

GAS MEMBRANE VALIDATION – BELLE VUE

Project Name: Belle Bue Stadium

Project Number: 12-123

Client: Countryside Properties

Date: 23-02-2023

Project Manager; S. Ellis – FGS, CEnv

E3P Engineer & Qualifications: P. Lavelle – GGS Training Feb 2022

Gas Membrane Installers Chandos Civils

Ground Gas Risk Assessment: Amber 1/ Vapour Proof

Plots: 204-207

OVERVIEW

The membrane comprised a Visqueen HC BLOK (Gold) resistant to radon, carbon dioxide, Vapours 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 plots 204-207 have been installed with gas protection measures 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: 05/06/2023

Visqueen Ultimate HC BLOK

Features and benefits

- Agreement certified - third party accreditation
- Complies with CIRIA C748:2014 - industry standard for volatile organic compounds (VOC) protection
- Complies with the methane gas transmission rate, mass per unit area and thickness requirements of BS 8485:2015 + A1:2019 - industry standard for methane and carbon dioxide protection
- Flexible - easy to detail and install on site
- Multi functional - also acts as a radon and damp proof membrane
- Dual jointing methods - lap joints can be taped or heat welded

Product description

Visqueen Ultimate HC Blok is a 0.5mm thick, chemically resistant co-extruded volatile organic compound barrier and gas barrier. It is coloured gold on the upper surface and white on the reverse. The product is supplied in single wound rolls (not folded), 2.44m x 41m.

Approvals and standards

- Third party accreditation (BDA certificate BAF-18-051-P-A-UK)
- Complies with CIRIA C748:2014
- Complies with the methane gas transmission rate, mass per unit area and thickness requirements of BS 8485:2015 + A1:2019
- Suitable for all Characteristic Gas Situation (CS) ground gas regimes
- Conforms to the specification requirements of NHBC Amber 1 and Amber 2 applications
- Conforms to the specification requirements of BR 211:2015
- CE Mark EN 13967:2012
- Quality Management System ISO 9001:2015
- Occupational Health and Safety System ISO 45001:2018
- Environmental Management System ISO 14001:2015

Usage

Visqueen Ultimate HC Blok is suitable for use in all types of buildings to prevent the ingress of harmful levels of volatile organic compounds (VOCs). The barrier can be positioned above or below a solid concrete ground floor slab or above a precast suspended segmental ground floor system, e.g. beam and block floor.

The barrier can also be used in all types of buildings to prevent the ingress of harmful levels of ground gases e.g. methane, carbon dioxide and radon. The barrier also acts as a damp proof membrane. In this application, the barrier can be positioned above or below a solid concrete ground floor slab or above a precast suspended segmental ground floor system, e.g. beam and block floor.

The product is not intended for use where there is a risk of hydrostatic pressure.

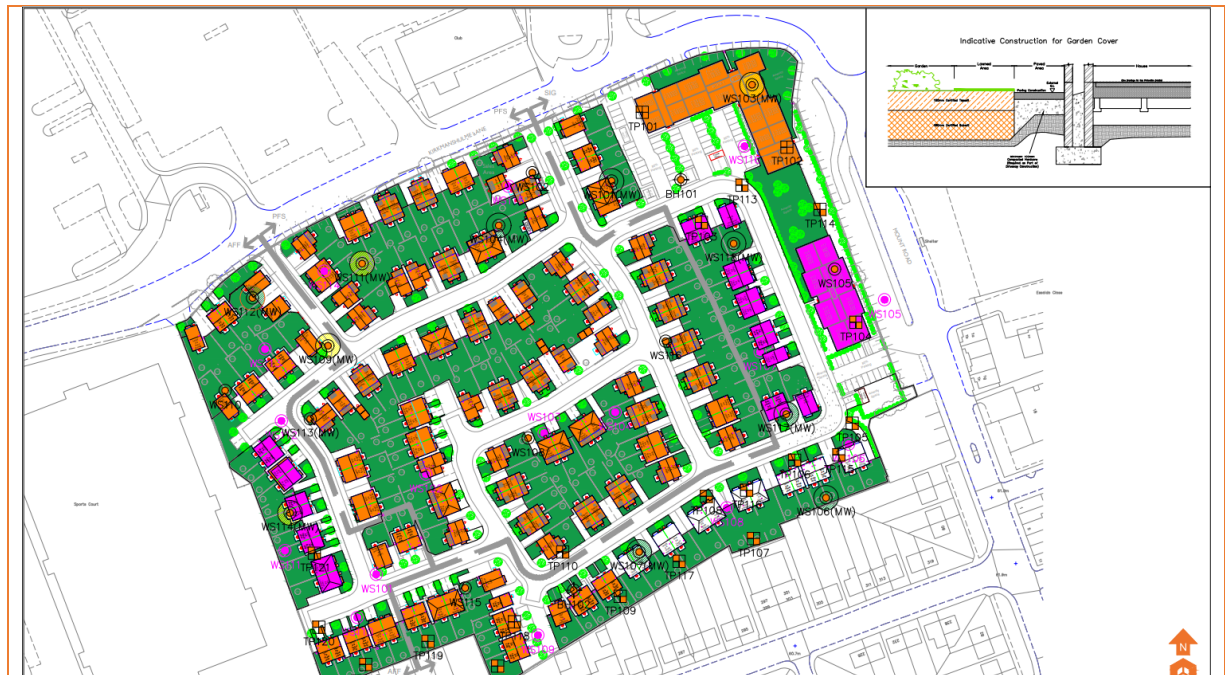
System components

- Visqueen Ultimate Double Sided Jointing Tape, 100mm x 15m
- Visqueen GR Lap Tape, 150mm x 10m
- Visqueen Ultimate Top Hat Units
- Visqueen Preformed Units
- VisqueenPro Detailing Strip, 300mm x 10m, 500mm x 10m

Find your local stockist



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
6		
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85		
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		
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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
106		
107		
108	4 th July 2022	V15
109	4 th July 2022	V15
110	19 th July 2022	V18
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124		
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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162		
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
169		
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

204	23 rd February 2023	V40
205	23 rd February 2023	V40
206	23 rd February 2023	V40
207	23 rd February 2023	V40
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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
240		
241		
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
248		
249		

Belle Vue
Gas Validation
February 2023

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	172–176 Kirkmanshulme Lane, Longsight Manchester England M18 United Kingdom (53.46133726525064, - 2.1857185037280633)
Project Manager	Stuart ellis
Project number	12123
Developer	Countryside
Site representative Signature	Paul 23 Feb 2023 8:47 AM GMT lewis
Conducted on	23 Feb 2023 8:17 AM GMT
Prepared by	Patrick Lavelle

Inspection Gas Membrane

Plot Inspection

Plot Inspection 1

Plot Number

204

Type of Development: Other add note

House



Photo 1

Foundation Type: Other add note

Suspended Floor

Gas Membrane Type: Manufacturer, gauge, and colour.

Gold membrane

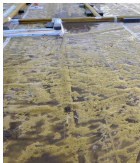


Photo 2

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



Photo 3



Photo 4



Photo 5



Photo 6



Photo 7



Photo 8

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

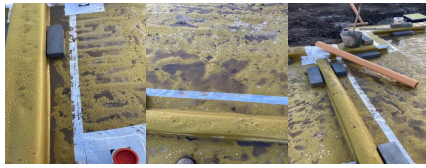


Photo 9

Photo 10

Photo 11

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

Yes

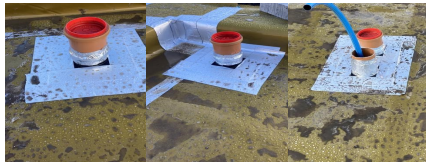


Photo 12

Photo 13

Photo 14

Type of joints/ Lapping

Taped



Photo 15



Photo 16



Photo 17

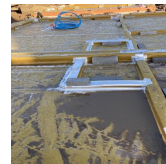


Photo 18

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

Pass



Photo 19



Photo 20



Photo 21



Photo 22

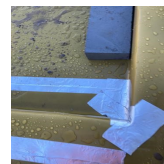


Photo 23

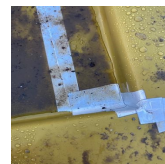


Photo 24

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

Yes



Photo 25

Photo 26

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



Photo 27

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



Photo 28

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

N/A

Didn't have any air bricks. Holes left ready for install



Photo 29



Photo 30

Plot Inspection 2

Plot Number

205

Type of Development: Other add note

House



Photo 31

Photo 32

Foundation Type: Other add note

Suspended Floor

Gas Membrane Type: Manufacturer, gauge, and colour.

Gold membrane



Photo 33

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



Photo 34

Photo 35

Photo 36

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

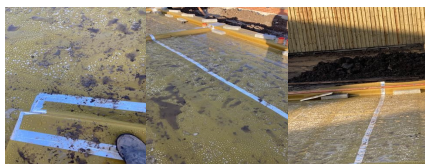


Photo 37

Photo 38

Photo 39

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

Yes

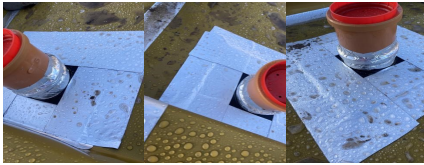


Photo 40

Photo 41

Photo 42

Type of joints/ Lapping

Taped

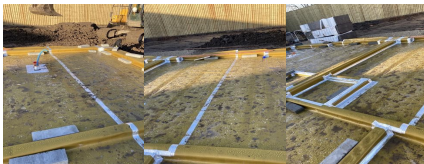


Photo 43

Photo 44

Photo 45

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

Pass



Photo 46



Photo 47

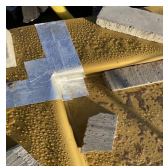


Photo 48

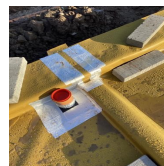


Photo 49



Photo 50



Photo 51

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

Yes

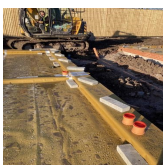


Photo 52



Photo 53



Photo 54



Photo 55



Photo 56

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



Photo 57

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



Photo 58

Photo 59

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

N/A

Didn't have any air bricks. Holes left ready for install



Photo 60



Photo 61



Photo 62

Plot Inspection 3

Plot Number

206

Type of Development: Other add note

House



Photo 63

Foundation Type: Other add note

Suspended Floor

Gas Membrane Type: Manufacturer, gauge, and colour.

Gold membrane

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

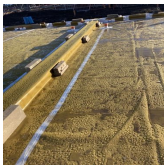


Photo 64



Photo 65



Photo 66

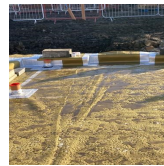


Photo 67

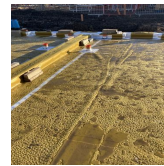


Photo 68

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 69

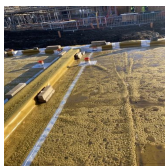


Photo 70



Photo 71



Photo 72

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

Yes

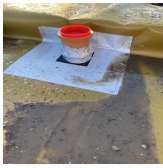


Photo 73



Photo 74

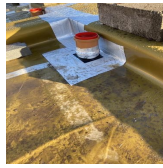


Photo 75



Photo 76



Photo 77

Type of joints/ Lapping

Taped



Photo 78

Photo 79

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

Pass



Photo 80



Photo 81

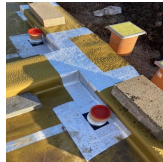


Photo 82



Photo 83



Photo 84



Photo 85



Photo 86



Photo 87

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

Yes



Photo 88

Photo 89

Photo 90

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



Photo 91

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



Photo 92

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

N/A

Didn't have any air bricks. Holes left ready for install



Photo 93



Photo 94



Photo 95

Plot Inspection 4

Plot Number

207

Type of Development: Other add note

House



Photo 96

Foundation Type: Other add note

Suspended Floor

Gas Membrane Type: Manufacturer, gauge, and colour.

Gold membrane

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



Photo 97



Photo 98



Photo 99



Photo 100

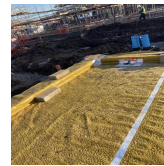


Photo 101

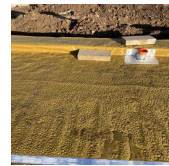


Photo 102

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 103



Photo 104



Photo 105



Photo 106

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

Yes

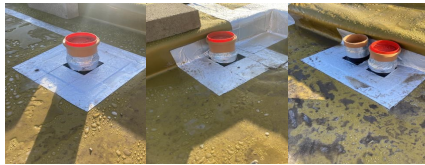


Photo 107

Photo 108

Photo 109

Type of joints/ Lapping

Taped

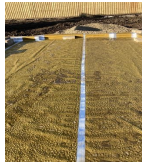


Photo 110

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

Pass



Photo 111



Photo 112



Photo 113



Photo 114



Photo 115



Photo 116



Photo 117



Photo 118

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

Yes



Photo 119

Photo 120

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



Photo 121

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



Photo 122



Photo 123

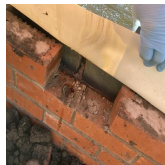


Photo 124



Photo 125

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

Didn't have any air bricks. Holes left ready for install

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

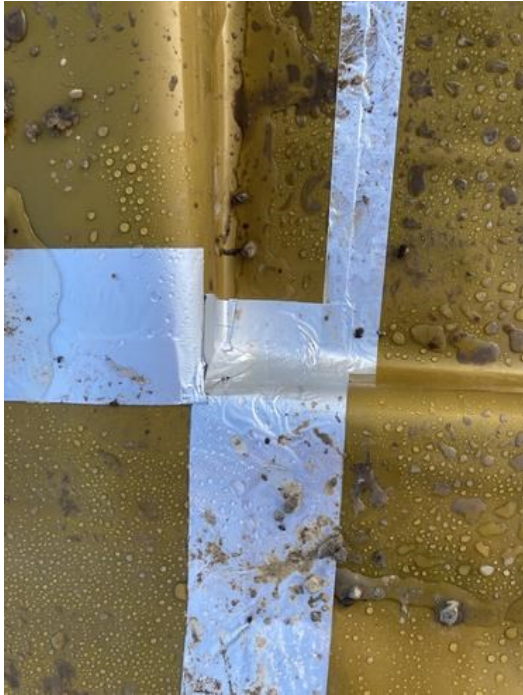


Photo 21



Photo 22

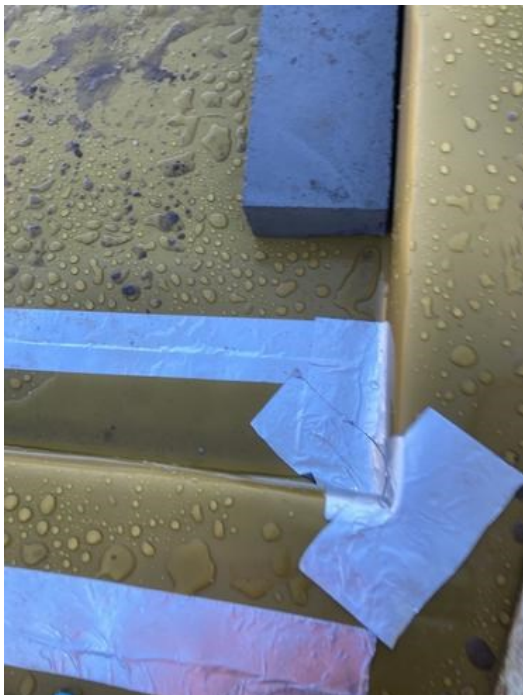


Photo 23



Photo 24



Photo 25



Photo 26



Photo 27



Photo 28



Photo 29



Photo 30



Photo 31



Photo 32



Photo 33

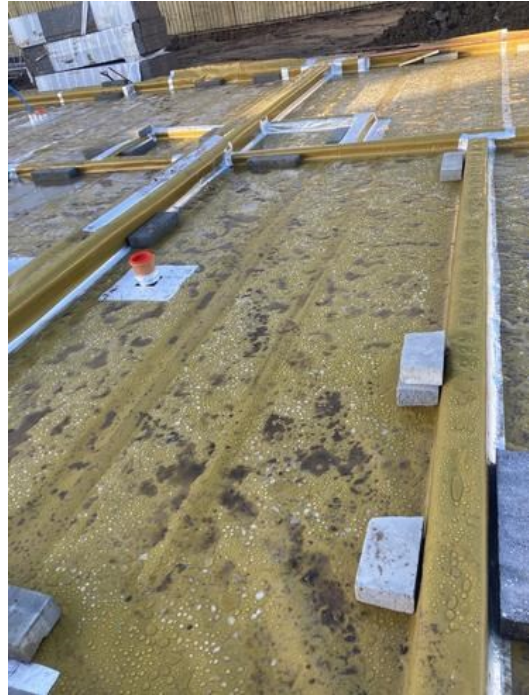


Photo 34



Photo 35



Photo 36



Photo 37



Photo 38



Photo 39



Photo 40



Photo 41



Photo 42



Photo 43



Photo 44

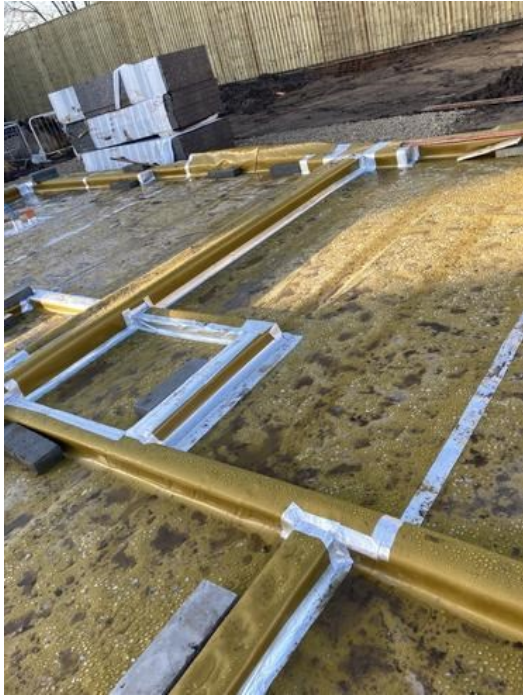


Photo 45



Photo 46



Photo 47



Photo 48

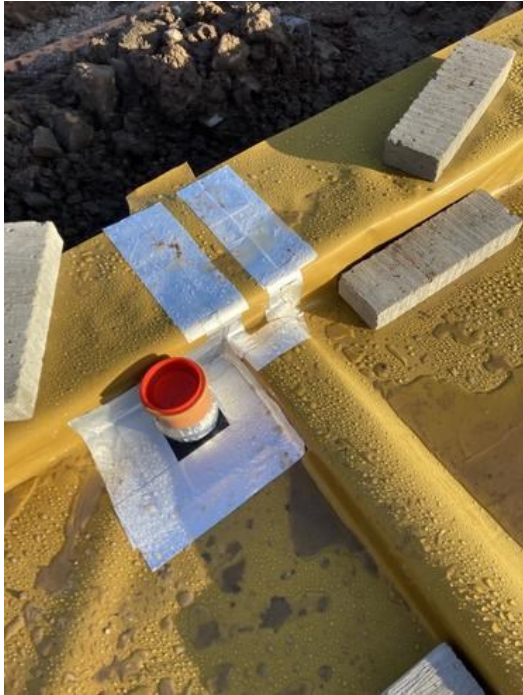


Photo 49



Photo 50



Photo 51



Photo 52



Photo 53



Photo 54



Photo 55



Photo 56



Photo 57



Photo 58



Photo 59



Photo 60



Photo 61



Photo 62



Photo 63



Photo 64



Photo 65



Photo 66



Photo 67



Photo 68



Photo 69



Photo 70



Photo 71



Photo 72



Photo 73



Photo 74



Photo 75



Photo 76



Photo 77



Photo 78



Photo 79



Photo 80



Photo 81



Photo 82



Photo 83



Photo 84



Photo 85



Photo 86



Photo 87



Photo 88



Photo 89



Photo 90



Photo 91

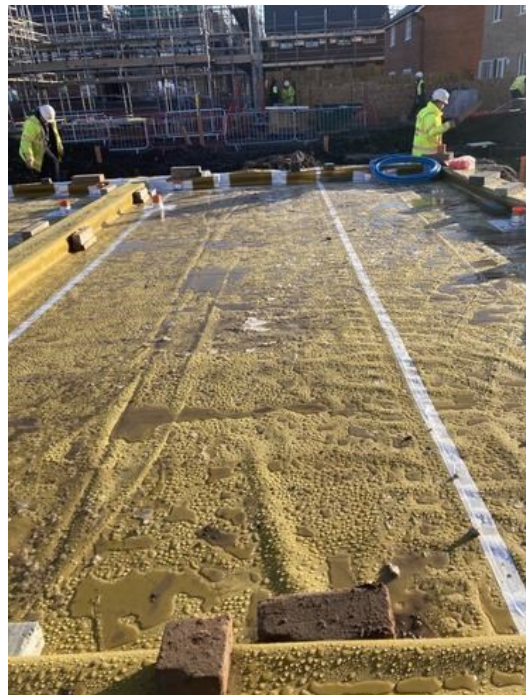


Photo 92



Photo 93



Photo 94



Photo 95



Photo 96



Photo 97

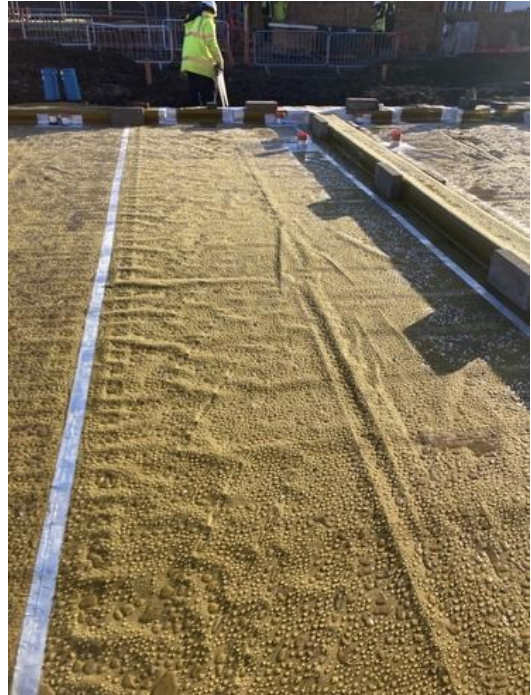


Photo 98



Photo 99



Photo 100



Photo 101

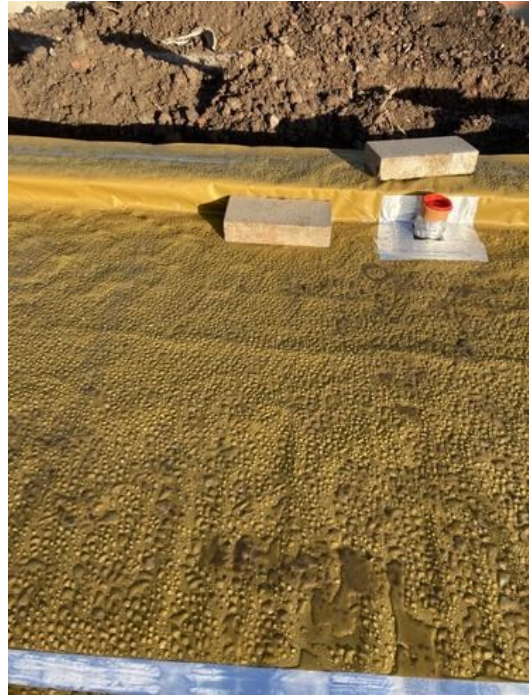


Photo 102



Photo 103



Photo 104



Photo 105



Photo 106



Photo 107



Photo 108



Photo 109



Photo 110



Photo 111



Photo 112



Photo 113



Photo 114

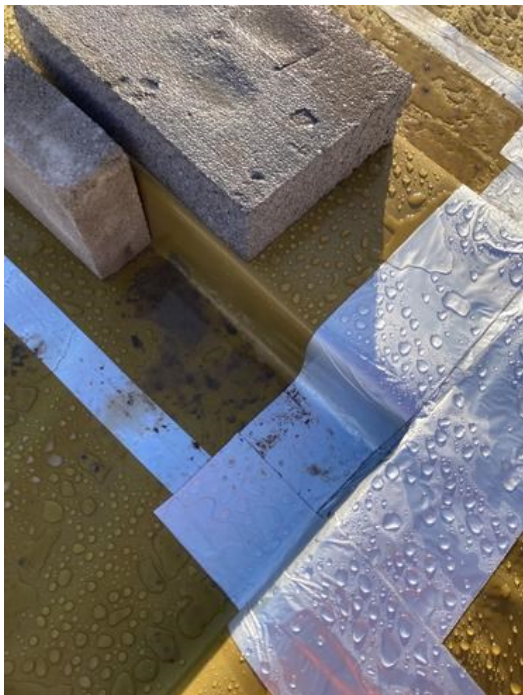


Photo 115



Photo 116



Photo 117



Photo 118



Photo 119



Photo 120



Photo 121



Photo 122



Photo 123



Photo 124



Photo 125