

# 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.



### THE VISQUEEN URBAN DRAINAGE SYSTEM CONSISTS OF:



### 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 joints as well as eliminating the risk of puncture from backfill.

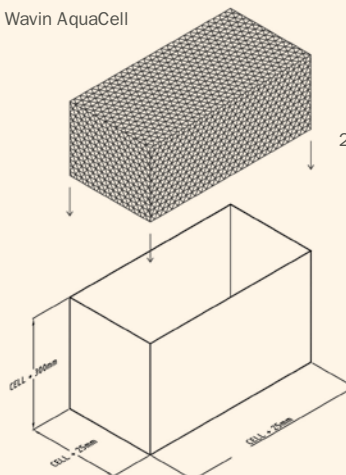
Visqueen Urban Drainage Geomembrane taped joints have been extensively tested for durability under hydrostatic pressure and have been proved to be highly effective.

### GEOMEMBRANE INSTALLATION PROCEDURES

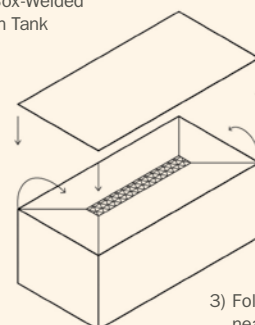
- Ensure that the base of the trench is a structurally sound, smooth, level surface cleared of any loose particles.
- This surface must then be covered by 100mm sand blinding, levelled and compacted.
- Cover the bed with a suitable geotextile fleece to ensure that the geomembrane is not punctured.
- 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.

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## 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
<b>Mass per unit area</b>	460g/m <sup>2</sup>	880 g/m <sup>2</sup>	1410 g/m <sup>2</sup>
<b>Material</b>	LDPE	PP	HDPE
<b>Thickness</b>	0.5mm	1mm	1.5mm
<b>Dimensions</b>	4m x 12.5mm	2.85m x 30m	2.95 x 25m*
<b>Colour</b>	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	No leaks
240 kPa @ 24hrs	No leaks