

GAS MEMBRANE VALIDATION – BELLE VUE

Project Name: Belle Bue Stadium

Project Number: 12-123

Client: Countryside Properties

Date: 19-01-2023

Project Manager; S. Ellis – FGS, CEnv

E3P Engineer & Qualifications: R. Webster – Ground Gas Training Oct 2018

Gas Membrane Installers Chandos Civils

Ground Gas Risk Assessment: Amber 1

Plots: Block 1 Stairwell 1

OVERVIEW

The membrane comprised a Visqueen low permeability gas membrane (Yellow) resistant to radon, carbon dioxide and low methane levels. E3P can confirm there were no holes or rips at the inspection time. Upon being laid, the membrane is to be covered with a Celotex (closed Cell) floor insulation material which is considered to provide a high degree of protection.

E3P inspected all external joints, and E3P can confirm that the membrane was overlapped and double-taped. The membrane was taped using double-sided jointing tape. All the overlaps were then additionally taped using foil-backed girth tape.

Each unit has a service duct located at the front and outer edge of the property. E3P inspected each one and can confirm that the top hats have been adequately sealed against the membrane.

Based on the information provided within this report, the site inspections and validation checklists, E3P can confirm that Block 1 Stairwell has been installed with gas protection measures following C Amber 1 to an acceptable level of workmanship.

A list of plots requiring validation and their associated validation letters is presented in Table 1.



Geo-Environmental



Acoustics



Remediation and
Enabling Earthworks
Design



Arboriculture



Compliance
& Due Diligence



Ecology



Industrial Permitting

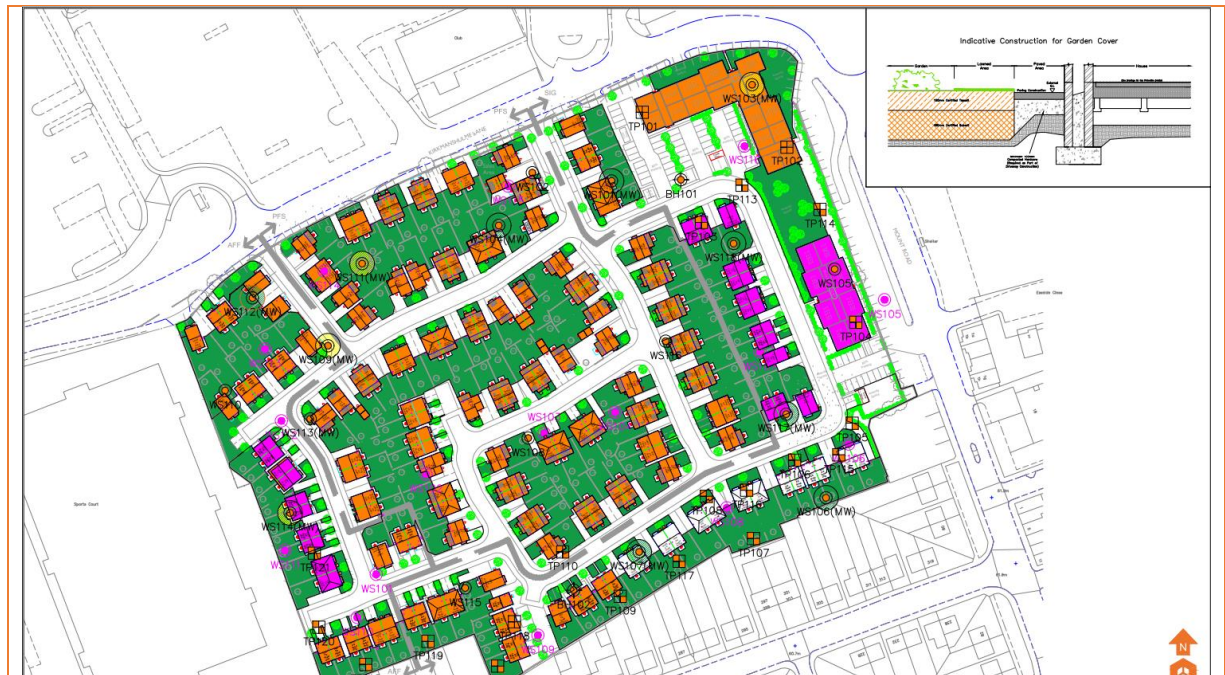


Geotechnical

MEMBRANE SPECIFICATION: VISQUEEN GAS MEMBRANE (YELLOW)

Technical Datasheet - Product Overview		Technical support: +44 (0) 333 202 6800 Date Published: 18/10/2021
	Visqueen Low Permeability Gas Membrane	
	Features and benefits <ul style="list-style-type: none">• BBA certified - third party accreditation• Complies with NHBC Amber 1 - suitable for low gas risk NHBC housing sites• Flexible - easy to detail and install on site• Supplied centre folded - reduces the risk of cracks in screed and limits creases• Multi functional - also acts as a radon and damp proof membrane• Dual jointing methods - lap joints can be taped or heat welded	
	Product description <p>Visqueen Low Permeability Gas Membrane is a robust co-polymer thermoplastic gas membrane, 0.5mm thick, yellow in colour and supplied 4m x 12.5m in a center folded roll.</p>	
	Approvals and standards <ul style="list-style-type: none">• Third party accreditation (BBA 13/5069)• Conforms to the specification requirements of NHBC Amber 1 applications• Conforms to the specification requirements of BR 211:2015• CE Mark EN 13967:2017• Quality Management System ISO 9001:2015• Occupational Health and Safety System ISO 45001:2018• Environmental Management System ISO 14001:2015	
	Usage <p>Visqueen Low Permeability Gas Membrane is suitable to prevent the ingress of harmful levels of ground gases for housing applications where NHBC are the warranty provider and the site has been classified as Amber 1. In this application, the membrane is used above a precast suspended segmental ground floor system, for example a beam and block floor.</p> <p>The membrane can also be used as a high performance radon membrane and/or damp proof membrane positioned within the ground floor construction either above or below the structural floor.</p> <p>The product is not intended for use where there is a risk of hydrostatic pressure.</p>	
	System components <ul style="list-style-type: none">• VisqueenPro Double Sided Jointing Tape, 50mm x 10m• Visqueen Gas Resistant Foil Lap Tape, 75mm x 50m• Visqueen Top Hat Units	

GAS MITIGATION MEASURES PLAN



The gas membrane validation photographs are enclosed within this letter. For information, Table 1 includes references and validation dates of previously validated plots.

TABLE 1 – VALIDATION LETTER REFERENCE

PLOT NUMBER	DATE	REPORT NUMBER
1	3 rd March 2022	V4
2	3 rd March 2022	V4
3	3 rd March 2022	V4
4	29 th March 2022	V5
5	29 th March 2022	V5
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86	27 th May 2022	V9
87	27 th May 2022	V9
88	27 th May 2022	V9
89	25 th May 2022	V8

90	25 th May 2022	V8
91	25 th May 2022	V8
92	8 th June 2022	V12
93	8 th June 2022	V12
94	28 th June 2022	V15
95	28 th June 2022	V15
96		
97		
98		
99	30 th May 2022	V10
100	31 st May 2022	V11
101	31 st May 2022	V11
102	15 th June 2022	V13
103	15 th June 2022	V13
104	22 nd June 2022	V14
105	22 nd June 2022	V14
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108	4 th July 2022	V15
109	4 th July 2022	V15
110	19 th July 2022	V18
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125	8 th September 2022	V23
126	8 th September 2022	V23
127	8 th September 2022	V23
128	8 th September 2022	V23
129	8 th September 2022	V23
130	23 rd August 2022	V20
131	23 rd August 2022	V20
132	23 rd August 2022	V20
133	23 rd August 2022	V20
134	5 th September 2022	V21
135	15 th September 2022	V25

136	23 rd August 2022	V20
137	23 rd August 2022	V20
138	23 rd August 2022	V20
139	23 rd August 2022	V20
140	4 th August 2022	V19
141	15 th July 2022	V17
142	15 th July 2022	V17
143	11 th July 2022	V16
144	11 th July 2022	V16
145	11 th July 2022	V16
146	9 th May 2022	V6
147	9 th May 2022	V6
148	9 th May 2022	V6
149	9 th May 2022	V6
150	13 th May 2022	V7
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163	7 th February 2023	V40
164	7 th February 2023	V40
165	7 th February 2023	V40
166	7 th February 2023	V40
167	4 th November 2022	V31
168	24 th September 2022	V26
168	24 th September 2022	V26
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170	5 th October 2022	V27
171	21 st November 2022	V33
172	21 st November 2022	V33
173	23 rd November 2022	V34
174	12 th December 2022	V35
175	12 th December 2022	V35
176	15 th December 2022	V36
177	15 th December 2022	V36
178	4 th November 2022 10 th November 2022	V31 V32
179	4 th November 2022	V31
180	4 th November 2022	V31

181	27 th October 2022	V30
182	27 th October 2022	V30
183	27 th October 2022	V30
184	24 th October 2022	V29
185	24 th October 2022	V29
186	24 th October 2022	V29
187	24 th October 2022	V29
188		
189	21 st November 2022	V33
190	21 st November 2022	V33
191	1 st September 2022	V22
192	1 st September 2022	V22
193	1 st September 2022	V22
194	22 nd September 2022	V24
195	22 nd September 2022	V24
196	24 th September 2022	V26
197	24 th September 2022	V26
198	12 th October 2022	V28
199	12 th October 2022	V28
200	24 th October 2022	V29
201	24 th October 2022	V29
202	24 th October 2022	V29
203	24 th October 2022	V29

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236	24 th Jan 2022	V1
237	24 th Jan 2022	V1
238	24 th Jan 2022	V1
239	24 th Jan 2022	V1
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242	15 th February 2022	V3
243	15 th February 2022	V3
244		
245		
246	24 th January 2022	V2
247	24 th January 2022	V2
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250		
Apartment Block 1	15 th September 2022 5 th October 2022	V25 V27
Apartment Block 1 Stairwell	19 th January 2023 20 th January 2023	V38 V39
Apartment Block 2	23 rd August 2022	V20

GAS MEMBRANE VALIDATION

Complete

Site Name	Belle vue
Location	Belle Vue Greyhound Stadium, Kirkmanshulme Lane Manchester England M18 7BD United Kingdom (53.462035443735836, - 2.182863582469489)
Project Manager	S. Ellis
Project number	12123
Developer	Countryside

Belle Vue
Gas Validation
January 2023

Site representative Signature

Paul
19 Jan 2023 3:37 PM GMT

Lewis

Conducted on

19 Jan 2023 3:18 PM GMT

Prepared by

Richard Webster

Inspection Gas Membrane

Plot Inspection

Plot Inspection 1

Plot Number Block one stairwell 1

Type of Development: Other add note Apartment

Foundation Type: Other add note Suspended Floor

Gas Membrane Type: Manufacturer, gauge, and colour. Visqueen yellow

Gas Membrane Condition: Open punctures, tears, rips, stretching, Presence of debris, Repairs, Signs of weakness such as raised or sunken indentations, Protection plan in place to restrict access to lain gas membrane? IF FAIL DESCRIPTION IN ACTIONS AND PHOTOS REQUIRED

Pass

Laps, welds, and joints seals: Joints lapped and sealed in accordance with manufacturer's requirements/ specification? Minimum overlap insured? Sections taped twice? Are welds complete? Appropriate joining/double-sided tape used, Folds running in line with joints? (no joints cutting across folds)

Pass



Photo 1



Photo 2



Photo 3



Photo 4



Photo 5



Photo 6

Service entries seals: Top hats seal arrangements fixed around service entries? Use of Jubilee clips?

Yes



Photo 7



Photo 8

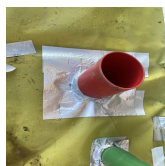


Photo 9



Photo 10

Type of joints/ Lapping Taped

Corners / Internal joints: Check all corners are correctly formed or contractor has used performed corners. Pass



Photo 11



Photo 12



Photo 13



Photo 14



Photo 15



Photo 16

Extent of Coverage: Is the membrane covering the entire plot? Does membrane span over outside walls?

Yes



Photo 17

Condition of sub-grade and underside of gas membrane: Check that the subgrade does not contain rough/uneven surfaces, is appropriately clean and that there are no hard/sharp objects. That protective sand blinding or geotextile (if specified) is present and meets the design criteria.

Pass

Slab / membrane condition (is membrane clear of debris or insulation): Can membrane be fully seen and photographed – ask contractor to remove an debris so membrane can be fully seen an inspected – this is a requirement of NHBC and local authorities.

Pass

External Wall Air bricks: Numbers, size. positions as design drawing? (Minimum of 3 walls)

Pass



Photo 18

Photo 19

Photo 20

Plot Inspection 2

Plot Number Block 1 staircase 2

Type of Development: Other add note Apartment

Foundation Type: Other add note Suspended Floor

Gas Membrane Type: Manufacturer, gauge, and colour. Visqueen yellow

Gas Membrane Condition: Open punctures, tears, rips, stretching, Presence of debris, Repairs, Signs of weakness such as raised or sunken indentations, Protection plan in place to restrict access to lain gas membrane? IF FAIL DESCRIPTION IN ACTIONS AND PHOTOS REQUIRED

Pass

Laps, welds, and joints seals: Joints lapped and sealed in accordance with manufacturer's requirements/ specification? Minimum overlap insured? Sections taped twice? Are welds complete? Appropriate joining/double-sided tape used, Folds running in line with joints? (no joints cutting across folds)

Pass



Photo 21



Photo 22



Photo 23



Photo 24



Photo 25

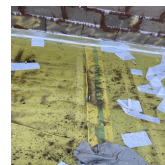


Photo 26



Photo 27

Service entries seals: Top hats seal arrangements fixed around service entries? Use of Jubilee clips?

Yes



Photo 28



Photo 29



Photo 30



Photo 31

Type of joints/ Lapping Taped

Corners / Internal joints: Check all corners are correctly formed or contractor has used performed corners.

Pass



Photo 32



Photo 33



Photo 34



Photo 35

Extent of Coverage: Is the membrane covering the entire plot? Does membrane span over outside walls?

Yes

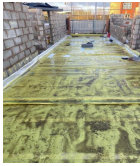


Photo 36

Condition of sub-grade and underside of gas membrane: Check that the subgrade does not contain rough/uneven surfaces, is appropriately clean and that there are no hard/sharp objects. That protective sand blinding or geotextile (if specified) is present and meets the design criteria.

Pass

Slab / membrane condition (is membrane clear of debris or insulation): Can membrane be fully seen and photographed – ask contractor to remove an debris so membrane can be fully seen and inspected – this is a requirement of NHBC and local authorities.

Pass

External Wall Air bricks: Numbers, size. positions as design drawing? (Minimum of 3 walls)

Pass



Photo 37

Photo 38

Passive Venting

Sub-floor Void: Is a check possible on future plots (insert Plot number or NO in text box)

No

Appendix



Photo 1



Photo 2



Photo 3



Photo 4



Photo 5



Photo 6



Photo 7



Photo 8



Photo 9



Photo 10



Photo 11



Photo 12



Photo 13



Photo 14



Photo 15



Photo 16



Photo 17



Photo 18



Photo 19



Photo 20



Photo 21



Photo 22



Photo 23



Photo 24



Photo 25

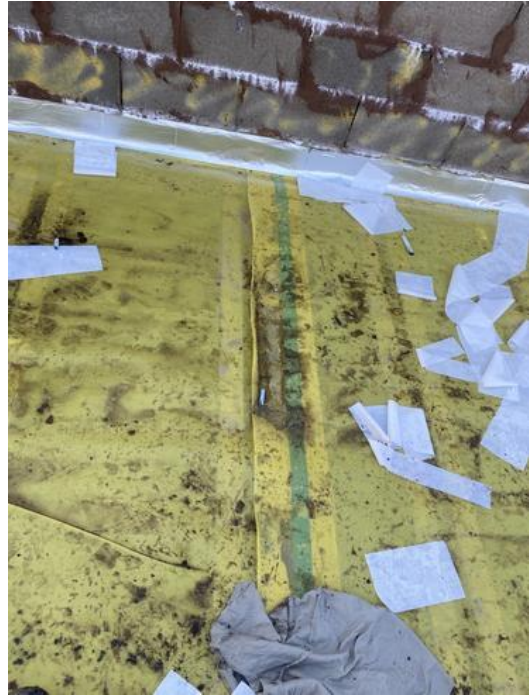


Photo 26



Photo 27



Photo 28



Photo 29



Photo 30



Photo 31



Photo 32



Photo 33



Photo 34



Photo 35



Photo 36



Photo 37



Photo 38