MEC Environmental Ltd – Blackburn Technology Management Centre -
Challenge Way - Greenbank Technology Park – Blackburn – BB1 5QB

MEC ENVIRONMENTAL LTD

Gas Membrane Installation

Validation Report

RK Wilson

Adj Corner House

Church Gate

Whaplode

Spalding

PE12 6TA

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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 were 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.



Signed Date: 27/07/21

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

Appendix 1- Site Survey Sheets

Housebuilder Name: RK Wilson		**Plot Number: 1&2**	
Site Name: Adj Corner House, Church gate, Whaplode, Spalding.		**Detached House**	☐
		Semi-Detached	☒
Postcode: PE12 6TA	**Weather: 13 ºC Fine**	**Terrace**	☐
Installer: Doncaster membranes		**Apartment Block**	☐
Surveyor: Michael Corban		**Detached Garage**	☐
Date: 25/05/2021		**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: Outside remit of report		
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

Surveyors Comments

No repairs required, Annulus of water pipe will require sealing after plumbers first fix as per the design, this is outwith the scope of our appointment but is imperative that the work is carried out prior to occupation

Result of Inspection The Plots/Area has passed inspection

Signed: **Michael Corban** Date: **25/05/2021**

Photographs 25/05/2021



General overview



Acoustic detail





Corner detail

Annulus of water pipe will require sealing after plumbers first fix



Pipe seals



Annulus of water pipe will require sealing after plumbers first fix

Housebuilder Name: R K Wilson/Mr & Mrs Graves		**Plot Number: Gravesend House**	
Site Name: Gravesend House , Church Gate, Whaplode, Spalding, Lincolnshire.		**Detached House**	☒
		Semi-Detached	☐
Postcode: PE12 6TA	**Weather: 28 ºC FINE**	**Terrace**	☐
Installer: DMI		**Apartment Block**	☐
Surveyor: Keith Barsby		**Detached Garage**	☐
Date: 27/07/2021		**Flat Over Garage**	☐

Full Footprint ☐ Perimeter Only ☐ Infill Only ☐ Other ☐

If other, please describe Pipe seal in garage WC

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 Applicable			
Materials used:	Membrane Name: Juta Liquid 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

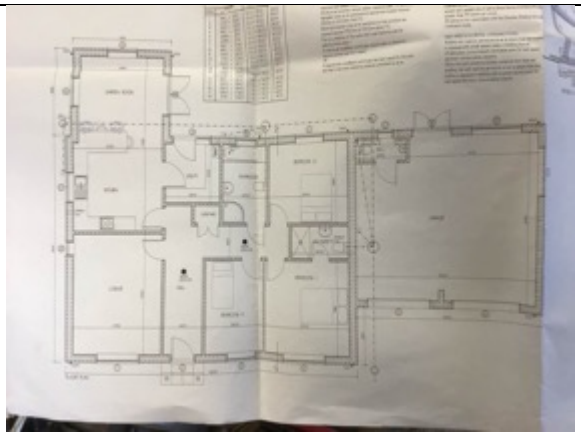
Surveyors Comments

The pipe has been filled with expanding foam and sealed using Juta Liquid Gas Membrane

Result of Inspection The Plots/Area has passed inspection

Signed: **Keith Barsby** Date: **27/07/2021**

Photographs 27/07/2021







Housebuilder Name: R K Wilson		**Plot Number: Plots 1 and 2**	
Site Name: Adj Corner House, Church gate, Whaplode, Spalding.		**Detached House**	☐
		Semi-Detached	☒
Postcode: PE12 6TA	**Weather: 28 ºC FINE**	**Terrace**	☐
Installer: DMI		**Apartment Block**	☐
Surveyor: Keith Barsby		**Detached Garage**	☐
Date: 27/07/2021		**Flat Over Garage**	☐

Full Footprint ☐ Perimeter Only ☐ Infill Only ☐ Other ☐

If other, please describe Water Pipe seals

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 Applicable			
Materials used:	Membrane Name: Juta Liquid 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 duct pipes carrying the water pipes, 1no on each plot, have been filled with expanding foam around the water pipe and sealed using Juta Liquid Gas Membrane.

Result of Inspection The Plots/Area has passed inspection

Signed: **Keith Barsby** Date: **27/07/2021**

Photographs 27/07/2021



Floor plan



Plot 1 seal



Plot 2 seal