



Gas Membrane Installation
Validation Report
Eliva Homes
Royale Victoria Grange
2 Grange Road
Netley
Southampton
SO31 5HZ
V2 09/05/24



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1. INTRODUCTION

1.1 Purpose

UK Membranes are installing a gas protection membrane to the aforementioned site. MEC Environmental Ltd (MEC) has been appointed UK Membranes to carry out independent validation of the installation of the membrane on the site as per our terms of engagement. The frequency of independent inspections has been determined by the client, comprehensive CQA should be forwarded by the installer to cover any data gaps for areas that have not been subjected to independent inspections.

The **SOLE** purpose of the works undertaken by MEC Environmental is to provide independent inspections and a factual report as and when requested to assist the client in gaining regulatory approval with regards to the gas membrane installation. This is as per the scope of work section within our term's engagement.

1.2 Limitations

This report is limited to providing lines of evidence to the regulatory authority for the areas components inspected by MEC only in support of the discharging of the relevant planning conditions only and cannot be used or relied upon for any other purpose. No professional liability shall be extended to any other parties by MEC, the report should explicitly not be relied on by any future vendor or tenant as proof that the gas protection measures are sufficient for the site and functioning at the time of purchase or start of any tenancy. Gas protection systems are not solely reliant on the gas membrane as points are scored under BS8485 for the floor slab, membrane and venting, these components work collaboratively to provide a gas protection system. This is as per the conditions within our term's engagement.

The report has been provided on the assumption that no damage or works that may have compromised the components and integrity of the gas membrane have been made after our inspections, failure to report any such occurrences will invalidate any liability and render the report and contents invalid. This is as per the conditions within our term's engagement.

This report has been prepared in accordance with the best available practice and the relevant guidance documents listed below of which the author of the report was a contributor and member of the steering committees:

Mallett H, Wilson S, Corban M (2014) "Good practice on the testing and verification of protection systems for buildings against hazardous ground gases". CIRIA Report C735

1.3 Compliance with Regulation 7 of Building Regulations

Regulation 7 of the building regulations requires that building work shall be carried out in a workmanlike manner. Approved document 7 suggests installation can comply with the regulation if workmanship is such that, where relevant, materials are adequately mixed or prepared and applied, used or fixed so as to perform adequately the functions for which they are intended.

A reasonable standard may be demonstrated by:

Compliance with a standard and independent certification - The relevant standard for gas protection measures is BS8485:2015 +A1:2019, Table 7 of the standard requires that gas membranes are verified as per CIRIA C735.

Past experience – The installers qualifications are checked by MEC Environmental to ensure that the installation supervisor holds the NVQ Level 2 in gas membrane installations.

Integrity Testing methods. – are carried out as prescribed in CIRIA C735, unless stated elsewhere
Frequency of Visits – MEC have not been employed to prepare a validation plan for this project, the frequency of visits is as per the instructions of the client, in essence MEC inspected the available membrane that could be inspected each time an inspection visit was requested. The area inspected on each visit is noted on the survey sheets in appendix 1. This report should be read in conjunction with the installers CQA report.

1.4 Method of Inspection (Per Visit)

All seams and non-seam areas of the available gas membrane were inspected/tested by the Validation Surveyor for identification of defects, protruding and penetrating objects, lack of subgrade support, overheating, holes, blisters, undispersed raw materials, scratches and gouges, and any sign of contamination by foreign matter.

Any portion of the gas membrane exhibiting a flaw or failing a visual inspection/testing was repaired. Several procedures exist for the repair of these areas. The final decision as to the appropriate repair procedure was agreed upon between the Validation Consultant and the Installer at the time of the repair and is noted in the survey sheets.

Major repairs are visually inspected/tested, repairs passing the inspection/testing were considered acceptable. In some cases minor repairs maybe carried out under contractor CQA and photographic evidence supplied to the verifier for inclusion in the report.

1.5 MEC Staff Competency

All site inspections have been carried out by suitably qualified staff as defined in CIRIA C735, the qualification held by all MEC inspection surveyors is either the NVQ Level 4 in gas protection verification or the NVQ Level 2 in gas membrane installation

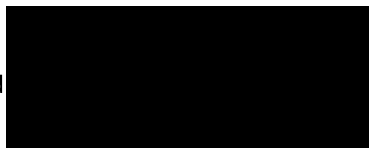
The author of this report is also a CL:AIRE accredited Specialist in Gas Protection Verification (SGPV) and holds both the NVQ Level 2 in gas membrane installation and the NVQ Level 4 in gas protection verification.

1.6 Conclusion

During our inspections to the areas denoted in Appendix 1 (Site Surveys Sheets) we witnessed the installer carrying out the installation in a workmanlike manner, the materials were adequately prepared and applied, used and fixed so as to perform adequately the functions for which they are intended as per Regulation 7 of the building regulations. In instances where 100% of the installation has not been independently inspected/tested then this report should be read in conjunction with the gas membrane installers CQA records.

The installers all hold the NVQ Level 2 "Gas membrane Installations" qualification and as such are classed as a qualified and experienced installer. MEC Environmental have checked the CSCS Trade Cards of the installers, which confirms the holder has attained the qualification.

Signed



Date: 16/08/2023

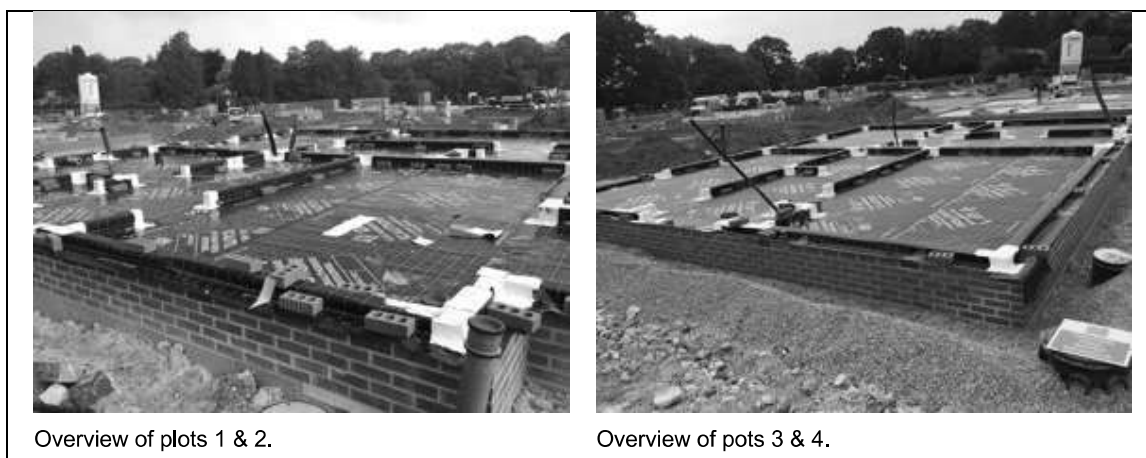
Michael Corban S.G.P.V.
Director
MEC Environmental Ltd

Appendix 1 – Site Survey Sheets

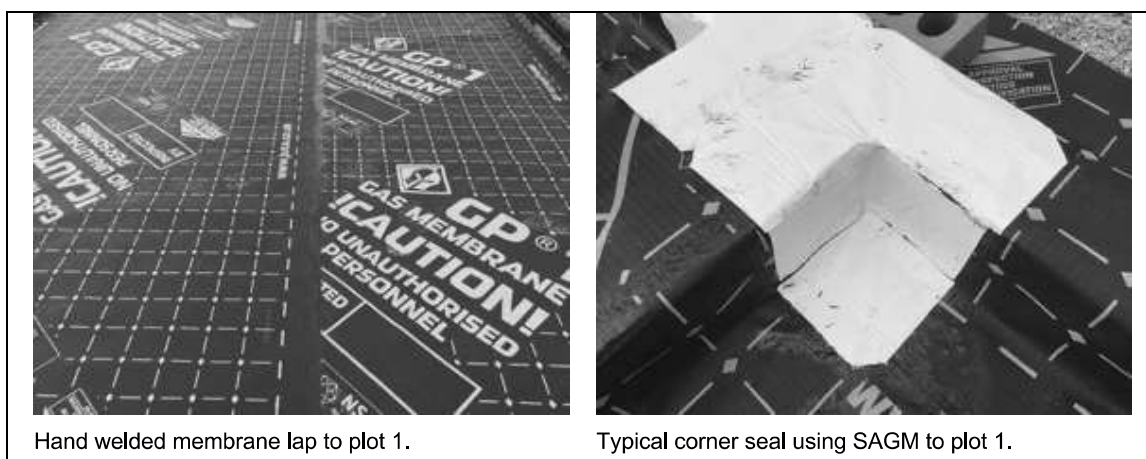
Housebuilder Name: Eliva Homes - Royale Victoria Grange.			Date: 19/05/2023
Site Name: 2 Grange Road, Netley, Southampton.			Weather: 18°C Dry
			Installer: UK Membranes
Postcode: SO31 5HZ.		Surveyor: Adam McDermott (TGPV)	
Plot Number	Building Type	Extent of Inspection	Result
1,2,3 & 4.	Semi Detached.	Full Footprint	Pass
(Section 1, Materials and Method of Seal)			
Gas Membrane Name: Juta GP1 Gas Membrane.			
Corner Seal Method: Corners have been sealed using strips of self-adhesive gas membrane, this is an approved and recognised method in CIRIA C735			
Service Entry Seal Method: The external of the pipe/ducts have been sealed using strips of self-adhesive gas membrane, this is an approved and recognised method in CIRIA C735			
Annulus to Water Pipe Duct: The alkathene water pipe has either not been sealed or is not in place at the time of our inspection, this will require sealing to an approved method, this is outside the remit of the result of todays inspection			
Door Threshold Seal Method: Door Thresholds have been sealed using strips of self-adhesive gas membrane, this is an approved and recognised method in CIRIA C735			
Cavity Vent Seal Method: The cavity vents sit below the membrane that seals the cavity and do not require a specialist seal			
Material Jointing Method: The membrane has been overlapped sufficiently to achieve a sound joint, the joint is clean and dry and has been joined by means of hand welding with a hot air gun and neoprene roller, the width of the welded joint is a minimum of 30mm.			
Others Please List: N/A.			
(Section 2, Testing and Inspection Method)			
Leak/Hole Detection	MEC Environmental Ltd carried out a thorough Visual Inspection to the available area at the time of our inspection		
Joint Testing	The surveyor carried out Probe testing as per the method prescribed in ASTM D4437 to all detailing work, detailing work is defined as any part of the installation that includes a joint in the membrane, this includes but is not limited to pipes/ducts, stanchions, wind posts, braces, field seams, masonry abutments, tanking, door thresholds and the like		

Plot Number	(Section 3, Defects List)	Action Required
1,2,3 & 4.	No Defects recorded at the time of our inspection.	N/A
Signed: Adam McDermott (TGPV) Date: 19/05/2023		

Plot Overview Photographs

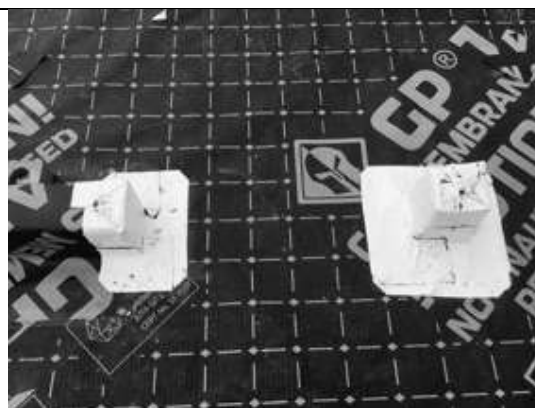


Detailing Sample Photographs





Air brick in place on plot 2.



Typical internal door threshold seal using SAGM to plot 2.



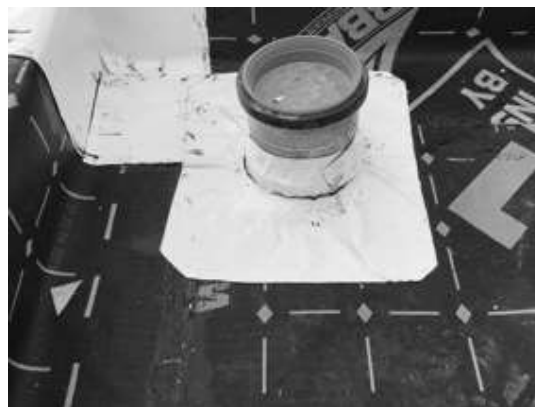
Typical double pipe penetration seal using SAGM to plot 3.



Pick testing all SAGM detailing to plot 3.



Typical door threshold seal using SAGM to plot 4.



Typical pipe penetration seal using SAGM to plot 4.

Housebuilder Name: Eliva Homes - Royale Victoria Grange.		Date: 23/05/2023	
Site Name: 2 Grange Road, Netley, Southampton.		Weather: 15°C Dry	
		Installer: UK Membranes	
Postcode: SO31 5HZ.		Surveyor: Adam McDermott (TGPV)	
Plot Number	Building Type	Extent of Inspection	Result
5 & 6. 8 & 9.	Semi Detached.	Full Footprint	Pass
(Section 1, Materials and Method of Seal)			
Gas Membrane Name: Juta GP1 Gas Membrane.			
Corner Seal Method: Corners have been sealed using strips of self-adhesive gas membrane, this is an approved and recognised method in CIRIA C735			
Service Entry Seal Method: The external of the pipe/ducts have been sealed using strips of self-adhesive gas membrane, this is an approved and recognised method in CIRIA C735			
Annulus to Water Pipe Duct: The alkathene water pipe has either not been sealed or is not in place at the time of our inspection, this will require sealing to an approved method, this is outside the remit of the result of todays inspection			
Door Threshold Seal Method: Door Thresholds have been sealed using strips of self-adhesive gas membrane, this is an approved and recognised method in CIRIA C735			
Cavity Vent Seal Method: The cavity vents sit below the membrane that seals the cavity and do not require a specialist seal			
Material Jointing Method: The membrane has been overlapped sufficiently to achieve a sound joint, the joint is clean and dry and has been joined by means of hand welding with a hot air gun and neoprene roller, the width of the welded joint is a minimum of 30mm.			
Others Please List: N/A.			
(Section 2, Testing and Inspection Method)			
Leak/Hole Detection	MEC Environmental Ltd carried out a thorough Visual Inspection to the available area at the time of our inspection		
Joint Testing	The surveyor carried out Probe testing as per the method prescribed in ASTM D4437 to all detailing work, detailing work is defined as any part of the installation that includes a joint in the membrane, this includes but is not limited to pipes/ducts, stanchions, wind posts, braces, field seams, masonry abutments, tanking, door thresholds and the like		
Plot Number	(Section 3, Defects List)		Action Required

5,6,8 & 9.	No Defects recorded at the time of our inspection.	N/A
Signed: Adam McDermott (TGPV) Date: 23/05/2023		

Plot Overview Photographs



Overview of plot 5 & 6.



Overview of plots 8 & 9.

Detailing Sample Photographs



Typical corner seal using SAGM to plot 5.



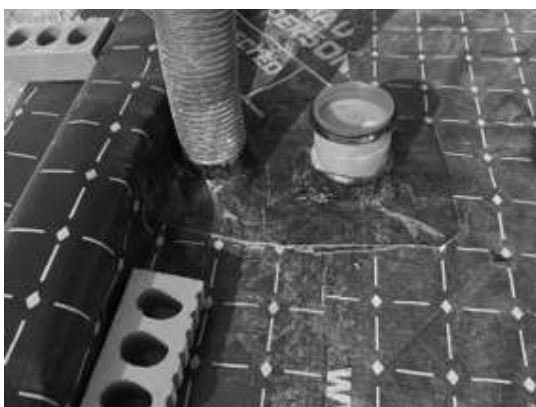
Pick testing all SAGM detailing to plot 5.



Hand welded membrane lap to plot 6.



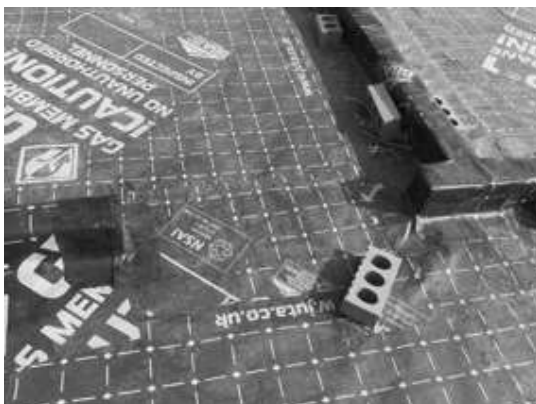
Typical pipe penetration seal using SAGM to plot 6.



Typical double pipe penetration seal using SAGM to plot 8.



Sealed door threshold detail sealed using SAGM to plot 8.



Sealed internal door threshold detail using SAGM to plot 9.



Air brick in place under the membrane at the time of our inspection to plot 9.

Housebuilder Name: Eliva Homes - Royale Victoria Grange.		Date: 08/06/2023	
Site Name: 2 Grange Road, Netley, Southampton.		Weather: 23°C Dry	
		Installer: UK Membranes	
Postcode: SO31 5HZ.		Surveyor: Adam McDermott (TGPV)	
Plot Number	Building Type	Extent of Inspection	Result
48 & 49.	Semi Detached.	Full Footprint	Pass
(Section 1, Materials and Method of Seal)			
Gas Membrane Name: Juta GP1 Gas Membrane.			
Corner Seal Method: Corners have been sealed using strips of self-adhesive gas membrane, this is an approved and recognised method in CIRIA C735			
Service Entry Seal Method: The external of the pipe/ducts have been sealed using strips of self-adhesive gas membrane, this is an approved and recognised method in CIRIA C735			
Annulus to Water Pipe Duct: The alkathene water pipe has either not been sealed or is not in place at the time of our inspection, this will require sealing to an approved method, this is outside the remit of the result of todays inspection			
Door Threshold Seal Method: Door Thresholds have been sealed using strips of self-adhesive gas membrane, this is an approved and recognised method in CIRIA C735			
Cavity Vent Seal Method: The cavity vents sit below the membrane that seals the cavity and do not require a specialist seal			
Material Jointing Method: The membrane has been overlapped sufficiently to achieve a sound joint, the joint is clean and dry and has been joined by means of hand welding with a hot air gun and neoprene roller, the width of the welded joint is a minimum of 30mm.			
Others Please List: N/A.			
(Section 2, Testing and Inspection Method)			
Leak/Hole Detection	MEC Environmental Ltd carried out a thorough Visual Inspection to the available area at the time of our inspection		
Joint Testing	The surveyor carried out Probe testing as per the method prescribed in ASTM D4437 to all detailing work, detailing work is defined as any part of the installation that includes a joint in the membrane, this includes but is not limited to pipes/ducts, stanchions, wind posts, braces, field seams, masonry abutments, tanking, door thresholds and the like		
Plot Number	(Section 3, Defects List)		Action Required
48 & 49.	No Defects recorded at the time of our inspection.		N/A

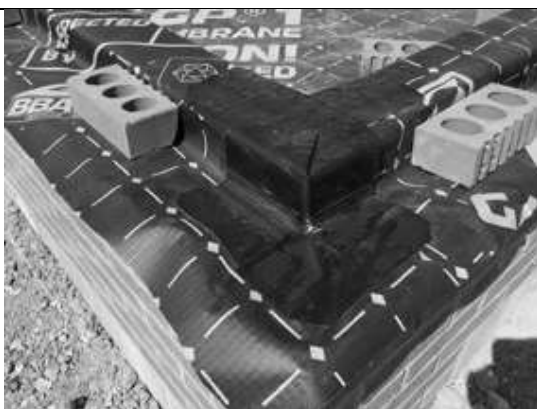
Signed: Adam McDermott (TGPV) Date: 08/06/2023		

Plot Overview Photographs

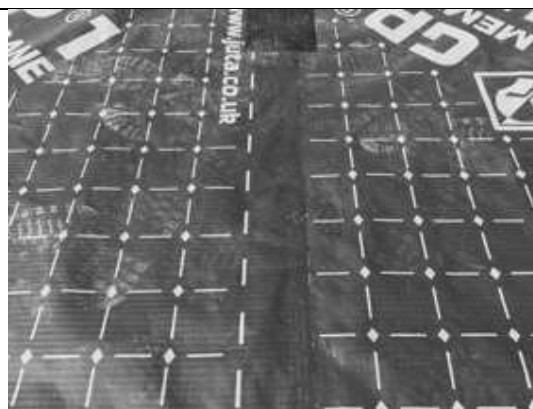


Overview of plots 48 & 49.

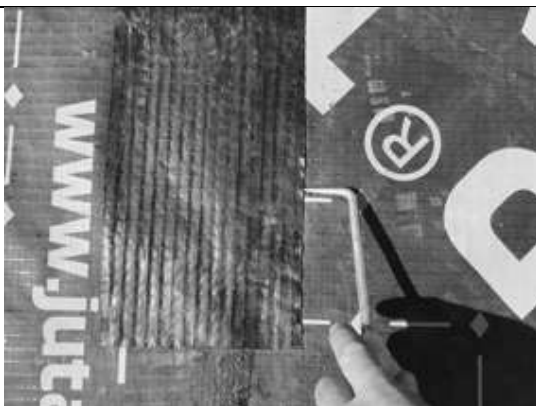
Detailing Sample Photographs



Typical corner seal using SAGM to plot 48.



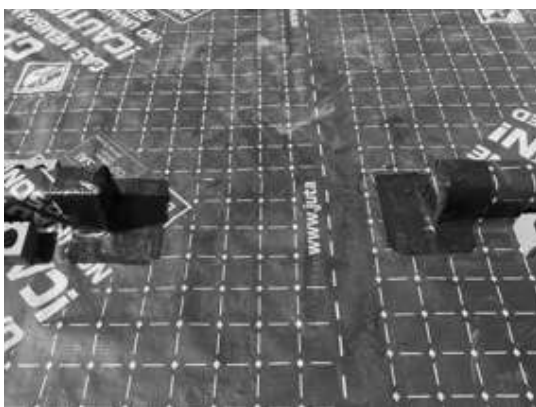
All lapped membrane has been hand welded in plot 48.



Pick testing all SAGM detailing to plot 48.



Typical corner seal using SAGM to plot 48.



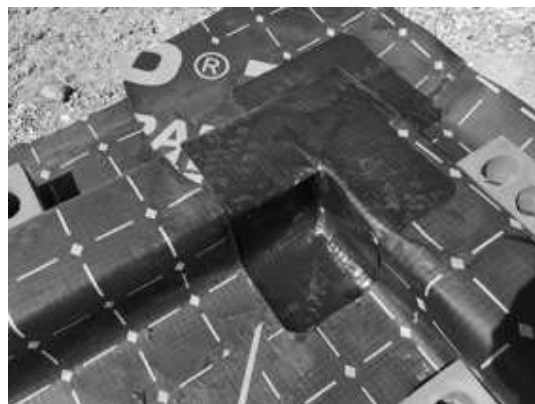
Typical internal door threshold seal using SAGM in plot 49.



Typical pipe penetration seal using SAGM in plot 49.



Typical door threshold seal using SAGM to plot 49.



Typical corner seal using SAGM to plot 49.

Housebuilder Name: Eliva Homes - Royale Victoria Grange.		Date: 27/06/2023	
Site Name: 2 Grange Road, Netley, Southampton.		Weather: 20 °C Dry	
		Installer: UK Membranes	
Postcode: SO31 5HZ.		Surveyor: Adam McDermott (TGPV)	
Plot Number	Building Type	Extent of Inspection	Result
7.	Flat over garage.	Full Footprint	Pass
10 & 11.	Semi Detached.	Full Footprint	Pass
42,43 & 44.	Terrace.	Full Footprint	Pass
(Section 1, Materials and Method of Seal)			
Gas Membrane Name: Juta GP1 Gas Membrane.			
Corner Seal Method: Corners have been sealed using strips of self-adhesive gas membrane, this is an approved and recognised method in CIRIA C735			
Service Entry Seal Method: The external of the pipe/ducts have been sealed using strips of self-adhesive gas membrane, this is an approved and recognised method in CIRIA C735			
Annulus to Water Pipe Duct: The alkathene water pipe has either not been sealed or is not in place at the time of our inspection, this will require sealing to an approved method, this is outside the remit of the result of todays inspection			
Door Threshold Seal Method: Door Thresholds have been sealed using strips of self-adhesive gas membrane, this is an approved and recognised method in CIRIA C735			
Cavity Vent Seal Method: The cavity vents sit below the membrane that seals the cavity and do not require a specialist seal			
Material Jointing Method: The membrane has been overlapped sufficiently to achieve a sound joint, the joint is clean and dry and has been joined by means of hand welding with a hot air gun and neoprene roller, the width of the welded joint is a minimum of 30mm.			
Others Please List: N/A.			
(Section 2, Testing and Inspection Method)			
Leak/Hole Detection	MEC Environmental Ltd carried out a thorough Visual Inspection to the available area at the time of our inspection		
Joint Testing	The surveyor carried out Probe testing as per the method prescribed in ASTM D4437 to all detailing work, detailing work is defined as any part of the installation that includes a joint in the membrane, this includes but is not limited to pipes/ducts, stanchions, wind posts, braces, field seams, masonry abutments, tanking, door thresholds and the like		
Plot Number	(Section 3, Defects List)		Action Required

7,10,11,42,43 & 44.	No Defects recorded at the time of our inspection.	N/A
Signed: Adam McDermott (TGPV) Date: 27/06/2023		

Plot Overview Photographs



Overview of plot 7.

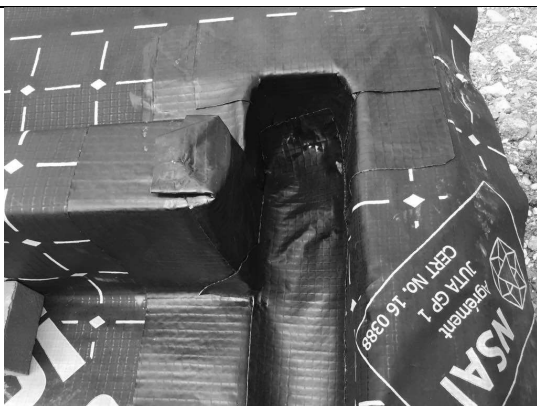


Overview of plots 10 & 11.



Overview of plots 42,43 & 44.

Detailing Sample Photographs



Sealed corner detail using SAGM to plot 7.



Typical pipe penetration seal using SAGM to plot 7.



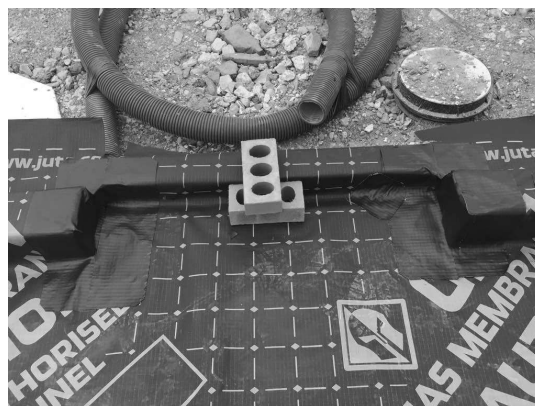
Pick testing all SAGM detailing to plot 7.



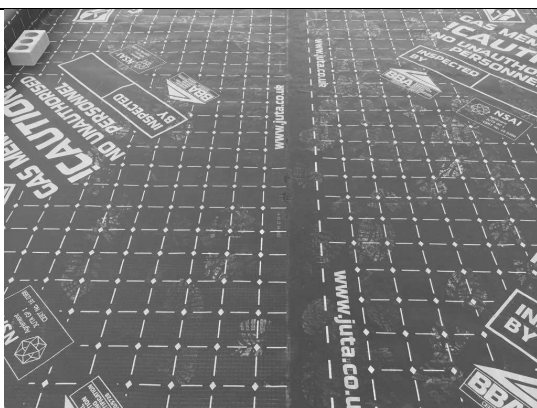
Typical corner seal using SAGM to plot 10.



Typical double pipe penetration seal using SAGM to plot 10.



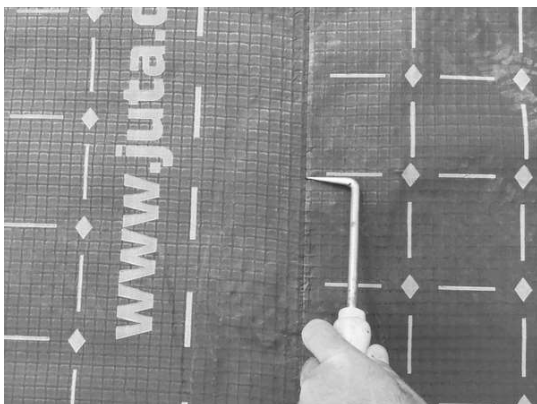
Typical door threshold seal using SAGM to plot 11.



All membrane laps have been hand welded in plot 11.



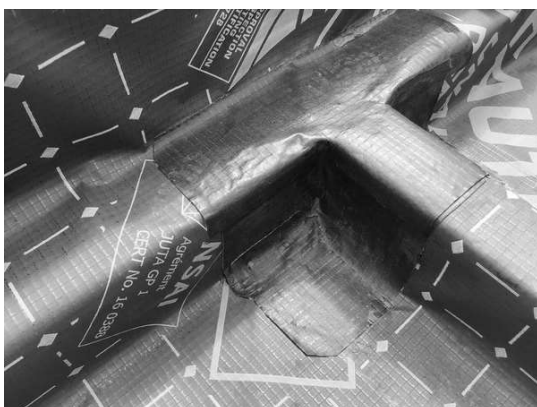
Sealed internal door thresholds using SAGM to plot 42.



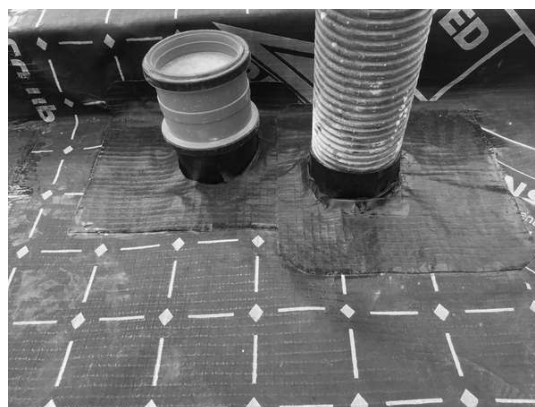
Pick testing all hand welded membrane laps in plot 42.



Typical pipe penetration seal using SAGM to plot 43.



Typical corner seal using SAGM to plot 43.



Typical double pipe penetration seal using SAGM to plot 44.



Typical door threshold seal using SAGM to plot 44.



Air brick in place under the membrane to all plots.

Housebuilder Name: Eliva Homes - Royale Victoria Grange.		Date: 03/07/2023	
Site Name: 2 Grange Road, Netley, Southampton.		Weather: 17 °C Dry	
		Installer: UK Membranes	
Postcode: SO31 5HZ.		Surveyor: Adam McDermott (TGPV)	
Plot Number	Building Type	Extent of Inspection	Result
25 & 26.	Detached.	Full Footprint	Pass
(Section 1, Materials and Method of Seal)			
Gas Membrane Name: Juta GP1 Gas Membrane.			
Corner Seal Method: Corners have been sealed using strips of self-adhesive gas membrane, this is an approved and recognised method in CIRIA C735			
Service Entry Seal Method: The external of the pipe/ducts have been sealed using strips of self-adhesive gas membrane, this is an approved and recognised method in CIRIA C735			
Annulus to Water Pipe Duct: The alkathene water pipe has either not been sealed or is not in place at the time of our inspection, this will require sealing to an approved method, this is outside the remit of the result of todays inspection			
Door Threshold Seal Method: Door Thresholds have been sealed using strips of self-adhesive gas membrane, this is an approved and recognised method in CIRIA C735			
Cavity Vent Seal Method: The cavity vents sit below the membrane that seals the cavity and do not require a specialist seal			
Material Jointing Method: The membrane has been overlapped sufficiently to achieve a sound joint, the joint is clean and dry and has been joined by means of hand welding with a hot air gun and neoprene roller, the width of the welded joint is a minimum of 30mm.			
Others Please List: N/A.			
(Section 2, Testing and Inspection Method)			
Leak/Hole Detection	MEC Environmental Ltd carried out a thorough Visual Inspection to the available area at the time of our inspection		
Joint Testing	The surveyor carried out Probe testing as per the method prescribed in ASTM D4437 to all detailing work, detailing work is defined as any part of the installation that includes a joint in the membrane, this includes but is not limited to pipes/ducts, stanchions, wind posts, braces, field seams, masonry abutments, tanking, door thresholds and the like		
Plot Number	(Section 3, Defects List)		Action Required
25 & 26.	No Defects recorded at the time of our inspection.		N/A

Signed: Adam McDermott (TGPV) Date: 03/07/2023		

Plot Overview Photographs

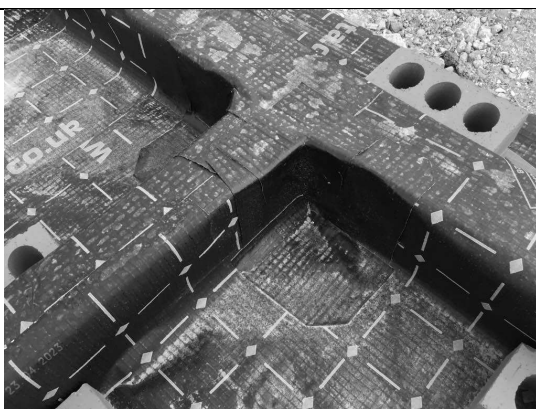


Overview of plot 25.



Overview of plot 26.

Detailing Sample Photographs



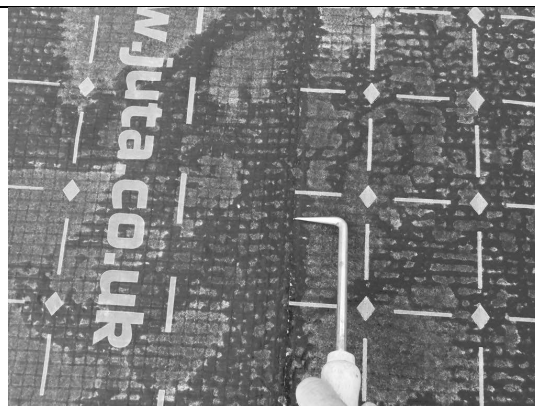
Typical corner seal using SAGM to plot 25.



Typical double pipe penetration seal using SAGM to plot 25.



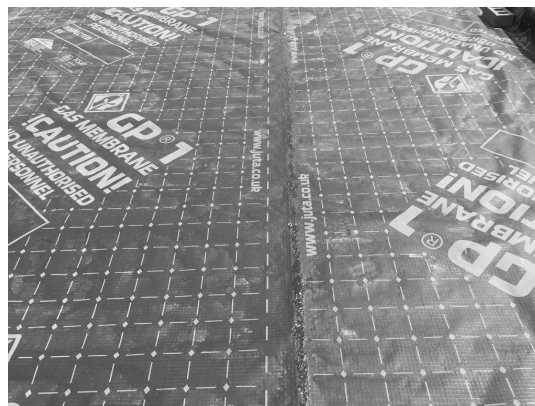
Typical internal door threshold seal using SAGM to plot 25.



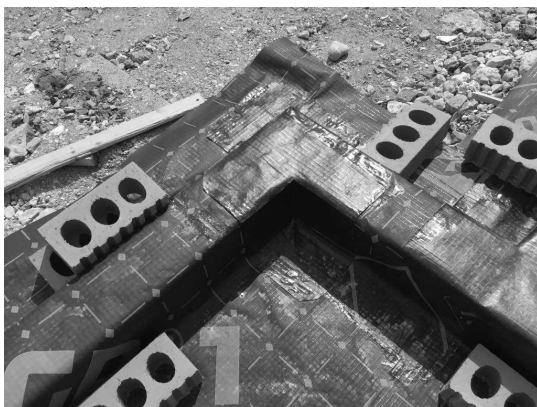
Pick testing all hand welded membrane laps in plot 25.



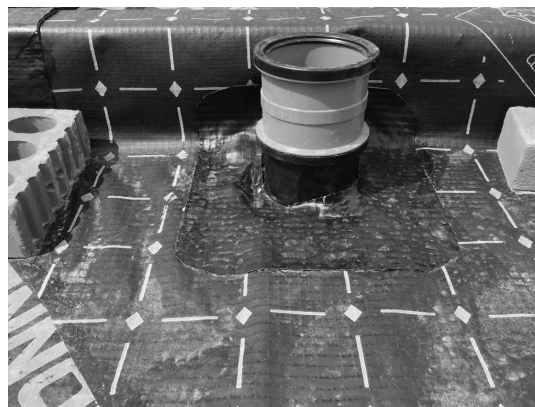
Air brick in place under the membrane during our inspection to plot 26.



Hand welded membrane lap in plot 26.



Typical corner seal using SAGM to plot 26.



Typical pipe penetration seal using SAGM in plot 26.

