



Gas Membrane Installation
Validation Report
JP Marsden Construction Ltd
Town End Road
Holmfirth
HD9 1AH



THIS PAGE IS INTENTIONALLY BLANK

1. INTRODUCTION

1.1 Purpose

SEL Environmental are installing a gas protection membrane to the aforementioned site. MEC Environmental Ltd (MEC) has been appointed by SEL Environmental 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 is as per the gas protection design and verification plan produced by MEC, 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 in this report 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 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 – are as per the validation plan for this project. The areas inspected on each visit are noted on the survey sheets in appendix 1.

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. The installed details are as per the previously submitted MEC Gas protection design report dated 7th February 2024.

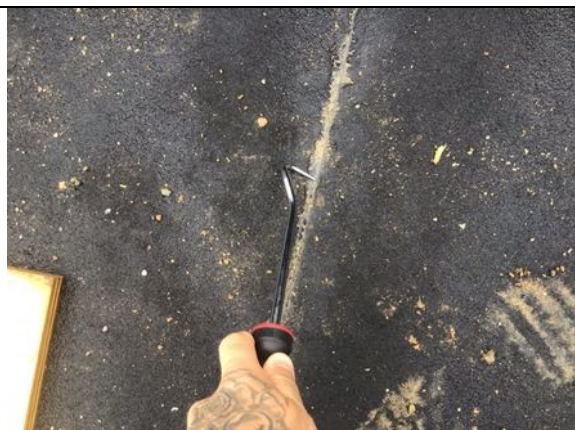
The installers all hold the NVQ Level 2 “Gas membrane Installations” qualification and as such are classed as a qualified and experienced installer. MEC Environmental have checked the CSCS Trade Cards of the installers, which confirms the holder has attained the qualification.

Date: 24/09/2024

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

Appendix 1 – Site Survey Sheets

Housebuilder Name: JP Marsden Construction Ltd		Date: 15/05/2024	
Site Name: Town End Road, Holmfirth		Weather: 14 °C Dry	
		Installer: SEL Environmental	
Postcode: HD9 1AH		Surveyor: Dan Squire (TGPV) (NVQ 4)	
Plot Number	Building Type	Extent of Inspection	Result
1no private property	Detached	Full Footprint of the underslab membrane	Pass
(Section 1, Materials and Method of Seal)			
Gas Membrane Name: Juta Titanbond			
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: Not Applicable			
Cavity Vent Seal Method: Not Applicable			
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 welding with a hot air automatic welding machine, the width of the welded joint is a minimum of 30mm., 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: Perimeter membrane is extended over the perimeter temporary shuttering. Once the shuttering is removed the membrane will be adhered to the toe of the floor slab			
(Section 2, Testing and Inspection Method)			
Leak/Hole Detection	MEC Environmental Ltd carried out a thorough Visual Inspection and dielectric test 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		



Probe testing welded membrane lap joints



Probe testing pipe penetration



Sealed pipe penetration using Juta Titan tank and heat applied



Corner detailing sealed using Juta Titan tank and heat applied



Membrane extended over the perimeter edge shuttering



Corner detail sealed using Juta Titan tank and heat applied

Main Contractor Name: JP Marsden Construction Ltd		Date: 16/07/2024
Site Name: Town End Road, Holmfirth.		Temp: 17 °C
		Installer: Sel Environmental
Postcode: HD9 1AH	Surveyor: James Hall (TGPV)	
Building Reference/Unit No:	27a Town End Road	
Area Inspected:	See Marked Up Plan - Retaining Wall Tanking	
Description of Works:	<p>MEC Environmental carried out a thorough inspection of the application of Juta TitanTank membrane to the retaining wall.</p> <p>Installers have primed the concrete retaining wall using Juta GP Primer.</p> <p>Once dried and cured, Juta TitanTank 1 meter has been applied to the primed retaining wall, over lapping adjacent sheets with adequate heat and pressure applied using an LPG gas burner and rolled pressure.</p> <p>The Juta TitanTank has been lapped onto the existing Juta TitanBond gas barrier membrane and heated sealed to form a continuous seal throughout.</p> <p>One alkathene water pipe was sealed using Juta TitanTank and heat sealed.</p>	
Sub-Grade Preparation:	N/A	
Result of Inspection:	No Action Required all Defects rectified at time of inspection	
(Section 1, Materials and Method of Seal)		
Gas Membrane Name: Juta GP TitanTank		
Other Products Used: Juta GP Primer		
Perimeter Seal Method: See Description of Works for Perimeter seal detail		
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		
Stanchion Seal Method: Not Applicable		
Material Jointing Method: Not Applicable		
Others Please List: Juta TitanTank membrane was heat sealed using an LPG Gas Burner		
(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	
(Section 3, Defects List)		Action Required

<p>3x small areas along lap joints that required additional heat and pressure applied.</p>	<p>No Action Required all Defects rectified at time of inspection</p>
--	---

Area Inspected



Gas Membrane Overview

<p>General overview of the installation to the retaining wall using Juta TitanTank membrane.</p>	<p>An alternative overview of the installation to the retaining wall using Juta TitanTank membrane.</p>

Materials Used



Evidence of the Juta TitanTank membrane used on this project.



Evidence of the Juta GP Primer used on this project.

Perimeter Detail



Juta TitanTank membrane sealed to the existing Juta TitanBond gas barrier.



Pick & probe testing along termination to existing Juta TitanBond gas barrier.

Pipe and Duct Seals



25mm Water Pipe sealed using Juta TitanTank.



Pick testing to the sealed water pipe.



Pick & probe testing upon the sealed 25mm water pipe entry.

Testing of Joints



Pick testing along adherence between adjacent sheets of Juta TitanTank.



Pick & probe testing to all lapped joints.

Additional Photos



Evidence of Juta GP Primer applied to the retaining wall.

Housebuilder Name: J P Marsden Construction LTD		Date: 24/09/2024	
Site Name: Town End Road, Holmfirth		Weather: 13 °C Dry	
		Installer: SEL Environmental	
Postcode: HD9 1AH		Surveyor: Dan Squire (TGPV) (NVQ 4)	
Plot Number	Building Type	Extent of Inspection	Result
1no private property	Detached	Retaining Wall	Pass
(Section 1, Materials and Method of Seal)			
Gas Membrane Name: Juta Titantank & primer			
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: Not Applicable			
Annulus to Water Pipe Duct: Not Applicable			
Door Threshold Seal Method: Not Applicable			
Cavity Vent Seal Method: Not Applicable			
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: See defects section			
(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
1no private property	The installers have installed Juta Titantank around the top edge of the pre primed retaining walls and hand welded onto the previously installed tanking prior to the backfill. All joints have been hand welded and sealed. Approx 2m of tanking had come away from the wall due to excess		Repairs completed at time of inspection

	material pulling itself down. these have been trimmed, heated and satisfactorily.	
Signed: Dan Squire (TGPV) (NVQ 4)		Date: 24/09/2024

Plot Overview Photographs



Detailing Sample Photographs

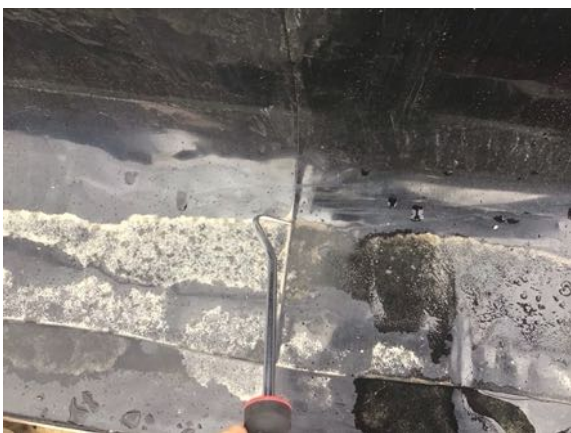




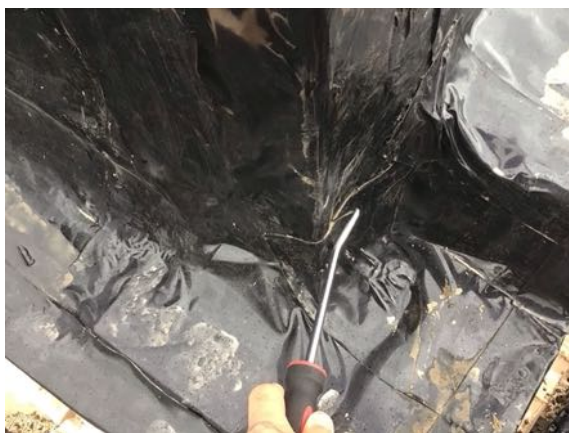
Perimeter retaining wall tanking detail



Existing previously installed tanking



Probe testing joints



Probe testing corner detailing



Probe testing seal to pre primed brickwork



Primer applied



Perimeter retaining wall tanking detail



Perimeter retaining wall tanking detail



Perimeter retaining wall tanking detail