BAM CONSTRUCTION

CAMDEN BSF

Verification Report for South Camden Community School

Addendum A

March 2012

Contents

1.1 Gas Membrane Summary Statement

As part of the ground investigation, 3 No. ground gas monitoring events were undertaken and this suggested elevated methane concentrations. In addition, some elevated petrochemical were recorded in the ground. As such Buro Happold advised that a Visqueen GX Geomembrane (or an alternative manufacturer's product providing an equivalent level of ground gas protection) should be installed.

1.2 Visqueen GX Membrane Product Details

Refer to the attached product data sheet.

1.3 RFI 037 (Clarification of Requirements)

Refer to the attached.

1.4 Images of Visqueen GX Membrane Installation

Refer to the attached images.

SOUTH CAMDEN COMMUNITY SCHOOL, LONDON, NW1 1RG

5. Visqueen GX Geomembrane

Description: Impermeable geomembrane

Uses: Basic separation/Filtration/Drainage

Manufacturer: Visqueen Building Products
One London Wall
London
EC2A 5AB

Tele: 01685 840672
Fax: 01685 842580
e-mail: enquiries@visqueenbuilding.co.uk

Maintenance: The material is maintenance free. Visqueen Urban Drainage Geomembrane is classified as nonhazardous
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

Residual risks Traditional demolition methods can safely be employed.

Literature: Data sheet enclosed.

Visqueen GX Geomembrane

- **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 Geomembrane is also suitable as a high performance damp proof membrane and is available in two thicknesses, 1mm and 1.5mm.

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

Visqueen GX Geomembrane

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.

SPECIFICATION SUPPORT

The following items are available to view online or to download from www.visqueenbuilding.co.uk

. Technical Datasheets
. Typical installation CAD details
. Health and Safety data

Register online for access to NBS Clauses and for information about our CPD Seminars

TECHNICAL SUPPORT

For advice on detailing or installation call Visqueen Building Products Technical Help Line 0845 302 4758. Pricing & Availability may be obtained from our UK Network of merchant stockists. For details of these call our Sales Office on 0845 302 4758.

VISQUEEN BUILDING PRODUCTS

Heanor Gate, Heanor, Derbyshire DE75 7RG
T: 0845 302 4758 F: 0845 017 8663
enquiries@visqueenbuilding.co.uk
www.visqueenbuilding.co.uk

Visqueen GX Geomembrane

TYPICAL PROPERTIES

Dimensions	
GX Geomembrane	2.95m x 30m x 1mm (88.50m^2) Standard Roll
GX Geomembrane	2.95m x 25m x 1.5mm (73.75m^2) 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	
Density (ASTM D1505)	941kg/m^3 +/- 1% (1mm) 941kg/m^3 +/- 1% (1.5mm)
Thickness (BS2782-630A)	+/- 5% (1mm) +/- 5% (1.5mm)
Melt Flow Index (ASTM D1238)	<0.5gm/10 minutes (1mm) <0.5gm/10 minutes (1.5mm)
Unaged Tensile (MPa)	31.2 (1mm) 29.3 (1.5mm)
Unaged Elongation (%)	860 (1mm) 845 (1.5mm)
Unaged Instrument Impact(N)	2220.11 (1mm) 3357.5 (1.5mm)
Tear Strength (N/mm)	156.8/145.6 (1mm) 149.1/156.5 (1.5mm)
Petrol Permeability (g/m2/hr)	7.0 (1mm) 3.8 (1.5mm)
Diesel Permeability (g/m2/hr)	14.8 (1mm) 1.7 (1.5mm)
Methane Permeability (cc/m2/hr)	3.2 (1mm) 1.95 (1.5mm)

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bam	Request for Information or Instructions	Form: 310-07 Rev: 1

Project Title : South Camden School **Contract No. :**	**RFI No : 37**
To: Tom Cawley	**Company : BAM**
Date Issued : 11/5//11	**Response required by : 16/5/11**
Issued by : [for BAM Construction] **Signed:** **Date:**	***TO BE COMPLETED ONLY IF RFI SUBMITTED BY SUBCONTRACTOR*** **On behalf of:** Toureen Mangan [Subcontractor] **Signed:** B Ward ……. **Date :** **Subcontractor Ref. : Bam04 RFI 27**

Request	**Answer**
Alternative Gas Membrane We have recently had problems with procurement of Visqueen GX on this and other projects. We find Visqueen a difficult company with troublesome products and poor technical support . We would like to use Grace gas membrane 400 for the remainder of the project (details attached). There would be no additional cost for this change. Please confirm if this is acceptable	Previous comments have advised that a GX Geomembrane (**or an alternative manufacturers product providing an equivalent level of ground gas protection**) should be installed (taped/welded, lapped, top hats, tested etc) as per the manufactures requirements. Having looked at the attached data sheet (Grace Gas Membrane 400) it would appear that this is the case however we would also note that it is not Buro Happold's place to approve such products. During the site works we would strongly suggest that the site team take photos of the installation of the membrane at key stages showing the lapping and tapping etc. This can then be used as evidence of correct installation, should the contaminated land officer requests this as a later date. In addition, with regards to pile caps please note that the membrane should form a continuous layer beneath the building.
	Signed: Philippa Hunsworth **Date:** 16.05.2011
Date Received :	**Confirmed by A.I. / C.V.I. No:**

Distribution [Project Team]		**Distribution [Design Team]**	**Company**	**Name**	**Fax Number**
☐	☐	☐ Architect			
☐	☐	☐ Structural Engineer			
☐	☐	☐ Mechanical and PH			
☐	☐	☐ Electrical			
☐	☐	☐ Project Manager			

☐	☐	☐ Other			


Caution


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