



Gas Membrane Installation
Validation Report
Holroyd Homes
Huddersfield
HD4 7HB
Version 3 27/09/21



THIS PAGE IS INTENTIONALLY BLANK

1. INTRODUCTION

1.1 Purpose

Doncaster Membranes are installing a gas protection membrane to the aforementioned site. MEC Environmental Ltd (MEC) has been appointed by Doncaster Membranes to carry out independent validation of the installation of the membrane on the site as per our terms of engagement.

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 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 – Were a validation plan has not been prepared then the frequency of visits is as per the instructions of the client, 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, this approach is in line with CIRIA C735.

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 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.

Redacted

Signed

Date: 04/08/21

Michael Corban S.G.P.V.

Director

MEC Environmental Ltd

Appendix 1- Site Survey Sheets

Housebuilder Name: Holroyd Homes		Plot Number: 4 & 5	
Site Name: Fold Farm, Huddersfield,		Detached House	☒
		Semi-Detached	☐
Postcode: HD4 7HB	Weather: 20 °C sunny	Terrace	☐
Installer: Doncaster Membranes		Apartment Block	☐
Surveyor: Ross Edwards		Detached Garage	☐
Date: 16/06/2021		Flat Over Garage	☐
Full Footprint ☒ Perimeter Only ☐ Infill Only ☐ Other ☒ If other, please describe			
Item	Comments		
Sub-floor void	Inspected by MEC ☐	Not Inspected by MEC contractor advised ☐	N/A ☐
	Beam & Block min 150mm ☒ Strips of 25mm Geocomposite ☐ Full Cover of 25mm Geocomposite ☐		
	- The venting has passed inspection and is installed as per the design ☐ - The venting has failed inspection, see notes in defects section ☐		
Ventilation Inlets and Outlets	(Inlet/Outlet Type) Air Bricks ☒ Ventboxes ☐ Not in Place at Time of Inspection ☐		
	Number of Vents: Plot 4 = 14no, Plot 5 = 11no		
Materials used:	Membrane Name: JUTA GP1		
	Self-Adhesive Membrane ☒	Preformed Tophats ☒	
	Double Sided Butyl Tape ☐	Preformed Corners ☒	
	Others Please List:		
Type of Joint	Tape Joint ☐	Auto Weld ☒	Hand Weld ☒ Extrusion Weld ☐
Testing/Inspection	☒ Visual Inspection	☒ Air Lance (ASTM D4437)	☐ Tracer Gas Test
	☒ Probe Test (ASTM D4437)		☐ Dielectric Test (NACE RP0188-99)
Laps, welds and detailing	Have all joints passed testing prior to surveyor leaving site?	☒ Yes	☐ No ☐ N/A
	Have all pipes passed testing prior to surveyor leaving site?	☒ Yes	☐ No ☐ N/A

	Have all corners passed testing prior to surveyor leaving site?	☒ Yes	☐ No	☐ N/A
	Have all acoustic details passed testing prior to surveyor leaving site?	☐ Yes	☐ No	☐ N/A
<u>Surveyors Comments</u> All pre formed corners have been tightly fitted and all top hats place and welded with a strip of SAGM place around the neck of the penetration.				
<u>Result of Inspection</u> The Plots/Area has passed inspection Signed: Ross Edwards Date: 16/06/2021				

Photographs 16/06/2021



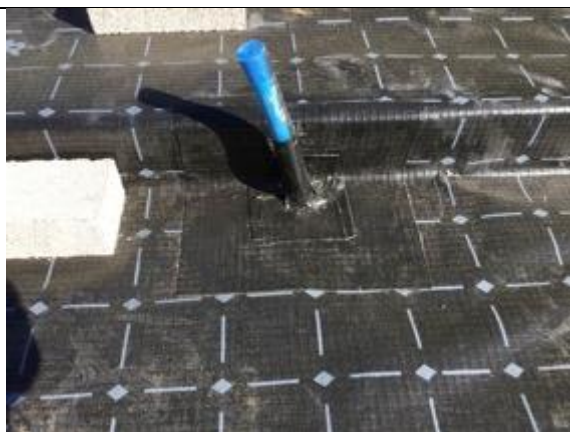
Overview photo looking at Plot 4"



Pick probe testing carried out to the mechanical weld joint.



Close up showing the pre formed corner details for this doorway threshold.



Over view photo showing the SAGM applied to the pipe detail.



Complete top hat to the pipe penetration detail with a strip of SAGM applied around the neck.



Air bricks in place.

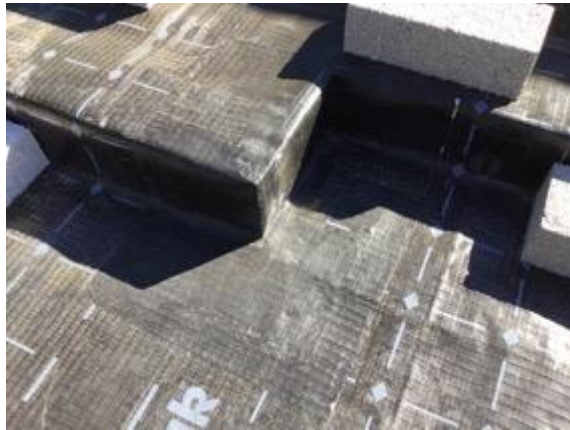


Pick probe testing to the SAGM to the pipe penetration detail.



Completed pipe penetration detail to Plot 5.

Pick probe testing carried out to the internal corner detail.



Close up showing the completion of the pre formed corner to the doorway.



Pick probe testing carried out to the hand welded section to the lap joint.



Overview photo showing the completion to Plot 5.

Housebuilder Name: Holroyd Homes - Netherton Fold		Plot Number: 6 & 9. (Plot 6 only with integral garage)	
Site Name: Fold Farm. Huddersfield		Detached House	☒
		Semi-Detached	☐
Postcode: HD4 7 HB	Weather: 19 °C Dry	Terrace	☐
Installer: DMI		Apartment Block	☐
Surveyor: Dan Squire		Detached Garage	☐
Date: 01/07/2021		Flat Over Garage	☐
Full Footprint ☒ Perimeter Only ☐ Infill Only ☐ Other ☐ If other, please describe			
Item	Comments		
Sub-floor void	Inspected by MEC ☒	Not Inspected by MEC contractor advised ☐	N/A ☐
	Beam & Block min 150mm ☒ Strips of 25mm Geocomposite ☐ Full Cover of 25mm Geocomposite ☐		
	- The venting has passed inspection and is installed as per the design ☐ - The venting has failed inspection, see notes in defects section ☐		
Ventilation Inlets and Outlets	(Inlet/Outlet Type) Air Bricks ☒ Ventboxes ☐ Not in Place at Time of Inspection ☐		
	Number of Vents: Not fully installed		
Materials used:	Membrane Name: Juta GP1 gas barrier membrane		
	Self-Adhesive Membrane ☒	Preformed Tophats ☒	
	Double Sided Butyl Tape ☐	Preformed Corners ☒	
	Others Please List: N/A		
Type of Joint	Tape Joint ☐	Auto Weld ☒	Hand Weld ☒ Extrusion Weld ☐
Testing/Inspection	☒ Visual Inspection	☒ Air Lance (ASTM D4437)	☐ Tracer Gas Test
	☒ Probe Test (ASTM D4437)	☐ Dielectric Test (NACE RP0188-99)	

Laps, welds and detailing	Have all joints passed testing prior to surveyor leaving site?	☒ Yes	☐ No	☐ N/A
	Have all pipes passed testing prior to surveyor leaving site?	☒ Yes	☐ No	☐ N/A
	Have all corners passed testing prior to surveyor leaving site?	☒ Yes	☐ No	☐ N/A

	Have all acoustic details passed testing prior to surveyor leaving site?	☐ Yes	☐ No	☐ N/A
<u>Surveyors Comments</u> N/A				
<u>Result of Inspection</u> The Plots/Area has passed inspection Signed: Dan Squire Date: 01/07/2021				

Photographs 01/07/2021



Plot 6 with integral garage full line out installation



Plot 6 sealed pre formed pipe penetration top hat



Plot 6 sealed pre formed threshold detail



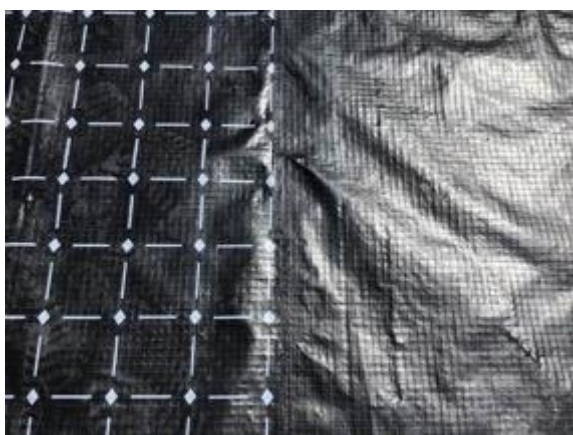
Plot 6 sealed pre formed corner detail



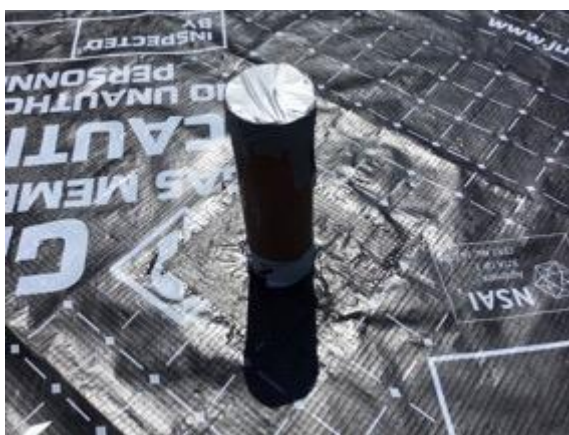
Plot 9 full line out installation



Plot 9 sealed pre formed corner and threshold detailing



Plot 9 sealed auto weld membrane joint



Plot 9 sealed pre formed pipe penetration top hat

Housebuilder Name: Holroyd Homes		Plot Number: 10 & 11.	
Site Name: Fold Farm, Huddersfield.		Detached House	☒
		Semi-Detached	☐
Postcode: HD4 7HB	Weather: 29 °C Fine	Terrace	☐
Installer: DMI		Apartment Block	☐
Surveyor: Keith Barsby		Detached Garage	☐
Date: 19/07/2021		Flat Over Garage	☐
Full Footprint ☒ Perimeter Only ☐ Infill Only ☐ Other ☐ If other, please describe			
Item	Comments		
Sub-floor void	Inspected by MEC ☐	Not Inspected by MEC contractor advised ☒	N/A ☐
	Beam & Block min 150mm ☒ Strips of 25mm Geocomposite ☐ Full Cover of 25mm Geocomposite ☐		
	- The venting has passed inspection and is installed as per the design ☐ - The venting has failed inspection, see notes in defects section ☐		
Ventilation Inlets and Outlets	(Inlet/Outlet Type) Air Bricks ☒ Ventboxes ☐ Not in Place at Time of Inspection ☐		
	Number of Vents: Plot 8=14no, Plot 9=14no		
Materials used:	Membrane Name: Juta GP1 Gas membrane		
	Self-Adhesive Membrane ☒	Preformed Tophats ☒	
	Double Sided Butyl Tape ☐	Preformed Corners ☒	
	Others Please List:		
Type of Joint	Tape Joint ☐	Auto Weld ☒	Hand Weld ☒ Extrusion Weld ☐
Testing/Inspection	☒ Visual Inspection	☒ Air Lance (ASTM D4437)	☐ Tracer Gas Test
	☒ Probe Test (ASTM D4437)	☐ Dielectric Test (NACE RP0188-99)	

Laps, welds and detailing	Have all joints passed testing prior to surveyor leaving site?	☒ Yes	☐ No	☐ N/A
	Have all pipes passed testing prior to surveyor leaving site?	☒ Yes	☐ No	☐ N/A
	Have all corners passed testing prior to surveyor leaving site?	☒ Yes	☐ No	☐ N/A

	Have all acoustic details passed testing prior to surveyor leaving site?	☐ Yes	☐ No	☐ N/A
Surveyors Comments The membrane has been installed to a good standard, water pipes sealed using SAGM				
Result of Inspection The Plots/Area has passed inspection Signed: Keith Barsby Date: 19/07/2021				

Photographs 19/07/2021



Plot 10 overview



Plot 10 corner detail using preformed corners



Plot 10 pipe penetration sealed using preformed top hat and SAGM



Plot 10 water pipe seal using SAGM



Plot 11 overview



Plot 11 door threshold and corner detail using preformed corners



Plot 11 hand welded joint being pick tested



Plot 11 pipe penetrations sealed using preformed top hats and SAGM

Housebuilder Name: Holroyd Homes		Plot Number: 7, 8	
Site Name: Fold Farm, Huddersfield		Detached House	☒
		Semi-Detached	☐
Postcode: HD4 7HB	Weather: 17 °C Dry	Terrace	☐
Installer: DMI		Apartment Block	☐
Surveyor: Keith Barsby		Detached Garage	☐
Date: 04/08/2021		Flat Over Garage	☐
Full Footprint ☒ Perimeter Only ☐ Infill Only ☐ Other ☐ If other, please describe			
Item	Comments		
Sub-floor void	Inspected by MEC ☐	Not Inspected by MEC contractor advised ☒	N/A ☐
	Beam & Block min 150mm ☒ Strips of 25mm Geocomposite ☐ Full Cover of 25mm Geocomposite ☐		
	- The venting has passed inspection and is installed as per the design ☒ - The venting has failed inspection, see notes in defects section ☐		
Ventilation Inlets and Outlets	(Inlet/Outlet Type) Air Bricks ☒ Ventboxes ☐ Not in Place at Time of Inspection ☐		
	Number of Vents: Plot 7=10no, Plot 8=11no		
Materials used:	Membrane Name: Juta GP1 Gas membrane		
	Self-Adhesive Membrane ☒	Preformed Tophats ☒	
	Double Sided Butyl Tape ☐	Preformed Corners ☒	
	Others Please List:		
Type of Joint	Tape Joint ☐	Auto Weld ☒	Hand Weld ☒ Extrusion Weld ☐
Testing/Inspection	☒ Visual Inspection	☒ Air Lance (ASTM D4437)	☐ Tracer Gas Test
	☒ Probe Test (ASTM D4437)	☐ Dielectric Test (NACE RP0188-99)	

Laps, welds and detailing	Have all joints passed testing prior to surveyor leaving site?	☒ Yes	☐ No	☐ N/A
	Have all pipes passed testing prior to surveyor leaving site?	☒ Yes	☐ No	☐ N/A
	Have all corners passed testing prior to surveyor leaving site?	☒ Yes	☐ No	☐ N/A

	Have all acoustic details passed testing prior to surveyor leaving site?	☐ Yes	☐ No	☐ N/A
<u>Surveyors Comments</u> Water pipes and service pipes sealed using SAGM				
<u>Result of Inspection</u> The Plots/Area has passed inspection Signed: Keith Barsby Date: 04/08/2021				

Photographs 04/08/2021



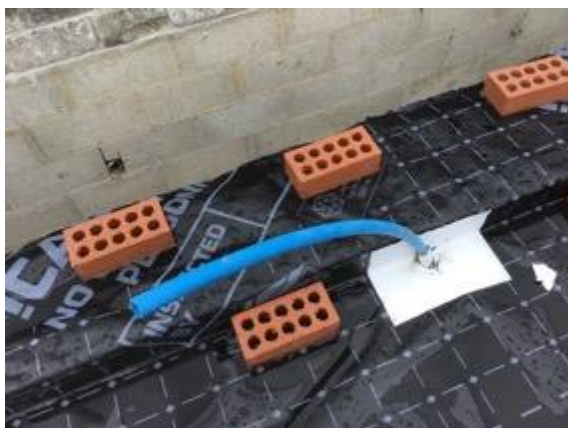
Plot 7 overview



Plot 7 corner detail using preformed corners



Plot 7 pipe penetration sealed using preformed top hat and SAGM



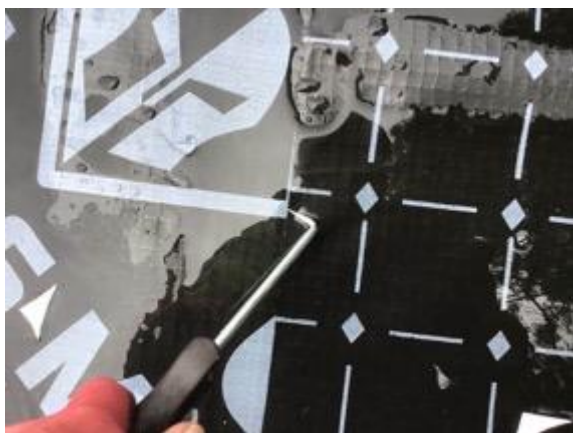
Plot 7 water pipe seal using SAGM



Plot 8 overview



Plot 8 service pipe seal using SAGM



Plot 8 hand welded joint being pick tested



Plot 8p pipe penetration sealed using preformed top hat and SAGM and door threshold using preformed corners