



Gas Membrane Installation
Validation Report
Casey Group
The Enterprise Centre
Benchill Road
Wythenshawe
M22 8LF



THIS PAGE IS INTENTIONALLY BLANK

1. INTRODUCTION

1.1 Purpose

JCW Group are installing a gas protection membrane to the aforementioned site. MEC Environmental Ltd (MEC) has been appointed by JCW Group 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: 18/09/2024

Michael Corban S.G.P.V.

Director

MEC Environmental Ltd

Appendix 1 – Site Survey Sheets

Housebuilder Name: Casey Group - The Enterprise Centre		Date: 22/07/2024	
Site Name: Benchill Road, Wythenshawe		Weather: 18 °C Dry	
		Installer: JCW Group	
Postcode: M22 8LF		Surveyor: Dan Squire (TGPV) (NVQ 4)	
Plot Number	Building Type	Extent of Inspection	Result
1	Detached	Full Footprint	Pass
2 & 3	Semi Detached	Full Footprint	Pass
(Section 1, Materials and Method of Seal)			
Gas Membrane Name: Juta GP1 gas barrier 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, The external of the pipes/ducts have been sealed using preformed tophats that have been taped into place, 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		



Location of plots on the site plan

Detailing Sample Photographs



Cavity vents installed under the perimeter membrane



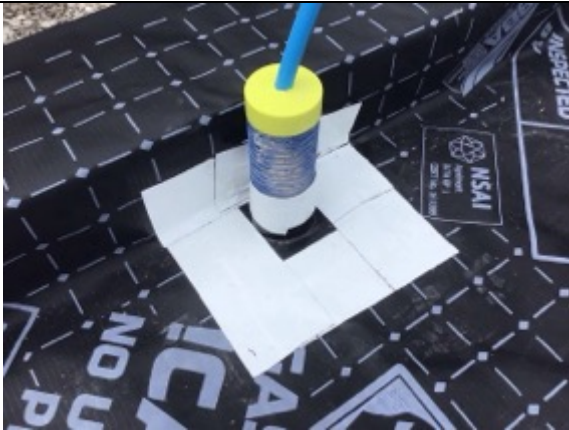
Pick testing sealed hand welded membrane lap joint



Pick testing detailing work



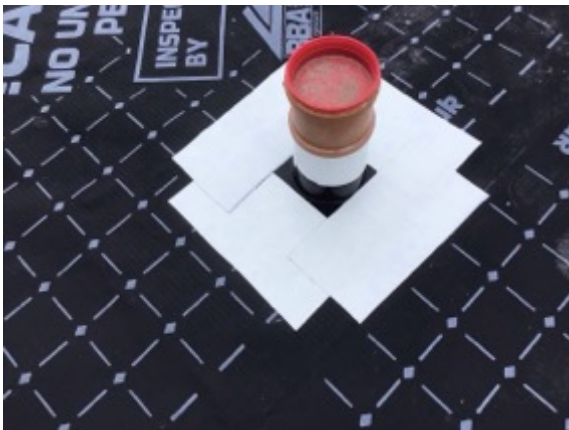
Plot 1 threshold detail sealed using Juta GP SAM and heat applied



Plot 1 pipe penetrations sealed using Juta GP SAM and heat applied over a pre formed top hat



Plot 1 corner detailing sealed using Juta GP SAM and heat applied



Plot 2 pipe penetrations sealed using Juta GP SAM and heat applied over a pre formed top hat



Plot 2 corner detailing sealed using Juta GP SAM and heat applied



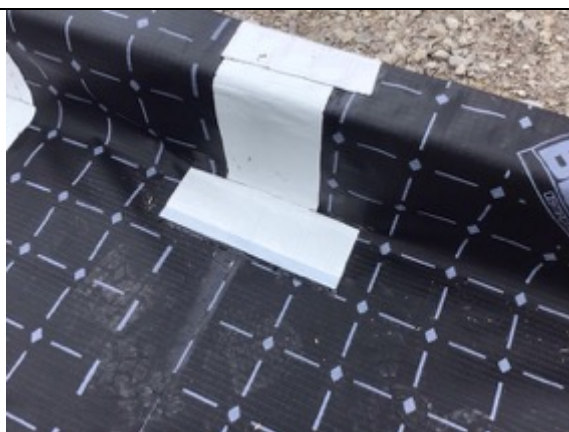
Plot 3 pipe penetrations sealed using Juta GP SAM and heat applied over a pre formed top hat



Plot 3 threshold detailing sealed using Juta GP SAM and heat applied



Recorded weld defect on plot 1



Recorded defect sealed using Juta GP SAM and heat applied

Housebuilder Name: Casey Group		Date: 01/08/2024	
Site Name: Former Enterprise Centre, 34 Benchill Road, Wythenshawe		Weather: 25°C Dry	
		Installer: JCW Group	
Postcode: M22 8LF		Surveyor: Dan Squire (TGPV) (NVQ 4)	
Plot Number	Building Type	Extent of Inspection	Result
4-5-6	Detached	Full Footprint	Pass
(Section 1, Materials and Method of Seal)			
Gas Membrane Name: Juta GP1 gas barrier membrane & Juta GP SAM.			
Corner Seal Method: Corners have been sealed using strips of self-adhesive gas membrane (Juta GP SAM), this is an approved and recognised method in CIRIA C735.			
Service Entry Seal Method: The external of the pipes/ducts have been sealed either using preformed top-hats that have been detailed with self-adhesive gas membrane (Juta GP SAM) or via strips of self-adhesive gas membrane (Juta GP SAM). Both are approved and recognised methods 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 today's inspection.			
Door Threshold Seal Method: Door Thresholds have been sealed using strips of self-adhesive gas membrane (Juta GP SAM), 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			

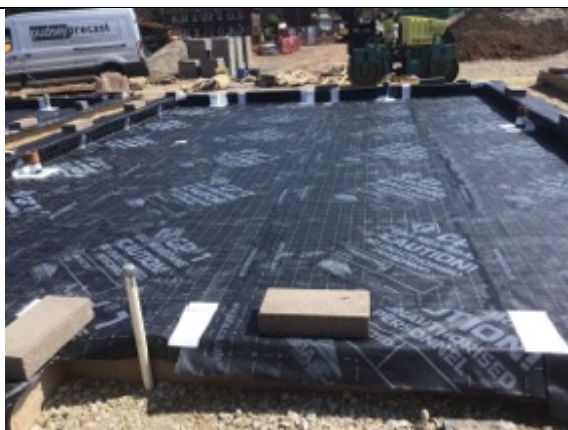
(Section 2, Testing and Inspection Method)	
Inspection	MEC Environmental Ltd carried out a thorough Visual Inspection to the available area at the time of our inspection.
Joint Testing	The surveyor carried out Probe testing as per the method prescribed in ASTM D4437 to all detailing work, detailing work 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
4-5-6	N/A	N/A
Signed: Dan Squire (TGPV) (NVQ 4) Date: 01/08/2024		

Plot Overview Photographs



Plot 4 full line out overview

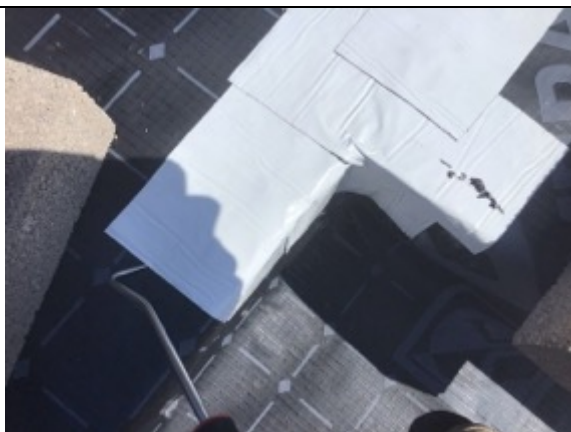


Plot 5 full line out overview



Plot 6 full line out overview

Detailing Sample Photographs



Plot 4 probe testing corner detail



Plot 4 probe testing hand welded membrane lap joint



Plot 4 probe testing pipe penetration



Plot 4 pipe penetration sealed with a preformed top hat and Juta GP SAM detailing



Plot 5 probe testing hand welded membrane lap joint



Plot 5 probe testing pipe penetration sealed with a preformed top hat and Juta GP SAM detailing



Plot 5 probe testing threshold detail



Plot 5 sealed corner detailing



Cavity vents installed under the perimeter membrane



Plot 6 probe testing hand welded membrane lap joint



Plot 6 probe testing corner detailing



Plot 6 probe testing threshold detailing



Plot 6 pipe penetration sealed using Jута GP SAM

Housebuilder Name: Casey Group		Date: 08/08/2024	
Site Name: Former Enterprise Centre, 34 Benchill Road, Wythenshawe		Weather: 19 °C Dry	
		Installer: JCW Group	
Postcode: M22 8LF		Surveyor: Dan Squire (TGPV) (NVQ 4)	
Plot Number	Building Type	Extent of Inspection	Result
7	Detached	Full Footprint	Pass
8-9 & 10-11	Semi Detached	Full Footprint	Pass
(Section 1, Materials and Method of Seal)			
Gas Membrane Name: Juta GP1 gas barrier 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, The external of the pipes/ducts have been sealed using preformed tophats that have been hand welded into place, 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

7-8-9-10-11	No Defects recorded at the time of our inspection. As the works were complete prior to our inspection, MEC were unable to provide evidence of the materials used.	N/A
Signed: Dan Squire (TGPV) (NVQ 4) Date: 08/08/2024		

Plot Overview Photographs



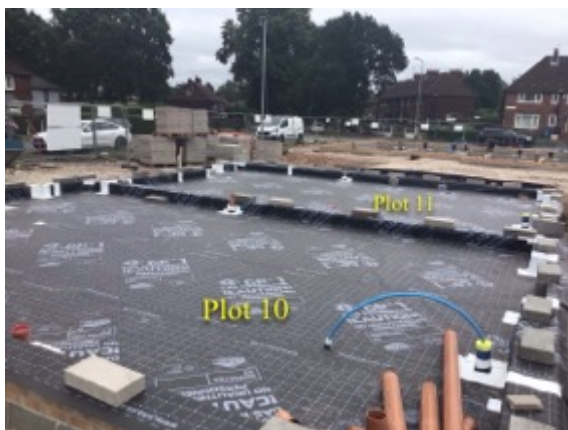
Location of plots



Plot 7 full line out installation



Plots 8 & 9 full line out installation



Plots 10 & 11 full line out installation

Detailing Sample Photographs



Perimeter cavity vents installed under the membrane



Plot 7 testing hand welded membrane lap joint



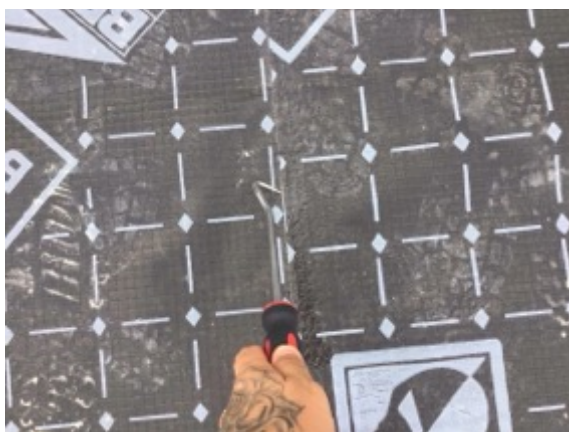
Plot 7 testing pipe seals



Plot 7 testing corner detailing



Plot 8 testing pipe seals



Plot 8 testing hand welded membrane lap joint



Plot 9 testing threshold detailing



Plot 9 testing corner detailing



Plot 9 testing pipe seals



Plot 10 testing pipe seals



Plot 10 testing threshold detailing



Plot 10 testing corner detailing



Plot 11 testing hand welded membrane lap joint



Plot 11 testing pipe seals



Plot 11 testing corner detailing

Housebuilder Name: Casey Group - Enterprise Park			Date: 16/08/2024
Site Name: Former Enterprise Centre, 34 Benchill Road, Wythenshawe			Weather: 22 °C Dry
			Installer: JCW Group
Postcode: M22 8LF		Surveyor: Ross Edwards (NVQ 4)	
Plot Number	Building Type	Extent of Inspection	Result
12-17	Apartment Block	Full Footprint	Pass
(Section 1, Materials and Method of Seal)			
Gas Membrane Name: JUTA GP1 Gas Membrane & JUTA GP SAM			
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
12,13,14,15,16,17	No Defects recorded at the time of our inspection		N/A



Close up of the pipe penetration detail sealed.



Overview looking down the hand welded lap joint.



Internal corner and threshold detail sealed to Block 1.



Pick testing along the welded lap joint.



Completed threshold detail within Block 1.



Two pipe penetration details sealed



Pick testing to the sealed corner detail.

Housebuilder Name: The Casey Group			Date: 18/09/2024
Site Name: Former Enterprise Centre, 34 Benchill Road, Wythenshawe			Weather: 18 °C Dry
			Installer: JCW Group
Postcode: M22 8LF		Surveyor: Dan Squire (TGPV) (NVQ 4)	
Plot Number	Building Type	Extent of Inspection	Result
Block 2 (plots 18 to 23)	Apartment block	Full Footprint	Pass
(Section 1, Materials and Method of Seal)			
Gas Membrane Name: Juta GP1 gas barrier membrane & Juta GP SAM			
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

Plots 18 to 23 / apartment block 2	4no Defects recorded and re welded by the installers during the inspection. No outstanding defects	N/A

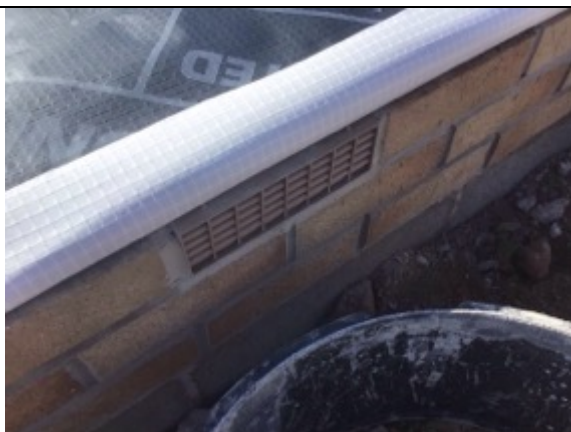
Signed: **Dan Squire (TGPV) (NVQ 4)**

Date: **18/09/2024**



Juta GP1 membrane

Detailing Sample Photographs



Air brick installed under the perimeter cavity membrane



Testing sealed pipe detailing



Sealed pipe penetrations



Sealed pipe penetrations



Testing threshold detailing



Sealed corner and threshold detailing



GP SAM used to strengthen the perimeter corner welding



Testing corner detailing



Testing hand welded membrane lap joints



Sealed corner detailing