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:

VISQUEEN URBAN DRAINAGE GEOMEMBRANE
VISQUEEN HIGH PERFORMANCE UDG
VISQUEEN GX HYDROCARBON 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 retain 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 High Performance 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

<table>
<thead>
<tr>
<th>Specification conditions</th>
<th>Visqueen’s recommendations</th>
<th>Installation options (Full Installation descriptions are given below)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No more than 2 storage units high</td>
<td>All products suitable</td>
<td>A, B, C and D</td>
</tr>
<tr>
<td>Over 2 storage units high</td>
<td>All products suitable</td>
<td>B, C and D</td>
</tr>
<tr>
<td>High water table sites</td>
<td>High Performance UDG</td>
<td>C and D</td>
</tr>
<tr>
<td>Contaminated land</td>
<td>GX Hydrocarbon UDG</td>
<td>D only</td>
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</table>

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

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
- HEATH & 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 bedding, 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.

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) Viswin AquaCell

2) Visqueen Box-Welded Attenuation Tank

3) Fold top upstand neatly 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

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<th>Material</th>
<th>UDG</th>
<th>HP UDG</th>
<th>GX UDG</th>
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COMPONENTS TECHNICAL DATA

VISQUEEN UDG CORNER PROTECTION UNITS

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VISQUEEN UDG PROTECTION BOARD

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VISQUEEN UDG TAPE JOURNAL

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<tr>
<td>Tensile Strength:</td>
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<td>MOAT 27 1983 5.5.2</td>
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<td>Resistance to Water Pressure:</td>
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<tr>
<td>60kPa @ 24hrs</td>
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<tr>
<td>240 kPa @ 24hrs</td>
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