANT DPC

VISQUEEN GR DPC

- **INTEGRAL ALUMINIUM FOIL FOR RESISTANCE TO METHANE, RADON, CO_2 AND LOW LEVELS OF HYDROCARBON VAPOURS.**
- **EASY TO APPLY USING TRADITIONAL METHODS.**
- **USE AS PART OF AN INTEGRAL GAS PROTECTION SYSTEM.**
- **INDEPENDENTLY ASSESSED.**

DESCRIPTION
Visqueen Gas Resistant (GR) Damp Proof Course is a flexible polyethylene DPC with an aluminium foil designed to prevent the transmission of carbon dioxide, radon, methane and low level hydrocarbon vapours. This is in addition to the product's usage as a damp proof course. Resistance to harmful gases is achieved by an integral aluminium film.

GOOD PRACTICE TIP
To avoid slip or shear planes it is not recommended to take membranes through the wall. In order to provide a continuous barrier across the cavity Visqueen Gas Resistant DPC should be sealed to the membrane, taken through the blockwork, up the wall and incorporated below the damp proof course on the cavity tray outer leaf.

APPLICATION
Visqueen Gas Resistant (GR) DPC should be used on any site where carbon dioxide, radon, methane or low level hydrocarbon vapours are a problem.

Methane can occur on any construction on any site previously used for landfill. Such conditions can exist on household, commercial and industrial sites. Visqueen Gas Resistant (GR) DPC has excellent physical characteristics and good cold flexibility performance. It is suitable for vertical, horizontal, stepped and cavity tray applications.

IMPORTANT
Where the DPC may be in direct contact with hydrocarbon contamination the use of Visqueen GX DPC must be considered.

REQUIRED COMPONENTS
AVAILABLE AS A DOWNLOAD FROM VISQUEENBUILDING.CO.UK/DPC

- DL VISQUEEN TOP HAT UNITS
- DL VISQUEEN DETAILING STRIP
- DL VISQUEEN GAS BARRIER JOINTING SYSTEM
- P31 VISQUEEN GAS MEMBRANES
- P60 VISQUEEN GAS RESISTANT SELF ADHESIVE DPM

SPECIFICATION SUPPORT
THE FOLLOWING ITEMS ARE AVAILABLE TO VIEW ONLINE OR TO DOWNLOAD FROM VISQUEENBUILDING.CO.UK/DPC

- TECHNICAL DATASHEETS
- CAD TYPICAL INSTALLATION CAD DETAILS
- H&S HEALTH & SAFETY DATA

NBS Plus

CPD MEMBER Construction CPD Certification Service

INSTALLATION

Visqueen Gas Resistant (GR) DPC should be installed in accordance with BS 8215:1991, BS 8000: Part 3, 2001 and BS 5628: Part 3, 2005. All horizontal DPCs must be bedded on both sides with fresh mortar. All DPCs must project through the full width of the wall, including any externally applied rendering and project 5mm beyond the finished external face. All cavities must be kept clear of mortar droppings and other debris. Any mortar droppings reaching the DPCs must be removed before they harden, avoiding the use of sharp objects for removal. Reference should also be made to NHBC guidance notes and BRE Report BR211.

STORAGE AND HANDLING
Visqueen Gas Resistant (GR) DPC is classified as non-hazardous when used in accordance with the relevant British Standards. The product is chemically inert and is not affected by acids and alkalis that may be present in the sub-soils.

TECHNICAL DATA

DIMENSIONAL DETAILS	
Roll Length	30m
Available Widths	500mm - 1000mm
Weight	0.5kg/m^2
Thickness	0.5mm
PHYSICAL CHARACTERISTICS	
Tensile Strength (BS2782:320A)	
Transverse	17.4N/mm^2
Longitudinal	19.0N/mm^2
Elongation at Break% (BS2782:320A) Longitudinal	262%
Elongation at Break % Foil	58.4%
Methane Gas Resistance ml/m^2/24hr	<0.01 ml/m^2/d





26 Visqueen 100% Recycled Ecomembrane
28 Visqueen DPM To PIFA Standard

DAMP PROOF MEMBRANES

Visqueen Ecomembrane® is a BRE certified DPM manufactured from 100% recycled polythene. This ensures valuable reusable material is retained in the economy and reduces waste going to landfill.

RECYCLING WASTE PLASTIC IN THE UK

SUSTAINABILITY IN THE CONSTRUCTION SECTOR

Sustainability has become the buzz word in the construction industry. Not only has it become the main focus of government policy in the construction sector, but it is increasingly on clients' agendas as a result of being asked to explain their approach to sustainability by investors, employees or suppliers.

THE LARGEST POLYETHYLENE RECYCLER IN EUROPE

Visqueen Building Products, part of BPI PLC Recycled Products Division, has an enviable reputation as the leader in the field of polyethylene recycling. Each year we recycle over 64,000 tonnes of low density polyethylene across our Environment Agency Accredited sites.

WHY RECYCLE?

Increasing the use of recycled products has an enormous impact on the environment; independent studies show that compared to using virgin polyethylene it is estimated that each tonne of polyethylene BPI recycles:

- Prevents the release of 1.5 tonnes of CO_2 into the atmosphere.
- Cuts sulphur dioxide emissions by 33%.
- Cuts nitrous oxide emissions by 50%.
- Saves 1.8 tonnes of crude oil.
- Reduces water usage by 90%.
- Reduces energy use by two thirds.*

64ktes
OF WASTE PLASTIC IS REPROCESSED IN OUR UK PLANTS

RECYCLING WASTE PLASTIC IN THE UK

SUSTAINABILITY IN THE CONSTRUCTION SECTOR

*www.wasteonline.org.uk
**DEFRA.

INNOVATION AND INVESTMENT IN RECYCLING

With our unrivalled experience and expertise, we are uniquely positioned to manage all plastic waste requirements.

Through investment in our recycling operations we can reprocess varying types of plastic materials, from industrial waste to heavily contaminated agricultural waste to even old wheelie bins. We turn this waste plastic into building films and our recycled plastic street furniture range.

CARBON FOOTPRINT

Most UK waste polythene is actually shipped overseas for sorting and reprocessing. In marked contrast, all of our recycling actually takes place in the UK. This ensures the green benefits of recycling in the first place aren't offset by remanufactured products with unacceptable 'product miles'.

70%**

OF THE PLASTIC THAT CAN BE RECYCLED IN THE UK IS ACTUALLY EXPORTED OVERSEAS.

SUSTAINABLE PRODUCT DEVELOPMENT

From concept to disposal, we are creating new products that reduce our overall environmental impact.

VISQUEEN ZEDEX CPT DAMP PROOF COURSE

Visqueen Zedex High Performance DPC is thinner than traditional damp proof courses without compromising performance. This helps reduce material usage, manufacturing energy and cutting transportation miles.

VISQUEEN ECOMEMBRANE 100% RECYCLED

Visqueen Ecomembrane is a BRE certified DPM manufactured from 100% recycled polythene. This ensures valuable reusable material is retained in the economy and reduces waste going to landfill.



POST-USE WASTE EXPLAINED

Post-use: "Materials collected from outside the individual manufacturing industry after it has been used for its primary purpose. This can include material from agricultural use, commercial, industrial, retailing, distribution and domestic outlets, but in all cases the material will have been used for the purpose for which it was manufactured."
(British Polythene Industries 1994)

DAMP PROOF MEMBRANE
VISQUEEN ECOMEMBRANE®

— **INDEPENDENTLY ACCREDITED BY BRE CERTIFICATION LTD, CERTIFICATION NO.112/04.**
— **MANUFACTURED FROM 100% POST-USE POLYETHYLENE, DIVERTING MORE WASTE FROM LANDFILL.**
— **HIGH TEAR RESISTANCE HELPS REDUCE DAMAGE DURING INSTALLATION.**
— **DOES NOT COMPROMISE ON TRADITIONAL DPM PERFORMANCE.**
— **COMPREHENSIVE RANGE TO SATISFY MOST SITE CONDITIONS.**

DESCRIPTION
Visqueen EcoMembrane® DPM is a blown film of extruded low-density polyethylene for use as a Type "A" damp proof membrane as defined by BS EN 13967: 2004. It is manufactured from 100% post-use waste, is black in colour and available in 250µm, 300µm and 500µm thicknesses. EcoMembrane® has been independently accredited by BRE Certification Ltd (Certificate No. 112/04).

APPLICATIONS AND USE
Visqueen EcoMembrane® DPM is suitable for use in concrete floors, in accordance with clause 11 of CP 102: 1973, where there may be capillary rise of moisture but not where it may be subject to hydrostatic pressure. In such a circumstance, Visqueen Tanking Membranes should be used.

Where there is a risk that the ground may be waterlogged, sub-soil drainage in accordance with CP 102 and BS 8102 should be provided.

The effectiveness of EcoMembrane® will be reduced if it is exposed to sunlight either during storage or when in use.

Under normal operating conditions, Visqueen EcoMembrane® DPM can be used in conjunction with underfloor heating, although follow the advice of Visqueen's Technical Support Service.

As indicated in paragraph 4.8 of Building Regulations Approved Document C, joints in the membrane are sealed using the Visqueen DPM Jointing System.

INSTALLATION

INSTALLATION GUIDELINES
Visqueen EcoMembrane® DPM must be installed in accordance with BRE Certificate No.112/04 and the following guidelines.

PREPARATION FOR LAYING THE MEMBRANE
Even though Visqueen EcoMembrane® has a high puncture resistance to normal foot and site traffic, care should be taken to avoid accidental damage on site. Similarly, where the base is uneven, a blinding of soft sand of a thickness that will cover all sharp projections should be used to avoid damage to the membrane when it is being installed, and when the concrete or screed is being laid.

JOINTING THE ECOMEMBRANE®
Adjacent sheets of the membrane should be overlapped by at least 150mm and bonded using Visqueen Double Sided Jointing Tape. The joint should then be sealed using 100mm wide Visqueen Girth Tape. The membrane should be clean and dry at the time of jointing.



FOR MAINTAINING CONTINUITY, PUNCTURES AND SERVICE PIPE PENETRATIONS, PLEASE SEE OUR INSTALLATION SECTION P83.

COVERING
Visqueen EcoMembrane® should be covered by a protective layer (such as Visqueen Protection Boards) as soon as possible after installation.

The membrane should be sufficiently loosely laid against upstands to ensure that the membrane is not stretched or displaced when applying the screed or concrete. A minimum thickness of 50mm screed is recommended.

When reinforced concrete is to be laid over the membrane, the wire reinforcements or spacers must be prevented from contacting the membrane. It is recommended that the membrane be covered with Visqueen Protection Board or 50mm screed prior to placing the reinforcements.

When underfloor heating is to be installed, Visqueen recommend that the barrier is positioned between the blinded hardcore and the insulation to protect the installation from moisture and to avoid any risk of overheating the membrane.

REQUIRED COMPONENTS
AVAILABLE AS A DOWNLOAD FROM
VISQUEENBUILDING.CO.UK/DPM

- VISQUEEN TOP HAT UNITS
- VISQUEEN DPM JOINTING SYSTEM
- P8 VISQUEEN ZEDEX CPT DPC

SPECIFICATION SUPPORT
THE FOLLOWING ITEMS ARE AVAILABLE
TO VIEW ONLINE OR TO DOWNLOAD FROM
VISQUEENBUILDING.CO.UK/DPM

- TECHNICAL DATASHEETS
- TYPICAL INSTALLATION CAD DETAILS
- HEALTH & SAFETY DATA
- BRE CERTIFICATE

MADE WITH UK WASTE PLASTIC

Certificate No.112/04

TECHNICAL DATA

DIMENSION PROPERTIES

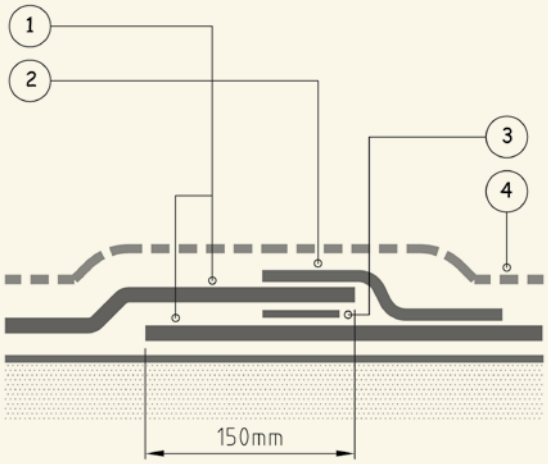
Thickness (µm)	250	300	500
Roll Width (m)	4	4	4
Roll Length (m)	25	25	12.5
Colour	Black	Black	Black

FULL TECHNICAL INFORMATION IS AVAILABLE AT WWW.VISQUEENBUILDING.CO.UK/DPM

PHYSICAL CHARACTERISTICS

		Nominal Thickness of sheets (µm)		
Property	**Test Description**	**250µm**	**300µm**	**500µm**
Resistance to Tearing (Nail shank) in Machine Direction	BS EN 12310-1	165 N	205 N	310 N
Resistance to Tearing (Nail shank) in Cross Direction	BS EN 12310-1	170 N	215 N	315 N
Max Tensile Stress in Machine Direction	BS EN 12311-2	19.4 N/mm²	24.9 N/mm²	18.5 N/mm²
Elongation		370%	390%	370%
Max Tensile Stress in Cross Direction	BS EN 12311-1	23.2 N/mm²	23.7 N/mm²	19.9 N/mm²
Elongation		430%	430%	380%

STANDARD DETAIL - JOINTING DETAIL (JD-01)



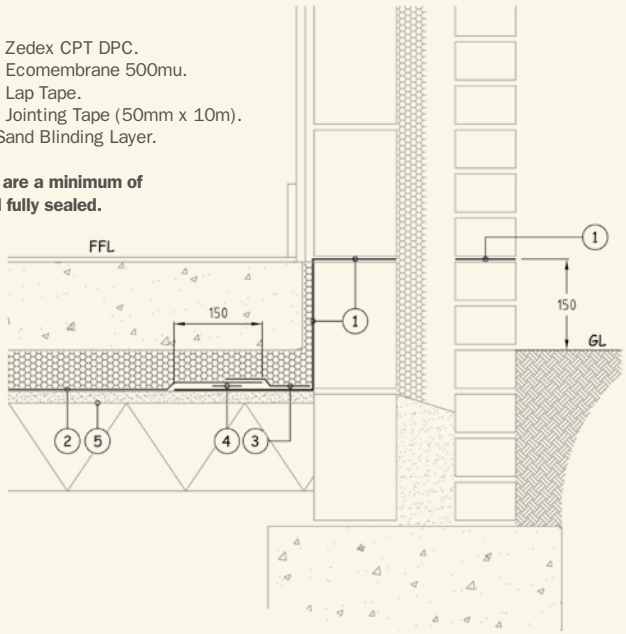
KEY:
1) Visqueen Ecomembrane - Laid on smooth slab or blinding.
2) Visqueen 100mm x 33m Girth Tape.
3) Visqueen 50mm x 10m Jointing Tape.
4) Visqueen Protection Board.

Ensure laps are a minimum of 150mm and fully sealed.

STANDARD DETAIL - TYPICAL GROUND BEARING SLAB EDGE DETAIL (SW-30)

KEY:
1) Visqueen Zedex CPT DPC.
2) Visqueen Ecomembrane 500mu.
3) Visqueen Lap Tape.
4) Visqueen Jointing Tape (50mm x 10m).
5) Smooth Sand Blinding Layer.

Ensure laps are a minimum of 150mm and fully sealed.



DAMP PROOF MEMBRANE
VISQUEEN DPM TO PIFA STANDARD

- **CONFORMS TO PIFA STANDARD 6/83A:1995.**
- **HIGH PUNCTURE RESISTANCE.**
- **PROVEN PERFORMANCE OVER MANY YEARS.**
- **WITHSTANDS ROUGH SITE HANDLING.**
- **COMPREHENSIVE RANGE TO SATISFY MOST SITE CONDITIONS.**
- **MANUFACTURED FROM THE HIGHEST QUALITY REPROCESSED MATERIALS.**

DESCRIPTION

Visqueen Damp Proof Membranes are a high quality range of polyethylene damp proof membranes, available in blue or black and produced to PIFA Standard 6/83A:1995. Manufactured from high quality reprocessed low density polyethylene (LDPE) Visqueen Damp Proof Membranes have successfully prevented moisture penetration from floors for many years. A strict selective raw material policy ensures a consistently high quality DPM. Visqueen DPMs comply with the relevant Building Regulations and should be used in conjunction with the Visqueen Jointing System to ensure complete integrity of joints.

To maintain compatibility between damp proofing components and avoid issues such as polymer plasticizer migration, Visqueen strongly recommend the use of Visqueen DPCs.

APPLICATION

The extensive range of Visqueen Damp Proof Membranes means that they are suitable for use in floors in most site conditions, not subject to hydrostatic pressure. If hydrostatic pressure exists use Visqueen Tanking Membranes.

For jointing adjacent sheets of Visqueen DPM, DPM to DPC and DPC to DPC, Visqueen Jointing System should be used.

To complete the system Visqueen strongly advise the use of the following components when installing the membrane;

- Visqueen Double Sided Jointing Tape.
- Visqueen Girth Jointing Tape.
- Visqueen Top Hat Units.

IMPORTANT

Based on BRE and CIRIA guidelines, Visqueen Building Products recommend the use of special gas protection membranes (rather than traditional polythene DPMs) as suitable protection against ground gases. On brownfield sites or where there is ground contamination please seek further advice from Visqueen Building Products as use of specialist Visqueen Gas Protection may be necessary.



TECHNICAL DATA

	Thickness (µm)		
	250	**300**	**500**
Nominal Weight (g/m²)	232	279	465
Roll Length (m)	25	25	12.5
Roll Width (m)	4	4	4
Water Vapour Transmission (g/m2/day) max	1	0.8	0.5
Tensile Strength BS2782:320A	90N/25mm (min), 14.4 MPa (min)	108N/25mm (min), 14.4 MPa (min)	180N/25mm (min), 14.4 MPa (min)
Elongation at Break BS2782:320A *(56 days @ 800C)	unaged 500% (min) aged* 250% (min)	unaged 500% (min) aged* 250% (min)	unaged 500% (min) aged* 250% (min)
Tear Resistance MOAT 27.5.4.1	10N (min) 40N/mm (min)	12N (min) 40N/mm (min)	20N (min) 40N/mm (min)
Impact Strength Body (f50,g)	500	600	1000

REQUIRED COMPONENTS
AVAILABLE AS A DOWNLOAD FROM
VISQUEENBUILDING.CO.UK/DPM

VISQUEEN TOP HAT UNITS
VISQUEEN DPM JOINTING SYSTEM
P8 VISQUEEN ZEDEX CPT DPC

SPECIFICATION SUPPORT
THE FOLLOWING ITEMS ARE AVAILABLE
TO VIEW ONLINE OR TO DOWNLOAD FROM
VISQUEENBUILDING.CO.UK/DPM

TECHNICAL DATASHEETS
TYPICAL INSTALLATION CAD DETAILS
HEALTH & SAFETY DATA

MADE WITH UK WASTE PLASTIC

LOW CARBON FOOTPRINT PRODUCT

INSTALLATION

When used in accordance with the PIFA Certificate and the relevant clauses of CP 102: 1973 in concrete floors not subject to hydrostatic pressure, Visqueen Damp Proof Membranes form an effective barrier to the passage of moisture from the ground. The DPM must be continuous with the DPC in the surrounding walls.

The membrane should be installed on a compacted sand blinding layer or smooth concrete float finish. The DPM must be covered by a screed or other protective layer as soon as possible after installation. Care should be taken to ensure that the membrane is not stretched or displaced when placing the concrete or screed over the membrane. Sufficient allowance should be made to avoid bridging (i.e. creating areas of unsupported membrane) during screeding operations at internal angles.

JOINTING PROCEDURES

— Always ensure that the membrane is clean, dust free and dry at the time of jointing.
— Adjacent sheets must be overlapped by a minimum of 150mm.
— Bond together using Visqueen Double Sided Jointing Tape.
— The joint should then be sealed using Visqueen Single Sided Girth Tape.

Where the sheets have been perforated they should be patched with sheets of identical thickness lapped at least 150mm beyond the limits of the puncture and bonded with Visqueen Double Sided Jointing Tape and sealed with Visqueen Single Sided Girth Jointing Tape.

IMPORTANT
For more information on jointing please see our installation section P83.

ALSO CONSIDER

VISQUEEN ECOMEMBRANE
For further details see **P26.**

VISQUEEN GX PRE APPLIED MEMBRANE
For further details see **P64.**

VISQUEEN HIGH PERFORMANCE DPM
Visqueen High Performance DPM is manufactured from co-polymer thermoplastics giving superior strength and tear resistance. Full details available on request or visit visqueenbuilding.co.uk/dpm

VISQUEEN BBA DPM
Visqueen Building Products also produce a DPM with BBA Accreditation, certificate number 94/3009. Further details are available upon request or visit visqueenbuilding.co.uk/dpm



32 Introduction to Gas Protection
36 Visqueen GX Geomembrane System
38 Visqueen Gas Barrier System
42 Visqueen Low Permeability Gas Membrane
44 Visqueen CO_2 Gas Membrane
46 Visqueen Radon Membrane
49 Visqueen Radon Sump
50 Visqueen Gas Venting System
53 Visqueen Gas Venting Mat

GROUND GAS PROTECTION

Visqueen's Gas Membranes and Venting Systems allow construction to build on gas contaminated land such as disused petrol stations and post industrial sites. This ensures reclamation of land and eases political pressure of building on green fields.



WHAT GASES AND CONTAMINANTS ARE INVOLVED?

HYDROCARBONS

Hydrocarbons can be highly toxic and are derivative of the petrol chemical industry. Hydrocarbons are prevalent in areas such as disused petrol stations and post industrial sites, most hydrocarbons are carcinogenic.

METHANE

An odourless flammable gas that is explosive when released to the atmosphere at levels as low as 5% and exposed to a source of ignition. Methane is formed wherever there is below-ground degradation of organic substances e.g. landfill sites, sewage treatment areas, mining localities and peat bogs.

CARBON DIOXIDE

Carbon Dioxide is a colourless gas that in high concentrations can result in asphyxiation. The gas is formed by the oxidation of carbon compounds such as in landfill sites. When carbon dioxide levels reach concentrations of 3%, symptoms of headaches and shortness of breath will occur, becoming severe at 5%, with loss of consciousness at 10%. It's fatal at 22%.

RADON

Radon is a naturally occurring radioactive gas that is odourless and colourless. It is formed where uranium and radium are present. It migrates into any building that is built over the source. If it accumulates in a building at unacceptably high concentrations it will increase the risk of lung cancer.

PROTECTION OF BUILDINGS ON GAS CONTAMINATED LAND

IDENTIFYING THE RISK

When identifying risk from contaminated land up-to-date published guidance relating to the risk assessment should be used. Detailed historical mapping is the principal starting point for any site specific environmental assessment. The historical maps provide a powerful insight into past activity and help identify any historically contaminated land and previous uses of the land e.g. disused filling station. The Health Protection Agency (HPA) produce a map which shows the estimated percentage of homes above the radon Action Level, a level set by the Health Protection Agency at 200 becquerels per cubic metre.

The provision of gas protection measures should include measurement of borehole flow rates. This will help identify ground conditions, potential source(s) of gas, migration pathways and general potential. The level of risk may then be assessed and an appropriate gas protection system designed. Account should be taken of the sensitivity of the proposed end use.

REGULATION AND GUIDANCE

The assessment of risk from contaminated ground is a requirement of Planning Policy Statement PPS23 and Building Regulations Approved Document C. The assessment needs to be carried out to support any proposed development whether or not the development is near a recognised gas emission source i.e. landfill. If the development is at risk from contamination then the developer's consultant must submit a risk assessment to the local planning authority. The risk assessment must include information about the source(s) of contamination, the key properties of the contamination and the proposed remediation strategies to deal with any contamination. Where a proposed development is within 250m of a landfill the Environment Agency Policy (2003c) on development within 250m landfill should be used. The policy states the proposals should include detailed risk management actions to deal with any risks. Failing to deal with the risks the LPA will refuse the application.

USEFUL REFERENCES

The Building Regulations Approved Document Part C 2004, CP 102: 1973 Code of practice for the protection of buildings against water from the ground.

BS 8102: 1990 Code of practice for the protection of structures against water from the ground.

BS 8215: 1991 Code of practice for the design and installation of damp proof courses in masonry construction.

BS 8000: Part 4:1989 Workmanship on Building Sites. Code of practice for waterproofing.

Building Research Establishment BRE 414 "Protective measures for housing on gas contaminated land".

CIRIA C665 Ground Gas Handbook 2009.

Building Research Establishment BRE 211 "Radon Guidance on Protective Measures".

CIRIA C682 The VOCs Handbook 2009.

VISQUEEN GAS PROTECTION

THE COMPLETE SOLUTION – VISQUEEN'S GAS PROTECTION SYSTEM

PROTECTION OF BUILDINGS AND OCCUPIERS

The main methods of protecting buildings from gas ingress are the provision of a robust floor slab and gas resistant barrier across the floor slab combined with an underfloor passive venting system.

At Visqueen we offer a comprehensive range of gas barriers (a traditional damp proof membrane is NOT suitable for protection on gas contaminated land) and ventilation systems to protect against all the aforementioned gases and contaminants. When installed in accordance with the relevant codes of practice, Visqueen's Gas Systems are essential components to provide a protective barrier to gas ingress. Also, all Visqueen gas barrier products act as damp proof membranes.

GAS BARRIERS

The impermeable gas membrane provides a barrier to gas ingress and should be continuous beneath the full ground floor plan of the building. Visqueen offers full protection against the ingress of harmful methane, radon, CO_2 and hydrocarbon gases. Used in conjunction with Visqueen Gas Resistant DPCs, Gas Barrier Jointing Systems and Gas Resistant Self Adhesive Membrane, these systems offer superior protection.

To ease specification issues, Visqueen has produced a product selector that responds to the various and complex design challenges on gas contaminated lands.

GAS PRODUCT SELECTOR

Visqueen Product	Gases involved				
	Radon	CO_2	Methane	Hydrocarbons	Page Ref
GX Geomembrane	•	•	•	•	**36**
Gas Barrier	•	•	•		**38**
Low Permeable Gas Membrane	•	•	•*		**42**
CO_2	•	•			**44**
Radon	•				**46**

*Low Levels



Cancer myths: Only smokers get lung cancer

The radioactive gas radon is a hazard in many homes and workplaces. According to a recent report from the Health and Safety Executive inhaling radon is the second largest cause of lung cancer in the UK, resulting in up to 2,000 fatal cancers per year. However, radon hazards are simple and inexpensive to measure and relatively easy to address if levels are high.

GAS VENTILATION SYSTEM

Visqueen Gas Ventilation System, when installed with a Visqueen Gas Barrier Membrane, helps dilute and disperse concentrations of gases emitting from the ground to acceptable levels. Visqueen Gas Venting Systems are supplied as fully integrated gas dispersal systems and include all necessary pipework, ducting and a variety of air inlets/outlets to suit individual requirements.

Our CAD department and technical advisors will assist in the full design of a gas ventilation system.



TECHNICAL SUPPORT

Visqueen's nationwide Technical Support Team offer unrivalled technical knowledge, experience and integrity. The Technical Support Managers (TSM) identify appropriate gas protection measures with architects and specifiers and offer advice at every step of the project. Uniquely, Visqueen's TSMs will undertake regular site visits to ensure installation is carried out in accordance with our recommendations concluding with a "Visqueen Gas Installation Checklist", which is signed by our trained technical personnel.



GAS PROTECTION SYSTEMS
VISQUEEN HYDROCARBON PROTECTION SYSTEM

- **LOW PERMEABILITY TO HYDROCARBON SUBSTANCES AND VAPOURS.**
- **HIGH QUALITY SINGLE LAYER HDPE.**
- **EXCELLENT PUNCTURE AND TEAR RESISTANCE.**
- **COMPLIES WITH CURRENT CODES OF PRACTICE.**
- **ALSO ACTS AS A DPM.**

DESCRIPTION
Visqueen GX Geomembrane is a high quality single layer HDPE membrane and is suitable for use as a barrier membrane on brownfield sites that require protection from dangerous contaminants such as hydrocarbons and methane. Due to the membrane's high puncture and impact resistance the Visqueen GX Geomembrane generally requires no protective screed or boarding when laying reinforced concrete above it. The Visqueen GX is also suitable as a high performance damp proof membrane.

APPLICATION
Visqueen GX Geomembrane offers a safe solution for the protection of buildings and occupiers against all levels of hydrocarbons, methane, carbon dioxide and radon ingress. Typically these are sites previously used as petrol stations, coalfields, landfill sites or are contaminated industrial sites.

TECHNICAL SUPPORT
Due to the wide variety of hydrocarbon contaminants found, we strongly recommend the use of the Visqueen Building Products Technical Support Team at an early design stage so that the most appropriate detailing and material specifications are adopted. A full technical datasheet is available online www.visqueenbuiding.co.uk/gas

INSTALLATION GUIDELINES

Visqueen GX and ancillary components must be installed in accordance with the recommendations of Building Research Establishment BRE 414 “Protective measures for housing on gas contaminated land” and CIRIA C665 “Assessing risks posed by hazardous ground gases to buildings”, NHBC guidelines, Chartered Institute of Environmental Health Ground Gas Handbook and CIRIA C682 the VOC Handbook.

The Visqueen GX system is suitable where hydrostatic pressure is present, however in this application the joints must be welded and not taped. The membrane should be installed on a blinded or smooth surface allowing adequate overlap for jointing between the sheets and avoiding bridging (i.e. areas of unsupported membrane). In areas where high levels of unsupported membrane occur it is recommended that Visqueen GX Pre Applied Membrane is used. To avoid linear expansion due to temperature change the membrane should NOT be taken through any masonry wall. In order to provide a continuous barrier across the cavity Visqueen GX DPC should be taken through the blockwork and incorporated below the damp proof course cavity tray in the outer leaf.

When a welded joint system is being used, punctures to the membrane can only be repaired by welding a patch of membrane with identical thickness and lapped at least 150mm beyond the limits of the puncture. Where this is not possible and the three dimensional shapes are complex it is recommended a preformed unit is used.

To avoid high linear expansion when installed in hot weather, the membrane should be covered immediately after installation with concrete or screed.

VENTILATION
When medium to high levels of ground gases are present or when the generation of gases still occurs, then an open void beneath the ground floor should be constructed as ventilation beneath the ground floor will dilute and disperse the gases to atmosphere. Open voids are normally restricted to beam and block floors or other precast concrete floor systems. An alternative for providing ventilation to in situ concrete floor slabs is to install a Visqueen Ventilation System. See page 50 for further details.

REQUIRED COMPONENTS
AVAILABLE AS A DOWNLOAD FROM
VISQUEENBUILDING.CO.UK/GAS

VISQUEEN GX JOINTING SYSTEM
P53 VISQUEEN GEOCOMPOSITE VENTING SYSTEM
P20 VISQUEEN GX DPC

SPECIFICATION SUPPORT
THE FOLLOWING ITEMS ARE AVAILABLE
TO VIEW ONLINE OR TO DOWNLOAD FROM
VISQUEENBUILDING.CO.UK/GAS

- TECHNICAL DATASHEETS
- TYPICAL INSTALLATION CAD DETAILS
- HEALTH & SAFETY DATA

MANUFACTURED IN THE UK

DIMENSIONS

GX Geomembrane	1.0mm x 2.95m x 30m (88.50m²) Standard Roll
GX Geomembrane	1.5mm x 2.95m x 25m (73.75m²) Standard Roll
GX Jointing System	Two part jointing system
GX Geocomposite Venting System	25mm & 50mm venting mats
Preformed Top Hat Units	For sealing around service pipe penetrations
GX DPC	645mm / 970mm x 30m Roll A flexible reinforced DPC designed to prevent the transmission of hydrocarbon gases through the cavity
Preformed DPC Internal & External Corner Units	To form an effective seal at corners

TECHNICAL DATA

	1mm	1.5mm
Density (ASTM D1505)	941kg/m³ +/- 1%	941kg/m³ +/- 1%
Thickness (BS2782-630A)	+/- 5%	+/- 5%
Melt Flow Index (ASTM D1238)	<0.5gm/10 minutes	<0.5gm/ 10 minutes
Unaged Tensile (MPa)	31.2	29.3
Unaged Elongation (%)	860	845
Unaged Instrument Impact(N)	2220.11	3357.5
Tear Strength (N/mm)	156.8/145.6	149.1/156.5
Petrol Permeability (g/m²/hr)	7.0	3.8
Diesel Permeability (g/m²/hr)	14.8	1.7
Methane Permeability (cc/m²/hr)	3.2	1.95



IMPORTANT
For information on Building Regulations on gas contaminated land please see P32.

GAS PROTECTION SYSTEMS
VISQUEEN GAS BARRIER

— **LOW PERMEABILITY TO METHANE, RADON AND CARBON DIOXIDE.**
— **HIGH QUALITY MULTI-LAYER REINFORCED LDPE MEMBRANE WITH ALUMINIUM CORE WITH HIGH LEVELS OF TEAR AND IMPACT RESISTANCE.**
— **HIGH RESISTANCE TO PUNCTURE.**
— **COMPLIES WITH RELEVANT CODES OF PRACTICE SUCH AS BRE AND CIRIA.**
— **ALSO ACTS AS A DAMP PROOF MEMBRANE.**

BBA BRITISH BOARD OF AGREMENT ASSESSMENT OF PRODUCTS FOR CONSTRUCTION CERTIFICATE No. 10/4754

DESCRIPTION
The Building Regulations require that proper precautions be taken to prevent danger to health and safety when building on contaminated land. Visqueen Gas Barrier offers a safe solution for the protection of buildings against methane, radon and carbon dioxide, when installed in accordance with the relevant codes of practice such as BRE, CIRIA and the Chartered Institute of Environmental Health Ground Gas Handbook. Visqueen Gas Barrier is a multi-layer reinforced polyethylene membrane with an integral aluminium foil. For ease of identification on site Visqueen Gas Barrier is coloured blue on one side and silver on the reverse. The barrier combines strength and performance with flexibility and easy installation. Visqueen Gas Barrier also acts as a damp proof membrane.

MULTI-LAYER PROTECTION
Visqueen Gas Barrier utilises advanced multi-layer lamination process to create an impenetrable and lasting protection whilst retaining flexibility for easy installation. A 0.4mm membrane comprising of five precision co-extruded film layers, it is made from high quality virgin LDPE laminating films, as thickness tolerance is critical for the heat bonding process. The Visqueen Gas Barrier provides a one piece barrier for safety, security, flexibility and durability.

APPLICATION
Visqueen Gas Barrier offers a safe solution for the protection of buildings and occupiers against methane, carbon dioxide and radon ingress. Typically these are sites previously used as coalfields, landfill or are contaminated industrial sites.

INSTALLATION GUIDELINES
Visqueen Gas Barrier and ancillary components must be installed in accordance with the recommendations of Building Research Establishment BRE 414 “Protective measures for housing on gas contaminated land” and CIRIA C665 “Assessing risks posed by hazardous ground gases to buildings”, NHBC guidelines, and the Chartered Institute of Environmental Health Ground Gas Handbook. The product is not intended for use where there is a risk of hydrostatic pressure. The membrane should be installed blue side up. The membrane should be installed on a compacted sand blinding layer or smooth concrete float finish. In areas where high levels of unsupported membrane occur it is recommended that Visqueen Pre Applied Membrane is used. To avoid slip or shear planes and high compressive loadings it is not recommended to take the membrane through the wall. In order to provide a continuous barrier across the cavity Visqueen Gas Resistant DPC should be taken through the blockwork and incorporated below the damp proof course cavity tray in the outer leaf.

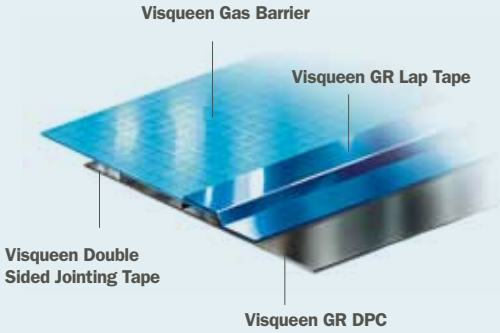
Laps can be joined together by either using the Visqueen Gas Barrier jointing system or welded by our specialist on-site contractors.

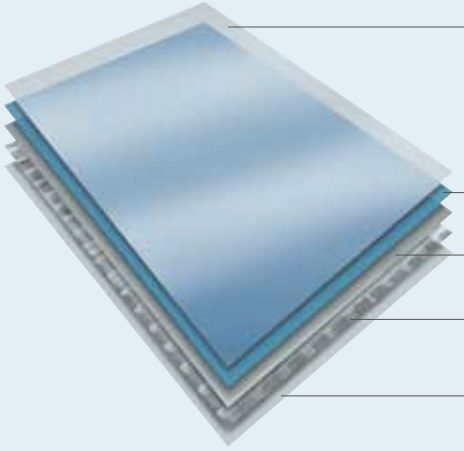
NB. In demanding site conditions use Visqueen GR Lap Tape as a high performance alternative to Visqueen Foil Jointing Tape.

IMPORTANT
For lapping, jointing and puncture repair, please see our Installation section P83

For more information on the Building Regulations on gas contaminated lands see P32

JOINTING DETAIL





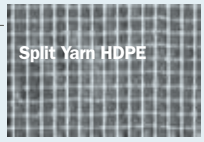
LDPE
Tough polyethylene outer layer provides absolute protection against moisture ingress.

Visqueen Blue LDPE

Aluminium Foil
Central shield layer of aluminium provides impenetrable gas-reflecting properties.

Split Yarn HDPE
Adhesive split yarn woven matrix provides 3-D tear resistance.

LDPE
Protective polyethylene outer layer confers additional tensile and tear strength properties.



REQUIRED COMPONENTS
AVAILABLE AS A DOWNLOAD FROM
VISQUEENBUILDING.CO.UK/GAS

DL	VISQUEEN TOP HAT UNITS
DL	VISQUEEN DETAILING STRIP
DL	VISQUEEN GAS BARRIER JOINTING SYSTEM
P53	VISQUEEN GEOCOMPOSITE DRAINAGE & VENTING MAT
P88	VISQUEEN HEAVY DUTY PROTECTION BOARD
P21	VISQUEEN GAS RESISTANT (GR) DPC
P60	VISQUEEN GAS RESISTANT SELF ADHESIVE MEMBRANE

SPECIFICATION SUPPORT
THE FOLLOWING ITEMS ARE AVAILABLE TO VIEW ONLINE OR TO DOWNLOAD FROM VISQUEENBUILDING.CO.UK/GAS

- TECHNICAL DATASHEETS
- TYPICAL INSTALLATION CAD DETAILS
- HEALTH & SAFETY DATA
- AGRÉMENT CERTIFICATE

VENTILATION

VENTILATION

When medium to high levels of ground gases are present or when the generation of gases still occurs, then an open void beneath the ground floor should be constructed, as ventilation beneath the ground floor will dilute and disperse the gases to atmosphere. Open voids are normally restricted to beam and block floors or other precast concrete floor systems, an alternative for providing ventilation to in situ concrete floor slabs is to install a Visqueen Ventilation System. See page 50 for further details.

COVERING

Visqueen Gas Barrier should be covered by a protective layer as soon as possible after installation. Care should be taken to ensure that the membrane is not punctured, stretched or displaced when applying a screed or final floor covering. A minimum thickness of 50mm screed is recommended. When reinforced concrete is to be laid over the barrier the wire reinforcements and spacers must be prevented from contacting the barrier. It is recommended that the barrier is covered with Visqueen Protection Boards or screed before positioning the reinforcement. When underfloor heating is being installed, it is recommended that the barrier is positioned between the blinded hardcore and insulation. This will protect the insulation from moisture and avoid any risk of overheating the membrane.

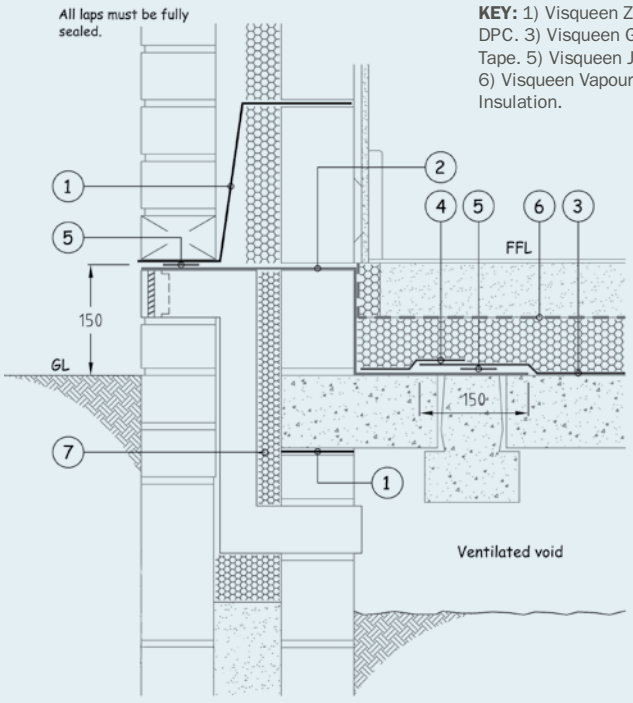


IMPORTANT
Visqueen Gas Barrier must be installed blue side up.

TECHNICAL INFORMATION

	Width (m)	
	1.6m	**2m**
Nominal Weight (g/m²)	350	350
Roll Length (m)	30/60	25/50
Overall Thickness (µm)	400	400
Water Vapour Permeability BS 3177 (g/m²/day)	0.03	0.03
Methane Permeability (mls/m²/day)	<0.001	<0.001
Tensile Strength BS 2782:Part 3:320A (N/mm²)	43.7	43.7
Tear Strength BS 2782: 360B (N/mm)	216	216

Standard Detail: Suspended Slab - Typical Edge Detail (GB–01)



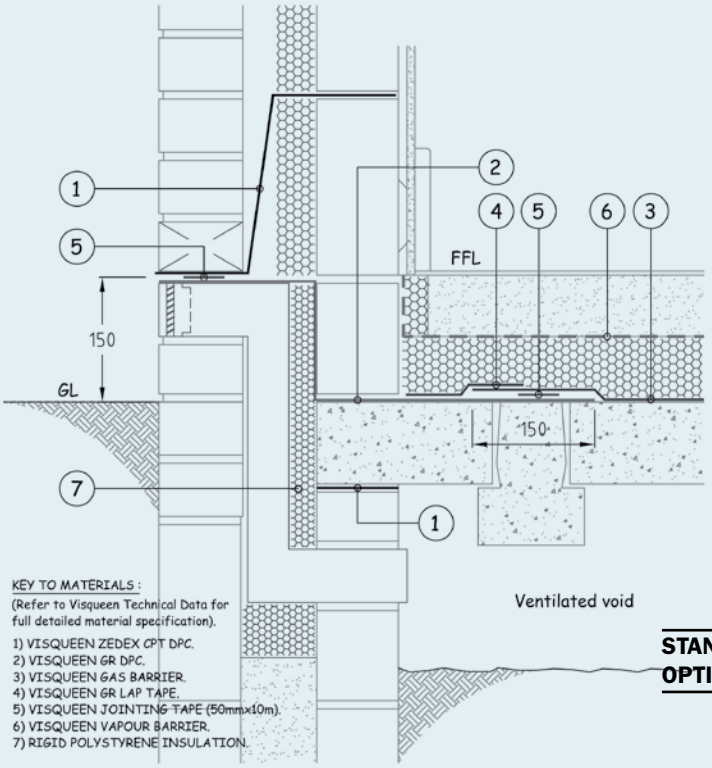
KEY: 1) Visqueen Zedex CPT DPC. 2) Visqueen GR DPC. 3) Visqueen Gas Barrier. 4) Visqueen GR Lap Tape. 5) Visqueen Jointing Tape (50mm x 10m). 6) Visqueen Vapour Barrier. 7) Rigid Polystyrene Insulation.

GAS PROTECTION SYSTEMS
VISQUEEN GAS BARRIER

- **LOW PERMEABILITY TO METHANE, RADON AND CARBON DIOXIDE.**
- **HIGH QUALITY MULTI-LAYER REINFORCED LDPE MEMBRANE WITH ALUMINIUM CORE WITH HIGH LEVELS OF TEAR AND IMPACT RESISTANCE.**
- **HIGH RESISTANCE TO PUNCTURE.**
- **COMPLIES WITH RELEVANT CODES OF PRACTICE SUCH AS BRE & CIRIA.**
- **ALSO ACTS AS A DAMP PROOF MEMBRANE.**

BBA BRITISH BOARD OF AGREMENT
ASSESSMENT OF PRODUCTS FOR CONSTRUCTION
CERTIFICATE No. 10/4754

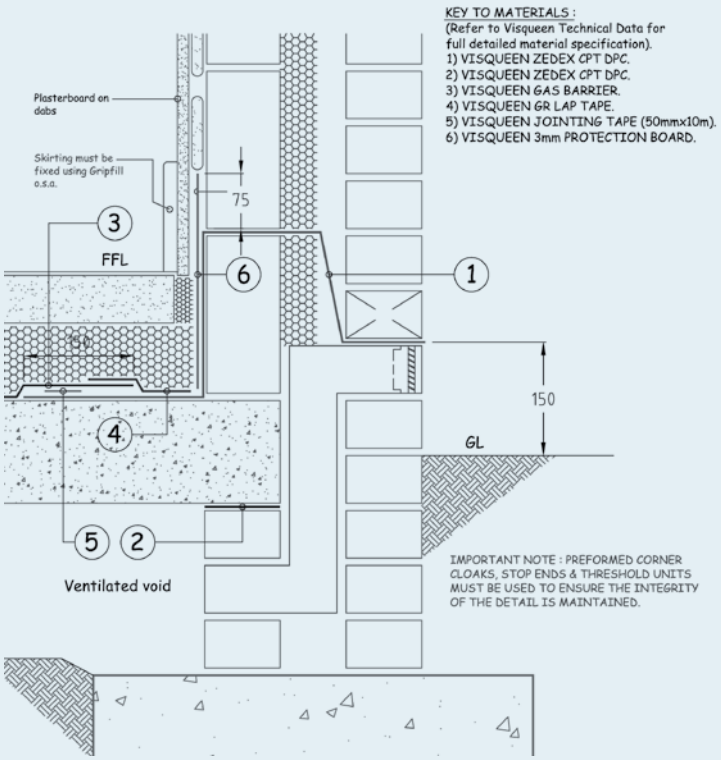
STANDARD DETAIL - SUSPENDED SLAB - TYPICAL EDGE DETAIL OPTION 2 (GB-02)



KEY TO MATERIALS :
(Refer to Visqueen Technical Data for full detailed material specification).
1) VISQUEEN ZEDEX CPT DPC.
2) VISQUEEN GR DPC.
3) VISQUEEN GAS BARRIER.
4) VISQUEEN GR LAP TAPE.
5) VISQUEEN JOINTING TAPE (50mmx10m).
6) VISQUEEN VAPOUR BARRIER.
7) RIGID POLYSTYRENE INSULATION.

NB; DO NOT SCALE - USE FIGURED DIMENSIONS ONLY.

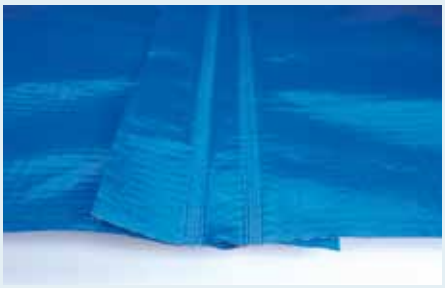
STANDARD DETAIL - SUSPENDED SLAB - TYPICAL EDGE DETAIL OPTION 3 (GB-02)



KEY TO MATERIALS :
(Refer to Visqueen Technical Data for full detailed material specification).
1) VISQUEEN ZEDEX CPT DPC.
2) VISQUEEN ZEDEX CPT DPC.
3) VISQUEEN GAS BARRIER.
4) VISQUEEN GR LAP TAPE.
5) VISQUEEN JOINTING TAPE (50mmx10m).
6) VISQUEEN 3mm PROTECTION BOARD.

GAS PROTECTION SYSTEMS
VISQUEEN GAS BARRIER PRE-WELD

- **65% TIME SAVING OVER TRADITIONAL TAPE AND ROLL SEALING METHODS.**
- **FAST TRACK INSTALLATION ON SITE.**
- **REDUCED WASTAGE THROUGH OFF-SITE FABRICATION.**
- **VISQUEEN'S PRE-WELDING TECHNOLOGY ENSURES HIGH INTEGRITY TO GAS MEMBRANE JOINTS.**



Recent building techniques have seen a tendency towards the use of off-site fabrication in many sectors of the building process. It seems logical therefore, that Visqueen Building Products should, in recognising this trend, provide an economical and time saving solution to the needs of the modern developer who requires a proven gas barrier system.

With increasing numbers of housing and industrial developments taking place on gas contaminated sites, developers must ensure that a high integrity gas protection membrane is installed, yet continue to operate under the time related pressures of today's fast track building programmes.

Welding technology for joining membranes is well established but has previously only been available when specialist on-site contractors have been used. It is widely recognised that joining sheets of membranes on site is often the most vulnerable element in the installation of a gas protection system.

By working closely with the designer in early project stages, Visqueen can produce a complete gas protection package that is delivered direct to site when required.

The use of pre-welded sheets means that the designer can now have increased levels of confidence as all joints are constructed in factory conditions and have been rigorously tested for airtightness before reaching site.

Additionally, as there are fewer taped joints to be performed on site, the gas barrier installation is less affected by adverse weather conditions (to be effective, taped joints must be formed in dry conditions).

Visqueen Gas Barrier is pre-welded in the factory to the exact dimensions of the footprint to the building and can be dispatched with the correct quantities of ancillary components as required to form a high integrity gas barrier system.

Factory fabrication helps reduce wastage on site and Visqueen's factory welded joints ensure that a high integrity airtight barrier is always achieved. The reduced time for on-site jointing ensures that for each footprint the installation time is significantly reduced. Each footprint can be identified by a unique reference, thereby, ensuring that on-site ordering is straightforward.

TECHNICAL PROPERTIES - VISQUEEN PRE-WELD GAS BARRIER JOIN

Tensile Strength MOAT 27 1983 5.5.2	35.3 daN/50mm
Resistance to Water Pressure M.O.A.T 27 983 5.1.4 Resistance to 6m head of water pressure	Pass, No leaks

GAS PROTECTION SYSTEMS
VISQUEEN LOW PERMEABILITY (LP) GAS MEMBRANE

VISQUEEN LOW PERMEABILITY GAS MEMBRANE

— **LOW PERMEABILITY TO CARBON DIOXIDE RADON AND LOW LEVELS OF METHANE.**
— **HIGH QUALITY ROBUST CO-POLYMER THERMOPLASTIC MEMBRANE.**
— **HIGH RESISTANCE TO PUNCTURE.**
— **COMPLIES WITH RELEVANT CODES OF PRACTICE SUCH AS CURRENT BRE AND CIRIA DOCUMENTATION.**
— **ALSO ACTS AS A DAMP PROOF MEMBRANE.**

MANUFACTURED IN THE UK

DESCRIPTION
The Building Regulations require that proper precautions be taken to prevent danger to health and safety when building on contaminated land. Visqueen Low Permeability Gas Membrane offers a safe solution for the protection of buildings against low levels of methane and carbon dioxide, when installed in accordance with the relevant codes of practice such as BRE, CIRIA and the Chartered Institute of Environmental Health Ground Gas Handbook. For more information on the Building Regulations on gas contaminated lands see P32. Visqueen Low Permeability Gas Membrane is a robust co-polymer thermoplastic membrane; for ease of identification on site the membrane is coloured yellow. The membrane is supplied in 4m x 12.5m roll and has a centre fold. It is flexible and is easy to install, and is also suitable for use as a damp proof membrane.

APPLICATION
Visqueen Low Permeability Gas Membrane offers a safe solution for the protection of buildings and occupiers against low levels of methane, carbon dioxide and radon ingress. Typically these are sites previously used as coalfields, landfill or are contaminated industrial sites.



INSTALLATION
Visqueen Low Permeability Gas Membrane and ancillary components must be installed in accordance with the recommendations of Building Research Establishment BRE 414 "Protective measures for housing on gas contaminated land", and CIRIA C665 “Assessing risks posed by hazardous ground gases to buildings”, NHBC guidelines and the Chartered Institute of Environmental Health Ground Gas Handbook. The product is not intended for use where there is the risk of hydrostatic pressure.

The membrane should be installed on a compacted sand blinding layer or smooth concrete float finish allowing adequate overlap for jointing between the sheets and avoiding bridging (i.e. areas of unsupported membrane). In areas where high levels of unsupported membrane occur it is recommended that Visqueen Pre Applied Membrane is used. To avoid slip or shear planes and high compressive loadings it is not recommended to take the membrane through the wall. In order to provide a continuous barrier across the cavity Visqueen Zedex CPT DPC should be taken through the blockwork and incorporated below the damp proof course cavity tray in the outer leaf.

Laps can be joined together by either using the Visqueen Gas Barrier jointing system or welded by our specialist on-site contractors.

IMPORTANT
For lapping, jointing and puncture repair, please see our Installation section P83.

A full technical datasheet is available online www.visqueenbuilding.co.uk/gas

VENTILATION
BS8485 recommends ventilation layers on open voids may be required beneath the floor slab in order to dilute and disperse ground gases to the atmosphere. Open voids are normally restricted to beam and block floors or other precast concrete floor systems. An alternative for providing ventilation to in situ concrete floor slabs is to install a Visqueen Ventilation System. See page 50 for further details.

NB. In demanding site conditions use Visqueen GR Lap Tape as a high performance alternative to Visqueen Foil Jointing Tape.

REQUIRED COMPONENTS
AVAILABLE AS A DOWNLOAD FROM
VISQUEENBUILDING.CO.UK/GAS

- VISQUEEN GAS BARRIER JOINTING SYSTEM
- VISQUEEN DETAILING STRIP
- VISQUEEN TOP HAT UNITS
- P53 VISQUEEN GEOCOMPOSITE DRAINAGE & VENTING MAT
- P88 VISQUEEN HEAVY DUTY PROTECTION BOARD
- P8 VISQUEEN ZEDEX CPT DPC
- P60 VISQUEEN GAS RESISTANT SELF ADHESIVE MEMBRANE

SPECIFICATION SUPPORT
THE FOLLOWING ITEMS ARE AVAILABLE
TO VIEW ONLINE OR TO DOWNLOAD FROM
VISQUEENBUILDING.CO.UK/GAS

- TECHNICAL DATASHEETS
- TYPICAL INSTALLATION CAD DETAILS
- HEALTH & SAFETY DATA

COVERING

COVERING

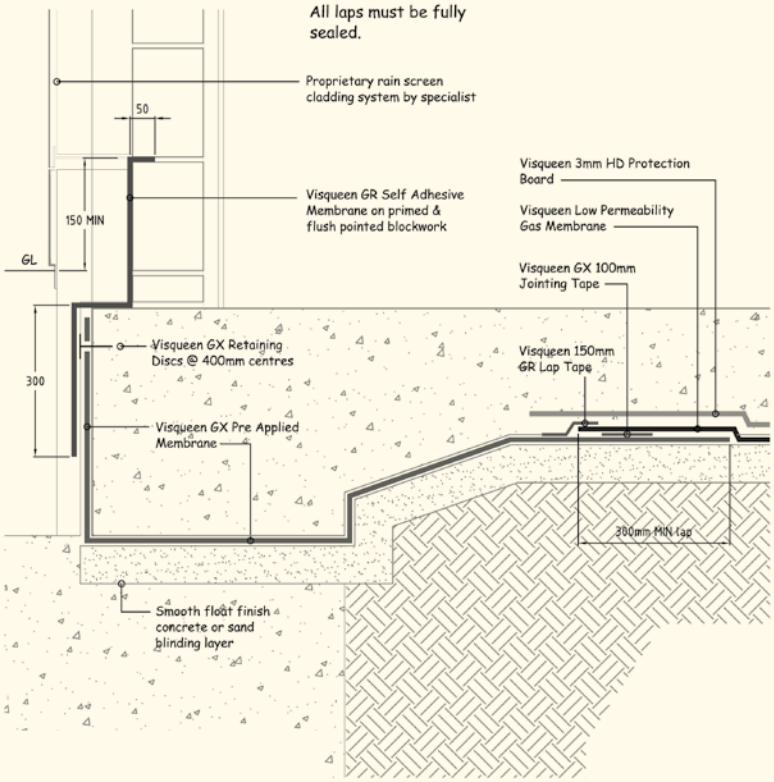
Visqueen Low Permeability Gas Membrane should be covered by a protective layer as soon as possible after installation. Care should be taken to ensure that the membrane is not punctured, stretched or displaced when applying a screed or final floor covering. A minimum thickness of 50mm screed is recommended.

When reinforced concrete is to be laid over the membrane, the wire reinforcements and spacers must be prevented from contacting the membrane. It is recommended that the membrane is covered with Visqueen Protection Boards or screed before positioning the reinforcement. When underfloor heating is being installed, it is recommended that the membrane is positioned between the blinded hardcore and insulation. This will protect the insulation from moisture and avoid any risk of overheating the membrane.

STORAGE AND HANDLING

Visqueen Low Permeability Gas Membrane is classified as non-hazardous when used in accordance with the relevant Code of Practice (CP 102:1973). The product is chemically inert and is not affected by acids and alkalis that may be present in the sub-soils. The material is not recommended for uses where it will be exposed to long periods of outdoor weathering as exposure to ultraviolet light will embrittle the product. Weathering will not occur when the membrane is installed in accordance with CP 102:1973. Care should be taken to avoid accidental damage when handling the membrane on site. When the weather is cold all jointing tapes should be kept in a warm and dry place until needed. Installation is not recommended below 5°C.

TYPICAL SLAB EDGE HEAVY DUTY COMBI DETAIL / LP GAS MEMBRANE (SW–LPGM–28)



TECHNICAL DATA

Thickness	500 microns (2000 gauge)
Roll Dimensions	4m x 12.5m
Roll Colour	Yellow
Roll Weight	23kg
Angle Tear Strength (BS 2782-3: Method 360C)	MD:112N/mm CD:108N/mm
Tensile Strength (BS EN ISO 572-3)	MD: 26.9N/mm² CD: 26.8N/mm²
Elongation (BS EN ISO 572-3)	MD: 780% CD: 825%
Carbon Dioxide Gas Permeability (ISO 2782)	2.80 x 10^{-17} m²/sec/Pa
Methane Gas Permeability (ISO 2782)	1.13 x 10^{-17} m²/sec/Pa

GAS PROTECTION SYSTEMS
VISQUEEN CO_2 GAS MEMBRANE

- **LOW PERMEABILITY TO CARBON DIOXIDE AND RADON.**
- **HIGH QUALITY ROBUST CO-POLYMER THERMOPLASTIC MEMBRANE.**
- **HIGH RESISTANCE TO PUNCTURE.**
- **COMPLIES WITH RELEVANT CODES OF PRACTICE SUCH AS BRE AND CIRIA.**
- **ALSO ACTS AS A DAMP PROOF MEMBRANE.**

MANUFACTURED IN THE UK

DESCRIPTION
The Building Regulations require that proper precautions be taken to prevent danger to health and safety when building on contaminated land. Visqueen CO_2 Gas Membrane offers a safe solution for the protection of buildings against carbon dioxide, when installed in accordance with the relevant codes of practice such as BRE, CIRIA and the Chartered Institute of Environmental Health Ground Gas Handbook. Visqueen CO_2 Gas Membrane is a robust co-polymer thermoplastic membrane; for ease of identification on site the membrane is coloured yellow. The barrier is flexible and is easy to install, and is also suitable for use as a damp proof membrane.

APPLICATION
Visqueen CO_2 Gas Membrane offers a safe solution for the protection of buildings and occupiers against carbon dioxide and radon ingress. Typically these are sites previously used as coalfields, landfill or are contaminated industrial sites.

INSTALLATION
Visqueen CO_2 Gas Membrane and ancillary components must be installed in accordance with the recommendations of Building Research Establishment BRE 414 "Protective measures for housing on gas contaminated land" and CIRIA C665 “Assessing risks posed by hazardous ground gases to buildings”, NHBC guidelines and the Chartered Institute of Environmental Health Ground Gas Handbook. The product is not intended for use where there is the risk of hydrostatic pressure.

The membrane should be installed on a compacted sand blinding layer or smooth concrete float finish allowing adequate overlap for jointing between the sheets and avoiding bridging (i.e. areas of unsupported membrane). In areas where high levels of unsupported membrane occur it is recommended that Visqueen Pre Applied Membrane is used. To avoid slip or shear planes and high compressive loadings it is not recommended to take the membrane through the wall. In order to provide a continuous barrier across the cavity Visqueen Zedex CPT DPC should be taken through the blockwork and incorporated below the damp proof course cavity tray in the outer leaf.

IMPORTANT
For more information on lapping, jointing and puncture repair, please see our Installation section P83.

A full technical datasheet is available online www.visqueenbuilding.co.uk/gas

If the membrane is punctured or perforated then a patch of material with identical thickness should be lapped at least 150mm beyond the limits of the puncture and bonded with Visqueen Double Sided Jointing Tape and sealed with Visqueen Foil Backed Jointing Tape. Alternatively a patch can be formed using Visqueen Detailing Strip and lapped at least 150mm beyond the limits of the puncture. External and internal corners should be round and reinforced with Visqueen Detailing Strip. Where this is not possible and the three dimensional shapes are complex it is recommended a preformed unit is used.

Laps can be joined together by either using the Visqueen Gas Barrier jointing system or welded by our specialist on-site contractors.

NB. In demanding site conditions use Visqueen GR Lap Tape as a high performance alternative to Visqueen Foil Jointing Tape.

VENTILATION
When medium to high levels of CO_2 gases are present or when the generation of CO_2 gases still occurs, then an open void beneath the ground floor should be constructed as ventilation beneath the ground floor will dilute and disperse the gases to atmosphere. Open voids are normally restricted to beam and block floors or other precast concrete floor systems. An alternative for providing ventilation to in situ concrete floor slabs is to install a Visqueen Ventilation System. See page 50 for further details.



REQUIRED COMPONENTS
AVAILABLE AS A DOWNLOAD FROM
VISQUEENBUILDING.CO.UK/GAS

DL	VISQUEEN GAS BARRIER JOINTING SYSTEM
DL	VISQUEEN DETAILING STRIP
DL	VISQUEEN TOP HAT UNITS
P53	VISQUEEN GEOCOMPOSITE DRAINAGE & VENTING MAT
P88	VISQUEEN HEAVY DUTY PROTECTION BOARD
P8	VISQUEEN ZEDEX CPT DPC
P60	VISQUEEN GAS RESISTANT SELF ADHESIVE MEMBRANE

SPECIFICATION SUPPORT
THE FOLLOWING ITEMS ARE AVAILABLE
TO VIEW ONLINE OR TO DOWNLOAD FROM
VISQUEENBUILDING.CO.UK/GAS

- TECHNICAL DATASHEETS
- CAD TYPICAL INSTALLATION CAD DETAILS
- H&S HEALTH & SAFETY DATA

COVERING

COVERING

Visqueen CO_2 Gas Membrane should be covered by a protective layer as soon as possible after installation. Care should be taken to ensure that the membrane is not punctured, stretched or displaced when applying a screed or final floor covering. A minimum thickness of 50mm screed is recommended.

When reinforced concrete is to be laid over the barrier the wire reinforcements and spacers must be prevented from contacting the barrier. It is recommended that the barrier is covered with Visqueen Protection Boards or screed before positioning the reinforcement. When underfloor heating is being installed, it is recommended that the barrier is positioned between the blinded hardcore and insulation. This will protect the insulation from moisture and avoid any risk of overheating the membrane.

STORAGE AND HANDLING

Visqueen CO_2 Gas Barrier is classified as non-hazardous when used in accordance with the relevant Code of Practice (CP 102:1973). The product is chemically inert and is not affected by acids and alkalis that may be present in the sub-soils. The material is not recommended for uses where it will be exposed to long periods of outdoor weathering as exposure to ultraviolet light will embrittle the product. Weathering will not occur when the membrane is installed in accordance with CP 102:1973. Care should be taken to avoid accidental damage when handling the membrane on site. When the weather is cold all jointing tapes should be kept in a warm and dry place until needed. Installation is not recommended below 5°C.

TECHNICAL DATA

Nominal Thickness (µm)	500
Nominal Weight (g/m²)	465
Roll Length (m)	12.5
Roll Width (m)	4
Carbon Dioxide Gas Permeability ISO 2782	2.80 x 10^{-17} m²/sec/Pa

GAS PROTECTION SYSTEMS
VISQUEEN RADON MEMBRANE

— **INDEPENDENTLY TESTED FOR RADON RESISTANCE.**
— **BRE CERTIFIED.**
— **HIGH RESISTANCE TO PUNCTURE.**
— **ALSO ACTS AS A DAMP PROOF MEMBRANE.**
— **COMPLIES WITH CIRIA C665.**

Certificate No.083/01

MANUFACTURED IN THE UK

ASSESSING THE RISK FOR YOUR AREA

Because the level of risk differs across the country according to local geology, the risk depends on where your site is situated.

The main source of guidance on the risks and solutions is BRE Report BR 211.

It includes maps for determining the need for radon protection, as well as detailed information on construction solutions.

The maps are used as the basis for determining in general terms the required degree of radon protection ("basic" or "full") in your area. Essentially, "basic" protection means you need to lay a ground floor radon membrane and "full" protection means that, in addition, you need to make provision for underfloor depressurisation.

Your local authority Building Control Officer or a local Approved Inspector should also be able to help you determine the broad level of risk in your area but, like the maps, they can only give a broad indication. Ultimately, if you are in an area that is potentially at risk, there is no substitute for an assessment close to your actual site – you may be in a pocket where the geology is different from the region as a whole, allowing the required protection to be downgraded from "full" to "basic", or even making radon protection unnecessary.

DETERMINING THE RISK FOR YOUR SITE

If you are in an area where the maps indicate that no protection is required, there is no need to take further action. However, if the maps indicate the need for "full" protection, it is worth confirming this by requesting a detailed assessment from the British Geological Survey (BGS), which focuses more accurately on your location. This may show that only "basic" protection is necessary on your particular site.

CONSTRUCTION SOLUTIONS

Radon Protection
Once you have determined whether you need "basic" or "full" protection, you must check that your preferred ground floor construction gives you the right level of protection. The options are as follows:

Basic Radon Protection
For "basic" protection, you need to provide an airtight barrier covering the entire ground floor of the building, linked to the damp proof course using cavity trays which prevent radon moving through the wall cavity and into the building.

All junctions between the floor membrane and cavity trays should be sealed. You can achieve "basic" protection with both ground supported and suspended (ventilated) concrete ground floors by installing a radon-proof membrane system. With a suspended concrete slab, the space beneath the floor is available to ventilate radon safely away should "full" protection be required.

Full Radon Protection
For "full" protection, you not only need to provide a radon-proof floor membrane, but also an underfloor depressurisation system. Depressurisation can be achieved by natural or mechanical underfloor ventilation through the subfloor space, or from a radon sump if there is no underfloor space. If you prefer to use an in situ slab in contact with the ground, the slab should be supported on the inner leaf. The full system consists of;

— Visqueen Radon Jointing System, prevents radon ingress at joints,
— Visqueen Top Hat Units prevents radon ingress at pipe penetrations,
— Visqueen Radon Sumps, where subfloor depressurisation may be required.

IMPORTANT
For more information on the Building Regulations on gas contaminated lands see P32

A full technical datasheet is available online www.visqueenbuilding.co.uk/gas

Below: Visqueen's Radon System Components



REQUIRED COMPONENTS
AVAILABLE AS A DOWNLOAD FROM
VISQUEENBUILDING.CO.UK/GAS

DL	VISQUEEN RADON JOINTING SYSTEM
DL	VISQUEEN TOP HAT UNITS
P49	VISQUEEN RADON SUMP
P60	VISQUEEN GAS RESISTANT SELF ADHESIVE DPM
P8	VISQUEEN ZEDEX CPT DPC
P14	VISQUEEN ZEDEX PREFORMED CAVITY TRAY UNITS

SPECIFICATION SUPPORT
THE FOLLOWING ITEMS ARE AVAILABLE
TO VIEW ONLINE OR TO DOWNLOAD FROM
VISQUEENBUILDING.CO.UK/GAS

- TECHNICAL DATASHEETS
- CAD TYPICAL INSTALLATION CAD DETAILS
- H&S HEALTH & SAFETY DATA
- BRE CERTIFICATE

DESCRIPTION

Visqueen Radon Membrane is manufactured from an enhanced blend of polymer films that is suitable for use in the protection of buildings from the ingress of radon gas.

BRE Certification Limited

Certificate No.083/01

Visqueen Radon Membrane also acts as a damp proof membrane, but is not intended for use where there is the risk of hydrostatic pressure. It is approved for use in Ireland.

Visqueen Radon Membrane must be installed in accordance with BRE Certificate No. 083/01.

Visqueen Radon Membrane and ancillary components must be used in accordance with the recommendations in the most recent edition of Building Research Establishment Report BR 211.

Visqueen Radon Membrane can be used in most common floor constructions. It is installed in a similar way to a damp proof membrane, but with much greater attention paid to workmanship and detailing in order to achieve effective sealing at all locations.

TECHNICAL DATA

DIMENSIONAL DETAILS	
Thickness	300µm
Width	4m
Length	25m
Colour	Red
Roll Weight	27.6kg
TECHNICAL PERFORMANCE	
Elongation at Break (BS 2782:3 method 320A)	871%
Tear Resistance (MOAT 27: 1983 5.4.1)	118N
Water Vapour Transmission Rate (BS 3177)	0.33 g/m²/day
Radon Permeability (k)	8×10^{-12} m²/s
Radon Transmittance (P)	26×10^{-9} m/s
VISQUEEN ZEDEX CPT DPC	
Radon Permeability (k)	17×10^{-12} m²/s
Radon Transmittance (P)	22×10^{-9} m/s
VISQUEEN DPM DOUBLE SIDED JOINTING TAPE	
Roll Length	10m
Roll Width	50mm
VISQUEEN GIRTH JOINTING TAPE	
Roll Length	33m
Roll Width	100mm

VISQUEEN HIGH PERFORMANCE RADON MEMBRANE:

Exclusively for use in Ireland Visqueen has developed a High Performance Radon Membrane, which carries Irish Agrément Board Accreditation. For further details visit visqueenbuilding.co.uk/gas

Bord Agrément na hÉireann
Irish Agrément Board

Visqueen Radon Membrane is an un-reinforced polyethylene membrane, suitable for protecting buildings from the entry of radon gas and independently accredited by BRE Certification Ltd (Certificate Number 083/01).

Visqueen Radon Membrane also acts as a damp proof membrane, but is not intended for use where there is the risk of hydrostatic pressure.

Approved for use in Ireland.

INSTALLATION & JOINTING

INSTALLATION

Visqueen Radon Gas Membrane and ancillary components must be installed in accordance with the recommendations of Building Research Establishment BRE 414 "Protective measures for housing on gas contaminated land" and CIRIA C665 “Assessing risks posed by hazardous ground gases to buildings”, NHBC guidelines and the Chartered Institute of Environmental Health Ground Gas Handbook. The product is not intended for use where there is the risk of hydrostatic pressure.

The membrane should be installed on a compacted sand blinding layer or smooth concrete float finish allowing adequate overlap for jointing between the sheets and avoiding bridging (i.e. areas of unsupported membrane). In areas where high levels of unsupported membrane occur it is recommended that Visqueen Pre Applied Membrane is used. To avoid slip or shear planes and high compressive loadings it is not recommended to take the membrane through the wall. In order to provide a continuous barrier across the cavity Visqueen Zedex CPT DPC should be taken through the blockwork and incorporated below the damp proof course cavity tray in the outer leaf.

Laps can be joined together by either using the Visqueen Gas Barrier Jointing System or welded by our specialist on-site contractors.

If the membrane is punctured or perforated then a patch of material with identical thickness should be lapped at least 150mm beyond the limits of the puncture and bonded with Visqueen Double Sided Jointing Tape and sealed with Visqueen Single Sided Girth Tape. Alternatively a patch can be formed using Visqueen Detailing Strip and lapped at least 150mm beyond the limits of the puncture. External and internal corners should be round and reinforced with Visqueen Detailing Strip. Where this is not possible and the three dimensional shapes are complex it is recommended a preformed unit is used.

COVERING

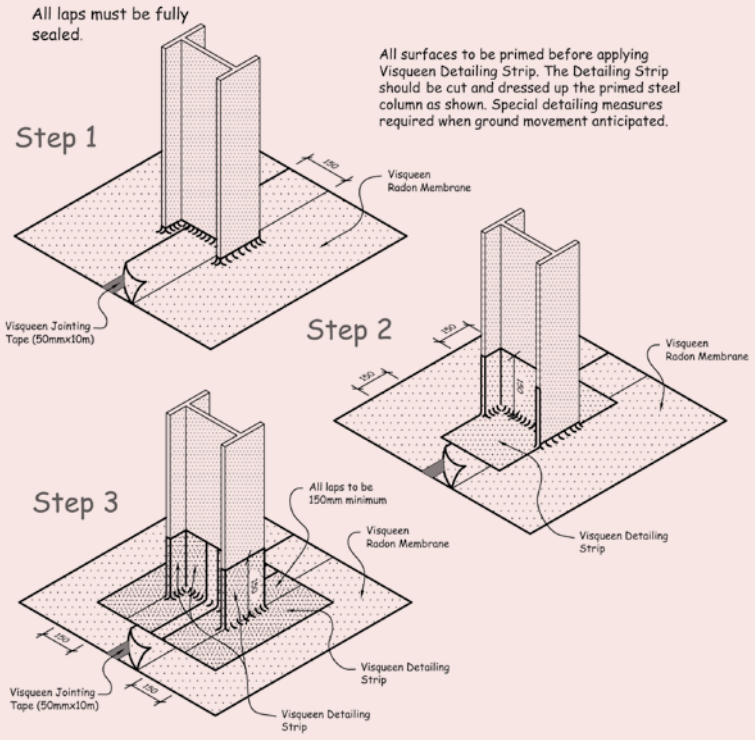
Visqueen Radon Membrane should be covered by a protective layer as soon as possible after installation. Care should be taken to ensure that the membrane is not punctured, stretched or displaced when applying a screed or final floor covering. A minimum thickness of 50mm screed is recommended. When reinforced concrete is to be laid over the barrier the wire reinforcements and spacers must be prevented from contacting the barrier.

It is recommended that the barrier is covered with Visqueen Protection Boards or screed before positioning the reinforcement. When underfloor heating is being installed, it is recommended that the barrier is positioned between the blinded hardcore and insulation. This will protect the insulation from moisture and avoid any risk of overheating the membrane.

STORAGE AND HANDLING

Visqueen Radon Gas Barrier is classified as non-hazardous when used in accordance with the relevant Code of Practice (CP 102:1973). The product is chemically inert and is not affected by acids and alkalis that may be present in the sub-soils. The material is not recommended for uses where it will be exposed to long periods of outdoor weathering as exposure to ultraviolet light will embrittle the product. Weathering will not occur when the membrane is installed in accordance with CP 102:1973. Care should be taken to avoid accidental damage when handling the membrane on site. When the weather is cold all jointing tapes should be kept in a warm and dry place until needed. Installation is not recommended below 5°C.

SEALING METHOD AROUND UNIVERSAL COLUMN PENETRATION (SLAB JUNCTIONS ONLY) (RAD - 19)



IMPORTANT
For lapping, jointing and puncture repair, please see our Installation section P83.

A full technical datasheet is available online www.visqueenbuilding.co.uk/gas

HOW TO INSTALL A PROPRIETARY RADON SUMP AND EXHAUST PIPE AT THE EXTERNAL WALL



Excavate a pit for the sump, ensuring that, for maximum depressurisation, any fill used beneath the slab does not contain excessive fines.



Remove the blanking piece from the proprietary sump and connect a 110mm diameter PVC-U pipe to one outlet of the sump.



Extend the pipe horizontally so that it passes through the external wall. Ensure that all joints and couplings are airtight.



Backfill using a clean permeable material without excessive fines.



Terminate the pipe just above ground level, and cap it. It will then be ready for extension to form a vent if necessary.



Position the capped section of pipe so that it is about 100mm from the face of the external wall. This will allow space to accommodate a fan if necessary. Provide a plate on the wall to indicate the presence of the radon exhaust pipe.

VISQUEEN RADON SUMP

Colour	Various Colours: White, Black, or Green
Length	430mm
Width	430mm
Height	220mm
Material Composition	Polyethylene

SUMPS FOR USE WITH FULL PROTECTION

Where subfloor depressurisation is required, a Visqueen Radon Sump should be used. This is a prefabricated plastic sump, to which pipework is connected, with the joints fully sealed using the Visqueen Radon Membrane Jointing System.

A venting pipe should be connected to the sump, pass through the external wall and brought out above ground level about 100mm from the face of the external wall. The pipe is then capped until such time as a fan is installed.

IMPORTANT

A sump is only installed as a fallback measure and does not provide any radon removal until a fan is installed or, if the sump is located centrally, the pipe is connected to a passive stack system. Typically sumps are installed at one unit per dwelling or every 15m radius.

VISQUEEN GAS VENTING SYSTEM

BACKGROUND

The hazards of ground gases must be taken into account when designing and constructing new developments. Ground gas can be drawn into a building by the pressure difference that exists between the inside and outside of the building (warm indoor air is less dense than cold outdoor air). Ground gases can enter buildings through:

- Gaps around service pipes.
- Construction joints.
- Wall cavities.
- Cracks in walls and ground slabs.

Having entered buildings, ground gas may accumulate in confined spaces such as:

- Subfloor voids / voids created by settlement beneath floor slabs.
- Cupboards.
- Drains and soakaways.

METHODS OF PROTECTION

Current UK construction practice adopts the concept of multiple gas protection measures to form a gas control system, typically, protection measures increase in number and robustness as the potential risk increases.

The main methods of protecting buildings from gas ingress are the provision of a robust floor slab and gas resistant barrier across the floor slab which may be combined with an underfloor passive venting system.

In most buildings passive gas protective measures are constructed either at or just below the ground floor level. The protection consists of a number of individual elements, which combine to form an integrated gas protection system.

The most commonly used components in a passive gas protection system are:

- Ground floor construction.
- Gas resistant membrane/Gas DPC.
- Open void or Geocomposites Ventformers with associated pipework and perimeter vents.
- Sealed service entries.

PASSIVE VENTING

In a passive venting system gas rises to the underside of the building and is diluted to safe concentrations below the slab by the introduction of fresh air through predetermined inlets and outlets which typically provide 2000mm^2 per metre run of perimeter wall. The vents are placed on opposite sides of the building which allows sufficient air to enter the void below the building and the diluted gas is then released out to atmosphere at safe concentration.

The required air changes per hour to the underside of the building are calculated to ensure that the gas emanating from the ground is safely diluted.

Visqueen Geocomposite Venting Mats are available in both 25mm and 50mm thicknesses and both have been thoroughly tested as per the DETR Partners In Technology Research Report (Passive Venting of Soil Gases Beneath Buildings 1997).



Visqueen Geocomposite Venting Mats can be laid in a blanket under the entire floor area on more heavily gassing sites or alternatively can be laid in strips at predetermined centres to suit the gas regime on site.

It is however important to note that where Visqueen Geocomposite Venting Mat is laid in strips that a gas collection pipe running perpendicular to the vents must be provided. Furthermore it is important to recognise that the strips of venting mat alone will not be adequate in terms of providing the venting capacity required unless they are laid in a 150mm thick layer of course granular material e.g 4/20 that must extend under the entire footprint of the building.

Laying strips of geocomposite in MOT type 1 is a common mistake and both DETR Partners In Technology Research Report (Passive Venting of Soil Gases Beneath Buildings 1997) and Chartered Institute of Environmental Health “The local authority guide to ground gas” stipulate that it is not acceptable to lay perforated pipes or geocomposites venting strips in low permeability substrates.

Both documents also state that where venting mat or pipes are laid in strips they must be interleaved to avoid short circuiting.

On more heavily gassing sites it may be necessary to provide a full blanket of either Visqueen 25mm or 50mm Venting Mat in order to facilitate the required air flow under the building.

Table 28 of the DETR Partners In Technology Research Report (Passive Venting of Soil Gases Beneath Buildings 1997) gives performance data on the performance of venting mat on buildings up to 30m widths based on the characteristic situation of the site.

On wider buildings that fall outside of the scope of Table 28 of the DETR report, Visqueen can provide calculations to prove that the gas emanating from the ground will be kept below the required target concentrations for the site.

The introduction of high level vents with rotating cowls can further enhance the performance of the Visqueen Geocomposite Venting Mat which means that it can be used to safely dilute gases on problematic sites without the need for environmentally unfriendly electric fans.

The Chartered Institute of Environmental Health report “The local authority guide to ground gas” recommends that active systems that extract or positively pressurise subfloor voids should only be used when passive measures have been proven to be unsuitable.

At Visqueen Building Products we have a range of gas membranes and venting layers with accessories for selection and specification for different construction types and gas regimes.

The products and systems have been specifically developed to reduce the risk of harm to building occupants. Please contact our technical services department for further information.



GAS PROTECTION SYSTEMS
SYSTEM DESIGN

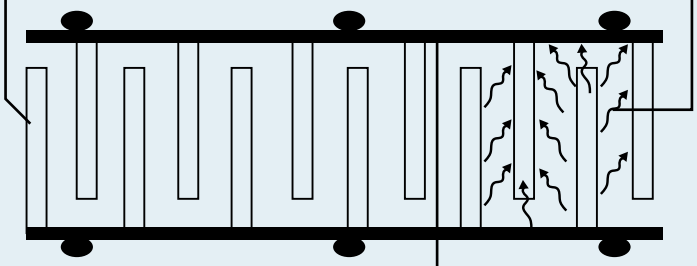
Visqueen Building Products offer an unparalleled nationwide site support service. Our experienced Regional Technical Managers provide design, specification and installation advice at every step of the project.

After receiving the site investigation data which includes bore hole flow rates and gas concentrations, we can make site specific recommendations.

Please see below some examples of our designs which are also available at www.visqueenbuilding.co.uk

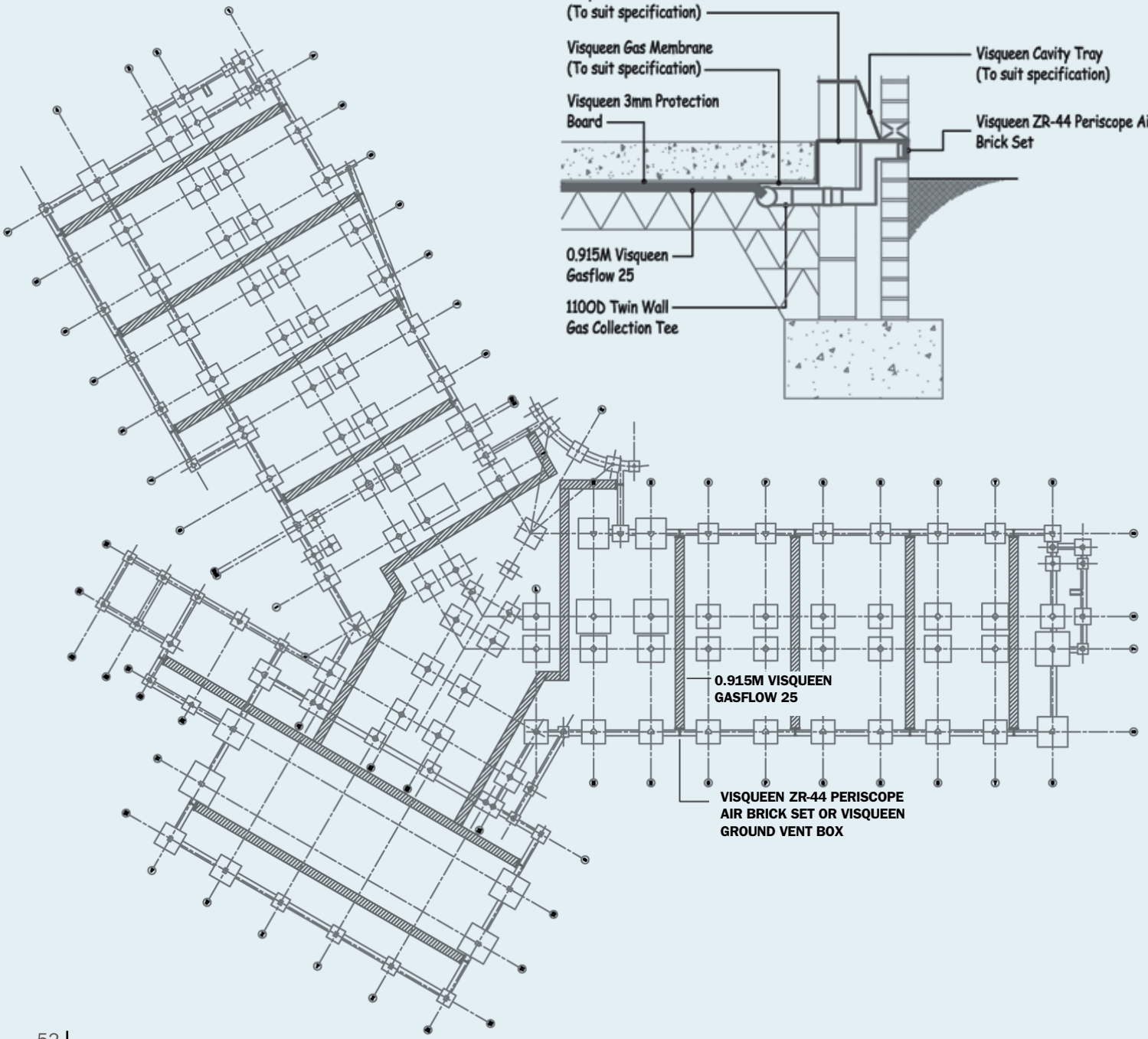
Interleaved Strips of Visqueen Gas Venting Mat stop short of the collector pipe on opposite sides of the building.

4/20 Gravel Blanket allows air/gas to migrate into Visqueen Venting Mat. Substrates such as Type1 trap gas and stop it reaching the geocomposite strips.



Visqueen 110mm diameter Gas Collection Pipe

ENGINEERS GROUND FLOOR PLAN



TYPICAL GAS PROTECTION EDGE DETAILS

GAS PROTECTION SYSTEMS
VISQUEEN GEOCOMPOSITE DRAINAGE AND VENTING MAT

VISQUEEN GAS VENTING MAT

- **RAPID INSTALLATION IN BOTH DRAINAGE AND VENTING APPLICATIONS.**
- **HIGH FLOW CAPACITY TO ALLEVIATE HYDROSTATIC PRESSURE ON BELOW GROUND STRUCTURES.**
- **SERVES AS PROTECTION TO EXTERNALLY APPLIED TANKING OR GAS PROTECTION MEMBRANES.**
- **CREATES A DEPRESSURISATION ZONE FOR COLLECTION OF GROUND GASES.**
- **COST EFFECTIVE COMPARED TO TRADITIONAL BELOW SLAB PERFORATED PIPEWORK AND FILL.**

MANUFACTURED IN THE UK

DESCRIPTION
Visqueen Geocomposite Drainage and Venting Mat is a UK manufactured preformed drainage and venting layer supplied in roll form. It comprises a cuspated HDPE (High Density Polyethylene) core bonded to a non-woven polypropylene geotextile filter membrane. Visqueen Geocomposite Drainage and Venting Mat is 25mm thick and supplied in rolls 985mm x 50m.

APPLICATION
When laid the product forms a void to collect and transmit water and/or gas into adjacent drainage outlets or collector pipes. Typical applications include drainage for externally applied tanking, drainage behind retaining walls, gas venting below ground bearing slabs, etc. The product can be applied horizontally or vertically.

INSTALLATION
Visqueen Geocomposite Drainage and Venting Mat is designed to be installed with the geotextile filter side of the product facing the direction of the water or gas flow. Rolls can be cut to length with a sharp knife.

In drainage applications, the product is butted together to create a blanket. In venting applications, the product can be laid as single widths beneath a ground bearing slab or raft foundation to create a strip effect, or butted together to create a blanket. When laying in strip format, careful consideration should be given to the slab layout and any available data regarding gas concentration and flow rate. Refer to Visqueen Technical Support for system design advice.

When laid as strips, the ends of the Geocomposite Mat are inserted into Visqueen Tee Manifold Connectors which are commonly joined to Visqueen Periscope Vents via Visqueen Periscope Vent Adapters, thereby allowing the collected gases to exhaust to external air. Other exhaust systems e.g. ground vent boxes, venting bollards, etc are also available.

When installing the product over vertically applied tanking membranes or gas protection membranes, it also serves as protection against backfill. The Geocomposite Mat can be bonded to the membrane with Visqueen Double Sided Jointing Tape.

JOINTING
Where a blanket is required, unroll the mat into position. The next roll should be placed in a similar way to the first so the dimpled cores butt together. The geotextile filter membrane extends beyond the width of the dimpled HDPE core at one side; this creates an overlap flap. Continue laying further rolls in a similar manner to create the blanket.

PRECAUTIONS
Before backfilling or gas membrane application, inspect the installation of the product to ensure that gaps, open ends or sides where soil, aggregate, etc can enter the core are wrapped with geotextile filter membrane and secured with Visqueen DPM Girth Lap Tape.



ALSO CONSIDER...

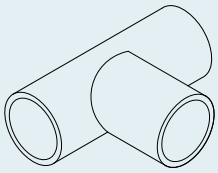
VISQUEEN HIGH-FLOW GEOCOMPOSITE VENTFORMER 50mm

For more information on this product please visit:
www.visqueenbuilding.co.uk/gas

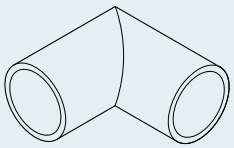
TECHNICAL DATA

Mat Dimensions	25mm thick, 985mm x 50m
Roll Weight	74kg
Roll Diameter	1.3m
Geotextile Water Flow Rate (BS EN ISO 11058)	120 l/m²/s
Compressive Strength	180 kN/m²
Maximum In-Plane Water Flow Capacity (EN ISO 12958)	20 l/s per metre width
Shear Strength (EN ISO 13426-2)	1kN
Chemical Resistance	Highly resistant

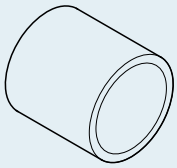
GAS PROTECTION SYSTEMS
VISQUEEN'S GAS DISPERSAL SYSTEM & GAS FLOW FITTINGS



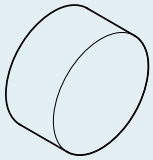
VT001 'T' Fitting ▼●
I.D. 100mm, length 87mm, to fit VT005,VT006 & VT007 (no coupling required).



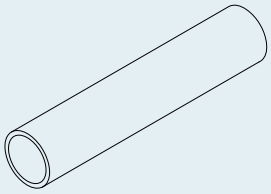
VT002 90° Bend ▼●
I.D. 100mm, length 80mm, to fit VT005,VT006 & VT007 (no coupling required).



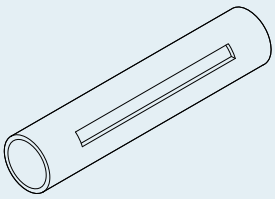
VT003 Coupling ▼
To connect VT005, VT006 or VT007 pipework.



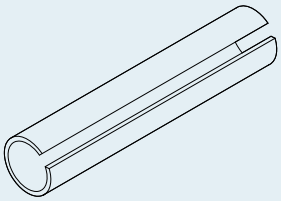
VT004 End Cap ○
To suit VT005, VT006 and VT007.



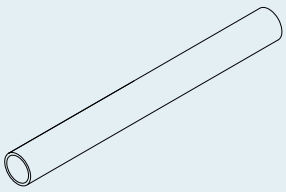
VT005 Solid Carrier Pipe ●
I.D. 100mm, standard length 6m.



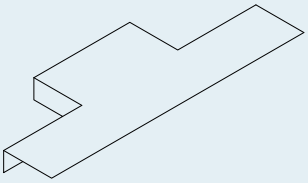
VT006 Slotted Carrier Pipe ●
I.D. 100mm, standard length 1.5m, standard slot 30mm (50mm slot also available).



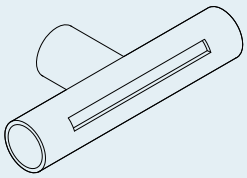
VT007 Slitted Carrier Pipe ●
I.D. 100mm, length 6m, standard slit 30mm full length (10, 20 or 50mm slit also available).



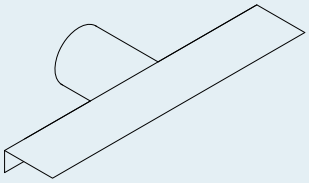
VT008 Gas Vent Pipe ●
53mm I.D pipe, length 6m (flexible twin wall).



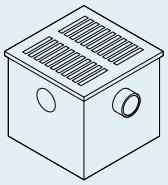
VT009 Gas Vent Outlet ○
VT009/25 (Width 915mm, connector length 350mm) to fit Gasflow 25 and VT015 or VT017.



VT010 Gas Vent Outlet ●
Width 990mm, connector length 150mm to fit VT006 100mm I.D pipe.



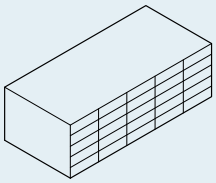
VT011 Gas Vent Outlet ○
VT011/25 (Width 915mm, connector length 190mm) to fit Gasflow 25 and VT006 100mm I.D pipe.



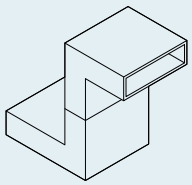
VT012 Gas Vent Box ○
To suit VT006 (standard stainless steel slotted lid, optional plastic lid) 412x412x400mm (open area 65,000mm^2).



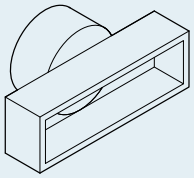
VT013 Gas Vent Bollard ○
O/D 110mm (3.5mm wall). Length 800mm, black, open area 25,000 mm^2.



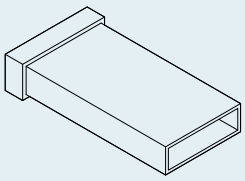
VT014 Air Brick
Standard size 70mm x 215mm, Black standard (also Terracotta, Anthracite & White) (open area 6,500mm^2). To suit VT015.



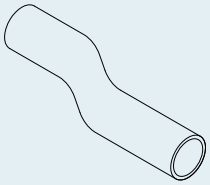
VT015 Adjustable Periscope Vent ○
The adjustment ranges between 3 and 4 brick courses. May be sealed with tape. To suit VT011, VT014, VT016 and VT017.



VT016 Vent Pipe Adaptor ○
Will allow standard I.D. 100mm pipe (VT005) to be connected to VT015.



VT017 Extension Sleeve ○
Will increase the adjustment of VT015 to 6 brick courses. May be sealed with tape. Standard length 550mm. To fit VT015.



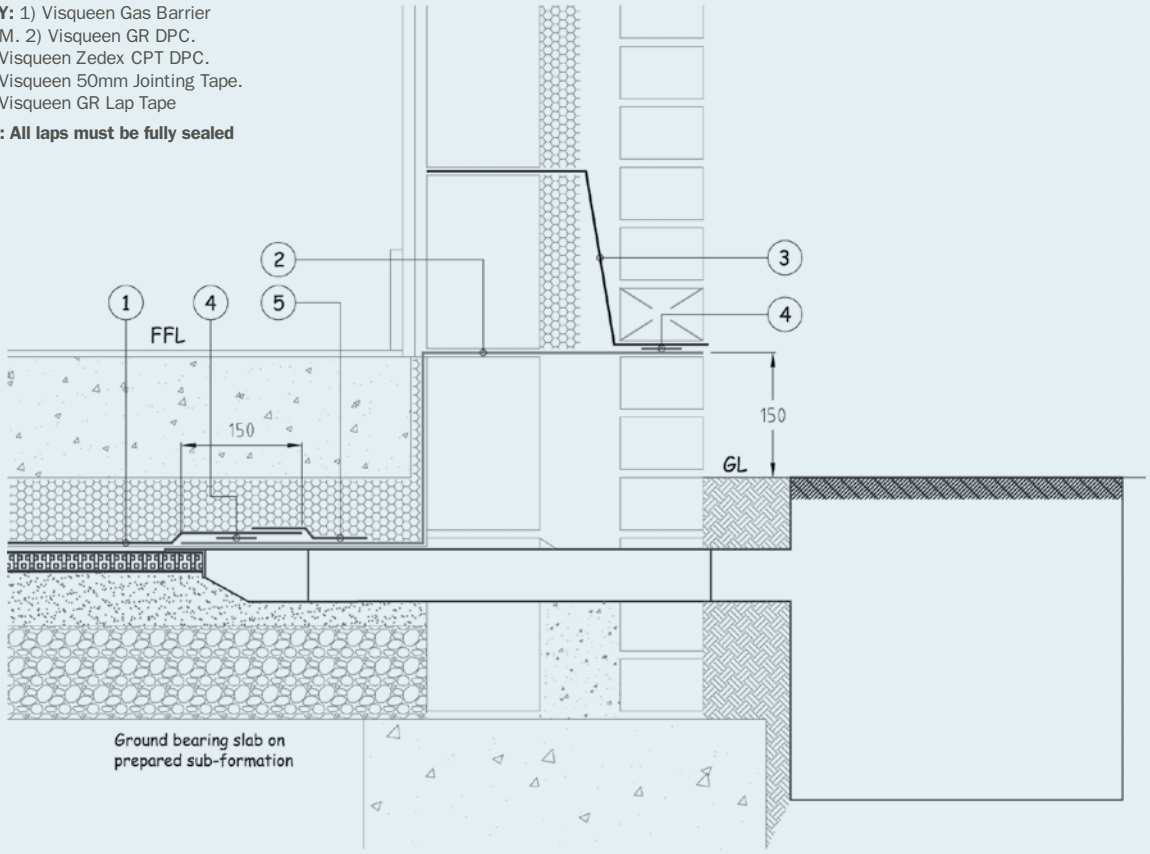
VT018 Flexible Connector Pipe ●
I.D. 100mm, standard length 1.5m to fit VT005.

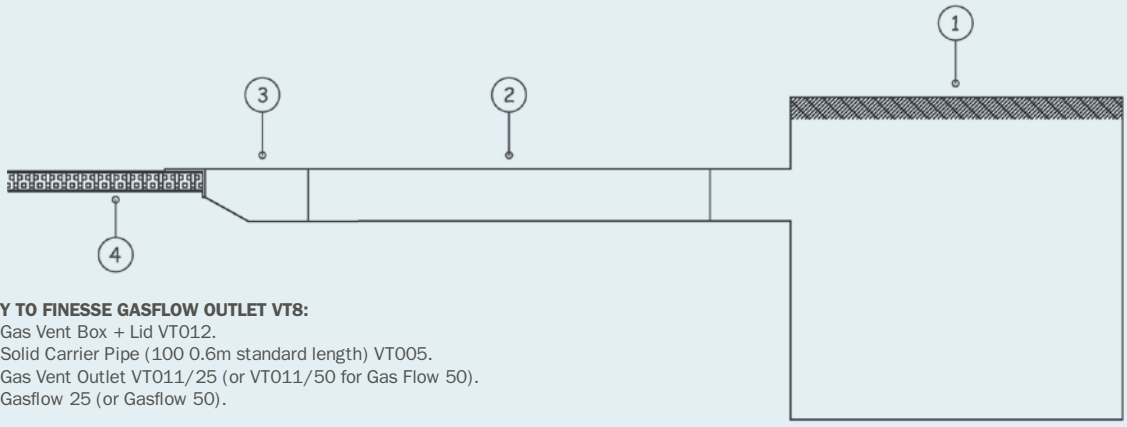
All buried fittings and pipes HDPE (High Density Polyethylene)
● Twin wall ○ Smooth ▼Supplied with seals

TYPICAL GAS DISPERSAL DETAILS USING GAS VENTING BOX

KEY: 1) Visqueen Gas Barrier DPM. 2) Visqueen GR DPC.
3) Visqueen Zedex CPT DPC.
4) Visqueen 50mm Jointing Tape.
5) Visqueen GR Lap Tape

NB: All laps must be fully sealed





KEY TO FINESSE GASFLOW OUTLET VT8:
1) Gas Vent Box + Lid VT012.
2) Solid Carrier Pipe (100 0.6m standard length) VT005.
3) Gas Vent Outlet VT011/25 (or VT011/50 for Gas Flow 50).
4) Gasflow 25 (or Gasflow 50).



IMAGE ILLUSTRATES INSTALLATION OF TORCHON TANKING MEMBRANE

58 Visqueen Self Adhesive Damp Proof Membrane
60 Visqueen Gas Resistant Self Adhesive Damp Proof Membrane
62 Visqueen Torchon Tanking Membrane
64 Visqueen GX Pre Applied Membrane
66 Visqueen Protect&Drain

TANKING MEMBRANES

Winter applications require a robust material for bonding. Visqueen TorchOn Tanking Membrane provides an effective waterproof barrier and can be torch bonded to both vertical and horizontal applications.

TANKING
VISQUEEN SELF ADHESIVE DAMP PROOF MEMBRANE

VISQUEEN SELF ADHESIVE DAMP PROOF MEMBRANE

— **SELF ADHESIVE WATERPROOFING MEMBRANE FOR ABOVE AND BELOW GROUND APPLICATIONS.**

— **TOUGH HIGH PERFORMANCE HIGH DENSITY POLYETHYLENE MEMBRANE PROVIDES RESISTANCE TO PUNCTURE AND TEARING.**

— **USE WITH UNIQUE VISQUEEN HP TANKING PRIMER TO OBTAIN BEST ADHESION.**

BBA BRITISH BOARD OF AGREMENT ASSESSMENT OF PRODUCTS FOR CONSTRUCTION
CERTIFICATE No. 01/3820

DESCRIPTION

Visqueen Self Adhesive Membrane is a self adhesive waterproofing system. It can be used as a tanking or damp proof membrane for both horizontal and vertical applications.

Visqueen Self Adhesive Membrane has BBA Accreditation, Certificate No. 01/3820.

Visqueen Self Adhesive Membrane prevents the ingress of water and associated water-borne alkalis present in some mortar and concrete.

Visqueen Self Adhesive Membrane should be used along with Visqueen HP Tanking Primer for application on touch dry concrete or masonry. Substrates should be primed with Visqueen HP Tanking Primer prior to application.

APPLICATION

Visqueen Self Adhesive Membrane is for use in vertical tanking or horizontal self adhesive applications, such as underground basements, lift pits or retaining walls when installed in accordance with BS8102:2009. It is recommended that substrates are always primed with Visqueen HP Tanking Primer, concrete, masonry or steel at or below ground level. Adequate ventilation must be ensured at all times during application in accordance with our health & safety datasheet.

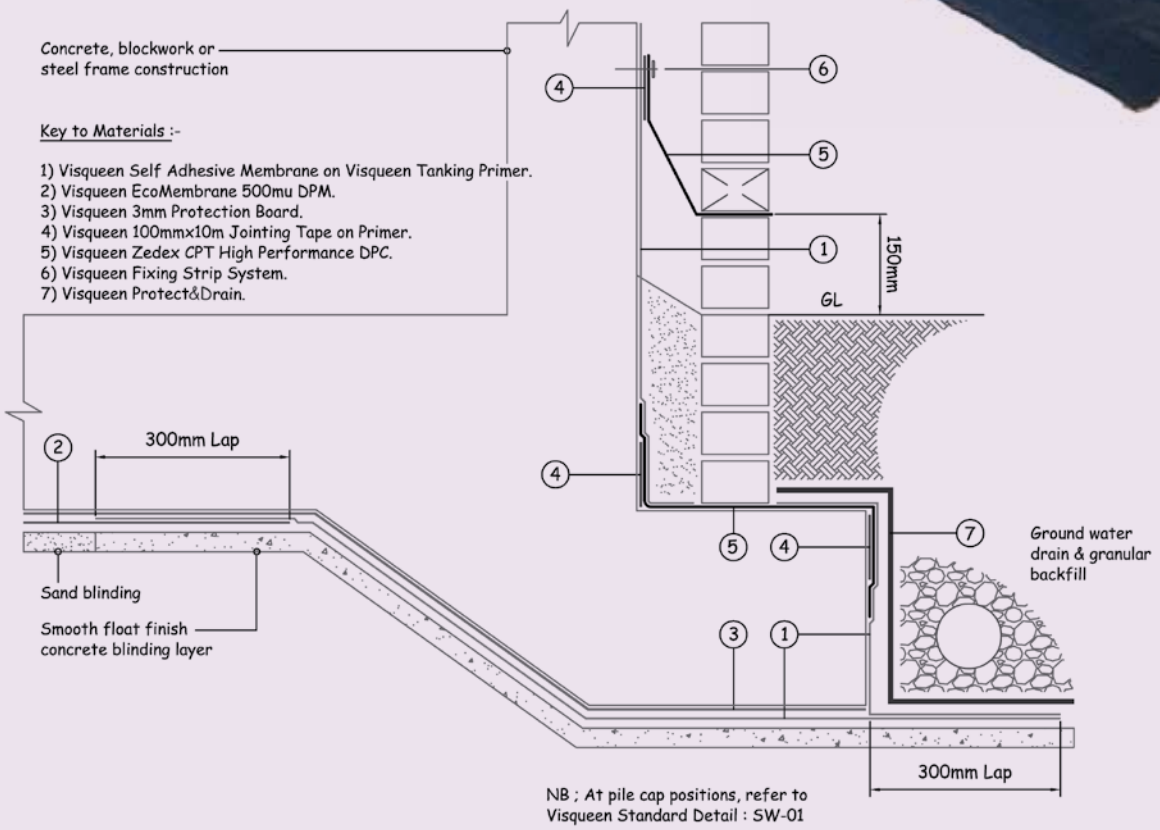
STORAGE & HANDLING

Visqueen Self Adhesive Membrane should be stored in cartons, on end and kept dry above 10°C at all times. Visqueen Self Adhesive Membrane is classified as non-hazardous when used in accordance with the relevant British Standards.

Visqueen HP Tanking Primer to be stored in original unopened containers in a cool dry area. Suitable protective clothing should be worn during use. See health and safety datasheets at www.visqueenbuilding.co.uk.



TYPICAL RC SLAB EDGE DETAIL (SW-08)



REQUIRED COMPONENTS
AVAILABLE AS A DOWNLOAD FROM
VISQUEENBUILDING.CO.UK/TANKING

DL	VISQUEEN HP TANKING PRIMER
DL	VISQUEEN DETAILING STRIP
DL	VISQUEEN TOP HAT UNITS
P88	VISQUEEN PROTECTION BOARD
P14	VISQUEEN ZEDEX PREFORMED CAVITY TRAY UNITS
P8	VISQUEEN ZEDEX CPT DPC
P66	VISQUEEN PROTECT&DRAIN

SPECIFICATION SUPPORT
THE FOLLOWING ITEMS ARE AVAILABLE
TO VIEW ONLINE OR TO DOWNLOAD FROM
VISQUEENBUILDING.CO.UK/TANKING

- TECHNICAL DATASHEETS
- CAD TYPICAL INSTALLATION CAD DETAILS
- H&S HEALTH & SAFETY DATA
- AGRÉMENT CERTIFICATE

INSTALLATION INSTRUCTIONS

INSTALLATION GUIDELINES

Installation should be in accordance with BBA Certificate No. 01/3820, BS Code of Practice 102 and BS 8102:2009.

All surfaces to which the membranes are to be applied should have a smooth finish, be dry and free from dust, loose particles and frost. The surface should then be sealed using Visqueen HP Tanking Primer and allowed to dry thoroughly.

Vertical surfaces of brickwork and blockwork should be dry and rendered to give an even surface. Brickwork and blockwork not rendered should be pointed to give a smooth surface without sudden changes in level.

All lap joints should be a minimum of 150mm and must be pressed and rolled to form a continuous bond and ensure watertightness.

A suitable drainage system should be designed and incorporated in accordance with the requirements of BS8102:2009.

The membrane can be installed in normal site conditions provided the air temperature is not below 5°C.

On external applications the membrane must be protected against puncture during backfilling, or subsequently by the backfill by using Visqueen Protection Board or Visqueen Protect&Drain which reduces the risk of leaks from hydrostatic water pressure.

For internal angles, fillets and detailing strips must be used (see typical details for more information).

Visqueen Detailing Strip should be used to reinforce all angles and corners. Alternatively strips can be cut from the membrane.

After installation the membrane should be covered as soon as possible with a sand/cement screed or other protective layer. Visqueen Self Adhesive Membrane must be continuous with the DPC in surrounding walls.

Do not apply the Visqueen HP Tanking Primer below 5°C, during rain and snow or when fog or mist are present. Very porous surfaces will require two coats.

Typical details showing good installation practice are available from our website.

IMPORTANT
A full technical datasheet is available online www.visqueenbuilding.co.uk/tanking

TECHNICAL DATA

Roll Length	20m
Width	1m
Area per Roll	20m²
Weight	32kg
Overall Thickness	1.5mm
Visqueen Detailing Strip	
300mm x 10m Gas Resistant Two-Ply Self Adhesive Membrane.	
Visqueen HP Tanking Primer	
Dry Time	1 - 5 hours at normal temperature
Application Rate - Concrete	6 - 8m²/l
Availability	5L
Visqueen Heavy Duty Protection Board	
Thickness	3mm
Dimensions	1m x 2m

TANKING
VISQUEEN GAS RESISTANT SELF ADHESIVE DAMP PROOF MEMBRANE

VISQUEEN GR SAM

— **SELF ADHESIVE WATERPROOFING MEMBRANE FOR ABOVE AND BELOW GROUND APPLICATIONS.**
— **SUPERIOR ADHESION.**
— **INTEGRAL ALUMINIUM FOIL FOR RESISTANCE TO METHANE, RADON AND CARBON DIOXIDE.**

DESCRIPTION
Visqueen Gas Resistant (GR) Self Adhesive Membrane is designed to prevent the transmission of carbon dioxide, radon and methane gases in tanking applications or where hydrostatic pressure is present.

Resistance to gas is achieved by an integral aluminium film. Substrates should be primed with Visqueen HP Tanking Primer prior to application. Visqueen Gas Resistant (GR) Self Adhesive Membrane is compatible with Visqueen Gas Resistant (GR) DPC and other Visqueen Gas Membranes.

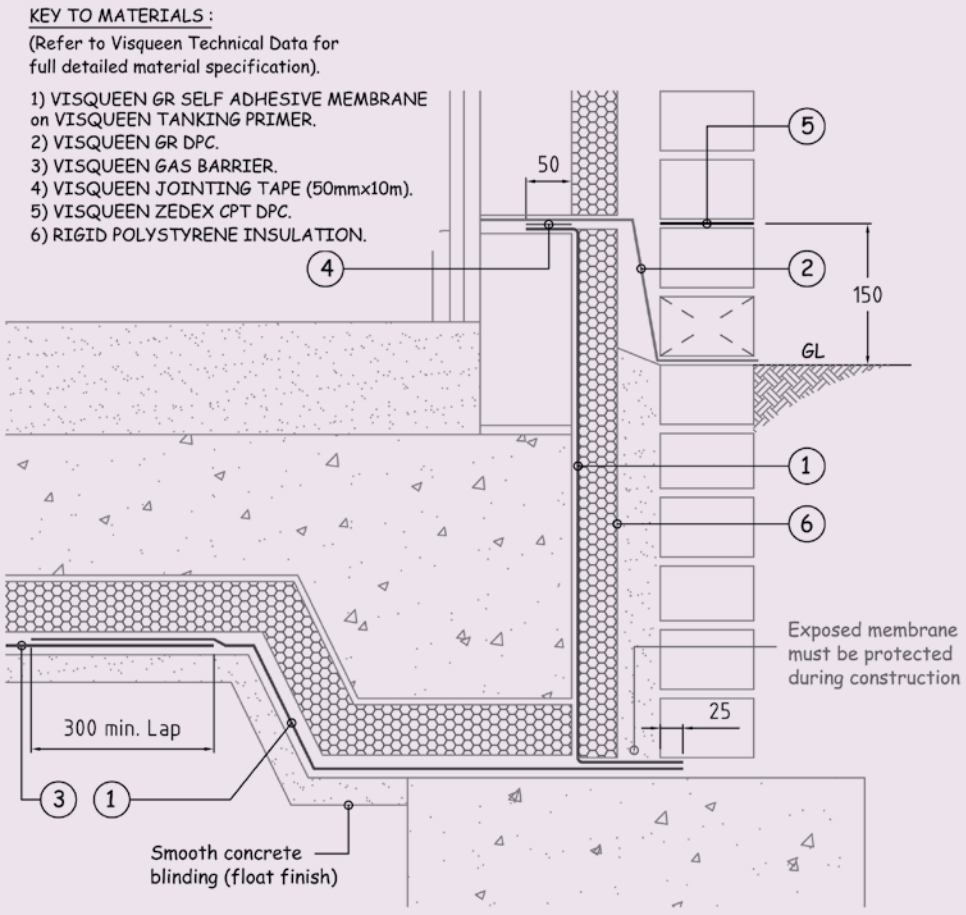
APPLICATION
Visqueen Gas Resistant (GR) Self Adhesive Membrane should be used on any site where carbon dioxide, radon or methane is a problem. Methane and carbon dioxide will occur on any sites previously used for landfill as a result of bacteriological conditions. Such conditions can exist on household, commercial and industrial sites. Adequate ventilation must be ensured at all times during application.

Additionally radon has been identified as being present in some 21 counties in England by the National Radiological Protection Board.

STORAGE & HANDLING
Visqueen Gas Resistant (GR) Self Adhesive Membrane should be stored in cartons, on end and kept dry above 10°C. Visqueen Gas Resistant (GR) Self Adhesive Membrane is classified as non-hazardous when used in accordance with the relevant British Standards.

Visqueen HP Tanking Primer should be stored in original unopened containers in a cool dry area. Suitable Personal Protective Equipment (PPE) should be worn when using in line with our health and safety datasheet.

STANDARD DETAIL GROUND SLAB PERIMETER DETAIL (GB-08)



REQUIRED COMPONENTS
AVAILABLE AS A DOWNLOAD FROM
VISQUEENBUILDING.CO.UK/TANKING

DL	VISQUEEN HP TANKING PRIMER
DL	VISQUEEN DETAILING STRIP
DL	VISQUEEN TOP HAT UNITS
P88	VISQUEEN PROTECTION BOARD
P14	VISQUEEN ZEDEX PREFORMED CAVITY TRAY UNITS
P21	VISQUEEN GAS RESISTANT (GR) DPC
P66	VISQUEEN PROTECT&DRAIN

SPECIFICATION SUPPORT
THE FOLLOWING ITEMS ARE AVAILABLE
TO VIEW ONLINE OR TO DOWNLOAD FROM
VISQUEENBUILDING.CO.UK/TANKING

- TECHNICAL DATASHEETS
- CAD TYPICAL INSTALLATION CAD DETAILS
- H&S HEALTH & SAFETY DATA

INSTALLATION INSTRUCTIONS

Ensure that the surface to be treated is free from loose particles, dry and frost free. Installation should be in accordance with BS 8102:2009. All surfaces should be sealed using Visqueen HP Tanking Primer and allowed to dry thoroughly.

A suitable drainage system should be designed and incorporated in accordance with the requirements of BS8102:2009.

All surfaces should be free from ice, frost or condensation.

Slabs must be surface dry, free from sharp protrusions and any hollows filled with high strength mortar. All surfaces should be primed using Visqueen HP Tanking Primer applied by brush or roller and allowed to dry before the application of Visqueen Gas Resistant Self Adhesive Membrane.

Visqueen Gas Resistant Self Adhesive Membrane should be laid by peeling back the protective silicone release paper and applying the self adhesive face onto the prepared surface.

The material should be brushed on to the surface to ensure good initial bond and remove any trapped air. Adjacent rolls are aligned and overlapped a minimum 150mm at side and ends and the overlaps thoroughly rolled with a firm constant pressure to ensure a complete and continuous adhesion to achieve gas tight integrity between the layers.

To provide complete security of the system, care must be taken when detailing service penetrations and changes of levels. The use of angle fillets and reinforcing strips is essential. Visqueen Gas Resistant Self Adhesive Membrane is fully compatible with other elements of the Visqueen Gas Protection System.

After installation the membrane should be covered as soon as possible with a sand/cement screed or other protective layer. Any punctures or damaged areas should be cleaned and patched with the membrane.

Visqueen Gas Resistant (GR) Self Adhesive Membrane must be continuous with the Visqueen Gas Resistant DPC in surrounding walls and all laps must be sealed.

TECHNICAL DATA

Roll Length	20m
Width	1m
Area per Roll	20m^2
Weight	34kg
Physical Characteristics	
Methane Gas Resistance	<0.09 mls/m^2/24hr
Visqueen HP Tanking Primer	
Dry Time	1 - 5 hours at normal temperature
Application Rate - Concrete	6 - 8m^2/L
Availability	5L
Heavy Duty Protection Board	
Thickness	3mm
Dimensions	1m x 2m

TANKING
VISQUEEN TORCHON TANKING MEMBRANE

— **ROBUST WATERPROOFING MEMBRANE FOR ABOVE & BELOW GROUND WATERPROOFING APPLICATIONS.**
— **TORCH BONDED LAPS PROVIDE A HOMOGENOUSLY SEALED JUNCTION.**
— **IDEAL FOR COLD WEATHER APPLICATION.**
— **USED TO WATERPROOF BASEMENTS, LIFT PITS, REINFORCED CONCRETE SLABS, RETAINING WALLS.**

DESCRIPTION
Visqueen TorchOn Tanking Membrane is a robust waterproofing membrane, used for heavy duty tanking applications. Visqueen TorchOn Tanking Membrane can be used both vertically and horizontally above and below ground level to prevent the ingress of water. Visqueen TorchOn Tanking Membrane should be used along with Visqueen HP Tanking Primer on touch dry concrete. Substrates should be primed with Visqueen HP Tanking Primer prior to application. Visqueen Heavy Duty Protection Board should be used horizontally or Visqueen Protect&Drain for external vertical applications which protects the membrane from backfill or site traffic.

APPLICATION
Visqueen TorchOn Tanking Membrane should be applied as a two layer system when used as a tanking system for below ground structures where medium or high levels of hydrostatic (water) pressure exist. Visqueen TorchOn Tanking Membrane can be used as a single layer system when used as a horizontal damp proofing membrane. In this application all laps should be minimum 150mm. The loading screed or floor slab which is laid on top of the membrane should be adequate to resist any hydrostatic water pressure.

ADDITIONAL SYSTEM COMPONENTS
— Visqueen HP Tanking Primer (5L tin) – for preparation of touch dry concrete and masonry surfaces prior to application of the membrane. Please use Visqueen High Performance Primer for damp surfaces. Coverage rate on concrete is about 6 - 8m² per litre. Drying time is 1 - 5 hours depending on temperature and ventilation.
— Visqueen Heavy Duty Protection Board (3mm thick, 1m x 2m board) – for protecting the membrane from damage during backfilling, etc.
— Visqueen Zedex DPC Jointing Tape (100mm x 15m roll) for bonding Visqueen Heavy Duty Protection Boards to Visqueen TorchOn Tanking Membrane.

IMPORTANT
For more information on test results see visqueenbuilding.co.uk/tanking

TECHNICAL DATA

Nominal Thickness (mm)	4
Roll Length (m)	8
Roll Width (m)	1
Weight BS EN 1849 –1 (Kg/m²)	4.5
Water Vapour Permeability BS 3177 (g/m²/day)	1.93*
* Temperature Conditions (25°C / 0 / 75%RH)	
Peel Adhesion MOAT 27 : 5.1.3 (Nmm⁻¹)	2.61
VISQUEEN HP TANKING PRIMER	
Dry Time	1 - 5 hours at normal temperature
Application Rate - Concrete	6 - 8 m²/L
Availability	5L



REQUIRED COMPONENTS
AVAILABLE AS A DOWNLOAD FROM
VISQUEENBUILDING.CO.UK/TANKING

DL	VISQUEEN ZEDEX DPC JOINTING TAPE
DL	VISQUEEN TOP HAT UNITS
DL	VISQUEEN HP TANKING PRIMER
P66	VISQUEEN PROTECT&DRAIN
P88	VISQUEEN HEAVY DUTY PROTECTION BOARD

SPECIFICATION SUPPORT
THE FOLLOWING ITEMS ARE AVAILABLE
TO VIEW ONLINE OR TO DOWNLOAD FROM
VISQUEENBUILDING.CO.UK/TANKING

- TECHNICAL DATASHEETS
- CAD TYPICAL INSTALLATION CAD DETAILS
- H&S HEALTH & SAFETY DATA

INSTALLATION

PREPARATION
Ensure that the surface to be treated is smooth, clean, dry, free from loose particles and is frost free. Concrete and renders should be completely cured. Unrendered masonry must be flush pointed. Installation should be in accordance with the recommendation of BS 8102:2009.

A suitable drainage system should be designed and incorporated in accordance with the requirements of BS8102:2009.

PRIMING
All surfaces should be sealed using Visqueen HP Tanking Primer applied by brush, broom or roller. On concrete or masonry surfaces, coverage rate is about 6 - 8m² per litre. Ensure the primer is fully dry before application of the membrane. Drying time is 1 - 5 hours depending on temperature and ventilation. The newly applied primer should be protected from contamination.

ANGLES AND CORNERS
Provide a 50mm – 75mm sand/cement fillet. Reinforce all changes of direction with a 350mm strip of Visqueen TorchOn Tanking Membrane applied equidistant across the junction.

SETTING OUT
When applying a two layer system, the membrane should be set out with staggered laps between first and second layers.

LAP JOINTS
Side lap joints to be minimum 100mm and end lap joints to be 150mm. All lap joints to be fully bonded; a bead of bitumen should extrude from the joint.

EQUIPMENT AND BONDING
The membrane must be fully bonded to the prepared substrate using the gas torch-on technique. For horizontal work, an approximate 500mm neck tube and 50mm diameter propane gas burner is used and for vertical and detailing work, an approximate 200mm neck tube and 35mm diameter propane gas burner is appropriate. During bonding, ensure that a constant flow of bitumen is maintained across the full width of the roll and that a bead of bitumen is extruded from each edge demonstrating that a correct seal has been obtained.

HORIZONTAL BONDING
Unroll and position the membrane. Roll back half way and starting from the middle of the roll, progressively roll forward whilst activating the coating on the underside of the roll. Repeat for the second half of the roll. Subsequent rolls should be set out with staggered end laps.

VERTICAL BONDING
Cut the membrane to the appropriate length and position at the base of the wall. Progressively torch apply to the substrate working up the wall. Complete the vertical application by torch bonding the remainder of the membrane to the horizontally bonded membrane.

PROTECTION AND SUPPORT
In external tanking situations or where there is a risk of damage, Visqueen Heavy Duty Protection Boards should be positioned over the membrane. When bonding of the boards is required, attach with strips of Visqueen Zedex DPC Jointing Tape. Internal vertical tanking requires the construction of an internal leaf of masonry to provide support for the membrane. A cavity of 50mm minimum must be left which is progressively filled with sand/cement mortar as work proceeds. When the vertical membrane terminates, the uppermost end should be batten fixed or sealed into a chase. Internal horizontal tanking requires loading with sand/cement screed sufficient to resist hydrostatic water pressure.

CONTINUITY
Installation must ensure continuity of the tanking system around obstructions such as stanchions and pile caps and the formation of a minimum 100mm bonded lap with the damp proofing system above ground level.

STORAGE AND HANDLING
Visqueen TorchOn Tanking Membrane must be stored on end and kept dry. The membrane is classified as non-hazardous when used in accordance with the relevant British Standard Code of Practice. Visqueen HP Tanking Primer should be stored in its original unopened container in a cool, dry area. Suitable Personal Protective Equipment (PPE) should be worn when using these materials and suitable fire fighting equipment must be available. Adequate ventilation must be ensured at all times during application. See health & safety datasheets available at www.visqueenbuilding.co.uk.

TANKING
VISQUEEN GX PRE APPLIED MEMBRANE

— **HEAVY DUTY, HIGH PERFORMANCE MEMBRANE.**
— **JOINTS CAN BE TAPE BONDED OR WELDED.**
— **SUITABLE FOR BOTH DAMP PROOFING AND TANKING APPLICATIONS.**
— **BARRIER TO HAZARDOUS GROUND GASES.**
— **BARRIER TO HYDROCARBON CONTAMINATION.**
— **SPECIFIED FOR MAJOR PROJECTS THROUGHOUT THE UK.**

DESCRIPTION
Visqueen GX Pre Applied Membrane is an advanced high performance, flexible HDPE geomembrane. The membrane has a textured face on one side designed to aid adhesion to cast concrete. The membrane is 1.5mm thick and supplied in roll form 2.95m x 25m.

APPLICATION
Building Regulations require that the ground floors of a building should adequately protect the building, and people who use the building, from the harmful effects caused by ground moisture. The instances of traditional damp proof membranes being damaged by following trades or the process of positioning spacers and reinforcement prior to laying a reinforced concrete slab, has resulted in the need for a robust membrane system that greatly reduces the risks of future damp ingress due to mechanical damage during the construction phase.



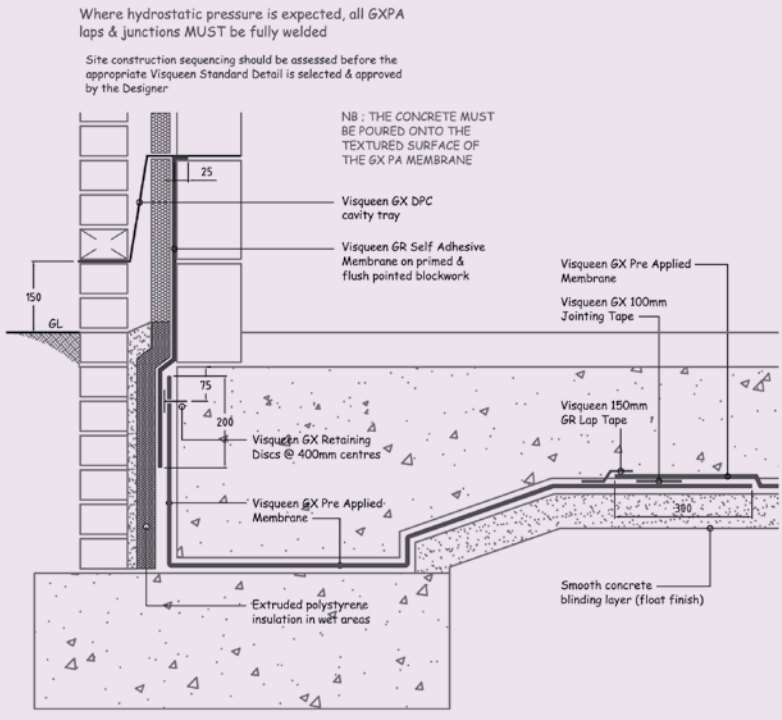
On many developments, ground gas and hydrocarbon contamination pose a very serious risk of causing explosion, asphyxiation or harm. Current industry guidance recommend that gas membranes are specified on the basis of the need to survive construction; durability, survivability and robustness being critical membrane properties.

Visqueen GX Pre Applied Membrane is designed to provide a robust solution to preventing the ingress of damp, ground gas or hydrocarbon contamination. Unlike the smooth surfaced traditional damp proof membranes, the textured surface of Visqueen GX Pre Applied Membrane aids adhesion to cast concrete. The membrane can withstand normal on-site foot traffic and the activities associated with the laying of a reinforced concrete slab without the need for additional membrane protection. In addition, when applied with welded joints the membrane can provide protection against hydrostatic water pressure.

Visqueen GX Pre Applied Membrane can be used in a variety of applications including:

— Gas contaminated land.
— Hydrocarbon contaminated brownfield sites.
— Heavy duty reinforced concrete slabs.
— Slab edges and permanent shutter work.
— Tanking below ground structures e.g. lift pits.

STANDARD DETAIL: TYPICAL EDGE CONDITION (GXPA-02)



TECHNICAL DATA

Thickness	1.5mm
Roll Dimensions	2.95m x 25m
Density	0.94g/m³
Tensile Strength at Break	40N/mm
Elongation at Break	700%
Puncture Resistance	480N
Tear Resistance	187N
Methane Permeability (cc/m²/hr)	1.95

REQUIRED COMPONENTS
AVAILABLE AS A DOWNLOAD FROM
VISQUEENBUILDING.CO.UK/TANKING

- VISQUEEN GX DOUBLE SIDED JOINTING TAPE
- VISQUEEN GR SINGLE SIDED LAP TAPE
- VISQUEEN GX PREFORMED UNITS
- VISQUEEN GX PREFORMED TOP HAT UNIT
- VISQUEEN GX RETAINING DISCS
- VISQUEEN DETAILING STRIP
- VISQUEEN HP TANKING PRIMER (5L)

SPECIFICATION SUPPORT
THE FOLLOWING ITEMS ARE AVAILABLE TO VIEW ONLINE OR TO DOWNLOAD FROM VISQUEENBUILDING.CO.UK/TANKING

- TECHNICAL DATASHEETS
- TYPICAL INSTALLATION CAD DETAILS
- HEALTH & SAFETY DATA

INSTALLATION

GENERAL

Visqueen GX Pre Applied Membrane and system components should be installed in accordance with the recommendations of the relevant codes of practice and industry guidance, such as CP102:1973, BS8102:2009, BRE414:2001, CIRIA C665:2007, BR211:2007 and BS8485:2007.

A suitable drainage system should be designed and incorporated in accordance with the requirements of BS8102:2009.

To avoid linear expansion due to temperature change the membrane should not be taken through any masonry wall. The relevant Visqueen damp proof or gas proof course should be taken through and extended beyond the wall by a minimum of 250mm where it can be jointed to the membrane.

When installed horizontally, the membrane should be applied to a smooth continuous surface of preferably float finished concrete blinding or alternatively sand blinding. The surface should be free from loose aggregates or other sharp protrusions. Any standing water should be removed to prevent potential lap joint contamination. The membrane should be laid with the textured surface facing away from the blinding.

When installed vertically, Visqueen GX Pre Applied Membrane should be pre applied to permanent formwork or the adjoining structure. Visqueen GX Retaining Discs are available to provide a means for securing the leading edge of the membrane to shuttering. The membrane should be installed with the textured surface facing away from the shuttering.

Using oval nails, Visqueen GX Retaining Discs should be mechanically fixed, at maximum 400mm centres, to the internal face of the shuttering. Using a suitable power tool and 6mm drill bit to create a pilot hole in the membrane, the Visqueen GX Pre Applied Membrane should be secured over the protruding section of the retaining disc. The top edge of the membrane should be trimmed to approximately 20mm below the top edge of the slab.

Once the concrete has set, the oval nails should be removed by pulling through from the external face of the shuttering. When the shuttering is removed the Visqueen Retaining Discs should be visible on the external (smooth) face of the membrane. Continuity of the membrane system with the damp or gas proof course is maintained using Visqueen GR Self Adhesive Membrane (see Visqueen Typical Details).

LAP JOINTS

Visqueen GX Pre Applied Membrane has been designed to exhibit superior welding properties using hot edge, hot air, or extrusion welding. Therefore on-site welding of membrane lap joints is recommended for all applications and must be employed when hydrostatic water pressure or hydrocarbon contamination is present. Where required, Visqueen's network of preferred installers can install the membrane and offer the client a fully warranted system.

Alternatively, when Visqueen GX Pre Applied Membrane is used for damp proofing, ground gas protection and sites where hydrostatic water pressure or hydrocarbon contamination is of low risk, lap joints can be bonded with Visqueen GX Double Sided Jointing Tape and then sealed with Visqueen GR Single Sided Lap Tape.

When using tapes to secure laps, the overlap should be minimum 150mm and the membrane surfaces to be jointed should be dry and free from contamination such as dust or sand. Once the tapes are applied, the lap should be well rolled with firm pressure to ensure complete adhesion and continuity.



SERVICE PENETRATIONS, CORNERS AND JUNCTIONS

All service pipe penetrations should be fully sealed using welded membrane or Visqueen Preformed Top Hat Units. The base and collar of the preformed unit should be bonded using Visqueen GX Double Sided Jointing Tape and sealed with Visqueen GR Single Sided Lap Tape. The collar should be secured with a mechanical fastening.

To ensure system integrity, all internal and external corners should be provided with either welded corners or Visqueen GX Preformed Units bonded to the membrane using Visqueen GX Double Sided Jointing Tape and sealed with Visqueen GR Single Sided Lap Tape.

Complex or awkward junctions should be sealed using either welded membrane or Visqueen Detailing Strip.

PRECAUTIONS

Visqueen GX Pre Applied Membrane is classified as non-hazardous when used in accordance with the relevant codes of practice and industry guidance.

When the weather is cold, Visqueen jointing tapes and self adhesive materials should be kept in a warm, dry place until needed. Unless welded, membrane installation is not recommended below 5°C.

To avoid high linear expansion when installed in hot weather, the membrane should be covered immediately after installation with concrete or screed.

TANKING
VISQUEEN PROTECT&DRAIN

— **RAPID INSTALLATION.**
— **HIGH PUNCTURE RESISTANCE PROTECTION.**
— **HIGH FLOW CAPACITY TO ALLEVIATE HYDROSTATIC PRESSURE ON BELOW GROUND STRUCTURES.**

MANUFACTURED IN THE UK

DESCRIPTION
Visqueen Protect&Drain consists of a geotextile filter membrane thermally bonded to a cuspated HDPE core. The product is 6mm thick and supplied in rolls 1.1m x 50m.

APPLICATION
Visqueen Protect&Drain acts as a heavy duty protection medium for Visqueen damp proofing, gas proofing and tanking membranes. In addition, when used in external tanking applications, the product forms a void to collect and transmit water into adjacent drainage outlets or collector pipes. Typical applications include drainage for externally applied tanking and drainage behind retaining walls.

INSTALLATION
Visqueen Protect&Drain is designed to be installed with the geotextile filter side (white face) of the product facing the direction of the water flow, backfill medium or slab. Rolls can be cut to length with a sharp knife.

Unroll into position. Adjacent rolls should be placed in a similar way to the first so the dimpled cores butt together. The geotextile filter membrane extends beyond the width of the dimpled HDPE core at one side; this creates an overlap flap which should be secured to the adjacent roll with Visqueen DPM Girth Lap Tape. Continue laying further rolls until the membrane is protected over its entire area.

Visqueen Protect&Drain can be strip bonded to membranes with Visqueen Zedex DPC Jointing Tape.

In external tanking applications, when linking to perforated land drains, extend Visqueen Protect&Drain at the base of the retaining wall sufficiently to allow wrapping of the drainage pipe. The product should be covered with backfill as soon as is practicable. Before covering, inspect the installation of the product to ensure that gaps, open end or sides where soil, aggregate, etc can enter the core are wrapped with geotextile filter membrane and secured with Visqueen DPM Girth Lap Tape.

REQUIRED COMPONENTS
AVAILABLE AS A DOWNLOAD FROM VISQUEENBUILDING.CO.UK/DPC

- VISQUEEN GIRTH JOINTING TAPE
- VISQUEEN ZEDEX JOINTING TAPE

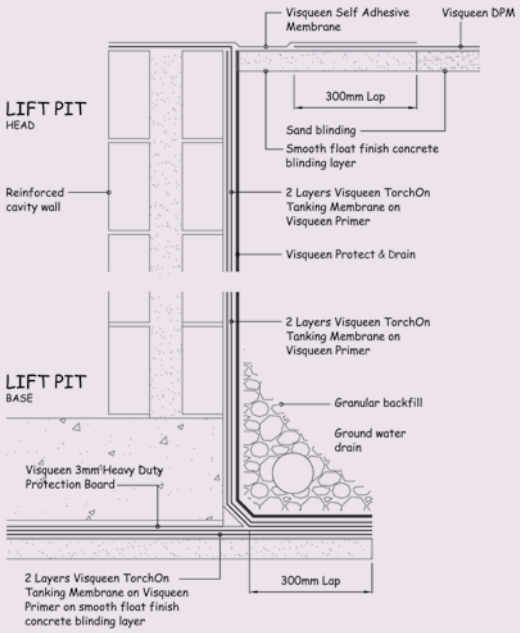
SPECIFICATION SUPPORT
THE FOLLOWING ITEMS ARE AVAILABLE TO VIEW ONLINE OR TO DOWNLOAD FROM VISQUEENBUILDING.CO.UK/DPC

- TECHNICAL DATASHEETS
- TYPICAL INSTALLATION CAD DETAILS
- HEALTH & SAFETY DATA

TECHNICAL DATA

Roll Dimensions	1.1m x 50m x 6mm thick
Roll Weight	39kg
Puncture Resistance	2000N
Maximum In-Plane Water Flow Capacity (EN ISO 12958)	1.4 l/s per metre width
Chemical Resistance	Highly resistant

STANDARD DETAIL: EXTERNALLY TANKED LIFT PIT (HIGH RISK OF WATER PENETRATION)




9013

70 Visqueen Urban Drainage Geomembrane
70 Visqueen High Performance Urban Drainage Geomembrane
70 Visqueen GX Geomembrane UDG
73 Hanson Aquaflow SC Membrane

STORMWATER PROTECTION

A fully integrated stormwater management system provides relief for overburdened water sewer systems and reduces the risk of flooding.

RECYCLING WASTE PLASTIC IN THE UK

STORMWATER PROTECTION
VISQUEEN URBAN DRAINAGE GEOMEMBRANE

— **A COMPREHENSIVE SYSTEM FOR USE WITH STORMWATER MANAGEMENT ATTENUATION SYSTEMS.**
— **VARIOUS INSTALLATION OPTIONS ALLOW FOR FASTER INSTALLATION TIMES.**
— **VISQUEEN UDG TAPING SYSTEM ALLOWS FOR FLEXIBILITY OF ON-SITE FABRICATION FOR SMALL DOMESTIC APPLICATIONS.**
— **MEETS WITH THE REQUIREMENTS OF WAVIN PLASTICS LTD WHEN INSTALLED IN ACCORDANCE WITH VISQUEEN BUILDING PRODUCTS' INSTRUCTIONS.**

MANUFACTURED IN THE UK

THE VISQUEEN URBAN DRAINAGE SYSTEM CONSISTS OF:

VISQUEEN URBAN DRAINAGE GEOMEMBRANE
VISQUEEN HIGHPERFORMANCE UDG
VISQUEEN GXGEOMEMBRANE UDG

BACKGROUND
Every potential major development in the UK is examined for the risk of flooding following storm events. Sustainable drainage systems (known as SUDS) offer an alternative approach to traditional drainage. SUDS effectively manage drainage at source and aim to detain run-off and release it slowly into watercourses.

The "Code for Sustainable Homes 2006" (a code of practice for sustainable home building) uses a sustainable rating system that helps designers' and builders' choice of development and also aids home buyers' selection of home. Category 4 "surface water run off" mentions that added points will be scored if an attenuation system is used. The Visqueen UDG, used in conjunction with an underground stormwater system, increases the development's sustainable rating.

DESCRIPTION
The Visqueen Urban Drainage Geomembrane System has been specially designed and tested for use with underground stormwater storage systems. Wavin has accepted it for use with their AquaCell® Stormwater Management System when installed in accordance with Visqueen Building Products' instructions.

Impermeable geomembranes used in stormwater storage systems are subjected to very high hydrostatic pressures during the lifetime of the system. To avoid geomembrane failure in these demanding applications Visqueen Building Products has designed a high performance geomembrane system.

The Visqueen Urban Drainage Geomembrane System has been comprehensively tested to ensure that it is capable of withstanding the hydrostatic pressures anticipated with underground stormwater storage facilities thereby providing an effective impermeable barrier for most stormwater management applications (when installed in accordance with our instructions).

SYSTEM
Visqueen Urban Drainage Geomembrane can be supplied as either a taped system to be fabricated on site or partially fabricated as factory welded panels. Where an installation necessitates on-site welding other Visqueen Geomembranes will be supplied.

PRODUCT AND INSTALLATION SELECTOR

Specification conditions	Visqueen's recommendations	Installation options (Full installation descriptions are given below)
No more than 2 storage units high	All products suitable	A, B, C and D
Over 2 storage units high	All products suitable	B, C and D
High water table sites	High Performance UDG	C and D
Contaminated land	GX Geomembrane UDG	D only

INSTALLATION OPTIONS
Option A – Roll and tape
For small attenuation storage tanks no more than 2 units high.

Option B – Factory pre-welded wrap sheets
For larger attenuation schemes where there are a greater number of joints minimising the amount of workmanship required on site during installation.

Option C – Factory pre-welded shoe box
The shoe box option further eases the installation and jointing procedure as illustrated at the bottom of P71.

Option D – On-site welding
The fully welded on-site option is where there are irregular and varying storage tank shapes and also for use on contaminated land.

REQUIRED COMPONENTS
AVAILABLE AS A DOWNLOAD FROM VISQUEENBUILDING.CO.UK/UDG

- VISQUEEN UDG JOINTING TAPE
- VISQUEEN GX JOINTING TAPE
- VISQUEEN UDG CORNER PROTECTION UNITS
- VISQUEEN UDG PROTECTION BOARD
- VISQUEEN TOP HAT UNITS

SPECIFICATION SUPPORT
THE FOLLOWING ITEMS ARE AVAILABLE TO VIEW ONLINE OR TO DOWNLOAD FROM VISQUEENBUILDING.CO.UK/UDG

- TECHNICAL DATASHEETS
- TYPICAL INSTALLATION CAD DETAILS
- HEALTH & SAFETY DATA

INSTALLATION AND JOINTING

FACTORY WELDED PANEL INSTALLATIONS

Factory welded panels of Visqueen Urban Drainage Geomembrane are recommended for larger attenuation schemes where there are a greater number of joints. Visqueen Urban Drainage Geomembrane can be pre-welded to suit tank dimensions, minimising the amount of workmanship required on site during installation.

The benefits of factory welded panels are pre-tested high integrity joints as well as allowing for a faster installation time. Factory welded panels may then be tape jointed on site using the installation procedures detailed in the previous section. Under certain site conditions taped joints may not be suitable. Please refer to the earlier adverse ground conditions section for more information.

ON-SITE JOINTING PROCEDURES

When taped joints are used on site the Visqueen Urban Drainage System can be used on any attenuation or storage installation (not more than two units deep) other than those which are:

- In contaminated ground.
- In high water table.

All laps must be a minimum of 150mm wide. Visqueen UDG Jointing Tape should be applied approximately 50mm from the edge. The next width of Visqueen Urban Drainage Geomembrane should then be overlapped. Ensure that the geomembrane is clean, dust free and dry at the time of joining. The use of Visqueen UDG Protection Board provides additional support to taped joins as well as eliminating the risk of puncture from backfill.

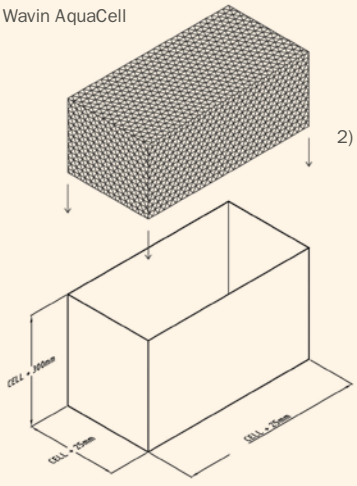
Visqueen Urban Drainage Geomembrane taped joints have been extensively tested for durability under hydrostatic pressure and have been proved to be highly effective.

GEOMEMBRANE INSTALLATION PROCEDURES

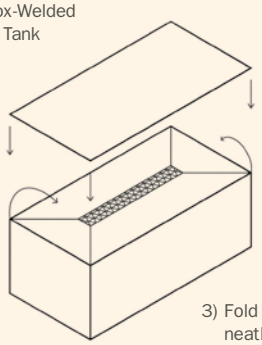
- Ensure that the base of the trench is a structurally sound, smooth, level surface cleared of any loose particles.
- This surface must then be covered by 100mm sand blinding, levelled and compacted.
- Cover the bed with a suitable geotextile fleece to ensure that the geomembrane is not punctured.
- Lay Visqueen Urban Drainage Geomembrane over the geotextile and up the sides of the trench, detailing around corners using Visqueen UDG Corner Units.
- Take the geomembrane around the structure ensuring that corner units are positioned at all corners and that the tank is completely sealed.
- Protect the geomembrane from backfill by using Visqueen UDG Protection Board.
- Lay a 100mm sand bed between the trench walls and Visqueen UDG Protection Boards.
- The geomembrane laid on top of the units should be protected as soon as possible after installation with Visqueen UDG Protection Board and 100mm sand blinding.
- The integrity of the Visqueen Urban Drainage Geomembrane sheet must be maintained during installation. Visqueen Urban Drainage Geomembrane is resistant to puncturing and tearing however, where tears or punctures occur, these should be covered with another part of the sheet, overlapped by at least 150mm and sealed with Visqueen UDG Jointing Tape. Installations should be carried out above 5°C.
- For applications outside of these conditions please contact Visqueen Building Products for advice.

Installation Instructions: 1) Place the AquaCell within the Visqueen Attenuation Tank. 2) Fold the 300mm upstand neatly over the AquaCell & firmly secure lid with Visqueen UDG Jointing Tape.

1) Wavin AquaCell



2) Visqueen Box-Welded Attenuation Tank



3) Fold top upstand neatly down over AquaCell & tape lid in position.

STORMWATER PROTECTION
VISQUEEN URBAN DRAINAGE GEOMEMBRANE









STORAGE AND HANDLING

Visqueen Urban Drainage Geomembrane is classified as non-hazardous when used in accordance with our instructions.

The product is chemically inert and is not generally affected by acids and alkalis that may be present in the sub-soils.

The material is not recommended for use where it will be exposed to long periods of outdoor weathering. However, weathering will not occur when the membrane is installed in accordance with our instructions. Care should be taken to avoid accidental damage when handling Visqueen Urban Drainage Geomembrane on site.

When the weather is cold Visqueen UDG Jointing Tape should be kept in a warm, dry place until needed. Installation is not recommended to be carried out below 5°C.

TECHNICAL INFORMATION

PRODUCT ROLL INFORMATION

	UDG	HP UDG	GX UDG
Mass per unit area	460g/m²	880 g/m²	1410 g/m²
Material	LDPE	PP	HDPE
Thickness	0.5mm	1mm	1.5mm
Dimensions	4m x 12.5mm	2.85m x 30m	2.95 x 25m*
Colour	Black	Black	Black

ALSO AVAILABLE: *5.9mx135m

COMPONENTS TECHNICAL DATA

VISQUEEN UDG CORNER PROTECTION UNITS	
Thickness	1.1mm
Width	150mm
Length	150mm
Height	150mm
Colour	Black
VISQUEEN UDG PROTECTION BOARD	
Thickness	3.0mm
Width	1.22m
Length	2.44m
Colour	Black
VISQUEEN UDG TAPED JOINT	
Tensile Strength: MOAT 27 1983 5.5.2	31.0 daN/50mm
Resistance to Water Pressure: 60kPa @ 24hrs 240 kPa @ 24hrs	 No leaks No leaks

AQUAFLOW SC MEMBRANE™

- **PART OF THE HANSON FORMPAVE AQUAFLOW SYSTEM.**
- **HIGH RESISTANCE TO PUNCTURE.**
- **RESTRICTS WATER ENTERING THE SUB-GRADE.**
- **PRESERVES SUB-GRADE STRUCTURAL INTEGRITY.**
- **TAPE BONDED OR WELDED JOINTS.**

MANUFACTURED IN THE UK

DESCRIPTION

Aquaflow SC Membrane™ is a UK manufactured co-polymer thermoplastic membrane. The product is coloured green, 500 microns thick (2000 gauge) and supplied in rolls 4m x 12.5m.

APPLICATION

Sustainable Urban Drainage Systems (SUDS) are increasingly being used to prevent run-off and flooding, and as a method of collecting and cleaning storm water. SUDS allow heavy rainfall to infiltrate through a permeable concrete block paved surface into a sub-base before being released in a controlled manner into sewers or watercourses.

Aquaflow SC Membrane™ provides an impervious layer ensuring attenuation of the collected stormwater. It restricts water entering the sub-grade and preserves sub-grade structural integrity.

INSTALLATION

Sub-grade

The sub-grade should be free from sharp protrusions likely to puncture the membrane. Refer to Hanson Formpave Aquaflow literature for details of sub-grade specification and preparation.

Membrane jointing

For most applications, tape-bonded joints are suitable. However, in applications where a high level of waterproofing integrity is required, such as sites with high water tables or areas above basement structures, the membrane should be laid with welded joints. **For advice on which jointing option should be used, contact Hanson Formpave design team on 01594 836999.**

Taped joints

Ensure that the membrane is clean and dry at the time of jointing. The membrane should be overlapped by at least 300mm and bonded with Aquaflow SC Double Sided Jointing Tape positioned approximately 50mm into the overlap. Pressure should be applied to the bonded area of the lap to ensure waterproofing integrity. Perforations or punctures in the membrane should be covered with another sheet of membrane, have an overlap of at least 300mm and the laps sealed with Aquaflow SC Double Sided Jointing Tape.

Welded joints

For details of contractors who undertake on-site welding of Aquaflow SC Membrane™, contact Hanson Formpave design team on 01594 836999.

Covering

The membrane should be covered as soon as possible after installation. Care should be taken to ensure that the membrane is not punctured, stretched or displaced when applying the sub-base.

TECHNICAL DATA

Thickness	500µm (2000 gauge)
Colour	Green
Roll Dimensions	4m x 12.5m
Roll Weight	23kg
Resistance to Water Pressure - Taped Joint	
24hrs @ 60kPa	Pass
2hrs @ 240kPa	Pass

REQUIRED COMPONENTS

AVAILABLE AS A DOWNLOAD FROM VISQUEENBUILDING.CO.UK/UDG

- VISQUEEN UDG JOINTING TAPE
- VISQUEEN GX JOINTING TAPE
- VISQUEEN CORNER PROTECTION UNITS
- VISQUEEN UDG PROTECTION BOARD
- VISQUEEN PFU TOP HAT

SPECIFICATION SUPPORT

THE FOLLOWING ITEMS ARE AVAILABLE TO VIEW ONLINE OR TO DOWNLOAD FROM VISQUEENBUILDING.CO.UK/UDG

- TECHNICAL DATASHEETS
- TYPICAL INSTALLATION CAD DETAILS
- HEALTH & SAFETY DATA

STORAGE AND HANDLING

Aquaflow SC Membrane™ is classified as non-hazardous when used in accordance with the manufacturer's instructions. The membrane is chemically inert and is not affected by acids or alkalis that may be present in the sub-base or sub-grade. The product is not intended for use where it will be exposed for long periods of outdoor weathering. When the weather is cold, Aquaflow SC Double Sided Jointing Tape should be kept in a warm, dry place until needed. Membrane installation is not recommended below 5°C.





76 Visqueen Vapour Check
76 Visqueen Vapour Barrier
76 Visqueen HP Vapour Barrier
76 Visqueen FB Vapour Barrier

VAPOUR CONTROL LAYERS

If moisture is not properly controlled or ventilated and comes into contact with the colder air, condensation occurs. The resulting effects of condensation within buildings can be devastating. Timber can rot, causing severe structural weakening, reducing life of the structure and the thermal effectiveness of insulation can be reduced if moisture is prevalent. Visqueen's Vapour Control System provides an effective barrier against condensation.

VAPOUR CONTROL LAYERS
VISQUEEN VAPOUR BARRIERS

- **RANGE SUITABLE FOR ALL INTERNAL BUILDING CONDITIONS.**
- **USED WITHIN ROOF, WALL AND FLOOR CONSTRUCTIONS.**
- **REDUCES THE LIKELIHOOD OF INTERSTITIAL CONDENSATION.**
- **LOOSE LAID OR SELF ADHESIVE OPTIONS.**
- **ALSO USED AS SEPARATION LAYERS ABOVE RIGID URETHANE FOAM INSULATIONS.**
- **PROVIDES PROTECTION AGAINST AIR LEAKAGE.**

MANUFACTURED IN THE UK

THE VISQUEEN VAPOUR CONTROL LAYER SYSTEM CONSISTS OF:

- VISQUEEN VAPOUR CHECK
- VISQUEEN VAPOUR BARRIER
- VISQUEEN HP VAPOUR BARRIER
- VISQUEEN FB VAPOUR BARRIER

DEVELOPED TO REDUCE THE RISK OF INTERSTITIAL CONDENSATION AND IMPROVE ENERGY EFFICIENCY.

BACKGROUND

Today there is greater emphasis on the environment and the need to significantly reduce CO_2 emissions. It has been an accepted fact that buildings in the United Kingdom account for 46% of CO_2 emissions. The Government is committed to reducing greenhouse gases that contribute towards global warming for the benefit of future generations. This is reflected in the revision of Building Regulations Approved Document Part L and the ongoing increased energy efficiency and air tightness requirements. The improvement in energy efficiency dramatically increases the risk of interstitial condensation and decisions should be taken to avoid this at the design stage. The designer should take into account water incorporated during the building process and water vapour arising from the occupants and their ongoing activities.

A good design and appropriate specification of materials are necessary to comply with building regulation requirements to ensure condensation is kept to a minimum and to achieve effective air tightness in new buildings and dwellings. Visqueen Building Products supply a range of Vapour Control Layers which can help achieve this.

The consequences of increased levels of condensation will result in damage to the building structure and failure to reduce air leakage will result in increased heat loss and poorer performing buildings.

REGULATIONS

The Building Regulations Approved Document C for England & Wales states that the floors, walls and roof of a building should adequately protect the building and its users from the harmful effects caused by interstitial and surface condensation. In Scotland, Technical Standard 3.15 states that every building must be designed and constructed in such a way that there will not be a threat to the building or the health of the occupants as a result of moisture caused by surface or interstitial condensation.

The British Standard BS5250 is the 'Code of practice for the control of condensation in buildings and dwellings'. The risk of interstitial condensation for a floor, wall or roof should be assessed or constructed in accordance with Section 8 and Annex D of BS5250 2002. The analysis uses the calculation method contained in BS EN ISO 1378. The risk of condensation in a building depends on a number of factors which should be taken into consideration at the design stage.

DESCRIPTION

Visqueen Vapour Control Layers are a range of loose laid and self adhesive elastomer membranes. They are designed to prevent the occurrence of interstitial condensation in the fabric of a building by protecting the thermal insulation incorporated in the building structure.





VISQUEEN HIGH PERFORMANCE FULLY BONDED VAPOUR BARRIER SHOULD BE USED IN ANY SITUATION WHERE A FULLY BONDED VAPOUR CONTROL LAYER IS REQUIRED.

REQUIRED COMPONENTS
AVAILABLE AS A DOWNLOAD FROM
VISQUEENBUILDING.CO.UK/VCL

- VISQUEEN VAPOUR TAPE
- VISQUEEN VAPOUR EDGE TAPE
- VISQUEEN PREFORMED TOP HAT UNIT
- VISQUEEN HP TANKING PRIMER (5L TIN)
- VISQUEEN DOUBLE SIDED JOINTING TAPE

SPECIFICATION SUPPORT
THE FOLLOWING ITEMS ARE AVAILABLE
TO VIEW ONLINE OR TO DOWNLOAD FROM
VISQUEENBUILDING.CO.UK/VCL

- TECHNICAL DATASHEETS
- TYPICAL INSTALLATION CAD DETAILS
- HEALTH & SAFETY DATA

PRODUCT SELECTION

The following is a guide to product suitability depending on building type.

Building Type	Condensation Risk	Visqueen Vapour Check	Visqueen Vapour Barrier	Visqueen HP Vapour Barrier
Factories	Low	✓		
Warehouses	Low	✓		
Industrial Units	Low	✓		
Storage Areas	Low	✓		
Domestic Dwellings	Medium		✓	
Apartment Blocks	Medium		✓	
Offices	Medium		✓	
Schools	Medium		✓	
Textile Factories	High			✓
Paper Mills	High			✓
Swimming Pools	High			✓
Laundries	High			✓
Communal Shower Blocks	High			✓
Canteens	High			✓
Sports Halls	High			✓
Wet Industrial Processes	High			✓

APPLICATION

The control of condensation to within safe limits is an important consideration in the design and construction of buildings.

The occupants of a building and their associated activities produce water vapour which, if unmanaged, can condense within or between building elements; a process referred to as interstitial condensation. This condensation can have serious detrimental effects upon the fabric of the building such as causing the decay of timber elements and corrosion of metal components, and reducing the thermal effectiveness of insulating materials.

With the progressive increases in thermal efficiencies of buildings in order to reduce energy usage, any reduction in the effectiveness of the installed insulation can have long term financial implications. The negative effect upon the fabric of the building increases the incidence of moulds and mildews, which in turn can have a harmful effect upon the health of the building's occupants.

Visqueen Vapour Control Layers provide a means of protecting the warm side of the thermal insulation incorporated in a building by creating a barrier to the movement of warm, moist air. The Vapour Control range, which provides suitability for all internal building conditions, consists of the following systems:

— Visqueen Vapour Check

— Visqueen Vapour Barrier

— Visqueen High Performance Vapour Barrier

— Visqueen High Performance Fully Bonded Vapour Barrier

VAPOUR CONTROL LAYERS
VISQUEEN VAPOUR BARRIERS

— **RANGE SUITABLE FOR ALL INTERNAL BUILDING CONDITIONS.**
— **USED WITHIN ROOF, WALL AND FLOOR CONSTRUCTIONS.**
— **REDUCES THE LIKELIHOOD OF INTERSTITIAL CONDENSATION.**
— **LOOSE LAID OR SELF ADHESIVE OPTIONS.**
— **ALSO USED AS SEPARATION LAYERS ABOVE RIGID URETHANE FOAM INSULATIONS.**
— **PROVIDES PROTECTION AGAINST AIR LEAKAGE.**

MANUFACTURED IN THE UK

DESIGN
To avoid harmful condensation, careful consideration should be given to the design of the thermal insulating elements and particular attention given to ventilation and the appropriate level of vapour control required.

It is recommended that the risk of interstitial condensation be assessed by calculation method (undertaken by the insulation manufacturer) in order to determine where it is likely to take place, whether it will be harmful and the optimum level of vapour control for that part of the structure.

Penetrations of the vapour control layer will downgrade performance and as such should be avoided wherever possible. Where penetrations occur, vapour tight seals should be formed.

Selection of the appropriate vapour control layer is by reference to the buildings internal humidity conditions, as follows:

— Visqueen Vapour Check is a loose laid membrane designed for use in roofs, walls and floors subjected to humidity levels less than 50% at 15°C or less than 35% at 20°C (BS5250: 2002 class 1 condition) e.g. warehouses, industrial units and storage areas.

— Visqueen Vapour Barrier is a loose laid membrane designed for use in roofs, walls and floors subjected to humidity levels less than 60% at 20°C (BS5250: 2002 class 2 and 3 conditions) e.g. offices and domestic dwellings with low occupancy.

— Visqueen High Performance Vapour Barrier is a loose laid membrane designed for use in roofs, walls and floors subject to humidity levels greater than 60% at 20°C or greater than 45% at 25°C (BS5250: 2002 class 4 and 5 conditions) e.g. domestic dwellings with high occupancy, sports halls, swimming pools, communal shower areas, laundries, canteens and buildings with wet industrial processes.

— Visqueen High Performance Fully Bonded Vapour Barrier is a self adhesive membrane designed for use in roofs, walls and floors subject to humidity levels greater than 60% at 20°C or greater than 45% at 25°C (BS5250: 2002 class 4 and 5 conditions) where a fully bonded vapour control layer is required.

When designing buildings used as service and retail outlets where specific use, and hence humidity levels, may be unknown at design stage, the likelihood is that there will be a high degree of variability in the vapour protection requirements. In these instances, the choice of vapour control layer should err on the side of caution and include for an adequate margin of safety.

When designing the system in which the vapour control layer is to be incorporated, careful consideration should be given to compatibility with the other components or their method of application e.g. thermoplastic membranes are suitable for use with mechanically fixed polymeric single ply flat roofing systems, and unsuitable for use with bitumen bonded flat roofing systems due to the high temperatures involved during application.

For cold storage areas, contact Visqueen Technical Support for specific design advice.

The following design considerations are not exhaustive but are offered to provide general guidance for typical applications.



REQUIRED COMPONENTS
AVAILABLE AS A DOWNLOAD FROM
VISQUEENBUILDING.CO.UK/VCL

- VISQUEEN VAPOUR TAPE
- VISQUEEN VAPOUR EDGE TAPE
- VISQUEEN PREFORMED TOP HAT UNIT
- VISQUEEN HP TANKING PRIMER (5L TIN)
- VISQUEEN DOUBLE SIDED JOINTING TAPE

SPECIFICATION SUPPORT
THE FOLLOWING ITEMS ARE AVAILABLE
TO VIEW ONLINE OR TO DOWNLOAD FROM
VISQUEENBUILDING.CO.UK/VCL

- TECHNICAL DATASHEETS
- TYPICAL INSTALLATION CAD DETAILS
- HEALTH & SAFETY DATA

Design consideration – roofs
Incorporated between the insulation and internal lining in pitched roofs with inclined insulation and ceilings, the vapour control layer should be sealed at all roof details e.g. hips, valleys, ridges, abutments and fire walls.

With cold deck flat roof constructions, the vapour control layer is included between the insulation and ceiling. Perimeter detailing should be effectively sealed.

When incorporated in warm deck flat roof constructions, the vapour control layer should be secured in position between the structural deck and insulation ensuring that it envelopes the insulation at upstands, abutments and penetrations.

Design consideration – walls
Commonly incorporated in masonry cavity walls and solid walls with internal insulation, timber framed walls, metal framed walls where the frame is within the main insulation layer and site assembled twin skin wall systems, the vapour control layer should be secured in position between the insulation and the internal lining. All fixings penetrating the layer should be sealed with Visqueen Double Sided Jointing Tape and detailing around window and door openings should be sealed with Visqueen Vapour Tape.

Design consideration – floors
With precast concrete floors or ground bearing floors, a vapour control layer should be provided on the warm side of the insulation when insulation is positioned above the structural floor. Perimeter detailing should be effectively sealed. Vapour control layers also function as separating layers in solid floor construction. Commonly incorporated between rigid urethane foam insulations and the floor screed, they prevent contamination of the insulation by the screed and minimise cracking should movement occur below the screed.

VISQUEEN VAPOUR CONTROL LAYERS

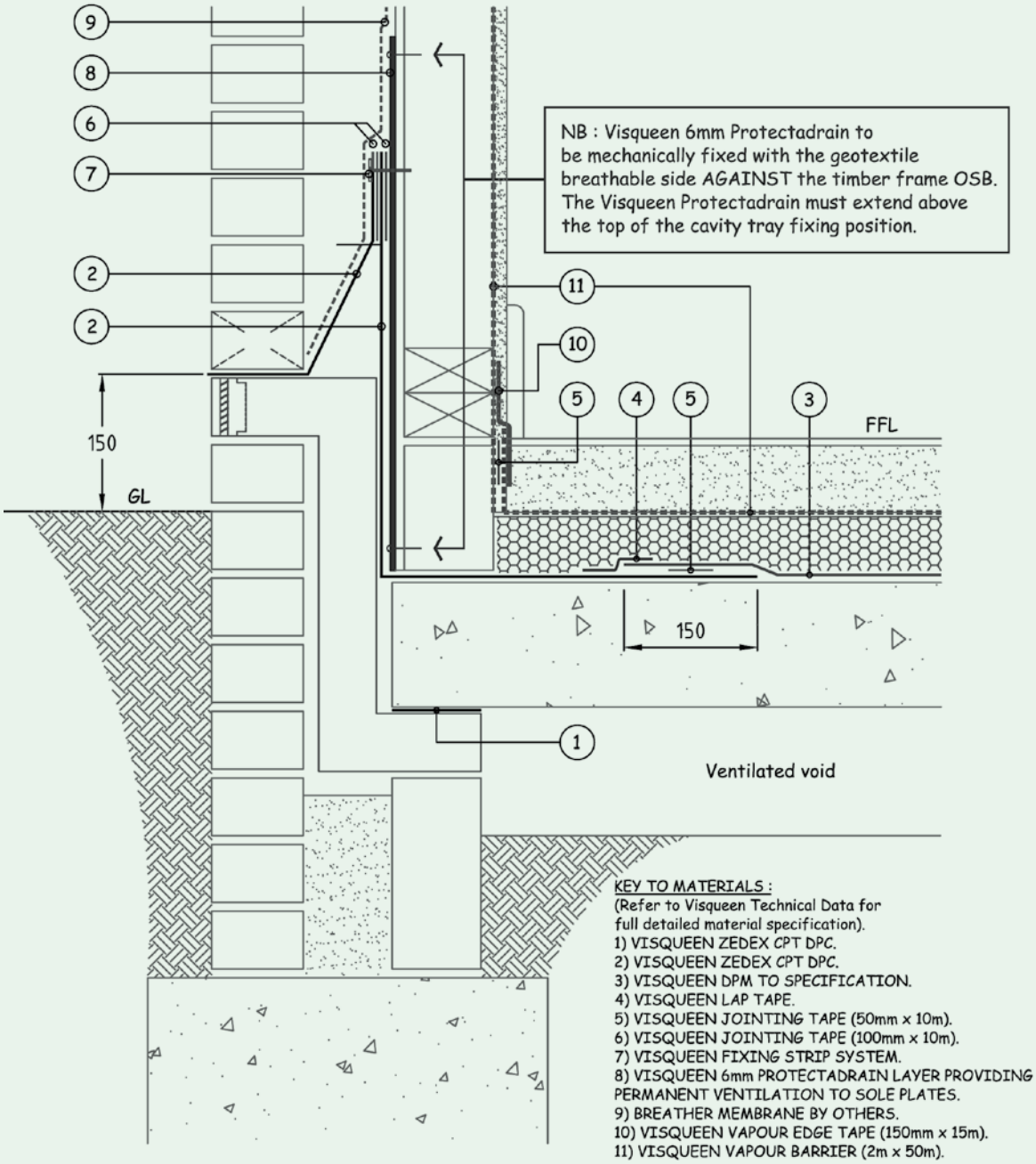
	Vapour Check	Vapour Barrier	HP Vapour Barrier	HP FB Vapour Barrier
BS5250 Conditions	Class 1	Class 2&3	Class 4&5	Class 4 & 5
Application Method	Loose laid	Loose laid	Loose laid	Self Adhesive
Roll Dimensions (m)	2.45 or 4x50	2x50	1.6x30 or 60	1x20
Water Vapour Min. Resistance (MNs/g)	260	530	1100	2000

VAPOUR CONTROL LAYERS
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MANUFACTURED IN THE UK

TIMBER FRAME STANDARD DETAIL - VENTILATED SOLE PLATE / VISQUEEN VAPOUR BARRIER



REQUIRED COMPONENTS
AVAILABLE AS A DOWNLOAD FROM
VISQUEENBUILDING.CO.UK/VCL

- VISQUEEN VAPOUR TAPE
- VISQUEEN VAPOUR EDGE TAPE
- VISQUEEN PREFORMED TOP HAT UNIT
- VISQUEEN HP TANKING PRIMER (5L TIN)
- VISQUEEN DOUBLE SIDED JOINTING TAPE

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- TECHNICAL DATASHEETS
- TYPICAL INSTALLATION CAD DETAILS
- HEALTH & SAFETY DATA

INSTALLATION

Visqueen Vapour Control Layers should be installed in accordance with the recommendations of BS5250: 2002 'Code of practice for control of condensation in buildings'.

The vapour control layer should be of the appropriate vapour resistance and should be situated on the warm side of the insulation.

The laps of the vapour control layer and junctions with metal, timber, glass, cementitious boarding and plastic building elements should be sealed with Visqueen Vapour Tape. Abutments to masonry units or junctions where structural movement is anticipated should be sealed with Visqueen Vapour Edge Tape. Failure to suitably connect the vapour control layer to other building elements will seriously reduce performance.

Where fixings penetrate through the vapour control layer e.g application of mechanically fixed plaster board, a vapour seal should be formed using a Visqueen Double Sided Jointing Tape applied to the surface of the vapour control layer along the line of the substrate for the fixings.

Loose Laid Vapour Control Layers
All joints in the vapour control layer should be lapped by minimum 75mm, and sealed with Visqueen Vapour Tape applied equidistant over the lap. To aid formation, laps should be made over a solid substrate. Where possible, reduce the number of laps to a minimum by using full rolls of membrane. The heads of any mechanical fixings penetrating through the membrane should be sealed with Visqueen Vapour Tape.

Tears, cuts or holes should be repaired with Visqueen Vapour Edge Tape extending minimum 75mm beyond the damaged area. Vapour tight seals should be formed around all service entry points. Visqueen Preformed Top Hat Units are available for sealing around pipe penetrations. The base and collar of the preformed unit should be sealed using Visqueen Vapour Tape and the collar secured with a mechanical fastening.

Other penetrations through the membrane such as electrical cabling should be kept to a minimum and sealed during construction with Visqueen Vapour Tape.

The perimeter of the installation should be sealed to ensure full vapour protection. Where perimeter detailing involves sealing to masonry units such as brickwork, blockwork, etc ensure vapour proof continuity by sealing with Visqueen Vapour Edge Tape applied equidistant over the junction.

Ensure all surfaces are clean, smooth and dry prior to the application of Visqueen Vapour Tape or Visqueen Vapour Edge Tape. Surfaces do not require priming prior to tape application.

Self Adhesive Vapour Control Layer
All surfaces to which the membrane is to be bonded should have a smooth finish, be dry and free from dust and loose particles.

When bonding to porous surfaces, adhesion can be improved by priming the substrate with Visqueen HP Tanking Primer which should be allowed to dry. However, compatibility should be ensured between primer and substrate before application. If in doubt, contact Visqueen Technical Support before application.

Visqueen High Performance Fully Bonded Vapour Barrier should be laid by peeling back the protective release paper and applying the adhesive face onto the prepared surface.

All lap joints should be a minimum of 75mm and well rolled with firm pressure, using a lap roller to ensure complete adhesion and continuity.

Damaged areas should be repaired by patching with an oversize piece of the same material. Ensure the surface is clean and dry prior to application of the patch. Extend minimum 75mm beyond the damaged area and roll firmly with a lap roller to ensure complete adhesion and continuity.

Vapour tight seals should be formed around all service entry points. Visqueen Preformed Top Hat Units are available for sealing around pipe penetration. The base and collar of the preformed unit should be sealed using Visqueen Vapour Tape and the collar secured with a mechanical fastening.

Other penetrations through the membrane such as electrical cabling should be kept to a minimum and sealed during construction with Visqueen Vapour Tape.

The perimeter of the installation should be sealed to ensure full vapour protection. Where perimeter detailing involves sealing to masonry units such as brickwork, blockwork, etc ensure vapour proof continuity by sealing with Visqueen Vapour Edge Tape applied equidistant over the junction.

Ensure all surfaces are clean, smooth and dry prior to the application of Visqueen Vapour Tape or Visqueen Vapour Edge Tape. Surfaces do not require priming prior to tape application.

PRECAUTIONS

Visqueen Vapour Control Layers are classified as non-hazardous when used in accordance with BS5250: 2002.

Care should be taken to avoid accidental damage when handling the membranes on site. Membrane installation is not recommended below 5^{0}C.

Visqueen Vapour Control Layers are not intended for use where they will be exposed for long periods of outdoor weathering.


nuity and protection.
5L
HP TANKING PRIMER 5L
TOP HAT (RIGID AND FLEXIBLE) VARIOUS SIZES
100mmx15m
GX DOUBLE SIDED BONDING TAPE
100mmx15m
UDG DOUBLE SIDED BONDING TAPE
VAPOUR EDGE TAPE
300mmx10m
DETAILING STRIP
STAINLESS STEEL
C-THRU
FLEXIBLE / NON-SKID
Site construction sequencing sho
appropriate Visqueen Standard Det
by the Designer
Designer's A

84 Lapping & Jointing
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87 Sealing to Cavity Wall Constructions
88 Protecting Membranes
90 System Components

INSTALLATION/ SYSTEM COMPONENTS

LAPPING AND JOINTING

To ease the installation process we have created a step by step guide to all our system components to ensure effective jointing, continuity and protection.

GENERAL PRECAUTIONS FOR INSTALLATION

- Ensure that all surfaces to be jointed are dry, clean, and free from grease, mortar droppings, etc.
- Do not joint membranes and DPC/ cavity trays in temperatures below 5°C. In temperatures between 5 and 10°C, some warming with a hot air gun may be required.
- Use a roller to exert maximum pressure when joining sheets with Visqueen DPM Double Sided Jointing Tape.
- If the membrane is below a steel reinforced floor, concrete slab, cover with a screed or Visqueen Heavy Duty Protection Board prior to the positioning of the reinforcement.
- If the membrane is above the slab, delay installing the membrane until just before laying the screed or flooring topping (or thermal insulation where above the slab) to avoid damage from site traffic.
- Ensure that any screed laid directly on the membrane is at least 50mm thick.

IMPORTANT
The illustrations shown are for guideline installation purposes only. For the relevant system components for your application, please refer to the products "system components" table on p90

HOW TO LAP AND JOINT A MEMBRANE ABOVE A FLOOR SLAB

Visqueen Radon (red) membrane used for illustrative purposes only.



Remove loose debris from the surface of the floor slab and unroll the first sheet of membrane. The surface of the slab should be smooth and free from projections or indentations – if very rough, apply a sand blinding.



Remove the protective paper from one side of the appropriate jointing tape and apply it to the first sheet, starting about 50mm from the edge. Ensure that all surfaces are dry for maximum adhesion.



Unroll the second sheet along the joint, overlapping the first by at least 150mm. Press firmly onto the double sided tape, gradually removing the protective paper.



Seal the edge of the overlap with appropriate sealing tape.

HOW TO JOINT THE CAVITY TRAY TO THE MEMBRANE AT THE FLOOR PERIMETER

Visqueen Radon (red) membrane used for illustrative purposes only.



Install the DPC starting from the outside of the external wall, over the inner masonry leaf and finishing at least 200mm from the wall.



Just before the floor topping is applied (or floor slab is cast), clean any mortar droppings, or other debris from the DPC. Remove the protective paper from the appropriate jointing tape and apply the tape to the DPC, starting about 50mm from the edge.



Lay the membrane over the floor slab (or subfloor blinding), overlapping the DPC by at least 150mm. Press firmly onto the appropriate jointing tape, gradually removing the protective paper.



Seal the edge of the overlap with appropriate sealing tape.

HOW TO INSTALL A PRE-WELDED MEMBRANE



Ensure Visqueen Gas Barrier is laid on a level blinded surface.



Carefully unroll the pre-welded membrane.



Ensure that the membrane is not damaged during the unfolding process.



Visqueen Pre-Welded Membrane will fit exactly to the footprint dimensions.

HOW DO I REPAIR A GAS MEMBRANE IF PUNCTURED OR PERFORATED?

Any tears or punctures in the membrane should be patched using a piece of the same material sized to overlap at least 150mm beyond the extent of the puncture, the lap being bonded with Visqueen Double Sided Jointing Tape and sealed with Visqueen Foil Lap Tape.

HOW TO LINK PREFORMED COMPONENTS TO FORM A SEAL AT CORNERS









1) Build the masonry up to the height of the horizontal joint where the cavity tray is to be built in. Place the preformed upstand unit tight into the corner of the masonry wall.

2) Remove the protective paper from the back of the Visqueen Double Sided Jointing Tape and apply it to the upstand unit at a height that will ensure a good overlap when the downstand unit is in place. Remove the protective paper from the face of the tape.

3) Place the preformed downstand unit tight into the corner with the horizontal element sitting on the masonry wall. Press the vertical leg of the downstand unit firmly against the upstand unit, starting at the internal corner and working outwards.

4) Apply two lengths of double sided tape vertically across both upstand and downstand units, one on each return wall, ready to receive the lengths of cavity tray. When the cavity trays are sealed to the upstand units, join them to the floor membrane.

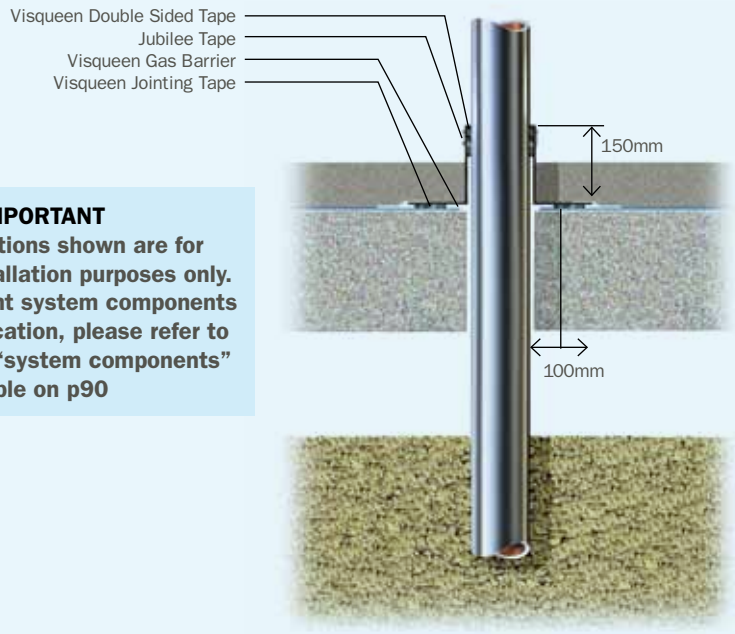
SERVICE PIPE PENETRATIONS

Damp proof and airtight seals should be formed around all service entry points. Visqueen Top Hat Units are available for sealing around pipe units. The full system consists of;

- Rigid preformed pipe sleeve (top hat) unit – available for either 110mm, 135mm or 160mm external diameter pipes.
- Flexible preformed pipe sleeve (Top Hat) unit – supplied to suit pipe external diameter as required.
- Double sided jointing tape.
- Girth lap tape.
- Foil lap tape – for gas applications.

IMPORTANT
The illustrations shown are for guideline installation purposes only. For the relevant system components for your application, please refer to the products "system components" table on p90

A TYPICAL TOP HAT DETAIL



HOW TO MAKE A GAS-TIGHT SEAL WHEN A PIPE PASSES THROUGH THE MEMBRANE

Visqueen Radon (red) membrane used for illustrative purposes only.



Cut a circular hole in the membrane as close as possible to the pipe, or pipe socket. Ensure that pipe penetrations do not occur at joints in the membrane.



With the pipe in position, slide the Visqueen Preformed Top Hat Unit over the pipe (various diameters are available – 110mm being the most common).



Mark the extent of the square horizontal skirt over the membrane and also mark the line of the top of the top hat unit around the pipe.



Raise the top hat unit and cut four lengths of Visqueen Double Sided Jointing Tape, one for each side of the horizontal skirt. Allowing for an overlap at each corner. Cut one length to go round the pipe.



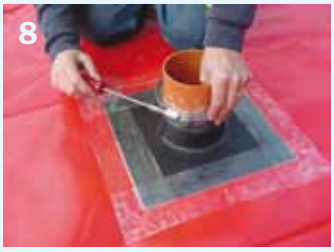
Start to remove the protective paper from the double sided tape around the pipe and raise it up at an angle so that it will project above the top hat unit when it is stuck to the membrane.



Release the protective paper from each of the four lengths of double sided tape. Lower the top hat unit, ensuring that the free end of the protective paper around the pipe is reachable, and seal the horizontal skirt to the membrane.



Gradually remove the remainder of the protective paper from the double sided tape around the pipe.



Seal the junction of the horizontal skirt and the membrane with the appropriate sealing tape and secure the top hat unit to the pipe with a jubilee clip.

SEALING TO CAVITY WALL CONSTRUCTIONS

Visqueen supply various components to secure the DPC (tray and preformed units) to cavity wall constructions. The most common surface fix or face fixed applications are shown below.

VISQUEEN ZEDEX DPC FIXING STRIP AND PINS FOR MASONRY

DESCRIPTION

The fixing strip is a semi-flexible black plastic strip which is pre-drilled at approx. 150mm centres. The fixing pin is robust and strong incorporating a central nail. By hammering the central nail into the body of the fixing, it expands the fixing and secures it in the drilled hole.

APPLICATION

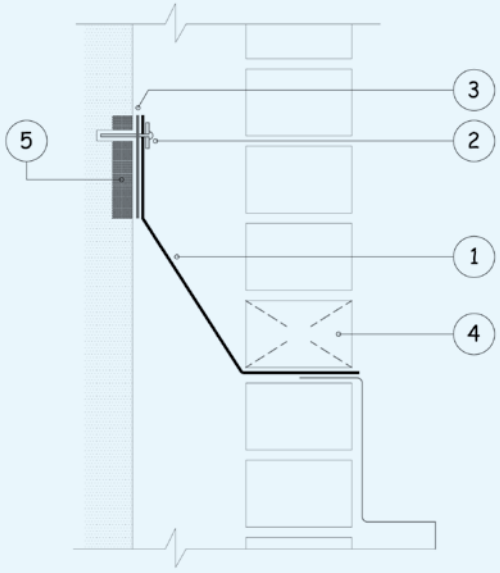
For securing surface (face) fixed DPC cavity trays to blockwork, cast concrete, etc, inner leaves of cavity wall constructions.

INSTALLATION

- Bond the vertical portion of the cavity tray to the inner leaf with Visqueen Zedex DPC Jointing Tape.
- At one end of the fixing strip, drill a 6mm diameter hole (through the DPC and tape) into the inner leaf of the cavity wall, to a depth of 55mm, using the hole in the fixing strip as a guide.
- Insert the fixing pin through the fixing strip into the drilled hole and secure in position.
- Repeat for each hole of the fixing strip.

A TYPICAL STANDARD SURFACE FIXING DETAIL FOR MASONRY IS SHOWN BELOW (SF-01)

KEY: 1) Visqueen Zedex CPT DPC (preformed cloaks to suit). 2) Visqueen Fixing Strip (25x2mm, pre-drilled with 8mm Ø holes). 3) Visqueen Zedex 100mm Jointing Tape on primed, flush inner skin. 4) Weepholes at 900mm centres (min 2no. per opening). 5) Visqueen HP Tanking Primer.



VISQUEEN ZEDEX DPC FIXING STRIP AND PINS FOR INSULATION

DESCRIPTION

The fixing strip is a semi-flexible black plastic strip which is pre-drilled at approx. 150mm centres. A strong and robust fixing pin with the purpose of securing the fixing strip and cavity tray in position.

APPLICATION

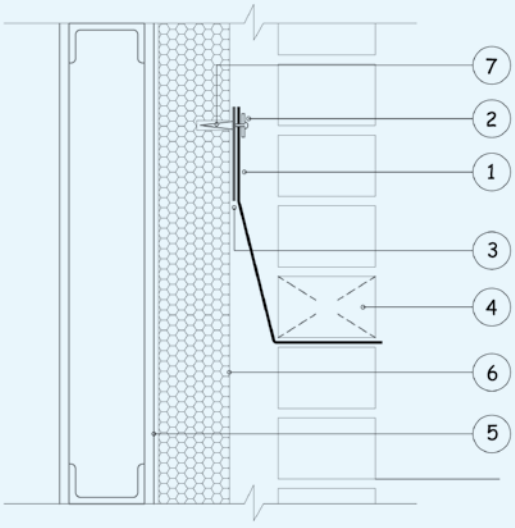
For securing surface (face) fixed DPC cavity trays to the rigid urethane foam facing of composite inner leaves in cavity wall constructions.

INSTALLATION

- Bond the vertical portion of the cavity tray to the inner leaf with Visqueen Zedex DPC Jointing Tape.
- At one end of the fixing strip, use a bradawl to form a pilot hole (through the DPC and tape) into the insulation, using the hole in the fixing strip as a guide.
- Push the fixing pin through the fixing strip into the pilot hole.
- Repeat for each hole of the fixing strip.

A TYPICAL STANDARD SURFACE FIXING DETAIL FOR METAL FRAME IS SHOWN BELOW (SF-02)

KEY: 1) Visqueen Zedex CPT DPC (preformed cloaks to suit). 2) Visqueen Fixing Strip (25x2mm, pre-drilled with 8mm Ø holes) Visqueen Fixing Pins at 150mm centres. 3) Visqueen Zedex 100mm Jointing Tape. 4) Weepholes at 900mm centres (min 2no. per opening). 5) Metal frame construction by specialist. 6) Rigid insulation board. 7) Visqueen No.2 Fixings.



PROTECTING MEMBRANES

Visqueen offer three different protection boards to suit a variety of applications. From a bitumen composition to a reinforced LDPE blend, the varying boards are all;

— Light and easy to handle: allows ease of storage and transferring on site.
— Easy to install – can be cut and shaped on site.

VISQUEEN PROTECTION BOARDS

Heavy Duty – a tough, durable and rot resistant bituminous board that protects DPMs and tanking DPMs against mechanical damage, pedestrian or vehicular traffic and puncture from backfilling. Available in 1m x 2m x 3mm board.

Light Duty – a strong corrugated plastic board that protects Stormwater, UDG, membranes from backfill. Also protects loose laid membranes from following trades. Available in 1.22mm x 2.44mm x 3mm board.

High Impact – a reinforced PE compound board that protects DPMs and tanking DPMs against mechanical damage, pedestrian or vehicular traffic and puncture from backfilling. Available in 1.22mm x 2.44mm x 1mm board.

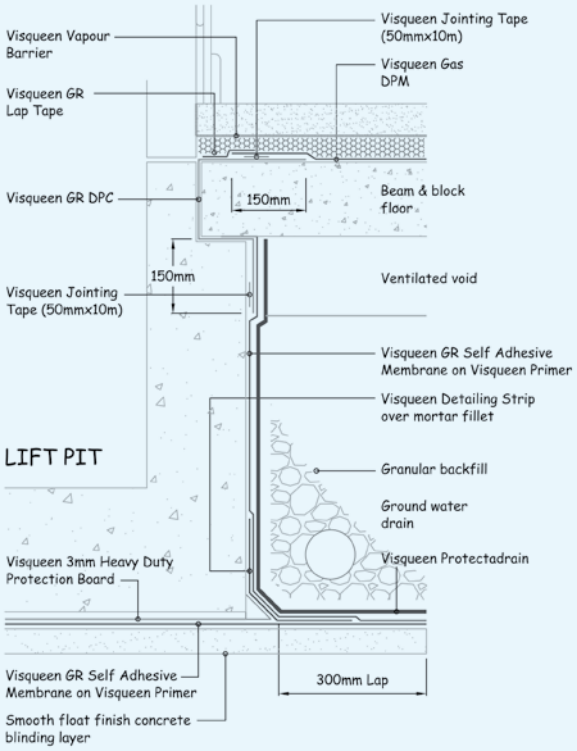
Protect&Drain – acts as a heavy duty protection medium for Visqueen damp proofing, gas proofing and tanking membranes. The product is 6mm thick and supplied in rolls 1.1m x 50m.

INSTALLATION

Boards are loose laid and butt jointed. Where necessary the joints can be over taped with Visqueen Girth Jointing Tape applied equidistant over the junction. Ensure surfaces are clean and dry prior to application of tape. Apply pressure to the tape to ensure adhesion.

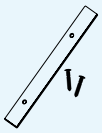
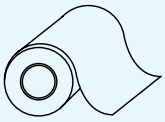
An example detail shows where protection boards are used.

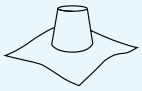
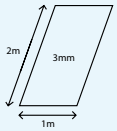
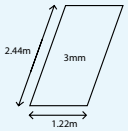
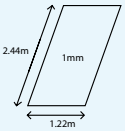
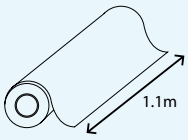
EXTERNALLY TANKED LIFT PIT SUSPENDED FLOOR (SW-03)



VISQUEEN WATERPROOFING & GAS PROTECTION SYSTEM COMPONENTS

The table below details the various components required to ensure effective jointing, continuity and protection.

		 50mmx10m DOUBLE SIDED BONDING TAPE	 100mmx33m GIRTH SEALING TAPE	 75mmx50m FOIL SEALING TAPE	 150mmx10m GAS RESISTANT LAP TAPE	 100mmx15m DPC JOINTING TAPE	 SURFACE DPC FIXING SYSTEM	 300mmx10m DETAILING STRIP
DAMP PROOF COURSES	**ZEDEX CPT DPC**					●	●	●
	ZEDEX HIGH BOND						●	●
	ZEDEX HOUSING GRADE					●	●	●
	POLYETHYLENE DPC					●	●	●
	GX DPC				●		●	●
	GR DPC					●	●	●
DAMP PROOF MEMBRANES	**ECOMEMBRANE**	●	●					●
	DPM TO PIFA	●	●					●
GROUND GAS PROTECTION	**RADON**	●		●	●	●		●
	CO_2	●		●	●	●		●
	LP GAS MEMBRANE	●		●	●	●		●
	GAS BARRIER	●		●	●	●		●
	GX GEOMEMBRANE					●		●
TANKING	**SELF ADHESIVE**							
	GR SELF ADHESIVE MEMBRANE							
	TORCHON							
	GX PRE APPLIED MEMBRANE					●		●
STORMWATER	**URBAN DRAINAGE GEOMEMBRANE**							
	HP URBAN DRAINAGE GEOMEMBRANE				●			
	GX GEOMEMBRANE UDG				●			
	HANSON AQUAFLOW							
VAPOUR CONTROL LAYERS	**VAPOUR CHECK**	●						
	VAPOUR BARRIER	●						
	HP VAPOUR BARRIER	●						
	HP FB VAPOUR BARRIER	●						

 **HP TANKING PRIMER 5L**	 **TOP HAT** (RIGID AND FLEXIBLE) VARIOUS SIZES	 100mmx15m **GX DOUBLE SIDED BONDING TAPE**	 100mmx15m **UDG DOUBLE SIDED BONDING TAPE**	 75mmx15m* 150mmx15m** **VAPOUR TAPE* EDGE TAPE****	 **HEAVY DUTY PROTECTION BOARD**	 **LIGHT DUTY PROTECTION BOARD**	 **HIGH IMPACT PROTECTION BOARD**	 **PROTECT AND DRAIN**
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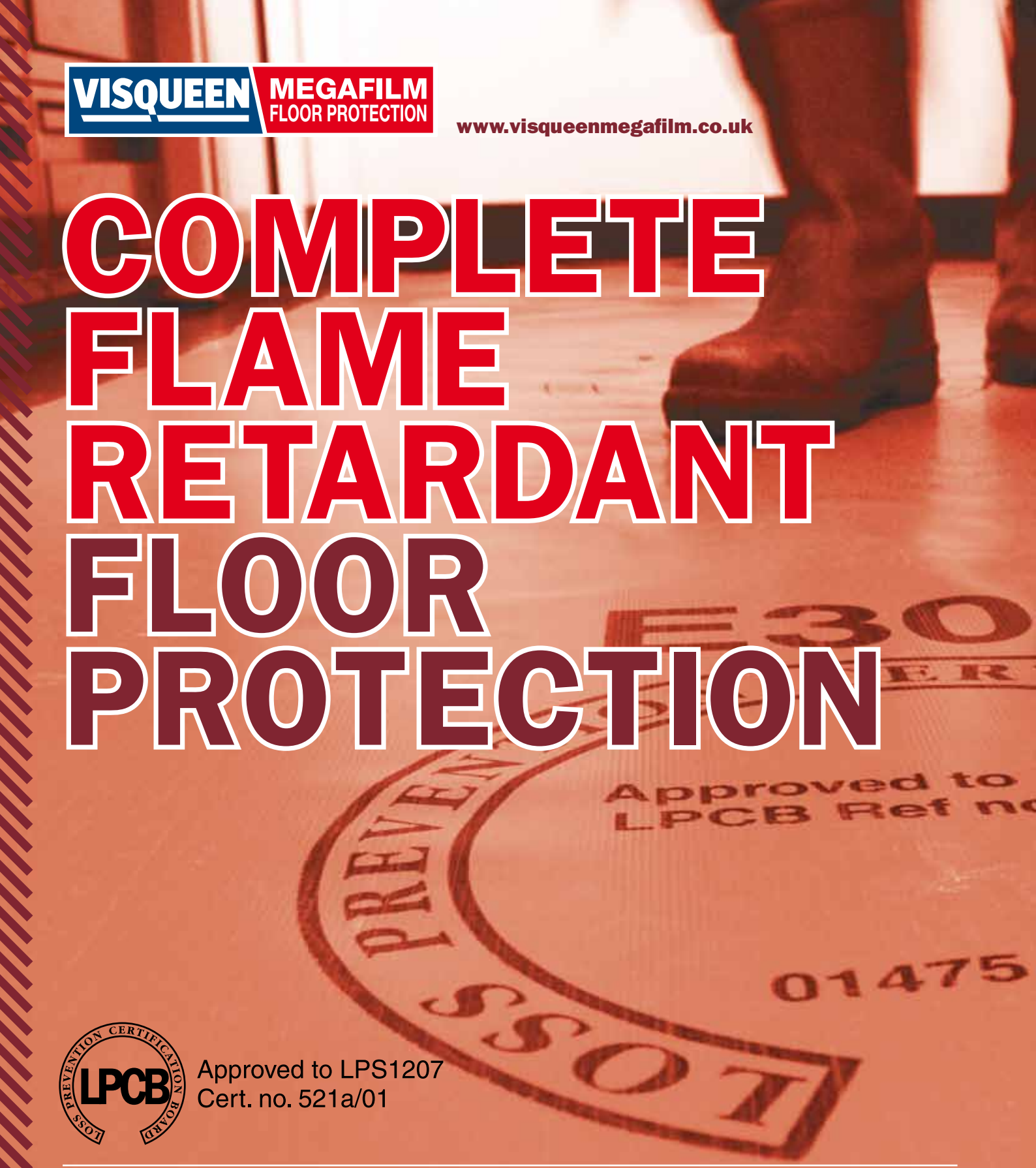
94 Visqueen Megafilm Floor Protection
96 Visqueen Megaboard Vertical Protection
96 Visqueen Megatac Floor Protection

FLOOR PROTECTION

VISQUEEN MEGAFILM FLOOR PROTECTION

www.visqueenmegafilm.co.uk

COMPLETE FLAME RETARDANT FLOOR PROTECTION



LPCB Approved to LPS1207
Cert. no. 521a/01

— COMPREHENSIVE RANGE OF GRADES TO SUIT MOST FLOOR APPLICATIONS AND SURFACES.
— UNIQUE MOULDED AND EMBOSSED SHEETING OFFERING ENHANCED PROTECTION AND SAFETY.
— ANTI-SLIP AND HIGH IMPACT CHARACTERISTICS ACROSS ALL RANGES.
— CUSTOM PRINTING AVAILABLE FOR PROJECTION OF CORPORATE IMAGE.

DESCRIPTION

Visqueen Megafilm® Flame Retardant range has accreditation to LPS 1207. LPS 1207 is the performance standard for protective materials that are used internally whilst buildings undergo refurbishment or construction.

The unique pyramid structure allows air flow whilst Visqueen Megafilm High Performance offers both additional anti-slip and impact cushioning benefits.

It is durable, tear resistant and contains dirt and any spillages. Visqueen Megafilm® is easy to tailor fit as it only needs to be cut into shape.

APPLICATION

Visqueen Megafilm® Floor Protection Systems are a range of embossed and moulded plastic sheeting designed to suit a variety of floor applications; to ease specification we have created a Product Selector.

VISQUEEN MEGAFILM FLOOR PROTECTION

For further information and full datasheet on each of our products please visit www.visqueenmegafilm.co.uk

The use of non-certificated LPS 1207 materials could result in the withdrawal of insurance cover in the event of fire.





PRODUCT APPLICATION SELECTOR

LIGHT GRADE CARPET PROTECTION

Product Code	Thickness	Roll Size	Application	Flame Retardant
E1	65µm	1.5m x 167m	Dust Covering	✓
E2	120µm	1.5m x 134m	Light Carpet Protection	✓

HIGH PERFORMANCE CARPET PROTECTION

HLS	120µm	1.82m x 55m	Light Duty Carpet Protection	✓
6LS-FR	175µm	1.82m x 55m	Medium Duty Carpet Protection	✓
10LS-FR	300µm	1.82m x 55m	Heavy Duty Carpet Protection	✓

HARD FLOOR PROTECTION

3SF	175µm	1.82m x 55m	Medium Duty Hard Floor Protection	✓
4SF	300µm	1.82m x 55m	Heavy Duty Hard Floor Protection	✓

VISQUEEN MEGAFILM® PROTECTION SYSTEM

Table 1: Product tests in compliance with loss prevention standard LPS 1207

Property	Test
Ignitability by Direct Flame Impingement	BS 476: Part 12:1991 Source C, 20 seconds
Smoke Emissions Test	EN 2825
Toxic Gas Emission Test	EN 2826
Critical Oxygen Index	BS 2782: Part 1: Method 141: 1986 (ISO 4589)



VISQUEEN JOINTING TAPES

Dimensional Data	
Medium Duty Tape: 77mm x 66m	Suitable for carpets
T600 Tape: 50mm x 50m	Suitable for most surfaces except carpets

LPCB LOSS PREVENTION CERTIFICATION BOARD

Approved to LPS1207
Cert. no. 521a/01

VISQUEEN MEGABOARD PROTECTION

DESCRIPTION
Visqueen Megaboard® is a lightweight corrugated twin wall plastic board accredited to LPS 1207. Visqueen Megaboard® offers protection for vertical applications such as walls, pillars, columns and doors and protects ceramic, timber, marble and tiled application.

INSTALLATION
Visqueen Megaboard® is easy to handle and can be cut, scored or bent to suit any application's requirements. Visqueen Megaboard® can simply be cut to shape and size, scored or bent to fit corners and held in place using Visqueen Jointing Tapes.

STORAGE & HANDLING
Visqueen Megaboard® is available in sheet format and requires careful handling and storage to avoid damage during installation, it is recommended that Visqueen Megaboard® be stored flat.

Approved to LPS1207
Cert. no.688/01



Product Code	Thickness	Board Size	Application	Flame Retardant
Megaboard	2mm	2.44m x 1.22m x 2mm	Vertical Applications – walls pillars and columns	✓

VISQUEEN MEGATAC FLOOR PROTECTION

DESCRIPTION
Visqueen Megatac is a self adhesive film used during refurbishment and redecoration available as standard or flame retardant. Visqueen Megatac provides a tight bond with the surface which is easy to remove and leaves behind no residue.





APPLICATION
- Suitable only for use on carpets.
- Ideal for stairways, hallways and room perimeters. Can also be used as a temporary internal walkway.
- Visqueen Megatac is for temporary use only and must be removed within 45 days.

Do not apply to wet or damp carpets. Allow 72 hours before applying to newly laid carpets.

INSTALLATION
- Peel back the edge of the protective film and unroll it slightly. Press the edge onto the surface of the carpet so that it adheres firmly.
- Continue to unroll the film applying pressure and smoothing the film across the surface.
- Once the desired length has been achieved, carefully cut the end with a knife or box cutter.
- To make it easy to find the edge of the roll ready for the next length of film, fold the edge back against the roll.

Product Code	Thickness	Roll Size	Application	Flame Retardant
Megatac Trade	75µm	600mm x 100m	Self Adhesive Carpet Protection	✓
Megatac FR	75µm	900mm x 100m	Self Adhesive Carpet Protection	✓

For further information and full datasheet on each of our products please visit www.visqueenmegafilm.co.uk

Plaswood
from visqueen building products

ENVIRONMENTAL LANDSCAPE SOLUTIONS

Plaswood
from visqueen building products

www.whyusewood.com

Environmental Landscaping Solutions

Recycled Plastic Furniture

Plaswood is an award winning long life environmental alternative to traditional materials. Produced using 100% recycled polythene, Plaswood is used widely by many organisations in both the public and private sector. Plaswood versatility of design means it can be fabricated into furniture, fencing, walkways and many more products to enhance any park, garden, town centre, school, leisure or play area.

The Environmentally Responsible Alternative

- Ecofriendly; produced using 100% recycled polythene diverting valuable waste from landfill.
- Long Lasting; Plaswood has a lifespan at least four times that of timber alternatives.
- Low Maintenance; being rot proof and resistant to algae there is little or no requirement for maintenance, painting or preservatives avoiding the use of CCA preservatives.
- Fully Recyclable; can be fully recycled at the end of its use.
- Completely Inert; Plaswood will not leach any chemicals into the ground, or surrounding environment.

Features and Benefits

- Tough, Durable & Strong; Plaswood will not crack or dry out and is resistant to attack by insects.
- Splinter Free; Plaswood can be moulded or finished in a range of shapes.
- Vandal-resistant; Plaswood is more resistant to graffiti due to its surface.
- Versatile; Plaswood can be easily designed to be used in conjunction with other traditional materials.



Key Sectors;

Landscaping

Used widely by many organisations both in the private and public sectors, Plaswood's versatility of design means it can be fabricated into furniture, fencing, gates, walkways, signage, access ramps, and many other products that will enhance any park, garden, town centre, leisure or play area.



Schools

When you require maintenance free outdoor furniture for your school or playground, Plaswood has the answers. Our range of outdoor furniture is low maintenance, weatherproof, safe and designed to meet the most demanding applications. Commonly specified by architects, including through the Building Schools for the Future (BSF) programme, Plaswood will help reduce the carbon footprint of the project.



Highways

Plaswood manufacture a versatile and adaptable range of highway products that can offer a solution to a multitude of retail, forecourt and highway applications. Plaswood highway products include bollards, signage, street name plates, barriers and access ramps.



Decking & Waterways

Plaswood can be used to replace traditional wooden products in many decking and waterway applications. It is cost effective, labour saving and particularly suited to the harsh wet environments they are placed in. Installation details are found on our technical datasheets and give a step by step guide for connecting the various systems. Our products include decking, boardwalks, pontoons, staging & platforms and bank revetment protection.



Plaswood
from visqueen building products

www.whyusewood.com

The leading supplier of plastic furniture to large scale public and private sector projects.

The many benefits of recycled plastic street furniture help reduce the carbon footprint of any project. For example, Plaswood is produced using 100% recycled polythene diverting valuable waste from landfill. Plaswood has been specified to projects throughout the UK, including Building Schools for the Future programmes, and we have some case study examples below.

Project:
Lancaster Environmental Improvements

Location:
Langridge Estate, Morecambe.

Value:
£200,000

Products:
Fencing and Gates

The Challenge

When the project was instigated, the landscaping of the Langridge Estate comprised large areas of stained softwood timber boundary fencing and abundant shrub planting. Due to their age, both features were demanding increasing amounts of maintenance – such as painting, staining and repair of the timber fencing plus the intensive pruning, mulching and re-stocking of the planting areas.

A low maintenance, long lasting and ecofriendly option was sought.

Project Solution

To deliver greater long term efficiency and returns on investment, specifiers decided to introduce a maintenance free fencing system. This was installed in three phases over a period running from 2005 to 2008. It consisted of:

Plaswood Fencing and Gates

It was decided that there would be only one colour of fencing post (green) and one colour for all rail and pale panel fencing (black). To compliment this, all new gates also match the new fencing heights and colour.

Planting

Low level protective Plaswood fencing surrounds planting areas and employs materials and colour choices that match the post, rail and pale fencing used elsewhere on the estate.

Project Benefits

- Minimal future maintenance requirements.
- Savings in cost and resources over the long term.
- Improved aesthetics and quality of environment for local residents.
- Enhanced green credentials through use of materials that divert waste from landfill.





Project:
Prendergast CP New School 2008–Amphitheatre

Location:
Haverfordwest, Pembrokeshire

Cost:
£5.8million (total cost of project)

Products:
CSR Bollards, and Sections for Tiered Seating.

The Challenge:

The new school and day care centre is committed to reduce carbon emissions from schools with all buildings making the most of sustainable features to help protect the environment and reduce overheads. A large sports field with grassed amphitheatre encompassing tiered seating was to be constructed using environmentally friendly material.

Project Solution

Plaswood profiles, a low maintenance, long lasting and ecofriendly option, were specified. Due to the versatility of the Plaswood profile, a number of designs can be achieved to suit surroundings. The profile sections were to be pre-fabricated on site to the specification illustrated by the images above.

Project Benefits

- Reduced the carbon footprint of the project, material used diverted from landfill.
- Low maintenance requirements.
- Savings in cost and resources over the long term.
- Improved aesthetics.

PRODUCT INDEX

VISQUEEN DAMP PROOF COURSES



P8 VISQUEEN ZEDEX CPT DAMP PROOF COURSE
BBA accredited; made from modern CPT and outperforms all other flexible DPCs.

P12 VISQUEEN ZEDEX HIGH BOND
A high performance bitumen DPC suitable for specialist loading conditions.

P14 VISQUEEN PREFORMED UNIT
Designed to simplify the damp proofing of complex cavity tray junctions. Speeds up cavity tray installation and eliminates leakage paths.

P16 VISQUEEN ZEDEX HOUSING GRADE DPC
High performance DPC for domestic applications; contains no pitch or bitumen.

P18 VISQUEEN POLYTHENE DPC
Economical polyethylene DPC, conforms to BS6515.

P20 VISQUEEN GX DPC
A high performance DPC suitable for use on hydrocarbon contaminated sites.

P21 VISQUEEN GR DPC
Integral aluminium foil provides resistance against gas ingress in the cavity.

VISQUEEN DAMP PROOF MEMBRANES



P26 VISQUEEN ECOMEMBRANE
A 100% UK recycled membrane certified to BRE, certificate No.112/04.

P28 VISQUEEN DPM TO PIFA STANDARD
The UKs leading DPM, produced in blue and black to PIFA standard 6/83A:1995.

VISQUEEN GAS PROTECTION



P36 VISQUEEN GX GEOMEMBRANE SYSTEM
HDPE membrane suitable where hydrocarbons are present on site.

P38 VISQUEEN GAS BARRIER
5 Layer reinforced gas membrane with aluminium foil. Low permeability to methane.

P42 VISQUEEN LOW PERMEABILITY GAS MEMBRANE
High quality robust co-polymer thermoplastic membrane protecting buildings from low levels of methane.

P44 VISQUEEN CO_2 GAS MEMBRANE
Made from an enhanced blend of polymers, the membrane protects buildings from carbon dioxide.

P46 VISQUEEN RADON MEMBRANE
Unreinforced LDPE membrane with higher radon resistance accredited by BRE.

P49 VISQUEEN RADON SUMP
An underfloor depressurisation system for venting in “full” radon protection areas.

P52 VISQUEEN GAS VENTING SYSTEM
Gas dispersal system and gas flow fittings.

P53 VISQUEEN GAS VENTING MAT
Visqueen Geocomposite Drainage and Venting Mat is a preformed drainage and venting layer supplied in roll form.

VISQUEEN TANKING MEMBRANES



P58 VISQUEEN SELF ADHESIVE DAMP PROOF MEMBRANE
BBA accredited cold applied modified bitumen tanking membrane.

P60 VISQUEEN GR SAM
A tough HDPE polyethylene and bitumen self adhesive membrane designed to prevent the transmission of gas in tanking applications.

P62 VISQUEEN TORCHON TANKING MEMBRANE
Robust waterproofing membrane for heavy duty tanking applications.

P64 VISQUEEN GX PRE APPLIED MEMBRANE
A robust high performance HDPE geomembrane with a textured surface to aid adhesion to cast concrete.

P66 VISQUEEN PROTECT&DRAIN
Acts as a heavy duty drainage membrane for damp proofing, gas proofing and tanking membranes.

VISQUEEN STORMWATER PROTECTION



P70 VISQUEEN URBAN DRAINAGE GEOMEMBRANE
A comprehensive system for use with stormwater management attenuation systems.

P70 VISQUEEN HIGH PERFORMANCE UDG
A comprehensive system for use with stormwater management attenuation systems in high water table sites.

P70 VISQUEEN GX GEOMEMBRANE UDG
A comprehensive system for use with stormwater management attenuation systems on contaminated land.

P73 HANSON AQUAFLOW SC MEMBRANE
Co-polymer thermoplastic membrane. Part of the Hanson Formpave Aquaflow system.

VISQUEEN VAPOUR CONTROL



P76 VISQUEEN VAPOUR CHECK
A loose laid vapour control layer suitable for humidity levels less than 50% at 15°C : BS5250 Class 1 condition.

P76 VISQUEEN VAPOUR BARRIER
A loose laid membrane suitable for humidity levels less than 60% at 20°C : BS5250 Classes 2 and 3 conditions.

P76 VISQUEEN HP VAPOUR BARRIER
A loose laid membrane suitable for humidity levels greater than 60% at 20°C : BS 5250 Classes 4 and 5 conditions.

P76 VISQUEEN FB VAPOUR BARRIER
A self adhesive membrane suitable for humidity levels greater than 60% at 20°C : BS5250 Classes 4 and 5 conditions, requiring a fully bonded vapour control layer.

VISQUEEN FLOOR PROTECTION



P94 VISQUEEN MEGAFILM FLOOR PROTECTION
Visqueen Megafilm is a range of embossed flame retardant floor protection films to suit both carpet and hard floor applications, including wooden, vinyl and stone floors.

P96 VISQUEEN MEGABOARD PROTECTION
Visqueen Megaboard is a lightweight board suitable for protecting vertical applications such as walls during refurbishment and redecoration.

P96 VISQUEEN MEGATAC FLOOR PROTECTION
Visqueen Megatac is a self adhesive film on a roll ideal for carpet protection available in both flame retardant and non-flame retardant.

Plaswood
from visqueen building products



P99 ENVIRONMENTAL LANDSCAPING SOLUTIONS
The award winning range of maintenance free recycled plastic outdoor furniture for your school or playground. Commonly specified by architects, including through the Building Schools for the Future (BSF) programme, Plaswood will help to reduce the carbon footprint of the project.

USEFUL REFERENCES

– The Building Regulations Approved Document Part C 2004, CP 102: 1973 Code of practice for the protection of buildings against water from the ground.
– BS 8102: 1990 Code of practice for the protection of structures against water from the ground.
– BS 8215: 1991 Code of practice for the design and installation of Damp Proof Courses in Masonry construction.
– BS 8000: Part 4:1989 Workmanship on Building Sites. Code of practice for waterproofing.
– Building Research Establishment BRE 414 "Protective measures for housing on gas contaminated land".
– CIRIA C665 Ground Gas Handbook 2009.
– Building Research Establishment BRE 211 "Radon Guidance on Protective Measures".
– CIRIA C682 The VOCs Handbook 2009.

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VISQUEEN
BUILDING PRODUCTS

Technical Product Datasheet
Edition: 10/07/2019
Identification no. VBP010



VISQUEEN
ADVANCED BARRIER TECHNOLOGY

VISQUEEN ULTIMATE HC BLOK

The ultimate Methane & VOCs' vapour barrier

- Conforms to CIRIA C748 and BS8485:2015
- Excellent VOC (vapour) & methane barrier resistance
- Utilises Visqueen's Advanced Barrier Technology
- Exceptional flexibility and puncture resistance
- Comprehensively tested and validated test results
- Outstanding welding characteristics, saving time and costs

Description

Visqueen Ultimate HC BLOK is a highly flexible 0.5mm thick coextruded membrane designed to comply with current guidance on Volatile Organic Compounds (VOCs) vapours and ground gases. Manufactured using Visqueen's advanced membrane technology and drawing on our extensive knowledge and expertise in gas protection, Visqueen has developed a new flexible barrier membrane suitable in brownfield applications that are affected by aggressive chemicals (vapour phase) such as such as Naphthalene, Benzene, Toluene, Ethyl Benzene and Xylene (BTEX).

The product is available in large roll formats to minimise jointing and quick installation times. The membrane is gold and white, 2.44m x 41m x 0.5mm (100m^2), in single wound roll format and packaged in a white outer wrap.

The membrane should be installed gold side up.

Applications

Visqueen Ultimate HC BLOK is suitable for the following applications

- VOC/Hydrocarbon (gaseous phase) contaminated sites in accordance with CIRIA C748
- Carbon dioxide and methane sites in accordance with BS8485:2015
- Radon affected sites in accordance with BRE211:2015
- Damp protection in accordance with Building Regulations part C

Due to a diverse range of applications, site conditions and variations in attack chemicals we strongly advise contacting Visqueen's technical department for correct specification and detailing – 0333 202 6800

The innovative Visqueen's Advanced Barrier Technology

1. An advanced gas barrier structure
2. Superior physical and chemical resistant properties
3. Easy & rapid welding

4. Flexibility for uneven ground contours
5. Good environmental stress crack resistance

Advanced barrier technology utilises Visqueen's extensive manufacturing technical expertise and experience to ensure buildings and occupants are safe from hazardous ground gases and VOCs.

Specific Approvals/Standards

- **CIRIA C748** – Guidance on the use of plastic membranes as VOC vapour barriers
- **BS8485:2015** – Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings
- **CE Mark EN13967** – Flexible sheets for waterproofing. Plastic and rubber damp proof sheets including plastic and rubber basement tanking sheet. Definitions and characteristics

Validated test data and compliance to the latest standards

CIRIA C748 and BS8485:2015 are the latest and most relevant standards and codes of practice for protecting buildings on contaminated land. These documents ensure any risks are mitigated by using best practice in design and selection of gas membranes. The documents intend to **harmonise test methods and result units** for the industry and to mirror the application in order that the appropriate membrane can be selected.

Visqueen embarked on an extensive testing regime to ensure its membranes are the best in class and comply with the new standards. Visqueen's Ultimate range have all passed the stringent **methane 40ml/m^2/day/atm** (ISO15105-1 to BS8485:2015 requirement) threshold and physical property requirements. CIRIA C748 states a VOC membrane must be tested as a minimum to the below challenge chemicals. Visqueen have conducted VOC vapour testing to these challenge chemicals below in accordance with C748. The actual test results by a 3rd party approved laboratory are shown in the performance table on page 4.

- benzene
- toluene
- ethyl benzene
- (m,p, and o) xylenes
- Hexane
- vinyl chloride
- tetrachloroethene
- trichloroethylene
- naphthalene

System Components

- Visqueen GX Double Sided Bonding Tape
- Visqueen Gas Resistant Lap Tape
- Visqueen Surface DPC Fixing System
- Visqueen GX DPC
- Visqueen GX Top Hat Units
- Visqueen Detailing strip

Please note that the membrane can be welded as a preferred alternative to using tapes.

Installation

Visqueen Ultimate HC BLOK and ancillary components must be installed in accordance with the recommendations of CIRIA C748 and BS8485:2015. The membrane should be installed gold side up on a blinded or smooth surface allowing adequate overlap for jointing between the sheets and avoiding bridging (i.e. areas of unsupported membrane). In areas where high levels of unsupported membrane such as settlement applications occur it is recommended that Visqueen Ultimate GeoSeal is used.

Visqueen Ultimate HC BLOK is normally installed above the concrete slab (vented void) but can be used below the slab in certain conditions. Please contact Visqueen for further information on foundation types and membrane suitability – 0333 202 6800 Technical Department.

For taped joints, overlap the membranes by at least 150mm and bond together using Visqueen Double Sided Jointing tape. Secure the lap using Visqueen GR Foil Tape. Punctures to the membrane can only be repaired by using a patch of the same membrane and lapped at least 150mm beyond the limits of the puncture. Bond and seal the patch using Visqueen jointing tape system

When a welded joint system is being used, punctures to the membrane can only be repaired by welding a patch of membrane with identical thickness and lapped at least 150mm beyond the limits of the puncture. Where this is not possible and the three dimensional shapes are complex it is recommended a preformed unit is used. The membrane has been designed to perform in circumstances where linear expansion could occur, however in high temperatures the membrane should be covered immediately after installation.

The membrane should not be taken through any masonry wall. The relevant Visqueen damp proof or gas proof course should be taken through and extended beyond the wall by a minimum of 250mm where it can be jointed to the membrane.

Service penetrations, corners and junctions

All service pipe penetrations should be fully sealed using welded membrane or Visqueen GX Preformed Top Hat Units. The base and collar of the preformed unit should be bonded using Visqueen GX Double Sided Jointing Tape and sealed with Visqueen Gas Resistant Lap Tape.

The collar should be secured with a mechanical fastening. To ensure system integrity, all internal and external corners should be provided with either welded corners or Visqueen Preformed Units bonded to the membrane using Visqueen Double Sided Jointing Tape and sealed with Visqueen GR Single Sided Lap Tape. Complex or awkward junctions should be sealed using either welded membrane or Visqueen Detailing Strip.

Ventilation

When high levels of ground gases and VOCs are present in accordance with BS8485:2015 and CIRIA C716 or when the generation of gases still occurs, then an open void beneath the ground floor should be constructed as ventilation beneath the ground floor will dilute and disperse the gases to atmosphere. Open voids are normally restricted to beam and block floors or other precast concrete floor systems. An alternative for providing ventilation to in situ concrete floor slabs is to install a Visqueen Gas Venting System. Please visit Visqueen Gas Venting System

Storage and Handling

Visqueen Ultimate HC BLOK is classified as non-hazardous when used in accordance with the relevant British Standards. The product is chemically inert and is not affected by acids and alkalis that may be present in the sub-soils. The product should be stored in a warm dry environment and not exposed to long periods of sunlight.

A roll weighs 50 kilos and should be handled with care following on-site health and safety procedures.

CE Marking to EN13967 Type A

Characteristic	Test Method	Units	Criteria	Result
Tensile Strength - MD	EN 12311	N/mm^2	>MDV	32.8
Tensile Strength - CD	EN 12311	N/mm^2	>MDV	33.1
Tensile Elongation - MD	EN 12311	%	>MDV	699
Tensile Elongation - CD	EN 12311	%	>MDV	723
Joint Strength	EN 12317-2	N	>MDV	265
Watertightness 2kPa	EN 1928	-	Pass/Fail	Pass
Resistance to impact	EN 12691	mm	MDV	200
DDurability watertightness after heat ageing	EN 1296	-	Pass/Fail	Pass
Durability watertightness against chemicals	EN 1847	-	Pass/Fail	Pass
Resistance to tearing (nail shank) CD	EN 12310-1	N	MDV	245
Resistance to tearing (nail shank) MD	EN 12310-1	N	MDV	270
Resistance to static loading	EN 12730	Kg	>MLV	20
Water vapour transmission - resistance	EN 1931	MNs/g	MDV	1034
Water vapour transmission - permeability	EN 1931	$g/m^2/d$	MDV	0.13

Product & Performance Data:

ULTIMATE GAS MEMBRANES

VISQUEEN

Characteristic	Test method	Units	Criteria	Result	
Colour				Gold/White	
Weight		kilos		49	
Length	EN 1848-2	m	-0/+10%	41	
Width	EN 1848-2	m	-0/+10%	2.44	
Thickness	EN 1849-2	mm	+/-10%	0.5	

BS8485:2015 and C748 physical test results		Units	Criteria	Result	
Puncture	BS EN ISO 12236:2006	N	MDV	1640	
Impact resistance Method A hard surface	EN12691	mm	MDV	200	
Impact resistance Method B soft surface	EN12691	mm	MDV	1250	
Tensiles Yield strength MD 1	ASTM D4885-01	kN/m	MDV	5.1	
Tensiles Yield strength CD 1	ASTM D4885-01	kN/m	MDV	4.91	
Yield elongation MD 1	ASTM D4885-01	%	MDV	76	
Yield elongation CD 1	ASTM D4885-01	%	MDV	62	
Tear resistance - trouser method A - MD	BS ISO 34-1	kN/m	MDV	60.2	
Tear resistance - trouser method A - CD	BS ISO 34-1	kN/m	MDV	66.1	
Tear resistance - angle method B - MD	BS ISO 34-1	N	MDV	48.7	
Tear resistance - angle method B - CD	BS ISO 34-1	N	MDV	49.6	
1 - this is at yield and not break as the equipment used was not strong enough to break the membrane					

BS8485:2015 - Methane testing	Test method	Units	Criteria	Result	
Methane permeability	ISO 15105-1	ml/m2/d/atm	<40	1.3	

C748 - Permeation vapour tests - 100% concentration		Criteria	ml/m2/d	mg/m2/d	mg/m2/hr
benzene	ISO 15105-2	MDV	0.08	70	2.92
toluene	ISO 15105-2	MDV	0.09	78.5	3.27
ethyl benzene	ISO 15105-2	MDV	0.11	93.8	3.91
m,p xylene	ISO 15105-2	MDV	0.01	6.7	0.28
hexane	ISO 15105-2	MDV	gas	2.6	0.11
vinyl chloride	ISO 15105-2	MDV	0	6.4	0.27
tetrachloroethene (PCE)	ISO 15105-2	MDV	0	3.2	0.13
trichloroethene (TCE)	ISO 15105-2	MDV	solid	0.3	0.01
naphthalene	ISO 15105-2	MDV	0.03	19.7	0.82

C748 - Chemical immersion testing		weight %	Thickness %	Tensiles/elongation	
Pass is achieved if the aged membrane is within 25% of the fresh sample					
Benzene	EN14414	Pass	Pass	Pass	
Toluene	EN14414	Pass	Pass	Pass	
Ethyl benzene	EN14414	Pass	Pass	Pass	
(m,p, and o) xyxlenes	EN14414	Pass	Pass	Pass	
Hexane	EN14414	Pass	Pass	Pass	
Vinyl chloride	EN14414	Pass	Pass	Pass	
Tetrachlororthene	EN14414	Pass	Pass	Pass	
Trichloroethene	EN14414	Pass	Pass	Pass	
Naphthalene	EN14414	Pass	Pass	Pass	

CE Marking to EN13967 Type A

Characteristic	Test method	Units	Criteria	Result	
Tensile Strength - MD	EN EN12311	N/mm2	MDV	32.8	

Tensile Strength - CD	EN EN12311	N/mm2	MDV	33.1	
Tensile Elongation - MD	EN EN12311	%	MDV	699	
Tensile Elongation - CD	EN EN12311	%	MDV	723	
Joint Strength	EN12317-2	N	MDV	265	
Watertightness 2kPa	EN 1928	-	Pass/Fail	Pass	
Resistance to impact	EN 12691	mm	>MLV	200	
Durability watertightness after heat ageing	EN 1296	-	Pass/Fail	Pass	
Durability watertightness against chemicals	EN 1847	-	Pass/Fail	Pass	
Resistance to tearing (nail shank) CD	EN 12310-1	N	MDV	245	
Resistance to tearing (nail shank) MD	EN 12310-1	N	MDV	270	
Resistance to static loading	EN 12730	Kg	>MLV	20	
Water vapour transmission - resistance	EN 1931	MNs/g	MDV	1034	
Water vapour transmission - permeability	EN 1931	g/m2/d	MDV	0.13	

Characteristic	Test method	Units	Criteria	Result
Colour				Gold/White
Weight		kilos		49
Length	EN 1848-2	m	-0/+10%	41
Width	EN 1848-2	m	-0/+10%	2.44
Thickness	EN 1849-2	mm	+/-10%	0.5

ULTIMATE GAS MEMBRANES

VISQUEEN

About Visqueen

Visqueen is the market leader in the manufacture and supply of structural waterproofing and gas protection systems. Visqueen offers the complete package – a proven, reliable range backed by a technical support service that goes unmatched in the market - everything you would expect from a reputable and ethical company.

Complete Range, Complete Solution

- Structural Waterproofing
- Damp Proof Course
- Damp Proof Membranes
- Gas Protection and Gas Venting
- Vapour Control Layers
- Stormwater Protection

Download Library

- Technical Datasheet
- Standard Details
- Technical Service
- Visqueen Gas Protection Brochure
- NBS Clauses
- BBA Certificates
- Material Safety Datasheets
- Specification Guide

Find your local stockist

Search our directory of Visqueen specification Specialist Centres to locate your nearest Visqueen Partner.

Technical support throughout your project

We are specialists in our field and can help you specify the correct solutions with the necessary performance levels, in accordance with building regulations.

- Nationwide site support team
- Specification advice
- Installation guidance & project sign off
- System design including CAD details

CPD Seminars and Training Academy

Gas Protection CPD

The specification, technical design, and installation of gas protection systems, enabling the sustainable regeneration of brownfield sites.

Structural Waterproofing CPD

The specification, technical design, and installation of structural waterproofing systems for protection against water and damp ingress in both above and below ground projects.

Visqueen Training Academy

We are now able to offer exclusive in depth training opportunities on a wide variety of Visqueen products at our Training Academy.

Visqueen Special Projects

We provide high-level expertise, comprehensive support and experience in all types of waterproofing and gas protection.

VISQUEEN
Part of RPC bpi group
Heanor Gate Road, Heanor, Derbyshire, DE75 7RG
0333 202 6800 enquiries@visqueen.com
www.visqueen.com

The information given in this datasheet is based on data and knowledge correct at the time of printing. Statements made are of a general nature and are not intended to apply to any use or application outside any referred to in the datasheet. As conditions of usage and installation are beyond our control we do not warrant performance obtained but strongly recommend that our installation guidelines and the relevant British Standard Codes of Practice are adhered to. Please contact us if you are in any doubt as to the suitability of application.

VISQUEEN

DATASHEET

Technical Support: 0333 202 6800
LAST UPDATED: 22.02.2018

VISQUEEN GX DPC

GX Hydrocarbon DPC

CE Mark to Damp Proof Course EN 14909



- **Suitable for use on hydrocarbon contaminated sites**
- **Tested against harmful gases, chemicals and hydrocarbons**
- **High puncture & tear resistance**
- **Independently tested against harmful gases, chemicals and hydrocarbons**
- **Proven track record on gas and hydrocarbon contaminated sites**

Description

Visqueen GX DPC is a blend of ethylene co-polymers suitable for use on brownfield sites that require protection from dangerous contaminants such as hydrocarbons and methane, together with excellent damp proofing properties. GX DPC is available in 30m lengths and in two widths, 600mm or 850mm.

Application

Visqueen GX DPC has a proven track record as a barrier membrane on gas contaminated and hydrocarbon contaminated brownfield sites. Visqueen
GX DPC combines high strength with flexibility.

Testing for Chemical Resistance (EN 14414 and EN 14415)

The membrane has been tested against various harmful gases and dangerous contaminants such as hydrocarbons. In addition to this, GX DPC has been subjected to accelerated life immersion tests. EN 14414 and EN 14415 - Chemical resistance to leachates and aggressive chemicals - are designed to stress the membrane at a higher level of chemical concentration and temperature than it would experience in normal use. Changes in weight, volume, tensile strength and visual degradation are recorded to obtain the membrane's suitability to the challenge chemical.

These results are published below and assist designers and engineers in the suitability of GX DPC in various applications.

System Components:

- Visqueen GX Geomembrane
- Visqueen Gas Resistant Lap Tape
- Visqueen Surface DPC Fixing System
- Visqueen GX Double Sided Bonding Tape

Installation

All joints in lengths of DPC must be a minimum of 100mm lapped and sealed with Visqueen GX Jointing Tape. Visqueen GX DPC should be installed in accordance with BS 8215: 1991, BS 8000: Part 3, 2001 and BS 5628: Part 3: 2005. Visqueen GX DPC must be bedded on both sides with fresh mortar and must project through the full width of the wall, including any externally applied rendering, and project 5mm beyond the finished external face.

Storage and Handling

Visqueen GX DPC is classified as nonhazardous when used in accordance with the relevant British Standards. The product is chemically inert and is not affected by acids and alkalis that may be present in the sub-soils.

Technical Data and CE Mark

Visqueen GX Hydrocarbon Damp Proof Course complies with the requirements and clauses of EN 14909 - Flexible sheets for waterproofing - Plastic and rubber damp proof courses - Definitions and characteristics.

VISQUEEN

GX Hydrocarbon DPC

CE Mark to Damp Proof Course EN 14909

Visqueen GX Hydrocarbon Damp Proof Course products are manufactured under a Quality Management System (IS0 9001) - Certificate of Compliance reference no. 4560-3 by Knight International applies.

DATASHEET

Technical Support: 0333 202 6800
LAST UPDATED: 22.02.2018

VISQUEEN GX DPC

GX Hydrocarbon DPC

Product Data

CE Mark to Damp Proof Course EN 14909

Product Data

heading	Characteristic	Test method	Units	Compliance criteria	Value or Statement
	Length	EN 1848-2	m	-0/+10%	30
	Width	EN 1848-2	m	-0/+10%	600 850
	Thickness	EN 1849-2	mm	+/-20%	1
	Mass	EN 1849-2		-12%/+12%	974
	Tensile Strength - MD	EN EN12311	N/mm2	>MLV	22
	Tensile Strength - CD	EN EN12311	N/mm2	>MLV	20
	Tensile Elongation - MD	EN EN12311	%	>MLV	799
	Tensile Elongation - CD	EN EN12311	%	>MLV	848
	Joint Strength	EN12317-2	N	>MLV	515
	Watertightness - 2kPa	EN 1928	-	Pass/Fail	Pass
	Resistance to impact	EN 12691	mm	>=MLV	600
	Resistance to static loading	EN 12730	kg	MLV	Pass-20
	Resistance to Nail tear - MD	EN 12310-1	N	>=MLV	705
	Resistance to Nail tear - CD	EN 12310-1	N	>=MLV	745
	Durability-Heat ageing	EN 1296	-	Pass/Fail	Pass
	Durability-Chemical resistance	EN 1847	-	Pass/Fail	Pass
	Resistance to Low temperature	EN 495-5		MDV	Pass at - 40oC
	Water vapour transmission - resistance	EN 1931	MNs/g	MDV	1171
	Water vapour permeability	EN 1932		MDV	0.11
	Reaction to Fire	EN 13501-1	Class	MDV	F
	Methane Permeability	ISO2782		MDV	0.198
	Diesel Permeability	ISO 6179		MDV	0.4
	Petrol Permeability	ISO 6179		MDV	8.6
	Xylene Permeability	ISO 6179		MDV	14.6
	Toluene Permeability	ISO 6179		MDV	23
	Chemical Resistance - Acids	EN 14414-A	-	Pass/Fail	Pass
	Chemical Resistance - Alkalies	EN 14414-B	-	Pass/Fail	Pass
	Chemical Resistance - Organic Solvents	EN 14414-C	-	Pass/Fail	Pass
	Chemical Resistance - Visual Defects	EN 14414	-	Pass/Fail	Pass
	Resistance to Leaching - Hot Water	EN 14415-A	-	Pass/Fail	Pass
	Resistance to Leaching - Aqueous alkaline liquids	EN 14415-B	-	Pass/Fail	Pass
	Resistance to Leaching - Organic alcohols	EN 14415-C	-	Pass/Fail	Pass
	Resistance to Leaching - Visual Defects	EN 14415-A	-	Yes/No	No

DATASHEET

Technical Support: 0333 202 6800
LAST UPDATED: 22.02.2018

VISQUEEN GX DPC

GX Hydrocarbon DPC

Appendix A

CE Mark to Damp Proof Course EN 14909

About Visqueen

Visqueen is the market leader in the manufacture and supply of structural waterproofing and gas protection systems. Visqueen offers the complete package – a proven, reliable range backed by a technical support service that goes unmatched in the market - everything you would expect from a reputable and ethical company.

Complete Range, Complete Solution

- Structural Waterproofing
- Damp Proof Course
- Damp Proof Membranes
- Gas Protection and Gas Venting
- Vapour Control Layers
- Stormwater Protection

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- Specification Guide

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Gas Protection CPD
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Structural Waterproofing CPD
The specification, technical design, and installation of structural waterproofing systems for protection against water and damp ingress in both above and below ground projects.

Visqueen Training Academy
We are now able to offer exclusive in depth training opportunities on a wide variety of Visqueen products at our Training Academy.

Visqueen Special Projects
We provide high-level expertise, comprehensive support and experience in all types of waterproofing and gas protection.

VISQUEEN
Part of RPC bpi group
Heanor Gate Road, Heanor, Derbyshire, DE75 7RG
0333 202 6800 enquiries@visqueen.com www.visqueen.com

The information given in this datasheet is based on data and knowledge correct at the time of printing. Statements made are of a general nature and are not intended to apply to any use or application outside any referred to in the datasheet. As conditions of usage and installation are beyond our control we do not warrant performance obtained but strongly recommend that our installation guidelines and the relevant British Standard Codes of Practice are adhered to. Please contact us if you are in any doubt as to the suitability of application.

APPENDIX V

MTS VALIDATION CERTIFICATE

BLOCK A – GROUND FLOOR CAVITY CLOSER DPC & INTERNAL MEMBRANES

MembraneTestingSolutions

INDEPENDENT INSPECTION & VALIDATION CERTIFICATE OF CONFORMANCE

DATE: 19-6-2020

PROJECT NAME: Former Wessex Yard, Havant

CONTRACT NO: C576 - Block A, Hall

INSPECTION & VALIDATION DETAILS:

MTS Ltd were requested to attend site to inspect / validate the above membrane installation. I performed a detailed visual/Air lance test, visually inspecting all membrane for punctures, service entry sealing/detail work, then using the air lance across all hot air welded seams & GR lap tape edges. The NEA installation was of a good standard, however 14 defects where found (small seam failures & punctures to the previously installed GRDPC). These where marked up ready for repair by NEA. MTS have agreed to accept photographic evidence of the repairs due to time constraints and the good quality of workmanship witnessed. Photo evidence of all the above has been taken to be included into the final report. Apart from the defects, all installed membrane & detail work reaches the required customer specification & standards set out in both the Ciria 735/BS8485 best practice documents.

MembraneTestingSolutions Ltd do hereby confirm that the elements of the project detailed above have been inspected and validated by a suitably qualified independent consultant in accordance with industry requirements, with the test result noted below:

CONCLUSION (PASS/FAIL) Pass - Work in Progress

Where the conclusion above indicates a Pass, the construction activities may proceed subject to suitable protection measures of the membrane being applied in accordance with the manufacturers recommendations.

Signed for on behalf of MembraneTestingSolutions Ltd:

Name: Michael A Smith

Dated: 19-6-2020

Signed for on behalf of The Client:

Name: Jonah Cook

Dated: 19-6-2020

MembraneTestingSolutions

INDEPENDENT INSPECTION & VALIDATION CERTIFICATE OF CONFORMANCE

DATE: 19-6-2020

PROJECT NAME: Former Wessex Yards, Havant

CONTRACT NO: C576 - Block A, Plot 22

INSPECTION & VALIDATION DETAILS:

MTS Ltd were requested to attend site to inspect / validate the above membrane installation. I performed a detailed visual/Air lance test, visually inspecting all membrane for punctures, service entry sealing/detail work, then using the air lance across all hot air welded seams & GR lap tape edges. The NEA installation was of a good standard, however 9 defects where found (small seam failures & punctures to the previously installed GRDPC). These where marked up ready for repair by NEA. MTS have agreed to accept photographic evidence of the repairs due to time constraints and the good quality of workmanship witnessed. Photo evidence of all the above has been taken to be included into the final report. Apart from the defects, all installed membrane & detail work reaches the required customer specification & standards set out in both the Ciria 735/BS8485 best practice documents.

MembraneTestingSolutions Ltd do hereby confirm that the elements of the project detailed above have been inspected and validated by a suitably qualified independent consultant in accordance with industry requirements, with the test result noted below:

CONCLUSION (PASS/FAIL) PASS - Work to Progress

Where the conclusion above indicates a Pass, the construction activities may proceed subject to suitable protection measures of the membrane being applied in accordance with the manufacturers recommendations.

Signed for on behalf of MembraneTestingSolutions Ltd:

Name: Michael A Smith

Dated: 19-06-2020

Signed for on behalf of The Client:

Name: Sonali Cook

Dated: 19/06/20

Membrane Testing Solutions Limited • The Studio, Parsonage House, Parsonage Street, Halstead, Essex CO9 2JR

Telephone: 0844 557 3786 • email: sales@mtsltd.net • www.mtsltd.net

Registered Office: The Maltings, Rosemary Lane, Halstead, Essex CO9 1HZ · Company Registration Number: 8871015

MembraneTestingSolutions

INDEPENDENT INSPECTION & VALIDATION CERTIFICATE OF CONFORMANCE

DATE: 19-6-2020

PROJECT NAME: Formon Wessex Yard, Havant

CONTRACT NO: C576 - Block A, Plot 25

INSPECTION & VALIDATION DETAILS:

MTS Ltd were requested to attend site to inspect / validate the above membrane installation. I performed a detailed visual/Air lance test, visually inspecting all membrane for punctures, service entry sealing/detail work, then using the air lance across all hot air welded seams & GR lap tape edges. The NEA installation was of a good standard, however 9 defects where found (small seam failures & punctures to the previously installed GRDPC). These where marked up ready for repair by NEA. MTS have agreed to accept photographic evidence of the repairs due to time constraints and the good quality of workmanship witnessed. Photo evidence of all the above has been taken to be included into the final report. Apart from the defects, all installed membrane & detail work reaches the required customer specification & standards set out in both the Ciria 735/BS8485 best practice documents.

MembraneTestingSolutions Ltd do hereby confirm that the elements of the project detailed above have been inspected and validated by a suitably qualified independent consultant in accordance with industry requirements, with the test result noted below:

CONCLUSION (PASS/FAIL) Pass - Works In Progress

Where the conclusion above indicates a Pass, the construction activities may proceed subject to suitable protection measures of the membrane being applied in accordance with the manufacturers recommendations.

Signed for on behalf of MembraneTestingSolutions Ltd:

Name: Michael A Smith

Dated: 19-6-2020

Signed for on behalf of The Client:

Name: Jonah Cook

Dated: 19-6-2020

Membrane Testing Solutions Limited • The Studio, Parsonage House, Parsonage Street, Halstead, Essex CO9 2JR

Telephone: 0844 557 3786 • email: sales@mtsltd.net • www.mtsltd.net

Registered Office: The Maltings, Rosemary Lane, Halstead, Essex CO9 1HZ · Company Registration Number: 8871015

MembraneTestingSolutions

INDEPENDENT INSPECTION & VALIDATION CERTIFICATE OF CONFORMANCE

DATE: 19-6-2020

PROJECT NAME: Former Wessex Yard, Havant

CONTRACT NO: C576 - Block A, Plot 21

INSPECTION & VALIDATION DETAILS:

MTS Ltd were requested to attend site to inspect / validate the above membrane installation. I performed a detailed visual/Air lance test, visually inspecting all membrane for punctures, service entry sealing/detail work, then using the air lance across all hot air welded seams & GR lap tape edges. The NEA installation was of a good standard, however 10 defects where found (small seam failures & punctures to the previously installed GRDPC). These where marked up ready for repair by NEA. MTS have agreed to accept photographic evidence of the repairs due to time constraints and the good quality of workmanship witnessed. Photo evidence of all the above has been taken to be included into the final report. Apart from the defects, all installed membrane & detail work reaches the required customer specification & standards set out in both the Ciria 735/BS8485 best practice documents.

MembraneTestingSolutions Ltd do hereby confirm that the elements of the project detailed above have been inspected and validated by a suitably qualified independent consultant in accordance with industry requirements, with the test result noted below:

CONCLUSION (PASS/FAIL) Pass - Work In Progress

Where the conclusion above indicates a Pass, the construction activities may proceed subject to suitable protection measures of the membrane being applied in accordance with the manufacturers recommendations.

Signed for on behalf of MembraneTestingSolutions Ltd:

Name: Michael A Smith

Dated: 19-6-2020

Signed for on behalf of The Client:

Name: Jonah Cook

Dated: 19/06/20

Membrane Testing Solutions Limited • The Studio, Parsonage House, Parsonage Street, Halstead, Essex CO9 2JR

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MembraneTestingSolutions

INDEPENDENT INSPECTION & VALIDATION CERTIFICATE OF CONFORMANCE

DATE: 19-6-2020

PROJECT NAME: Former Wessex Yard, Havant

CONTRACT NO: C576 - Block A, Plot 20

INSPECTION & VALIDATION DETAILS:

MTS Ltd were requested to attend site to inspect / validate the above membrane installation. I performed a detailed visual/Air lance test, visually inspecting all membrane for punctures, service entry sealing/detail work, then using the air lance across all hot air welded seams & GR lap tape edges. The NEA installation was of a good standard, however 3 defects where found (3 small seam failures). These where marked up ready for repair by NEA. MTS have agreed to accept photographic evidence of the repairs due to time constraints and the good quality of workmanship witnessed. Photo evidence of all the above has been taken to be included into the final report. Apart from the defects, all installed membrane & detail work reaches the required customer specification & standards set out in both the Ciria 735/BS8485 best practice documents.

MembraneTestingSolutions Ltd do hereby confirm that the elements of the project detailed above have been inspected and validated by a suitably qualified independent consultant in accordance with industry requirements, with the test result noted below:

CONCLUSION (PASS/FAIL) Pass - Work in Progress

Where the conclusion above indicates a Pass, the construction activities may proceed subject to suitable protection measures of the membrane being applied in accordance with the manufacturers recommendations.

Signed for on behalf of MembraneTestingSolutions Ltd:

Name: Michael A Smith

Dated: 19-6-2020

Signed for on behalf of The Client:

Jordan Cook

Name: Jordan Cook

Dated: 19/06/20

MembraneTestingSolutions

INDEPENDENT INSPECTION & VALIDATION CERTIFICATE OF CONFORMANCE

DATE: 19-6-2020

PROJECT NAME: Former Wessex Yard, Havant.

CONTRACT NO: C576 - Block A, Plot 24

INSPECTION & VALIDATION DETAILS:

MTS Ltd were requested to attend site to inspect / validate the above membrane installation. I performed a detailed visual/Air lance test, visually inspecting all membrane for punctures, service entry sealing/detail work, then using the air lance across all hot air welded seams & GR lap tape edges. The NEA installation was of a good standard, however 8 defects where found (punctures to the previously installed GRDPC). These where marked up and repaired by NEA. All repairs where then inspected and proved a pass. Photo evidence of all the above has been taken to be included into the final report. Apart from the defects, all installed membrane & detail work reaches the required customer specification & standards set out in both the Ciria 735/BS8485 best practice documents and is fit for purpose at the end of inspection.

MembraneTestingSolutions Ltd do hereby confirm that the elements of the project detailed above have been inspected and validated by a suitably qualified independent consultant in accordance with industry requirements, with the test result noted below:

CONCLUSION (PASS/FAIL) ..... PASS .....

Where the conclusion above indicates a Pass, the construction activities may proceed subject to suitable protection measures of the membrane being applied in accordance with the manufacturers recommendations.

Signed for on behalf of MembraneTestingSolutions Ltd:

Name: Michael A Smith

Dated: 19-06-2020

Signed for on behalf of The Client:

Name: Client Not Present

Dated: ----------

Membrane Testing Solutions Limited • The Studio, Parsonage House, Parsonage Street, Halstead, Essex CO9 2JR

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MembraneTestingSolutions

INDEPENDENT INSPECTION & VALIDATION CERTIFICATE OF CONFORMANCE

DATE: 19-6-2020

PROJECT NAME: Former Wessex Yard, Havant

CONTRACT NO: C576 - Block B - Entrance Area

INSPECTION & VALIDATION DETAILS:

MTS Ltd were requested to attend site to inspect / validate the above membrane installation. I performed a detailed visual/Air lance test, visually inspecting all membrane for punctures, service entry sealing/detail work, then using the air lance across all hot air welded seams & GR lap tape edges. The NEA installation was of a good standard, however 3 defects where found (punctures to the previously installed GRDPC). These where marked up ready for repair by NEA. MTS have agreed to accept photographic evidence of the repairs due to time constraints and the good quality of workmanship witnessed. Photo evidence of all the above has been taken to be included into the final report. Apart from the defects, all installed membrane & detail work reaches the required customer specification & standards set out in both the Ciria 735/BS8485 best practice documents.

MembraneTestingSolutions Ltd do hereby confirm that the elements of the project detailed above have been inspected and validated by a suitably qualified independent consultant in accordance with industry requirements, with the test result noted below:

CONCLUSION (PASS/FAIL) Pass - Work to Specifics

Where the conclusion above indicates a Pass, the construction activities may proceed subject to suitable protection measures of the membrane being applied in accordance with the manufacturers recommendations.

Signed for on behalf of MembraneTestingSolutions Ltd:

Name: Michael A Smith.

Dated: 19-06-2020

Signed for on behalf of The Client:

Name: Jonah Cook

Dated: 19-6-20

MembraneTestingSolutions

INDEPENDENT INSPECTION & VALIDATION CERTIFICATE OF CONFORMANCE

DATE: 19-6-2020

PROJECT NAME: Farlow Wessex Yard, Havant.

CONTRACT NO: C576 – Block C, Entrance.

INSPECTION & VALIDATION DETAILS:

MTS Ltd were requested to attend site to inspect / validate the above membrane installation. I performed a detailed visual/Air lance test, visually inspecting all membrane for punctures, service entry sealing/detail work, then using the air lance across all hot air welded seams & GR lap tape edges. The NEA installation was of a good standard, however 1 defect where found (punctures to the previously installed GRDPC). These where marked up ready for repair by NEA. MTS have agreed to accept photographic evidence of the repairs due to time constraints and the good quality of workmanship witnessed. Photo evidence of all the above has been taken to be included into the final report. Apart from the defects, all installed membrane & detail work reaches the required customer specification & standards set out in both the Ciria 735/BS8485 best practice documents.

MembraneTestingSolutions Ltd do hereby confirm that the elements of the project detailed above have been inspected and validated by a suitably qualified independent consultant in accordance with industry requirements, with the test result noted below:

CONCLUSION (PASS/FAIL) Pass - Work in Progress

Where the conclusion above indicates a Pass, the construction activities may proceed subject to suitable protection measures of the membrane being applied in accordance with the manufacturers recommendations.

Signed for on behalf of MembraneTestingSolutions Ltd:

Name: Richard A Smith

Dated: 19-6-2020

Signed for on behalf of The Client:

Name: Jonah Cook

Dated: 19-6/2020

Membrane Testing Solutions Limited • The Studio, Parsonage House, Parsonage Street, Halstead, Essex CO9 2JR

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MembraneTestingSolutions

INDEPENDENT INSPECTION & VALIDATION CERTIFICATE OF CONFORMANCE

DATE: 13-01-20

PROJECT NAME: Former Wessex Yard, Havant

CONTRACT NO: C576 - Block A - GX DPC

INSPECTION & VALIDATION DETAILS:

MTS Ltd were requested to attend site to inspect / validate the above GX DPC membrane installation. I performed a detailed visual/Air lance test, checking all membrane for punctures, service entry sealing & using the air lance across all hot air welded seams & GR tape edges. All was installed very well however; 15 defects where found (8 x punctures 4 seam failures & 3 burn holes). These where marked up and repaired by NEA installers. I re-inspected the repairs which proved a pass. Photo evidence of all the above has been taken to be included into the final report. All installed membrane & detail work reaches the required customer specification & standards set out in both the Ciria 735/BS8485 best practice documents and is fit for purpose at time of inspection. The majority of punctures where caused by nails which where removed before the membrane was repaired.

MembraneTestingSolutions Ltd do hereby confirm that the elements of the project detailed above have been inspected and validated by a suitably qualified independent consultant in accordance with industry requirements, with the test result noted below:

CONCLUSION (PASS/FAIL) Pass Low Fuce

Where the conclusion above indicates a Pass, the construction activities may proceed subject to suitable protection measures of the membrane being applied in accordance with the manufacturers recommendations.

Signed for on behalf of MembraneTestingSolutions Ltd:

Name: Michael A Smith

Dated: 13-01-2020

Signed for on behalf of The Client:

Name: Richard Durrant

Dated: 13/01/2020

Membrane Testing Solutions Limited • The Studio, Parsonage House, Parsonage Street, Halstead, Essex CO9 2JR

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APPENDIX VI

MTS VALIDATION CERTIFICATE

BLOCK B – GROUND FLOOR CAVITY CLOSER DPC

MembraneTestingSolutions

INDEPENDENT INSPECTION & VALIDATION CERTIFICATE OF CONFORMANCE

DATE: 11-12-19

PROJECT NAME: Former Wessex Yard, Havant

CONTRACT NO: C576 - Block B - Cavity Cesson / Internal Wall Areas.

INSPECTION & VALIDATION DETAILS:

MTS Ltd were requested to attend site to inspect / validate the above Visqueen GX flexi membrane installation. Upon arrival it was clear that the high winds had affected the installation and only either end was fit for validation. I performed a detailed visual/Air lance -test, carefully checking all sealed seams, checking all membrane for punctures, service entry sealing & lap tape detail work. All was installed very well with only a few minor defects found (peeling lap tape/small seam failure), the defects were then marked up. I also marked up damages caused by the high winds which brought the total to 21 defects. Photo evidence of all the above has been taken to be included into the final report. Due to NEA installers not being present, it was decided after consultation to accept photo evidence for the purpose of validation of all the remediation & repairs.

MembraneTestingSolutions Ltd do hereby confirm that the elements of the project detailed above have been inspected and validated by a suitably qualified independent consultant in accordance with industry requirements, with the test result noted below:

CONCLUSION (PASS/FAIL) Work In Progress.....

Where the conclusion above indicates a Pass, the construction activities may proceed subject to suitable protection measures of the membrane being applied in accordance with the manufacturers recommendations.

Signed for on behalf of MembraneTestingSolutions Ltd:

Name: Michael A Smith

Dated: 11-12-2019

Signed for on behalf of The Client:

Name: Hodges

Dated: 11/12/2019

Membrane Testing Solutions Limited • The Studio, Parsonage House, Parsonage Street, Halstead, Essex CO9 2JR

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Registered Office: The Maltings, Rosemary Lane, Halstead, Essex CO9 1HZ · Company Registration Number: 8871015

MembraneTestingSolutions

INDEPENDENT INSPECTION & VALIDATION CERTIFICATE OF CONFORMANCE

DATE: 12-12-19

PROJECT NAME: Formon Wessex Yard, Havant.

CONTRACT NO: C576 - Block B, Cavity Closer/Internal Wall Repairs.

INSPECTION & VALIDATION DETAILS:

MTS Ltd were requested to attend site to inspect / validate the above membrane installation. Unfortunately, the installation had been damaged due to high winds. As the installer was no longer on site & due to time & program constraints it was decided to accept photographic evidence for the purpose of retrospective photographic validation of the cavity closer/internal wall install. Upon receipt of the requested photographs I performed a timely detailed visual inspection of all photographs encompassing the membrane, seams & detail work repairs. I witnessed all elements of the installation in place & on this occasion I am happy to say that I could see no defects and all inspected membranes reaches the required client specification & standards set out within the Ciria 735 & BS8485 best practice documents and on this evidence proves a pass.

MembraneTestingSolutions Ltd do hereby confirm that the elements of the project detailed above have been inspected and validated by a suitably qualified independent consultant in accordance with industry requirements, with the test result noted below:

CONCLUSION (PASS/FAIL) ..... Pass .....

Where the conclusion above indicates a Pass, the construction activities may proceed subject to suitable protection measures of the membrane being applied in accordance with the manufacturers recommendations.

Signed for on behalf of MembraneTestingSolutions Ltd:

Name: Michael A Smith

Dated: 13-12-2019

Signed for on behalf of The Client:

Name: Client Not Present

Dated: Photo Validation.

APPENDIX VII

MTS VALIDATION CERTIFICATE

BLOCK C – GROUND FLOOR CAVITY CLOSER DPC

MembraneTestingSolutions

INDEPENDENT INSPECTION & VALIDATION CERTIFICATE OF CONFORMANCE

DATE: 5-12-19

PROJECT NAME: FORMER WESSEX YARD, HAVANT.

CONTRACT NO: C576 - BLOCK C, CAVITY CLOSER

INSPECTION & VALIDATION DETAILS:

MTS Ltd were requested to attend site to inspect / validate the above Visqueen GX membrane installation. The cavity closer area and internal wall areas only. I performed a detailed visual/Air lance test, checking all membrane for punctures, service entry sealing & used the air lance across all hot air welded seams & Hydrocarbon resistant tape edges. All was installed to a fair standard however; multiple defects where found and remediated immediately. I re-inspected the repairs which proved a pass. Photo evidence of all the above has been taken to be included into the final report. All installed membrane & detail work reaches the required customer specification & standards set out in both the Ciria 735/BS8485 best practice documents and is fit for purpose at time of inspection. Advice and guidance was given concerning the use of nails as brick line markers.

MembraneTestingSolutions Ltd do hereby confirm that the elements of the project detailed above have been inspected and validated by a suitably qualified independent consultant in accordance with industry requirements, with the test result noted below:

CONCLUSION (PASS/FAIL) PASS IN FULL

Where the conclusion above indicates a Pass, the construction activities may proceed subject to suitable protection measures of the membrane being applied in accordance with the manufacturers recommendations.

Signed for on behalf of MembraneTestingSolutions Ltd:

Name: MICHAEL A SMITH

Dated: 05-12-2019

Signed for on behalf of The Client:

Name: ADRIAN KING

Dated: 5/12/2019