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

MEC ENVIRONMENTAL LTD

Gas Membrane Installation

Validation Report

Kier

Nelson Street

Miles Platting

Manchester

M40 8BB

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1. INTRODUCTION

1.1 Purpose

Cook Group are installing a gas protection membrane to the aforementioned site. MEC Environmental Ltd (MEC) has been appointed by Cook Group to carry out independent validation of the installation of the membrane on the site as per our terms of engagement. MEC have not received any site specific construction details and therefore our report and inspections relates only to the standard of the installation works. 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 were 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 [redacted] Date: 21/08/2024

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

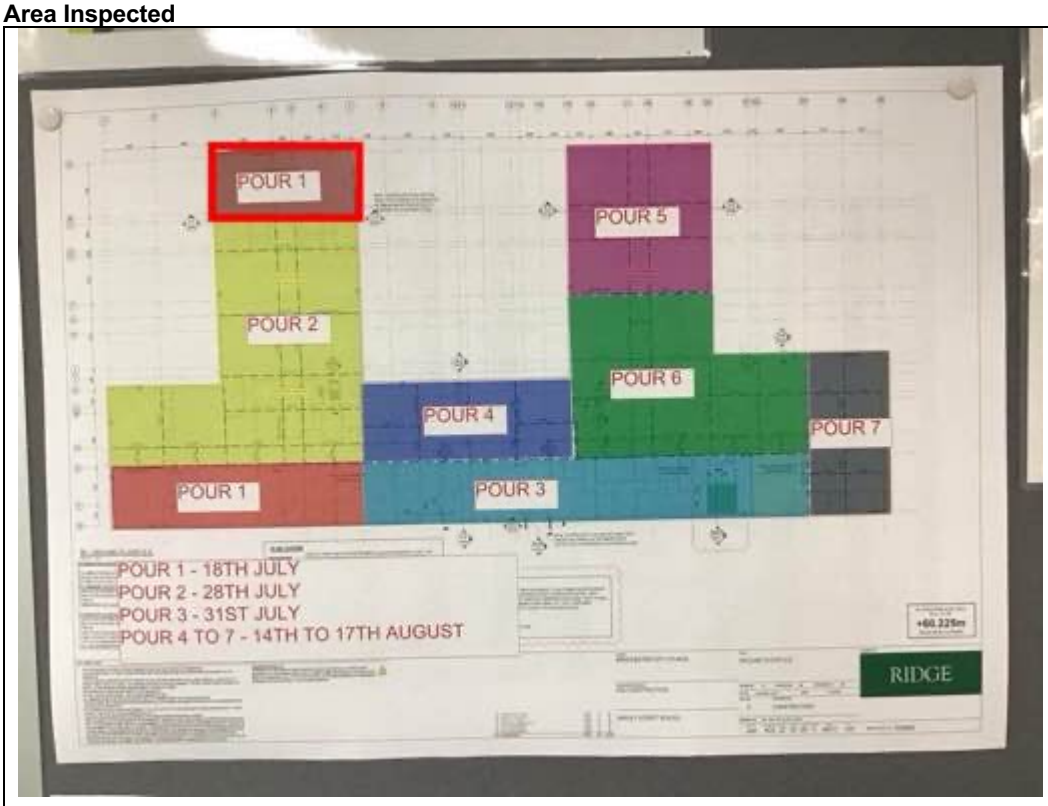
Appendix 1 – Site Survey Sheets

Main Contractor Name: ISG		**Date: 09/07/2024**
Site Name: Nelson Street, Miles Platting, Manchester.		**Temp: 18 °C**
		Installer: Cook Group
Postcode: M40 8BB	**Surveyor:** Dan Squire (TGPV) (NVQ 4)	
Building Reference/Unit No:	New school building	
Area Inspected:	Pour 1a full base line out installation - See Marked Up Plan	
Description of Works:	MEC Environmental carried out a thorough inspection of the gas membrane. The Titanflex membrane is installed across the full base of the pour area upon heave board, with insulation to be installed above the membrane after the inspection. The membrane extends up the temporary perimeter and internal shuttering boards. Around the perimeter edge, at a later date the membrane will be tanked to the toe of the concrete slab. The membrane extended over the internal shuttering will be joined to further membrane installed at a later date. All corner detailing and stanchions have been sealed using Juta GP1 SAM and heat sealed. All membrane lap joints have been sealed using both a hand welder and auto welder machine.	
Sub-Grade Preparation:	The subgrade had already been covered prior to our inspection and therefore has not been inspected by MEC Environmental	
Result of Inspection:	No Action Required all Defects rectified at time of inspection	
(Section 1, Materials and Method of Seal)		
Gas Membrane Name: Juta Titanflex Membrane		
Other Products Used: Juta GP1 SAM		
Perimeter Seal Method: See Description of Works for Perimeter seal detail		
Service Entry Seal Method: Not Applicable		
Stanchion Seal Method: The stanchions have been sealed using strips of self-adhesive gas membrane, this is an approved and recognised method in CIRIA C735		
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: Corner detailing sealed to an approved method using SAGM		
(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
No recorded defects	No Action Required all Defects rectified at time of inspection

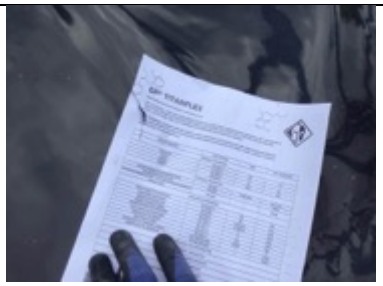
Area Inspected



Gas Membrane Overview

Overview of pour 1a line out installation

Materials Used



Spec sheet from membrane packaging

Perimeter Detail

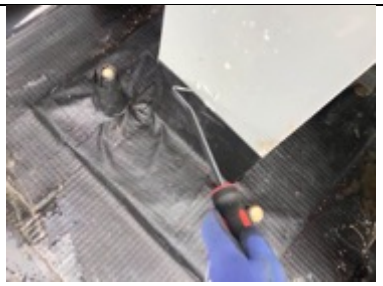
Perimeter membrane extended over the temporary shuttering

Perimeter membrane extended over the temporary shuttering

Stanchions and Columns Seals

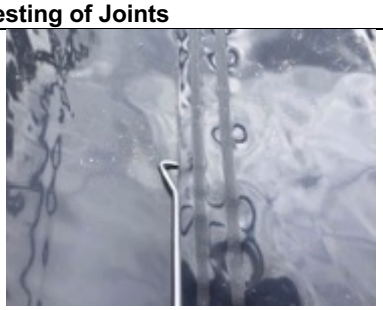
Stanchion detailing sealed using Juta GP1 SAM and heat applied

Stanchion detailing sealed using Juta GP1 SAM and heat applied

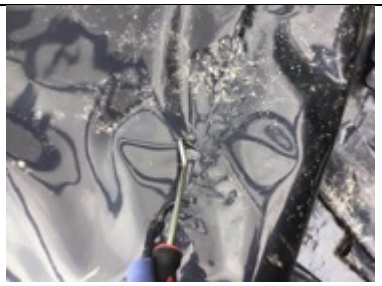


Pick testing stanchion sealing

Testing of Joints



Testing sealed auto welded membrane lap joint



Testing sealed hand welded membrane lap joint

Additional Photos

Corner detailing sealed using Juta GP1 SAM and heat applied

Corner detailing sealed using Juta GP1 SAM and heat applied

Main Contractor Name: ISG	**Date: 22/07/2024**
Site Name: Nelson Street, Miles Platting, Manchester.	**Temp: 21 °C**
	Installer: Cook Group
Postcode: M40 8BB	**Surveyor:** Dan Squire (TGPV) (NVQ 4)
Building Reference/Unit No:	New School Building
Area Inspected:	Pour Area 1b. Gridlines 1-7 / O-Q - See Marked Up Plan
Description of Works:	MEC Environmental carried out a thorough inspection of the gas membrane. The Titanflex membrane is installed across the full base of the pour area upon heave board, with insulation to be installed above the membrane after the inspection. The membrane extends up the temporary perimeter and internal shuttering boards. Around the perimeter edge, at a later date the membrane will be tanked to the toe of the concrete slab. The membrane extended over the internal shuttering will be joined to further membrane installed at a later date. Pipe penetrations have a preformed top hat installed which is hand welded to the base membrane and sealed to the pipe sleeve using Juta GP1 SAM. Corner detailing and stanchions have been sealed using Juta GP1 SAM and heat sealed. Internally the stanchions have a concrete surround which has been adhered to using Juta GP1 SAM. All membrane lap joints have been sealed using both a hand welder and auto welder machine. As the works were completed prior to our inspection MEC were unable to provide evidence of the materials used, however evidence was provided on our previous inspection.
Sub-Grade Preparation:	See "Description of Works" Section for details
Result of Inspection:	No Action Required all Defects rectified at time of inspection

(Section 1, Materials and Method of Seal)

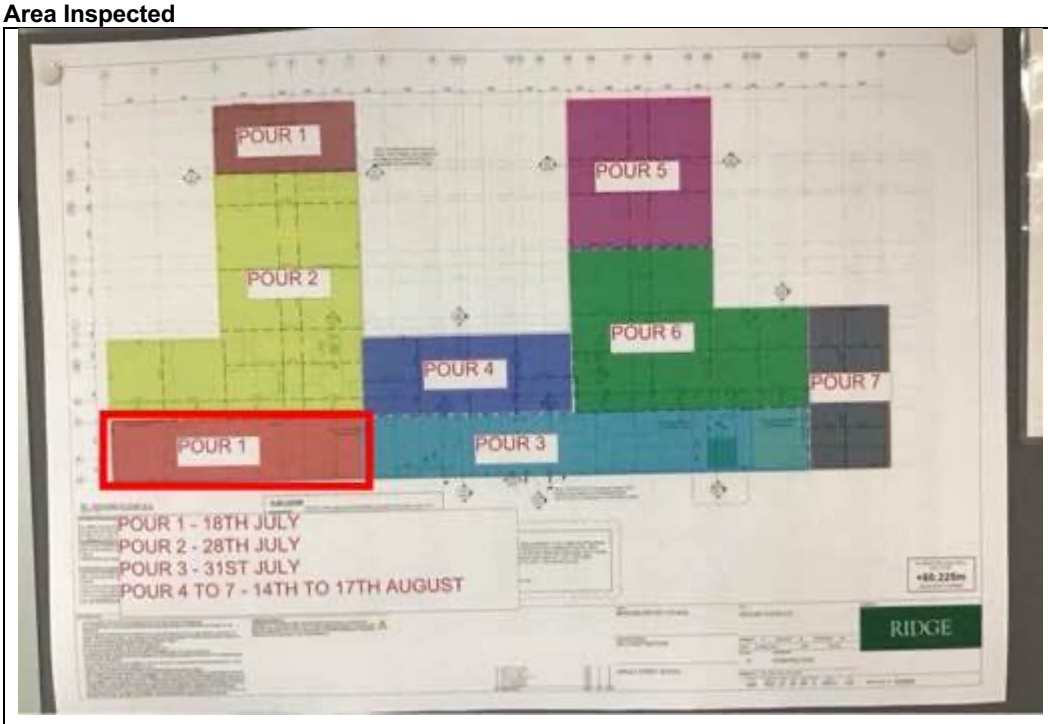
Gas Membrane Name: Juta Titanflex gas membrane
Other Products Used: Juta GP1 SAM
Perimeter Seal Method: See Description of Works for Perimeter seal detail
Service Entry Seal Method: Pipe penetrations have a preformed top hat installed which is hand welded to the base membrane and sealed to the pipe sleeve using Juta GP1 SAM.
Stanchion Seal Method: The stanchions have been sealed using strips of self-adhesive gas membrane (Juta GP1 SAM), this is an approved and recognised method in CIRIA C735
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: See description of works

(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**
4no weld defects were recorded by MEC. These areas were re welded by the installers during the inspection with an additional patch of Juta GP1 SAM placed over the weld.	No Action Required all Defects rectified at time of inspection

Area Inspected

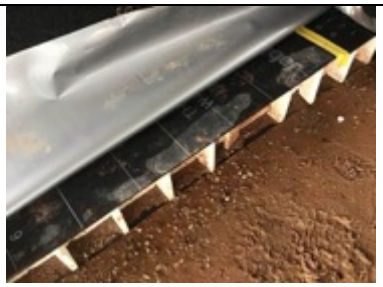


Gas Membrane Overview

Overview of the pour area installed

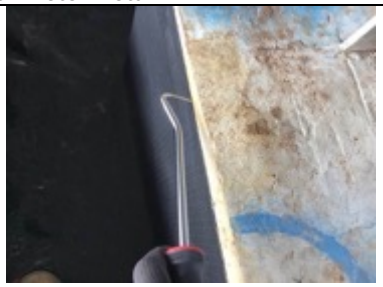
Alternate overview of the pour area installed

Subgrade Photos



Heave board installed which the membrane is installed above

Perimeter Detail

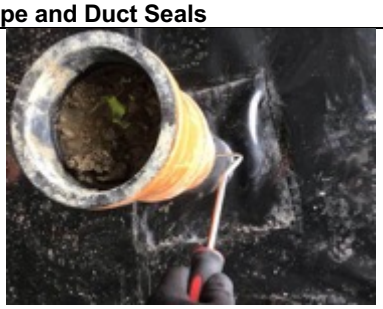


Internal perimeter concrete column retro fit detail testing

Membrane extended up the perimeter shuttering

Membrane extended up the perimeter shuttering

Pipe and Duct Seals



Testing Juta GP1 SAM sealing the top hat to the pipe sleeve

Pipe penetration sealed using hand welded preformed top hat and Juta GP1 SAM

Pipe penetration sealed using hand welded preformed top hat and Juta GP1 SAM

Stanchions and Columns Seals

Stanchions sealed using Juta GP1 SAM

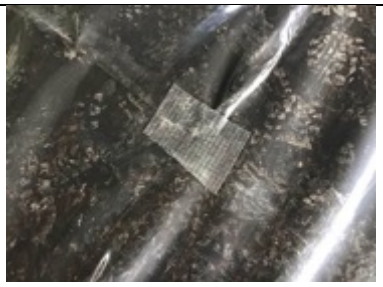
Testing stanchion detailing

Testing of Joints

Testing sealed hand welded membrane lap joint

Testing sealed auto welded membrane lap joint

Additional Photos



Defect repaired sealed using Juta GP1 SAM

Recorded weld defect

Corner detailing sealed sealed using Juta GP1 SAM

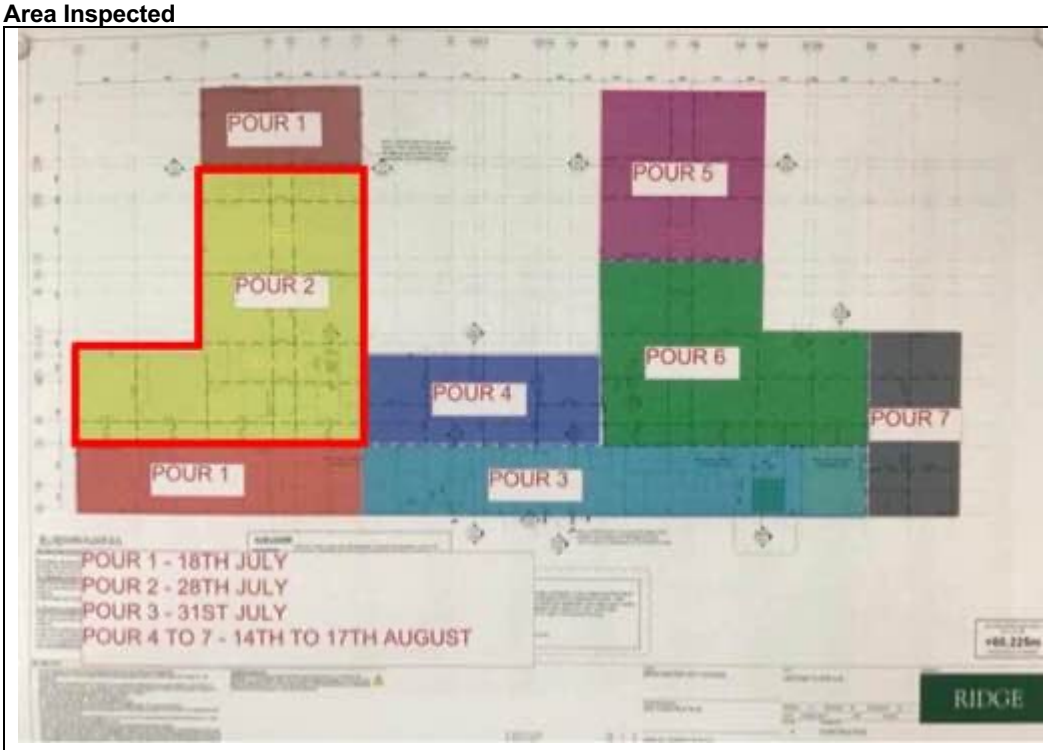
Stanchion concrete surround sealed sealed using Juta GP1 SAM

Main Contractor Name: ISG		**Date: 05/08/2024**
Site Name: Nelson Street, Miles Platting, Manchester.		**Temp: 22 °C**
		Installer: Cook Group
Postcode: M40 8BB	**Surveyor:** Dan Squire (TGPV) (NVQ 4)	
Building Reference/Unit No:	New School Building	
Area Inspected:	Pour Area 2 Gridlines 1-7 / C-O - See Marked Up Plan	
Description of Works:	MEC Environmental carried out a thorough inspection of the gas membrane. The Titanflex membrane is installed across the full base of the pour area upon sand blinding, with insulation to be installed above the membrane after the inspection. The membrane extends up the temporary perimeter and shuttering boards. Around the perimeter edge, at a later date the membrane will be tanked to the toe of the concrete slab. The membrane hand welded and joined to the membrane previously installed in pour areas 1a & 1b. Pipe penetrations have a pre formed top hat installed which is hand welded to the base membrane and held against the pipe sleeve using Juta WP SAM. Stanchions have been sealed using Juta GP1 SAM & Juta WP SAM and heat sealed. Internally the stanchions have a concrete surround which has also been adhered to using Juta WP SAM with Juta GP1 SAM sealing the inside web of the stanchion. Double sided butyl tape is used to seal bolts in the stanchion placed around the perimeter edge. All membrane lap joints have been sealed using both a hand welder and auto welder machine. MEC were unable to provide evidence of all of the products used, however this evidence was provided on our previous inspection.	
Sub-Grade Preparation:	See "Description of Works" Section for details	
Result of Inspection:	No Action Required all Defects rectified at time of inspection	
(Section 1, Materials and Method of Seal)		
Gas Membrane Name: Juta Titanflex membrane		
Other Products Used: Juta GP1 SAM Juta WP SAM. Double sided butyl tape		
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, 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		
Stanchion Seal Method: The stanchions have been sealed using strips of self-adhesive gas membrane, this is an approved and recognised method in CIRIA C735		
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: 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

(Section 3, Defects List)	Action Required
3no recorded defects repaired by the installers during the inspection using Juta WP SAM.	No Action Required all Defects rectified at time of inspection

Area Inspected



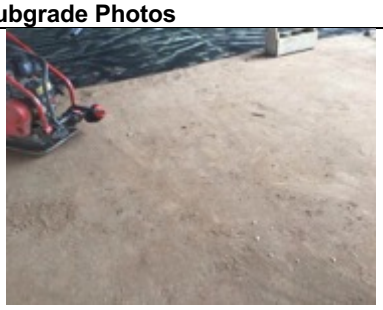
Gas Membrane Overview

Pour 2 overview

Pour 2 overview

Pour 2 overview

Subgrade Photos



Blinding prior to the membrane installation

Materials Used

Juta Titanflex membrane label

Juta WP SAM packaging

Perimeter Detail

Testing perimeter membrane hand welded lap joint

Membrane extended up the perimeter temporary shuttering

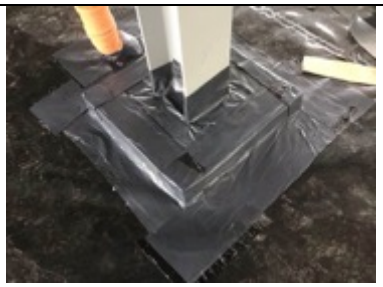
Pipe and Duct Seals

Probe testing pipe sealing

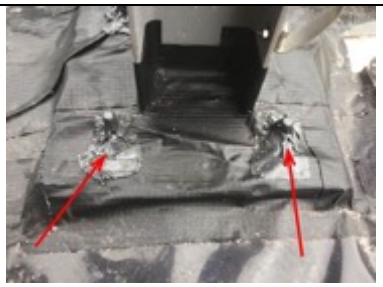
Sealed pipe penetrations

Sealed pipe penetration

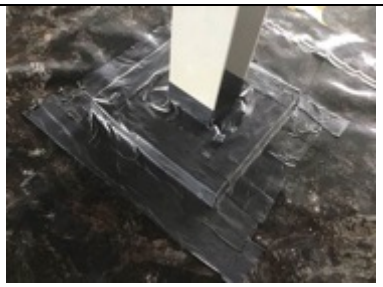
Stanchions and Columns Seals



Sealed stanchion detailing



Butyl tape used to seal bolts



Sealed stanchion detailing

Probe testing stanchion detailing

Testing of Joints

Probe testing auto welded membrane lap joint

Additional Photos

Recorded defect

Repair made by the installers using Juta WP SAM

Membrane hand welded to the existing membrane from pour 1b

Insulation installed after the inspection

Main Contractor Name: ISG	**Date: 08/08/2024**
Site Name: Nelson Street, Miles Platting, Manchester.	**Temp: 19 °C**
	Installer: Cook Group
Postcode: M40 8BB	**Surveyor:** Dan Squire (TGPV) (NVQ 4)
Building Reference/Unit No:	New School Building
Area Inspected:	Pour 3. Approx 85% line out installation Gridlines 7-21 / O-Q See Marked Up Plan
Description of Works:	MEC Environmental carried out a thorough inspection of the gas membrane. The Titanflex membrane is installed across the base of the pour area upon heave board which sits above sand blinding, with insulation to be installed above the membrane after the inspection. The membrane extends up the temporary perimeter and internal shuttering boards. Around the perimeter edge, at a later date the membrane will be tanked to the toe of the concrete slab. The membrane is hand welded and joined to the membrane previously installed in pour area 1b. Pipe penetrations and corner detailing have been sealed using Juta WP SAM. Stanchions have also been sealed using Juta WP SAM and heat sealed. Internally the stanchions have a concrete surround which has been adhered to using Juta WP SAM. Double sided butyl tape is used to seal bolts in the stanchion placed around the perimeter edge. All membrane lap joints have been sealed using both a hand welder and auto welder machine. Due to groundworks not complete the membrane could not be fully installed across the whole of pour 3 at the time of our inspection. A return visit is required to inspect the membrane between Gridlines 21-23 / O-Q. MEC were unable to gather evidence of the butyl tape used on site
Sub-Grade Preparation:	See "Description of Works" Section for details
Result of Inspection:	No Action Required all Defects rectified at time of inspection

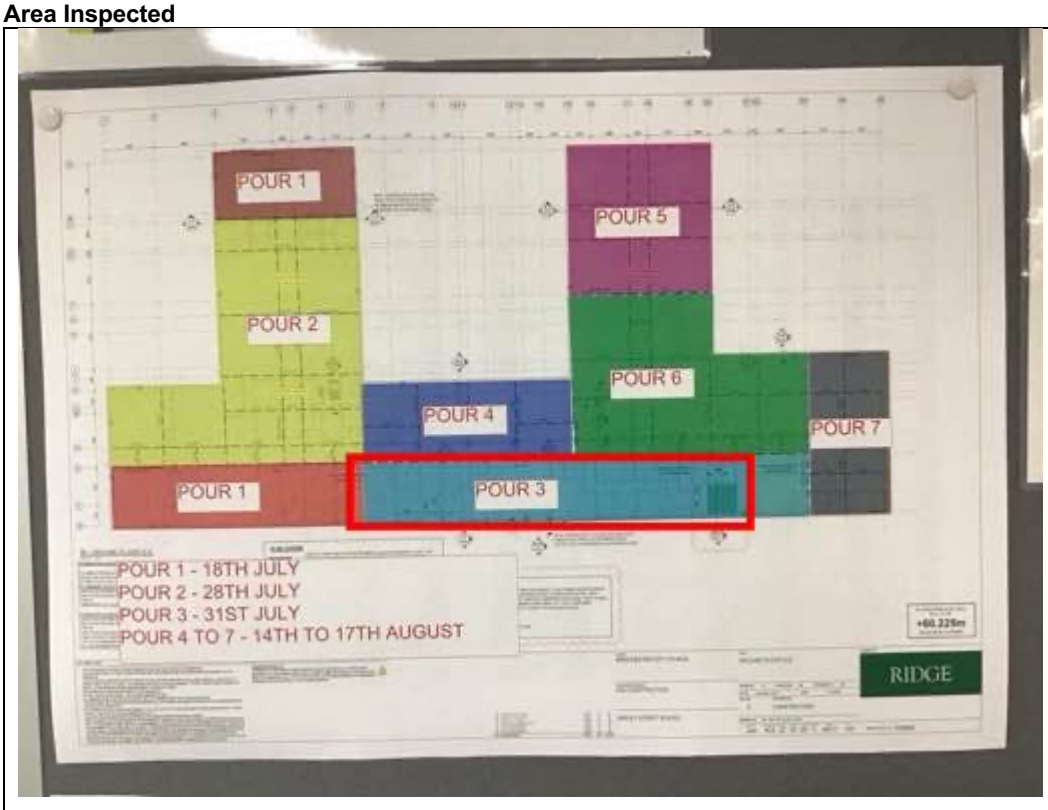
(Section 1, Materials and Method of Seal)

Gas Membrane Name: Juta Titanflex gas membrane
Other Products Used: Juta WP SAM & Double sided butyl tape
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: The stanchions have been sealed using strips of self-adhesive gas membrane, this is an approved and recognised method in CIRIA C735, The stanchions have a concrete surround and therefore the membrane has been sealed to the face of the concrete surround using strips of self-adhesive gas membrane, this is an approved and recognised method in CIRIA C735
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: Corner detailing sealed using WP SAM and heat sealed	
(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**
3no recorded weld defects were repaired by the installers during the inspection using Juta WP SAM. Due to groundworks not complete, the membrane could not be fully installed across the whole base of pour 3 at the time of our inspection. A return visit is required to inspect the membrane between Gridlines 21-23 / O-Q.	No Action Required all Defects rectified at time of inspection

Area Inspected



Gas Membrane Overview

Remaining area of pour 3 yet to be installed

Pour 3 overview of completed works

Subgrade Photos

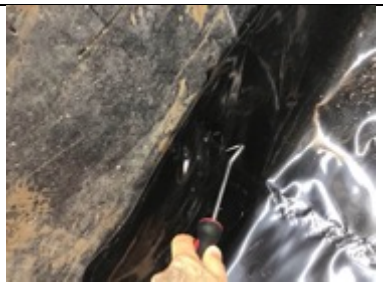
Heave board installed prior to the membrane installed above

Materials Used

Juta Titanflex label

Juta WP SAM packaging

Perimeter Detail



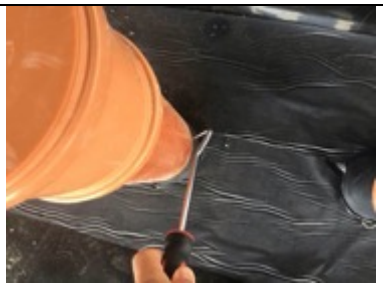
Testing perimeter hand weld

Membrane extended up the internal perimeter shuttering

Membrane extended up the outer perimeter shuttering

Pipe and Duct Seals

Sealed pipe penetration



Probe testing pipe sealing

Sealed pipe penetrations

Stanchions and Columns Seals

Sealed stanchion detailing

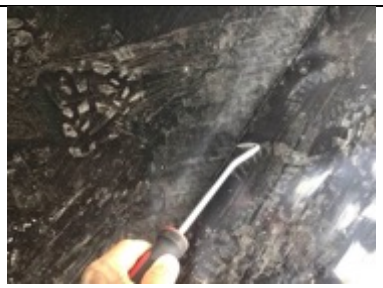
Sealed internal stanchion and concrete surround detailing

Double sided butyl tape used on the stanchion bolts

Probe testing stanchion sealing

Testing of Joints

Testing auto welded membrane lap Joint



Testing hand welded membrane lap joint

Additional Photos

Installer repairing weld defect during the inspection

Recorded weld defect repair

Recorded hand weld defect

Sealed corner detailing

Main Contractor Name: ISG	**Date: 13/08/2024**
Site Name: ISG Site Site Compound, Nelson Street, Miles Platting, M40 8BB	**Temp: 23 °C** **Installer: Cook Group**

Postcode: M40 8BB	**Surveyor:** Ross Edwards (NVQ 4)
Building Reference/Unit No:	New school building
Area Inspected:	G/F Slab pour 3 21-23 / O-Q & Pour area 5 15-20 / A-F See Marked Up Plan
Description of Works:	MEC Environmental carried out a thorough inspection of the gas membrane. The Titanflex membrane is installed across the base of the pour area upon heave board which sits above sand blinding, with insulation to be installed above the membrane after the inspection. The membrane extends up the temporary perimeter and internal shuttering boards. Around the perimeter edge, at a later date the membrane will be tanked to the toe of the concrete slab. Pipe penetrations and corner detailing have been sealed using Juta WP SAM. Stanchions have also been sealed using Juta WP SAM and heat sealed. Internally the stanchions have a concrete surround which has been adhered to using Juta WP SAM. Double sided butyl tape is used to seal bolts in the stanchion placed around the perimeter edge. All membrane lap joints have been sealed using both a hand welder and auto welder machine.
Sub-Grade Preparation:	The subgrade consists of sand blinding that has been well rolled and compacted and is acceptable to lay the membrane on
Result of Inspection:	No defects recorded and therefore no action required

(Section 1, Materials and Method of Seal)

Gas Membrane Name: JUTA Titan Flex
Other Products Used: JUTA WP SAM
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: The stanchions have been sealed using strips of self-adhesive gas membrane, this is an approved and recognised method in CIRIA C735
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., 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.
Others Please List:

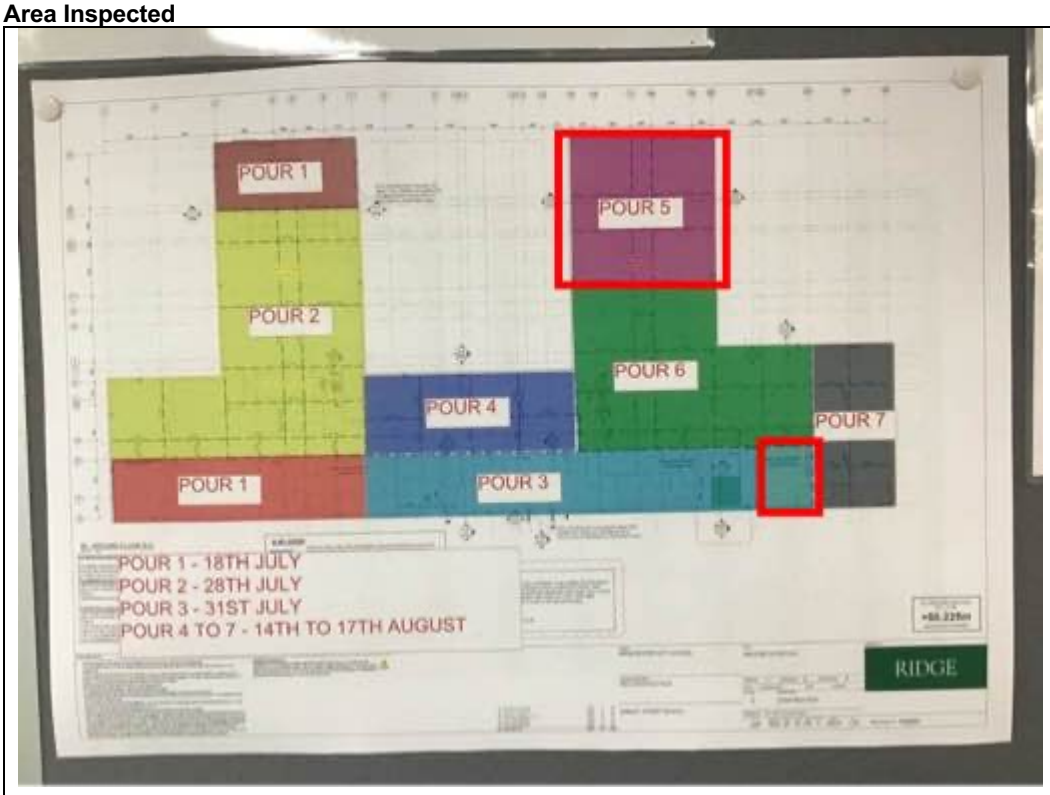
(Section 2, Testing and Inspection Method)

Leak/Hole Detection	MEC Environmental Ltd carried out a thorough Visual Inspection to the available area at the time of our inspection

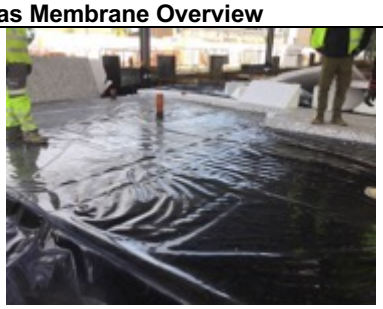
Joint Testing	The surveyor carried out Probe testing as per the method prescribed in ASTM D4437 to all detailing work, detailing work is defined as any part of the installation that includes a joint in the membrane, this includes but is not limited to pipes/ducts, stanchions, wind posts, braces, field seams, masonry abutments, tanking, door thresholds and the like

(Section 3, Defects List)	**Action Required**
NO defects located	No defects recorded and therefore no action required

Area Inspected



Gas Membrane Overview



Overview to the remaining membrane line out to pour area 3.

Overview to pour area 5 membrane line out.

Subgrade Photos

Sand blinded well rolled and compacted

Materials Used

JUTA Titan Flex label

JUTA WP SAM

Perimeter Detail

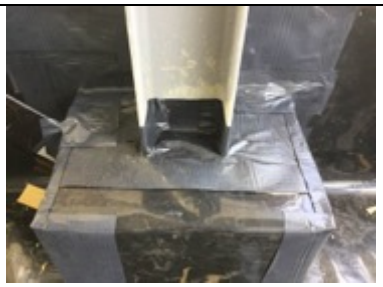
Membrane returned up the perimeter shutter and stapled at the top into place.

Pipe and Duct Seals

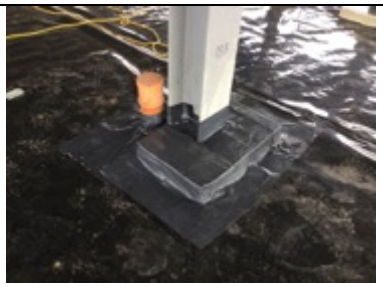
Sealed pipe penetration detail within pour area 3.

Pick testing to the pipe detail to Pour area 3.

Stanchions and Columns Seals



Sealed steel stanchion detail within pour area 3.



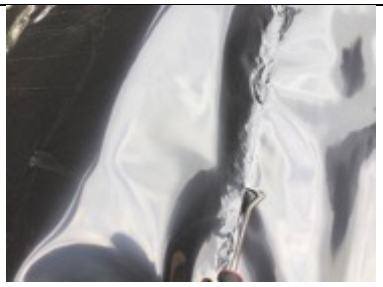
Steel stanchion detailing sealed within pour area 5.

Pick testing to the stanchion detail within pour area 5.

Testing of Joints

Pick testing to the hand welded Lap joint within pour area 3.

Pick testing along the auto welded lap joint within Pour area 5.



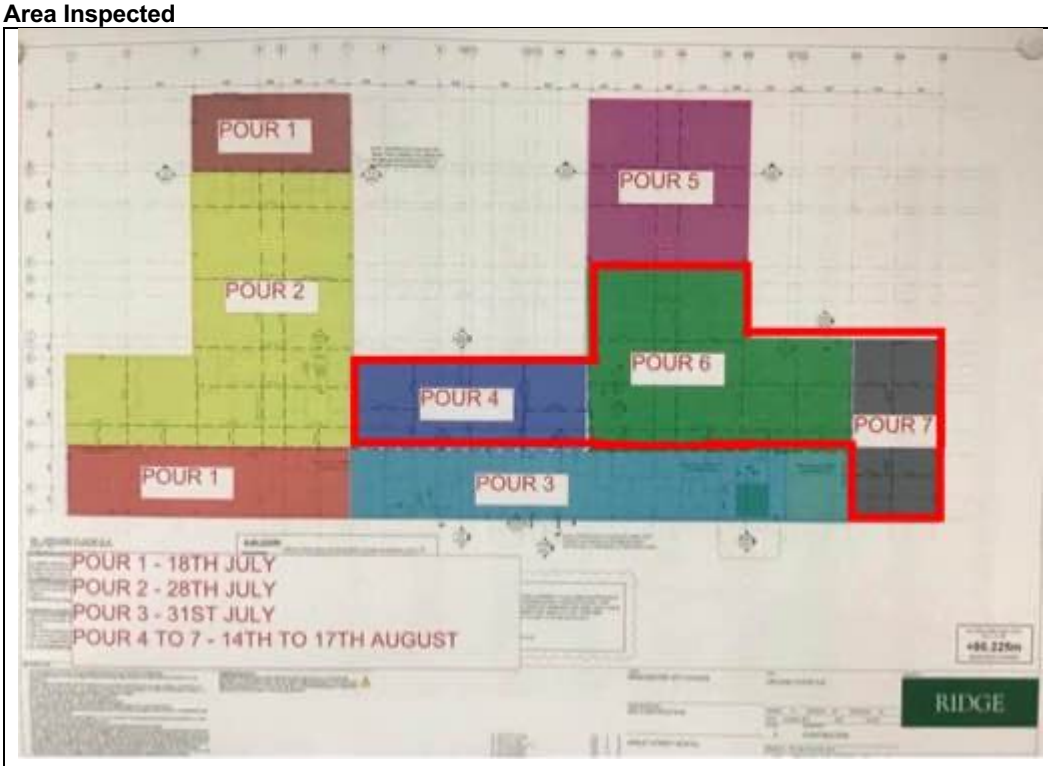
Pick testing carried out along the hand welded lap joint to pour area 5.

Main Contractor Name: ISG	**Date: 21/08/2024**
Site Name: Nelson Street, Miles Platting, Manchester	**Temp: 16 °C**
	Installer: Cook Group
Postcode: M40 8BB	**Surveyor:** Dan Squire (TGPV) (NVQ 4)
Building Reference/Unit No:	New School Building
Area Inspected:	Pour areas 4, 6 & 7 line out installation. Gridlines F-Q / 7-25 See Marked Up Plan
Description of Works:	MEC Environmental carried out a thorough inspection of the gas membrane. The Titanflex membrane is installed across the base of the pour areas upon sand blinding, with insulation to be installed above the membrane after the inspection. The membrane extends up the temporary perimeter shuttering boards. Around the perimeter edge, at a later date the membrane will be tanked to the toe of the concrete slab. The membrane is hand welded and joined to the membrane previously installed in previous pour areas. Pipe penetrations have been sealed using Juta WP SAM. Stanchions have also been sealed using Juta WP SAM and heat sealed. Double sided butyl tape is used to seal bolts in the stanchion placed around the perimeter edge. All central membrane lap joints have been sealed using both an auto welder machine. Only hand welding where an auto weld was not accessible. MEC were unable to gather evidence of the butyl tape and membrane used on site as the works were completed however this evidence was given on previous inspections.
Sub-Grade Preparation:	The subgrade had already been covered prior to our inspection and therefore has not been inspected by MEC Environmental
Result of Inspection:	No Action Required all Defects rectified at time of inspection
(Section 1, Materials and Method of Seal)	
Gas Membrane Name: Juta Titanflex gas membrane	
Other Products Used: Juta WP SAM , Double sided butyl tape	
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: The stanchions have been sealed using strips of self-adhesive gas membrane, this is an approved and recognised method in CIRIA C735	
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: 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

(Section 3, Defects List)	**Action Required**
MEC recorded 17no defects largely throughout the existing membrane from previous pours. During the inspection the installers repaired the recorded defects using Juta GP SAM. Sections of detailing work required additional heat to adhere sufficiently which the installers did during the inspection to the areas noted by MEC	No Action Required all Defects rectified at time of inspection

Area Inspected



Gas Membrane Overview

Overview of completed works

Overview of completed works

Overview of completed works

Materials Used

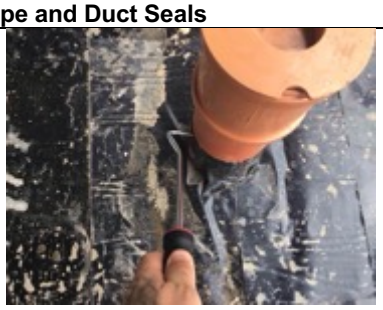
Juta WP SAM packaging

Perimeter Detail

Perimeter membrane extended up the shuttering

Perimeter membrane extended up the shuttering

Pipe and Duct Seals



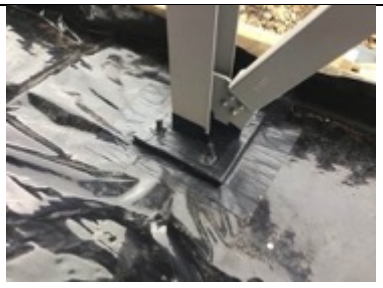
Testing pipe seals

Sealed pipe penetrations

Sealed pipe penetrations

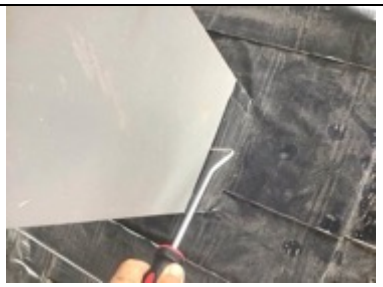
Stanchions and Columns Seals

Sealed stanchion detailing



Sealed stanchion detailing

Double sided butyl tape used on the stanchion bolts



Probe testing stanchion detailing

Testing of Joints

Probe test to auto welded membrane lap joint

Probe test to hand welded membrane lap joint

Additional Photos

Defect patch repair

Defect patch repairs

Defect repair

Recorded defect

Recorded defect

Recorded defect

Recorded defect

Defect repair