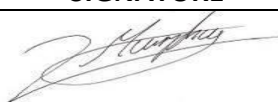


REMEDIAL ACTIONS REQUIRED

N/A - all remedial actions completed

CERTIFICATION

The visual verification inspection was undertaken by a suitably competent IDG verification engineer, in accordance with the requirements of CIRIA C735 and the site-specific Gas Protection Measures Verification Plan.

The Gas Protection Measures for this section of work:	A) Are acceptable and comply with the specification. <i>Final Certification of this section of work is subject to successful Air Lance Integrity Testing to demonstrate compliance.</i>	
	B) Are acceptable and comply with the specification. <i>Air Lance Integrity Testing is not required for this section of work.</i>	✓
	C) Are acceptable but attention is drawn to issues relating to item(s) No.	
	D) Are not acceptable due to issues requiring remedial action as indicated above. <i>This plot should be re-inspected and verified upon completion of any required remedial works.</i>	
NAME	SIGNATURE	DATE
LIAM MURPHY		10/02/25

Inspection Checklist Notes:

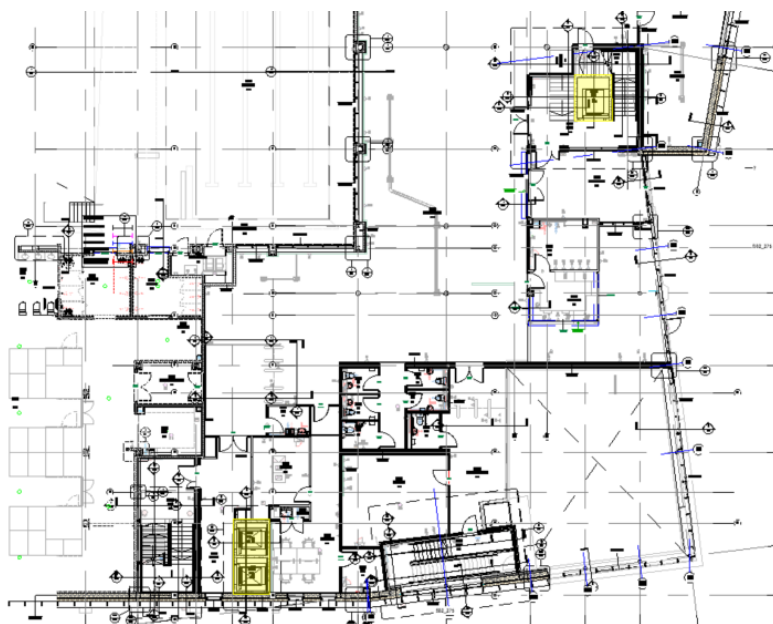
1.1	Sub-floor void	Is a check possible? Void former? Gravel (type/ specification)? Height of void space? Is it clear?
1.2	External wall airbricks	Numbers, size, positions as per design drawing?
1.3	Internal sleeper walls	Ventilation holes (honeycomb brickwork/ pipe crossings)? Size, spacing, location in accordance with design?
1.4	External vent trenches/ ducts	Located/ construction in accordance with design? If open-topped – gravel type, presence of fines? If pipe or other vent, check position and construction for functionality and absence of blockages. Ability of void former to withstand bearing of superstructure?
2.1	System details	Type of air supply: mechanical, natural, combined? Location/ condition/ number of fans and vents? Location and size of inlets? Provision of air-cleaning devices? Supply and exhaust ducting? Alarm provision/ installation? Gas monitoring system in under-floor void?
3.1	Condition of sub-grade and underside of membrane	Check that the sub-grade does not contain rough/uneven surfaces, is appropriately clean and that there are no hard/sharp objects. That protective sand blinding or geotextile (if specified) is present?
3.2	Details of gas membrane product used	Manufacturer and product specification, gauge, colour, brand/name, material, batch/ roll numbers, storage arrangements (to protect from dirt/damage).
3.3	Gas membrane condition (rips/ tears/ penetrations)	Open punctures, tears, rips, stretching? Excessive footprints/ evidence of traffic? Presence of debris? Repairs? Signs of weakness such as raised or sunken indentations? Protection plan in place to restrict access to lain gas membrane?
3.4	Details of joining/ lapping tape products used	Product type, brand, thickness, material, width, colour? Foil backed? Double sided?
3.5	Lapping design	Joints lapped and sealed in accordance with manufacturers requirements/ specification? Minimum overlap ensured? Sections taped twice (double sided and lapping)?
3.6	Laps, welds and joint seals	Welds complete? Appropriate jointing tape used? No creases or folds in sheet edges? Adequately bonded? (confirm by air lance integrity testing as necessary in accordance with the verification plan)
3.7	Service entry seals	Top hats seal arrangements fixed around service entries? Use of jubilee clips? Adequately taped to membrane at joins with double-sided and lapping tape?

GAS PROTECTION MEASURES VERIFICATION VISUAL INSPECTION RECORD



Site Name:	Radcliffe Civic Hub	Gas Characteristic Situation:	Basic Radon Only
Job Number:	5238	Type of development: (Residential/ commercial/ other)	Commercial
Date:	05/02/25	Building Description:	Multi-Use Civic Hub Including Basement Plant Rooms And Swimming Pools
Verification Engineer:	LM	Foundation Type: (suspended floor/ raft/ other)	Pile And Beam
Weather during inspection:	Cold, Dry, overcast	Gas Protection Type: (passive/ active)	Passive Radon
Area/ Plot number(s):	Groundfloor lift pits X 2		
Gas Protection Components inspected:	Self-adhesive membrane installation on external vertical wall faces		

The box below should be used to present a sketch plan of the building/plot layout, showing locations of all key features of the gas protection system and installation (vents, joins, seals, service penetrations etc). All relative inspection details/comments should be recorded in the table below.



Ground Floor Lift Pits Radon Protection – Area of Installation/ Inspection for given date highlighted Yellow

No.	Item	Comments (see notes)
1 - Passive Venting		
1.1	Sub-floor void	N/A
1.2	External wall airbricks	N/A
1.3	Internal sleeper walls	N/A
1.4	External vent trenches/ ducts	N/A
2 - Active Venting		
2.1	Active venting System details	N/A

No.	Item	Comments (see notes)
3 - Gas Membrane		
3.1	Condition of sub-grade and underside of membrane	<i>Not visible - no evidence of debris or potentially intrusive materials beneath membrane.</i>
3.2	Details of gas membrane product used	<i>Juta GP Liquid Barrier Juta GR-SAM</i>
3.3	Gas membrane condition (rips/ tears/ penetrations)	<i>Generally very good. No punctures/rips or tears identified.</i>
3.4	Details of joining/ lapping tape products used	<i>Juta Titan Tape Juta GR-SAM</i>
3.5	Lapping design	<i>N/A</i>
3.6	Laps, welds and joint seals	<i>Visual and mechanical point stress testing confirmed joints generally completed to a good.</i>
3.7	Service entry seals	<i>N/A</i>
4 – Other comments/ considerations		
4.1		
4.2		
5 - Photographs		
Photograph		Description
		<i>Photograph showing the radon protection measures installed for the single Groundfloor lift pit. Black paint-on waterproof primer being applied prior to installation membrane.</i>

	Photograph showing the radon protection measures installed for the single Groundfloor lift pit. GR-SAM membrane applied to external faces lapping down to form continuous seal onto previously installed and validated GP TitanBond membrane on lift base base.
	Photograph showing the radon protection measures installed for the single Groundfloor lift pit. GR-SAM membrane applied to external faces lapping down to form continuous seal onto previously installed and validated GP TitanBond membrane on lift base base.
	Photograph showing the radon protection measures installed for the single Groundfloor lift pit. GR-SAM membrane applied to external faces lapping down to form continuous seal onto previously installed and validated GP TitanBond membrane on lift base base. Cavity drain membrane in place over GR-SAM ready for placement of external backfill.

	Photograph showing the radon protection measures installed for the double Groundfloor lift pit. GR-SAM membrane applied to external faces lapping down to form continuous seal onto previously installed and validated GP TitanBond membrane on lift base base.
	Photograph showing the radon protection measures installed for the double Groundfloor lift pit. GR-SAM membrane applied to external faces lapping down to form continuous seal onto previously installed and validated GP TitanBond membrane on lift base base.
	Photograph showing the radon protection measures installed for the double Groundfloor lift pit. GR-SAM membrane applied to external faces lapping down to form continuous seal onto previously installed and validated GP TitanBond membrane on lift base base. Cavity drain membrane in place over GR-SAM ready for placement of external backfill.

REMEDIAL ACTIONS REQUIRED

N/A - all remedial actions completed

CERTIFICATION

The visual verification inspection was undertaken by a suitably competent IDG verification engineer, in accordance with the requirements of CIRIA C735 and the site-specific Gas Protection Measures Verification Plan.

The Gas Protection Measures for this section of work:	A) Are acceptable and comply with the specification. <i>Final Certification of this section of work is subject to successful Air Lance Integrity Testing to demonstrate compliance.</i>	
	B) Are acceptable and comply with the specification. <i>Air Lance Integrity Testing is not required for this section of work.</i>	✓
	C) Are acceptable but attention is drawn to issues relating to item(s) No.	
	D) Are not acceptable due to issues requiring remedial action as indicated above. <i>This plot should be re-inspected and verified upon completion of any required remedial works.</i>	
NAME	SIGNATURE	DATE
LIAM MURPHY		10/02/25

Inspection Checklist Notes:

1.1	Sub-floor void	Is a check possible? Void former? Gravel (type/ specification)? Height of void space? Is it clear?
1.2	External wall airbricks	Numbers, size, positions as per design drawing?
1.3	Internal sleeper walls	Ventilation holes (honeycomb brickwork/ pipe crossings)? Size, spacing, location in accordance with design?
1.4	External vent trenches/ ducts	Located/ construction in accordance with design? If open-topped – gravel type, presence of fines? If pipe or other vent, check position and construction for functionality and absence of blockages. Ability of void former to withstand bearing of superstructure?
2.1	System details	Type of air supply: mechanical, natural, combined? Location/ condition/ number of fans and vents? Location and size of inlets? Provision of air-cleaning devices? Supply and exhaust ducting? Alarm provision/ installation? Gas monitoring system in under-floor void?
3.1	Condition of sub-grade and underside of membrane	Check that the sub-grade does not contain rough/uneven surfaces, is appropriately clean and that there are no hard/sharp objects. That protective sand blinding or geotextile (if specified) is present?
3.2	Details of gas membrane product used	Manufacturer and product specification, gauge, colour, brand/name, material, batch/ roll numbers, storage arrangements (to protect from dirt/damage).
3.3	Gas membrane condition (rips/ tears/ penetrations)	Open punctures, tears, rips, stretching? Excessive footprints/ evidence of traffic? Presence of debris? Repairs? Signs of weakness such as raised or sunken indentations? Protection plan in place to restrict access to lain gas membrane?
3.4	Details of joining/ lapping tape products used	Product type, brand, thickness, material, width, colour? Foil backed? Double sided?
3.5	Lapping design	Joints lapped and sealed in accordance with manufacturers requirements/ specification? Minimum overlap ensured? Sections taped twice (double sided and lapping)?
3.6	Laps, welds and joint seals	Welds complete? Appropriate jointing tape used? No creases or folds in sheet edges? Adequately bonded? (confirm by air lance integrity testing as necessary in accordance with the verification plan)
3.7	Service entry seals	Top hats seal arrangements fixed around service entries? Use of jubilee clips? Adequately taped to membrane at joins with double-sided and lapping tape?

GAS PROTECTION MEASURES VERIFICATION VISUAL INSPECTION RECORD



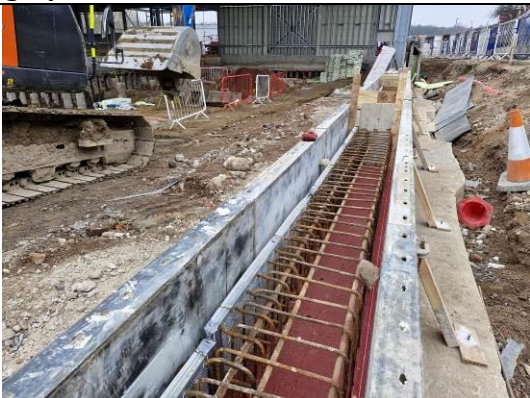
Site Name:	Radcliffe Civic Hub	Gas Characteristic Situation:	Basic Radon Only
Job Number:	5238	Type of development: (Residential/ commercial/ other)	Commercial
Date:	19/02/25	Building Description:	Multi-Use Civic Hub Including Basement Plant Rooms And Swimming Pools
Verification Engineer:	LM	Foundation Type: (suspended floor/ raft/ other)	Pile And Beam
Weather during inspection:	Cold, Dry, overcast	Gas Protection Type: (passive/ active)	Passive Radon
Area/ Plot number(s):	Ground floor northern external concrete substructure around main pool (GLA10-A14)		
Gas Protection Components inspected:	Liquid barrier application		

The box below should be used to present a sketch plan of the building/plot layout, showing locations of all key features of the gas protection system and installation (vents, joins, seals, service penetrations etc). All relative inspection details/comments should be recorded in the table below.



Ground floor northern external substructure around main pool (Liquid Gas Barrier) – Area of Installation/ Inspection for given date highlighted Yellow

No.	Item	Comments (see notes)
1 - Passive Venting		
1.1	Sub-floor void	N/A
1.2	External wall airbricks	N/A
1.3	Internal sleeper walls	N/A
1.4	External vent trenches/ ducts	N/A
2 - Active Venting		
2.1	Active venting System details	N/A

No.	Item	Comments (see notes)
3 - Gas Membrane		
3.1	Condition of sub-grade and underside of membrane	N/A
3.2	Details of gas membrane product used	Juta GP Liquid Barrier
3.3	Gas membrane condition (rips/ tears/ penetrations)	N/A
3.4	Details of joining/ lapping tape products used	N/A
3.5	Lapping design	N/A
3.6	Laps, welds and joint seals	N/A
3.7	Service entry seals	N/A
4 – Other comments/ considerations		
4.1		
4.2		
5 - Photographs		
Photograph		Description
		Photograph showing the GP Liquid barrier (red) applied to all substructure concrete along the northern external perimeter of the learner swimming pool area as per design ready for next phase of concrete pour.
		Photograph showing the GP Liquid barrier (red) applied to all substructure concrete along the northern external perimeter of the learner swimming pool area as per design ready for next phase of concrete pour.
		Photograph showing the GP Liquid barrier (red) applied to all substructure concrete along the northern external perimeter of the learner swimming pool area as per design ready for next phase of concrete pour.

REMEDIAL ACTIONS REQUIRED

N/A

CERTIFICATION

The visual verification inspection was undertaken by a suitably competent IDG verification engineer, in accordance with the requirements of CIRIA C735 and the site-specific Gas Protection Measures Verification Plan.

The Gas Protection Measures for this section of work:	A) Are acceptable and comply with the specification. <i>Final Certification of this section of work is subject to successful Air Lance Integrity Testing to demonstrate compliance.</i>	
	B) Are acceptable and comply with the specification. <i>Air Lance Integrity Testing is not required for this section of work.</i>	✓
	C) Are acceptable but attention is drawn to issues relating to item(s) No.	
	D) Are not acceptable due to issues requiring remedial action as indicated above. <i>This section of work should be re-inspected and verified upon completion of any required remedial works.</i>	
NAME	SIGNATURE	DATE
LIAM MURPHY		19/02/24

Inspection Checklist Notes:

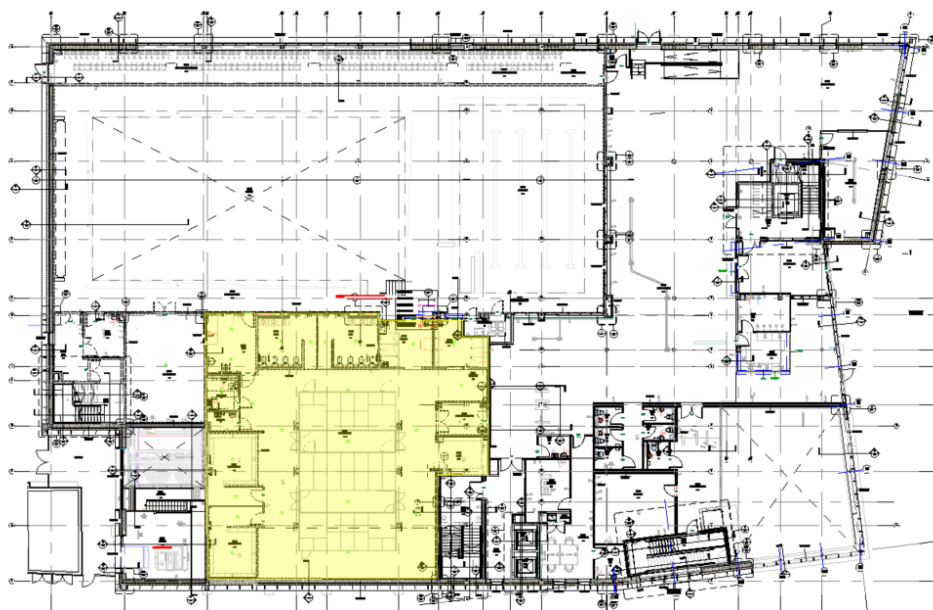
1.1	Sub-floor void	Is a check possible? Void former? Gravel (type/ specification)? Height of void space? Is it clear?
1.2	External wall airbricks	Numbers, size, positions as per design drawing?
1.3	Internal sleeper walls	Ventilation holes (honeycomb brickwork/ pipe crossings)? Size, spacing, location in accordance with design?
1.4	External vent trenches/ ducts	Located/ construction in accordance with design? If open-topped – gravel type, presence of fines? If pipe or other vent, check position and construction for functionality and absence of blockages. Ability of void former to withstand bearing of superstructure?
2.1	System details	Type of air supply: mechanical, natural, combined? Location/ condition/ number of fans and vents? Location and size of inlets? Provision of air-cleaning devices? Supply and exhaust ducting? Alarm provision/ installation? Gas monitoring system in under-floor void?
3.1	Condition of sub-grade and underside of membrane	Check that the sub-grade does not contain rough/uneven surfaces, is appropriately clean and that there are no hard/sharp objects. That protective sand blinding or geotextile (if specified) is present?
3.2	Details of gas membrane product used	Manufacturer and product specification, gauge, colour, brand/name, material, batch/ roll numbers, storage arrangements (to protect from dirt/damage).
3.3	Gas membrane condition (rips/ tears/ penetrations)	Open punctures, tears, rips, stretching? Excessive footprints/ evidence of traffic? Presence of debris? Repairs? Signs of weakness such as raised or sunken indentations? Protection plan in place to restrict access to lain gas membrane?
3.4	Details of joining/ lapping tape products used	Product type, brand, thickness, material, width, colour? Foil backed? Double sided?
3.5	Lapping design	Joints lapped and sealed in accordance with manufacturers requirements/ specification? Minimum overlap ensured? Sections taped twice (double sided and lapping)?
3.6	Laps, welds and joint seals	Welds complete? Appropriate jointing tape used? No creases or folds in sheet edges? Adequately bonded? (confirm by air lance integrity testing as necessary in accordance with the verification plan)
3.7	Service entry seals	Top hats seal arrangements fixed around service entries? Use of jubilee clips? Adequately taped to membrane at joins with double-sided and lapping tape?

GAS PROTECTION MEASURES VERIFICATION VISUAL INSPECTION RECORD



Site Name:	Radcliffe Civic Hub	Gas Characteristic Situation:	Basic Radon Only
Job Number:	5238	Type of development: (Residential/ commercial/ other)	Commercial
Date:	12/02/2025 19/02/2025 20/02/2025	Building Description:	Multi-Use Civic Hub Including Basement Plant Rooms And Swimming Pools
Verification Engineer:	LM	Foundation Type: (suspended floor/ raft/ other)	Pile And Beam
Weather during inspection:	Cold, overcast and damp with occasional showers.	Gas Protection Type: (passive/ active)	Passive Radon
Area/ Plot number(s):	Phase 2 Ground floor area south of main swimming pool		
Gas Protection Components inspected:	Radon membrane installation and sealing to previously applied liquid membrane on concrete substructure.		

The box below should be used to present a sketch plan of the building/plot layout, showing locations of all key features of the gas protection system and installation (vents, joins, seals, service penetrations etc). All relative inspection details/comments should be recorded in the table below.



Phase 2 Ground floor area south of main swimming pool – Area of Installation/ Inspection for given date highlighted Yellow

No.	Item	Comments (see notes)
1 - Passive Venting		
1.1	Sub-floor void	N/A
1.2	External wall airbricks	N/A
1.3	Internal sleeper walls	N/A
1.4	External vent trenches/ ducts	N/A
2 - Active Venting		
2.1	Active venting System details	N/A

No.	Item	Comments (see notes)
3 - Gas Membrane		
3.1	Condition of sub-grade and underside of membrane	<i>Not visible - no evidence of debris or potentially intrusive materials beneath membrane.</i>
3.2	Details of gas membrane product used	<i>Juta GP Liquid Barrier Juta GP-H 0.6mm membrane Juta GR-SAM</i>
3.3	Gas membrane condition (rips/ tears/ penetrations)	<i>Generally very good. Small number of punctures identified during visual inspection all repaired under IDG supervision prior to air-lance testing..</i>
3.4	Details of joining/ lapping tape products used	<i>Juta Titan Tape Juta GR-SAM</i>
3.5	Lapping design	<i>Overlaps adequate (meet min. 100mm recommended by manufacturer).</i>
3.6	Laps, welds and joint seals	<i>Visual and mechanical point stress testing confirmed joints generally completed to a good standard and subsequently proven by air-lance testing. Main GP-H membrane sheet joints heat welded using a Twinny type welder. Liquid membrane applied to all beams. Joints between GP-H and Liquid barrier formed using GR-SAM.</i>
3.7	Service entry seals	<i>All service entries completed to a good standard using GR-SAM to form seal with membrane.</i>
4 – Other comments/ considerations		
4.1		
4.2		
5 - Photographs		
Photograph		Description
		<i>Photograph showing the radon protection measures installed for the Phase 2 floor slab area. GP Liquid barrier (red) applied to all stanchion bases and substructure concrete as per design. Juta GP-H 0.6mm membrane (black) bonded to GP Liquid barrier using Titan Tape and / or GR-SAM. Membrane joints heat welded using Twinny type welder.</i>
		<i>Photograph showing the radon protection measures installed for the Phase 2 floor slab area. GP Liquid barrier (red) applied to all stanchion bases and substructure concrete as per design. Juta GP-H 0.6mm membrane (black) bonded to GP Liquid barrier using Titan Tape and / or GR-SAM. Membrane joints heat welded using Twinny type welder.</i>

	Photograph showing the radon protection measures installed for the Phase 2 floor slab area. GP Liquid barrier (red) applied to all stanchion bases and substructure concrete as per design. Juta GP-H 0.6mm membrane (black) bonded to GP Liquid barrier using Titan Tape and / or GR-SAM. Membrane joints heat welded using Twinny type welder.
	Photograph showing the radon protection measures installed for the Phase 2 floor slab area. Juta GP-H 0.6mm membrane sheet joints heat welded using a Twinny type welder.
	Photograph showing the radon protection measures installed for the basement plant room. GP Titan Bond membrane (grey/black) sheet joints heat welded using a Twinny type welder.
	Photograph showing the radon protection measures installed for the Phase 2 floor slab area. GP Liquid barrier (red) applied to all stanchion bases and substructure concrete as per design. Juta GP-H 0.6mm membrane (black) bonded to GP Liquid barrier using Titan Tape and / or GR-SAM.

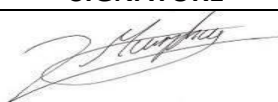
	Photograph showing the radon protection measures installed for the Phase 2 floor slab area. GP Liquid barrier (red) applied to all stanchion bases and substructure concrete as per design. Juta GP-H 0.6mm membrane (black) bonded to GP Liquid barrier using Titan Tape and / or GR-SAM.
	Photograph showing the radon protection measures installed for the Phase 2 floor slab area. Service entries fully sealed to Juta GP-H 0.6mm membrane using GR-SAM.
	Photograph showing the radon protection measures installed for the Phase 2 floor slab area. Service entries fully sealed to Juta GP-H 0.6mm membrane using GR-SAM.
	Photograph showing the radon protection measures installed for the Phase 2 floor slab area with steel work in place post-validation ready for concrete pour.

REMEDIAL ACTIONS REQUIRED

N/A - all remedial actions completed

CERTIFICATION

The visual verification inspection was undertaken by a suitably competent IDG verification engineer, in accordance with the requirements of CIRIA C735 and the site-specific Gas Protection Measures Verification Plan.

The Gas Protection Measures for this section of work:	A) Are acceptable and comply with the specification. <i>Final Certification of this section of work is subject to successful Air Lance Integrity Testing to demonstrate compliance.</i>	✓
	B) Are acceptable and comply with the specification. <i>Integrity Testing is not required for this plot.</i>	
	C) Are acceptable but attention is drawn to issues relating to item(s) No.	
	D) Are not acceptable due to issues requiring remedial action as indicated above. <i>This plot should be re-inspected and verified upon completion of any required remedial works.</i>	
NAME	SIGNATURE	DATE
LIAM MURPHY		21/02/25

Inspection Checklist Notes:

1.1	Sub-floor void	Is a check possible? Void former? Gravel (type/ specification)? Height of void space? Is it clear?
1.2	External wall airbricks	Numbers, size, positions as per design drawing?
1.3	Internal sleeper walls	Ventilation holes (honeycomb brickwork/ pipe crossings)? Size, spacing, location in accordance with design?
1.4	External vent trenches/ ducts	Located/ construction in accordance with design? If open-topped – gravel type, presence of fines? If pipe or other vent, check position and construction for functionality and absence of blockages. Ability of void former to withstand bearing of superstructure?
2.1	System details	Type of air supply: mechanical, natural, combined? Location/ condition/ number of fans and vents? Location and size of inlets? Provision of air-cleaning devices? Supply and exhaust ducting? Alarm provision/ installation? Gas monitoring system in under-floor void?
3.1	Condition of sub-grade and underside of membrane	Check that the sub-grade does not contain rough/uneven surfaces, is appropriately clean and that there are no hard/sharp objects. That protective sand blinding or geotextile (if specified) is present?
3.2	Details of gas membrane product used	Manufacturer and product specification, gauge, colour, brand/name, material, batch/ roll numbers, storage arrangements (to protect from dirt/damage).
3.3	Gas membrane condition (rips/ tears/ penetrations)	Open punctures, tears, rips, stretching? Excessive footprints/ evidence of traffic? Presence of debris? Repairs? Signs of weakness such as raised or sunken indentations? Protection plan in place to restrict access to lain gas membrane?
3.4	Details of joining/ lapping tape products used	Product type, brand, thickness, material, width, colour? Foil backed? Double sided?
3.5	Lapping design	Joints lapped and sealed in accordance with manufacturers requirements/ specification? Minimum overlap ensured? Sections taped twice (double sided and lapping)?
3.6	Laps, welds and joint seals	Welds complete? Appropriate jointing tape used? No creases or folds in sheet edges? Adequately bonded? (confirm by air lance integrity testing as necessary in accordance with the verification plan)
3.7	Service entry seals	Top hats seal arrangements fixed around service entries? Use of jubilee clips? Adequately taped to membrane at joins with double-sided and lapping tape?

GAS PROTECTION MEASURES VERIFICATION AIR LANCE INTEGRITY TESTING RECORD

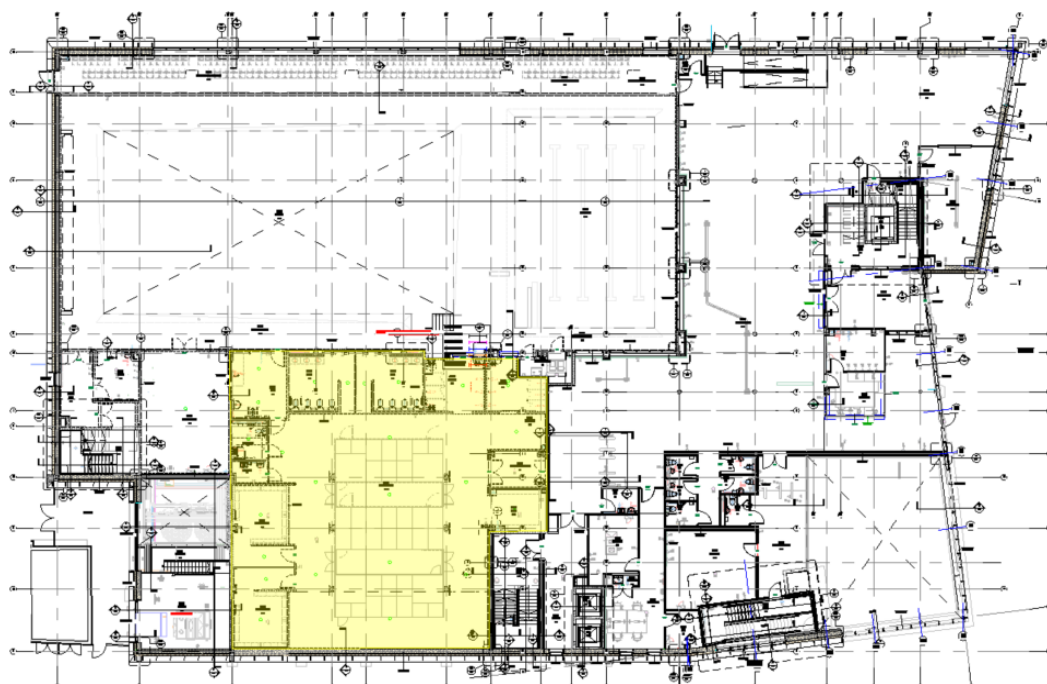


Site Name:	Radcliffe Civic Hub	Gas Characteristic Situation:	Basic Radon Only
Job Number:	5238	Type of development: (Residential/ commercial/ other)	Commercial
Date:	12/02/2025 19/02/2025 20/02/2025	Building Description:	Multi-Use Civic Hub Including Basement Plant Rooms And Swimming Pools
Integrity Testing Engineer:	LM	Foundation Type: (suspended floor/ raft/ other)	Pile And Beam
Weather during inspection:	Cold, overcast and damp with occasional showers.	Gas Protection Type: (passive/ active)	Passive Radon
Plot number(s):	Phase 2 Ground floor area south of main swimming pool		
Gas Protection Components inspected:	Radon membrane installation and sealing to previously applied liquid membrane on concrete substructure.		

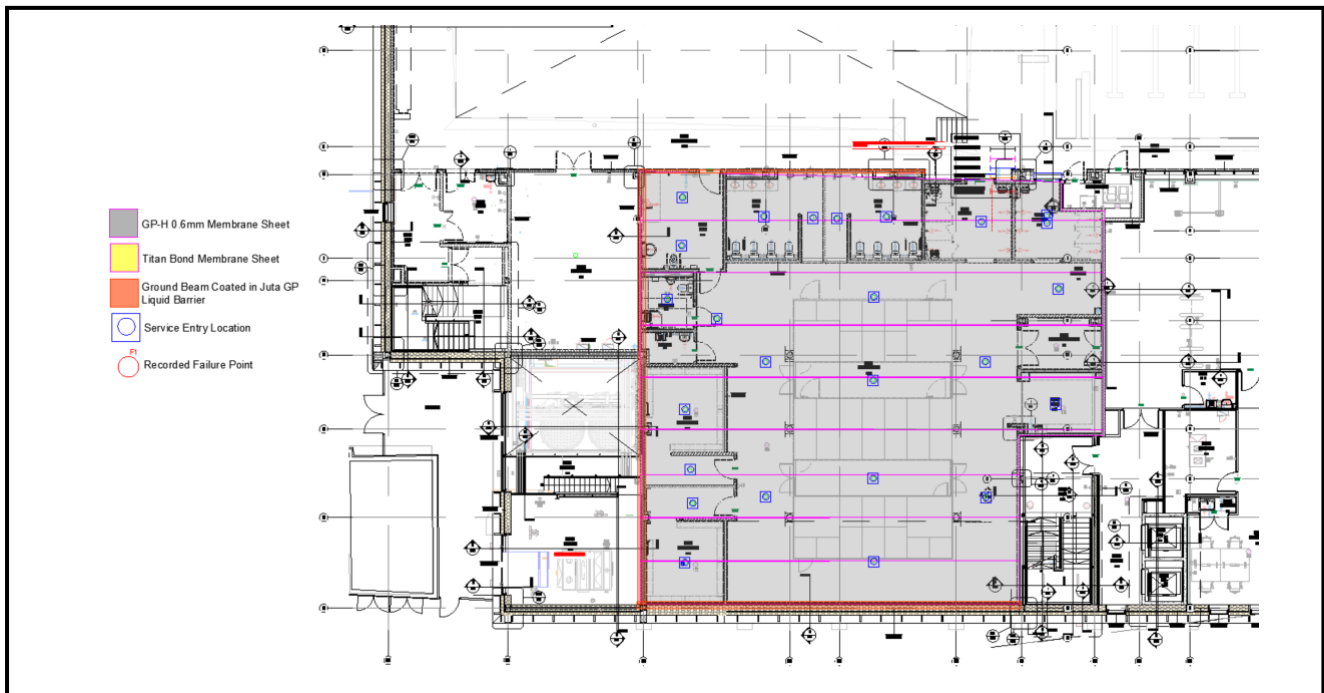
ASTM D4437-08:2013 Air Lance Test—Inspect all seams for unbonded areas using an air nozzle directed on the upper seam edge and surface to detect loose edges, ripples indicating unbonded areas within the seam, or other undesirable seam conditions. Check all bonded seams using a minimum 50 psi (345 kPa) (gage) air supply directed through a 3/16 in. (4.8 mm) (typical) nozzle, held not more than 2 in. (51 mm) from the seam edge and directed at the seam edge.

The box below should be used to present a sketch plan of the building/plot layout and membrane, showing locations of all key joints and seal features of the gas protection system and installation which are subject to air-lance integrity testing (joints, seals, tophats around service penetrations etc).

- Failure points in seams or joints should be marked sequentially 'F₁', 'F₂' etc with approximate dimensions.
- Seams and joints deemed to be satisfactory should be marked with an S. All relative testing details/comments should be recorded in the table below.



Phase 2 Ground floor area south of main swimming pool – Area of Installation/ Inspection for given date highlighted Yellow



No.	Item	Comments (see notes)
A - Air Lancing Equipment		
Air Lance with outflow nozzle of 4.8mm		All accessible seams, joints and service penetrations tested via air lancing in accordance with ASTM D4437-08:2013 Air Lance Test. Pressure monitored and maintained at 50-60psi at the lance throughout testing.
B - Membrane, Joints and Seals		
Details of gas membrane product used		Juta GP Liquid Barrier Juta GP-H 0.6mm membrane Juta GR-SAM
Details of joining/ lapping tape products used		Juta Titan Tape Juta GR-SAM
Joint/ Lapping design used		Overlaps adequate (meet min. 100mm recommended by manufacturer). Main Titan bond membrane sheet joints heat welded using a Twinny type welder. Titan Tape or GR-SAM used for jointing between Titan Bond membrane and Liquid Barrier Service entries completed using GR-SAM to form seal with membrane.
External vent trenches/ ducts		N/A
No.	Item	Comments (see notes)
C – Air Lance Integrity Test Results		
Test No.	Failed or Satisfactory (F or S)	Detail, comments and recommendations
Membrane to Liquid Barrier Joints	S	All membrane to liquid barrier joints proven to be satisfactory by IDG via ASTM D4437 air lance test.
Membrane to membrane Joints	S	All membrane to membrane seams/join length proven to be satisfactory by IDG via ASTM D4437 air lance test.

4 - Photographs

Photograph	Description
	<i>IDG's typical Air lance kit set up for integrity testing of the seams/ joins and tophat seals, and compliant with ASTM D4437.</i>
	<i>Photograph showing the radon protection measures installed for the Phase 2 floor slab area. GP Liquid barrier (red) applied to all stanchion bases and substructure concrete as per design. Juta GP-H 0.6mm membrane (black) bonded to GP Liquid barrier using Titan Tape and / or GR-SAM. Membrane joins heat welded using Twinny type welder.</i>
	<i>Air lance testing in basement plant room, with pressure gauge showing maintained pressure above minimum of 50psi advocated by ASTM D4437-08:2013.</i>
	<i>Air lance testing of joint between two GP-H membrane sheets in Phase 2 floor slab area, with pressure gauge showing maintained pressure above minimum of 50psi advocated by ASTM D4437-08:2013.</i>

	Air lance testing of joints between GP-H membrane, GR-SAM and Liquid Barrier at stanchion base interface, with pressure gauge showing maintained pressure above minimum of 50psi advocated by ASTM D4437-08:2013.
	Air lance testing of joints between GP-H membrane, GR-SAM and Liquid Barrier at ground beam interface, with pressure gauge showing maintained pressure above minimum of 50psi advocated by ASTM D4437-08:2013.
	Air lance testing of joint between GP-H membrane and GR-SAM used to seal service entries, with pressure gauge showing maintained pressure above minimum of 50psi advocated by ASTM D4437-08:2013.

REMEDIAL ACTIONS REQUIRED

N/A

CERTIFICATION

The air lance integrity testing was undertaken by a suitably competent IDG testing engineer, using specialist equipment designed to comply with the requirements of ASTM D4437-08:2013, and the site-specific Gas Protection Measures Verification Plan.

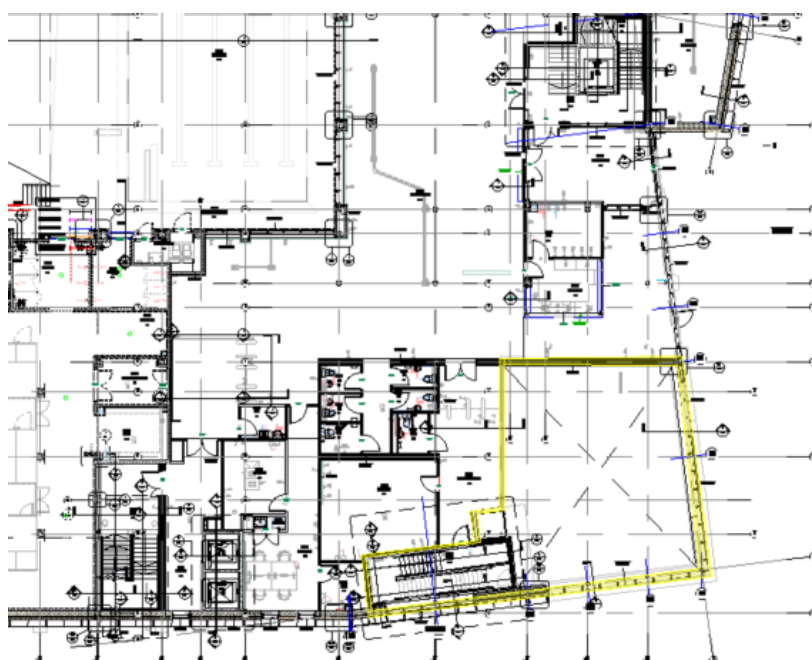
The Gas Protection Measures for this section of work:	A) Have passed both the visual verification inspection and air lance non-destructive integrity testing of all seams and joins. The quality of installation and workmanship are satisfactory and comply with the specification.	✓
	B) Are acceptable but attention is drawn to issues relating to item(s) No.	
	C) Are not acceptable due to issues requiring remedial action as indicated above. <i>This plot should be re-inspected and verified upon completion of any required remedial works.</i>	
NAME	SIGNATURE	DATE
LIAM MURPHY		21/02/25

GAS PROTECTION MEASURES VERIFICATION VISUAL INSPECTION RECORD



Site Name:	Radcliffe Civic Hub	Gas Characteristic Situation:	Basic Radon Only
Job Number:	5238	Type of development: (Residential/ commercial/ other)	Commercial
Date:	11/03/25 25/03/25 27/03/25	Building Description:	Multi-Use Civic Hub Including Basement Plant Rooms And Swimming Pools
Verification Engineer:	LM	Foundation Type: (suspended floor/ raft/ other)	Pile And Beam
Weather during inspection:	Mild/warm dry and sunny	Gas Protection Type: (passive/ active)	Passive Radon
Area/ Plot number(s):	Basement 2 and associated Lower Ground Floor Substructure		
Gas Protection Components inspected:	Liquid barrier applied to pile caps and beams, and partial radon membrane installation for vertical face prior to shuttering and next concrete pour		

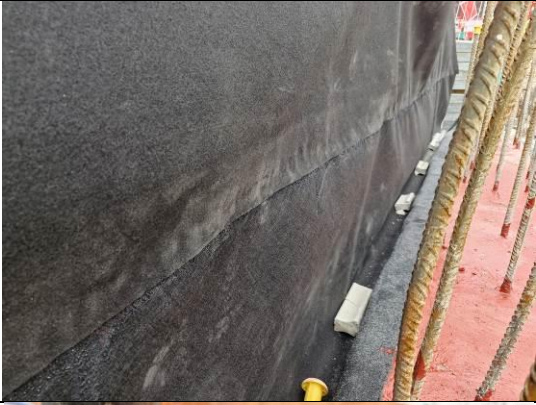
The box below should be used to present a sketch plan of the building/plot layout, showing locations of all key features of the gas protection system and installation (vents, joins, seals, service penetrations etc). All relative inspection details/comments should be recorded in the table below.



Basement 2 and associated Lower Ground Floor Substructure (Liquid Gas Barrier) – Area of Installation/ Inspection for given date highlighted Yellow

No.	Item	Comments (see notes)
1 - Passive Venting		
1.1	Sub-floor void	N/A
1.2	External wall airbricks	N/A
1.3	Internal sleeper walls	N/A
1.4	External vent trenches/ ducts	N/A
2 - Active Venting		
2.1	Active venting System details	N/A

No.	Item	Comments (see notes)
3 - Gas Membrane		
3.1	Condition of sub-grade and underside of membrane	N/A
3.2	Details of gas membrane product used	Juta GP Liquid Barrier Juta GP-TitanFlex Juta TitanBond Juta GR-SAM
3.3	Gas membrane condition (rips/ tears/ penetrations)	Generally very good. No punctures/rips or tears identified.
3.4	Details of joining/ lapping tape products used	Juta Titan Tape Juta GR-SAM
3.5	Lapping design	Overlaps adequate (meet min. 100mm recommended by manufacturer).
3.6	Laps, welds and joint seals	Joints generally completed to a good standard. Visual and mechanical point stress testing identified two localised areas where Titan Tape had not adequately bonded to the liquid membrane on the beam – subsequently repaired by SEL on site. Main Titan bond membrane sheet joints heat welded.
3.7	Service entry seals	N/A
4 – Other comments/ considerations		
4.1		
4.2		
5 - Photographs		
Photograph		Description
		Photograph showing the GP Liquid barrier (red) being applied to all substructure concrete.
		Photograph showing the GP Liquid barrier (red) applied to all substructure concrete of Basement 2 and Stairwell as per design ahead of shuttering and next phase of concrete pour.

	Photograph showing the GP Liquid barrier (red) applied to all substructure concrete of Basement 2 and Stairwell as per design ahead of shuttering and next phase of concrete pour. Titan Bond Membrane joined to substructure to form vertical face ahead of next concrete pour.
	Photograph showing the GP Liquid barrier (red) applied to all substructure concrete of Basement 2 and Stairwell as per design ahead of shuttering and next phase of concrete pour. TitanBond Membrane joined to substructure to form vertical face ahead of next concrete pour, and TitanFlex membrane joined to inner side of substructure prior to steel work and shuttering being placed.
	Heat welded joints between TitanBond Membrane sheets on vertical face of external shuttering.
	Photograph showing small section of failure in jointing between TitanFlex membrane and liquid barrier due to moisture ingress. Rectified by SEL on site during the inspection.

	Photograph showing the GP Liquid barrier (red) applied to all substructure concrete of Basement 2 and Stairwell as per design ahead of shuttering and next phase of concrete pour. TitanBond Membrane joined to substructure to form vertical face ahead of next concrete pour, and TitanFlex membrane joined to inner side of substructure prior to steel work and shuttering being placed. Corner detailing completed to a good standard.
	Photograph showing the GP Liquid barrier (red) applied to all substructure concrete of Basement 2 and Stairwell as per design ahead of shuttering and next phase of concrete pour. TitanBond Membrane joined to substructure to form vertical face ahead of next concrete pour, and TitanFlex membrane joined to inner side of substructure prior to steel work and shuttering being placed. Neat detailing around level step-up completed to a good standard.
	Photograph showing steelwork and shuttering being assembled ahead of next concrete pour.

REMEDIAL ACTIONS REQUIRED

Visual and mechanical point stress testing identified two localised areas where Titan Tape had not adequately bonded to the liquid membrane on the beam – subsequently repaired by SEL on site under supervision of IDG.

No further/ outstanding remedial actions required.

CERTIFICATION

The visual verification inspection was undertaken by a suitably competent IDG verification engineer, in accordance with the requirements of CIRIA C735 and the site-specific Gas Protection Measures Verification Plan.

The Gas Protection Measures for this section of work:	A) Are acceptable and comply with the specification. <i>Final Certification of this section of work is subject to successful Air Lance Integrity Testing to demonstrate compliance.</i>	
	B) Are acceptable and comply with the specification. <i>Air Lance Integrity Testing is not required for this section of work.</i>	✓
	C) Are acceptable but attention is drawn to issues relating to item(s) No.	
	D) Are not acceptable due to issues requiring remedial action as indicated above. <i>This section of work should be re-inspected and verified upon completion of any required remedial works.</i>	
NAME	SIGNATURE	DATE
LIAM MURPHY		28/03/25

Inspection Checklist Notes:

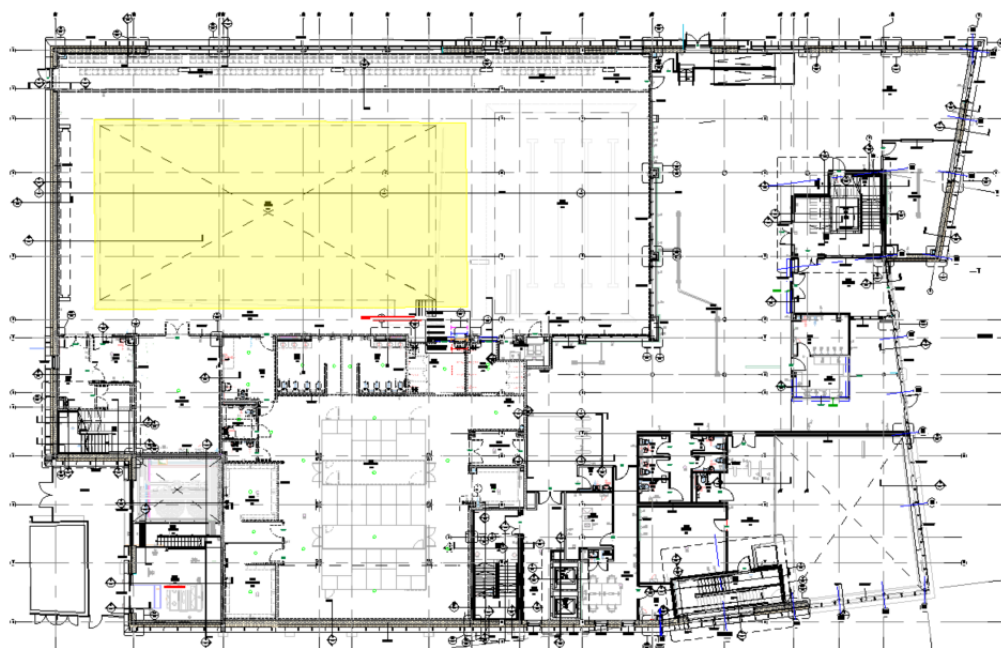
1.1	Sub-floor void	Is a check possible? Void former? Gravel (type/ specification)? Height of void space? Is it clear?
1.2	External wall airbricks	Numbers, size, positions as per design drawing?
1.3	Internal sleeper walls	Ventilation holes (honeycomb brickwork/ pipe crossings)? Size, spacing, location in accordance with design?
1.4	External vent trenches/ ducts	Located/ construction in accordance with design? If open-topped – gravel type, presence of fines? If pipe or other vent, check position and construction for functionality and absence of blockages. Ability of void former to withstand bearing of superstructure?
2.1	System details	Type of air supply: mechanical, natural, combined? Location/ condition/ number of fans and vents? Location and size of inlets? Provision of air-cleaning devices? Supply and exhaust ducting? Alarm provision/ installation? Gas monitoring system in under-floor void?
3.1	Condition of sub-grade and underside of membrane	Check that the sub-grade does not contain rough/uneven surfaces, is appropriately clean and that there are no hard/sharp objects. That protective sand blinding or geotextile (if specified) is present?
3.2	Details of gas membrane product used	Manufacturer and product specification, gauge, colour, brand/name, material, batch/ roll numbers, storage arrangements (to protect from dirt/damage).
3.3	Gas membrane condition (rips/ tears/ penetrations)	Open punctures, tears, rips, stretching? Excessive footprints/ evidence of traffic? Presence of debris? Repairs? Signs of weakness such as raised or sunken indentations? Protection plan in place to restrict access to lain gas membrane?
3.4	Details of joining/ lapping tape products used	Product type, brand, thickness, material, width, colour? Foil backed? Double sided?
3.5	Lapping design	Joints lapped and sealed in accordance with manufacturers requirements/ specification? Minimum overlap ensured? Sections taped twice (double sided and lapping)?
3.6	Laps, welds and joint seals	Welds complete? Appropriate jointing tape used? No creases or folds in sheet edges? Adequately bonded? (confirm by air lance integrity testing as necessary in accordance with the verification plan)
3.7	Service entry seals	Top hats seal arrangements fixed around service entries? Use of jubilee clips? Adequately taped to membrane at joins with double-sided and lapping tape?

GAS PROTECTION MEASURES VERIFICATION VISUAL INSPECTION RECORD



Site Name:	Radcliffe Civic Hub	Gas Characteristic Situation:	Basic Radon Only
Job Number:	5238	Type of development: (Residential/ commercial/ other)	Commercial
Date:	16/04/2025	Building Description:	Multi-Use Civic Hub Including Basement Plant Rooms And Swimming Pools
Verification Engineer:	LM	Foundation Type: (suspended floor/ raft/ other)	Pile And Beam
Weather during inspection:	Mild, overcast and dry.	Gas Protection Type: (passive/ active)	Passive Radon
Area/ Plot number(s):	Main swimming pool		
Gas Protection Components inspected:	Radon membrane installation and sealing with liquid membrane on pile heads.		

The box below should be used to present a sketch plan of the building/plot layout, showing locations of all key features of the gas protection system and installation (vents, joins, seals, service penetrations etc). All relative inspection details/comments should be recorded in the table below.



Main swimming pool base gas membrane install – Area of Installation/ Inspection for given date highlighted Yellow

No.	Item	Comments (see notes)
1 - Passive Venting		
1.1	Sub-floor void	N/A
1.2	External wall airbricks	N/A
1.3	Internal sleeper walls	N/A
1.4	External vent trenches/ ducts	N/A
2 - Active Venting		
2.1	Active venting System details	N/A

No.	Item	Comments (see notes)
3 - Gas Membrane		
3.1	Condition of sub-grade and underside of membrane	<i>Not visible - no evidence of debris or potentially intrusive materials beneath membrane.</i>
3.2	Details of gas membrane product used	<i>Juta GP Liquid Barrier Juta GP-H 0.6mm membrane Juta GR-SAM</i>
3.3	Gas membrane condition (rips/ tears/ penetrations)	<i>Generally very good.</i>
3.4	Details of joining/ lapping tape products used	<i>Juta Titan Tape Juta GR-SAM</i>
3.5	Lapping design	<i>Overlaps adequate (meet min. 100mm recommended by manufacturer).</i>
3.6	Laps, welds and joint seals	<i>Visual and mechanical point stress testing confirmed joints generally completed to a good standard and subsequently proven by air-lance testing. Main GP-H membrane sheet joints heat welded using a Twinny type welder. Liquid membrane applied to all beams. Joints between GP-H and Liquid barrier formed using GR-SAM.</i>
3.7	Service entry seals	<i>All service entries completed to a good standard using GR-SAM to form seal with membrane.</i>
4 – Other comments/ considerations		
4.1		
4.2		
5 - Photographs		
Photograph		Description
		<i>Photograph showing the radon protection measures installed for the main swimming pool base area. GP Liquid barrier (red) applied to all pile heads as per design. Juta GP-H 0.6mm membrane (black) bonded to GP Liquid barrier using Titan Tape and / or GR-SAM. Membrane joins heat welded using Twinny type welder.</i>
		<i>Photograph showing the radon protection measures installed for the main swimming pool base area. GP Liquid barrier (red) applied to all pile heads as per design. Juta GP-H 0.6mm membrane (black) bonded to GP Liquid barrier using Titan Tape and / or GR-SAM. Membrane joins heat welded using Twinny type welder.</i>

	Photograph showing the radon protection measures installed for the main swimming pool base area. GP Liquid barrier (red) applied to all pile heads as per design. Juta GP-H 0.6mm membrane (black) bonded to GP Liquid barrier using Titan Tape and / or GR-SAM. Membrane joints heat welded using Twinny type welder.
	Photograph showing the radon protection measures installed for the main swimming pool base area. Juta GP-H 0.6mm membrane sheet joints heat welded using a Twinny type welder.
	GP Liquid barrier (red) applied to all pile heads as per design. Juta GP-H 0.6mm membrane (black) bonded to GP Liquid barrier using GR-SAM.
	Photograph showing the radon protection measures installed for the main swimming pool base area. GP Liquid barrier (red) applied to all pile heads as per design. Juta GP-H 0.6mm membrane (black) bonded to GP Liquid barrier using Titan Tape and / or GR-SAM. Membrane joints heat welded using Twinny type welder. Water inlet and outlet pipe sump pits visible at western end of pool.

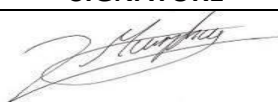
	Photograph showing the radon protection measures installed for the main swimming pool base area. GP Liquid barrier (red) applied to all pile heads as per design. Juta GP-H 0.6mm membrane (black) bonded to GP Liquid barrier using Titan Tape and / or GR-SAM. Membrane joins heat welded using Twinny type welder. Water inlet and outlet pipe sump pits visible at western end of pool.
	Photograph showing the radon protection measures installed for the main swimming pool base area. GP Liquid barrier (red) applied to all pile heads as per design. Juta GP-H 0.6mm membrane (black) bonded to GP Liquid barrier using Titan Tape and / or GR-SAM. Membrane joins heat welded using Twinny type welder. Detailing around Water inlet and outlet pipe sump pits at western end of pool completed with GR-SAM.
	Photograph showing Detailing around Water inlet and outlet pipe sump pits at western end of pool completed with GR-SAM.

REMEDIAL ACTIONS REQUIRED

N/A - all remedial actions completed

CERTIFICATION

The visual verification inspection was undertaken by a suitably competent IDG verification engineer, in accordance with the requirements of CIRIA C735 and the site-specific Gas Protection Measures Verification Plan.

The Gas Protection Measures for this section of work:	A) Are acceptable and comply with the specification. <i>Final Certification of this section of work is subject to successful Air Lance Integrity Testing to demonstrate compliance.</i>	✓
	B) Are acceptable and comply with the specification. <i>Integrity Testing is not required for this plot.</i>	
	C) Are acceptable but attention is drawn to issues relating to item(s) No.	
	D) Are not acceptable due to issues requiring remedial action as indicated above. <i>This plot should be re-inspected and verified upon completion of any required remedial works.</i>	
NAME	SIGNATURE	DATE
LIAM MURPHY		30/04/25

Inspection Checklist Notes:

1.1	Sub-floor void	Is a check possible? Void former? Gravel (type/ specification)? Height of void space? Is it clear?
1.2	External wall airbricks	Numbers, size, positions as per design drawing?
1.3	Internal sleeper walls	Ventilation holes (honeycomb brickwork/ pipe crossings)? Size, spacing, location in accordance with design?
1.4	External vent trenches/ ducts	Located/ construction in accordance with design? If open-topped – gravel type, presence of fines? If pipe or other vent, check position and construction for functionality and absence of blockages. Ability of void former to withstand bearing of superstructure?
2.1	System details	Type of air supply: mechanical, natural, combined? Location/ condition/ number of fans and vents? Location and size of inlets? Provision of air-cleaning devices? Supply and exhaust ducting? Alarm provision/ installation? Gas monitoring system in under-floor void?
3.1	Condition of sub-grade and underside of membrane	Check that the sub-grade does not contain rough/uneven surfaces, is appropriately clean and that there are no hard/sharp objects. That protective sand blinding or geotextile (if specified) is present?
3.2	Details of gas membrane product used	Manufacturer and product specification, gauge, colour, brand/name, material, batch/ roll numbers, storage arrangements (to protect from dirt/damage).
3.3	Gas membrane condition (rips/ tears/ penetrations)	Open punctures, tears, rips, stretching? Excessive footprints/ evidence of traffic? Presence of debris? Repairs? Signs of weakness such as raised or sunken indentations? Protection plan in place to restrict access to lain gas membrane?
3.4	Details of joining/ lapping tape products used	Product type, brand, thickness, material, width, colour? Foil backed? Double sided?
3.5	Lapping design	Joints lapped and sealed in accordance with manufacturers requirements/ specification? Minimum overlap ensured? Sections taped twice (double sided and lapping)?
3.6	Laps, welds and joint seals	Welds complete? Appropriate jointing tape used? No creases or folds in sheet edges? Adequately bonded? (confirm by air lance integrity testing as necessary in accordance with the verification plan)
3.7	Service entry seals	Top hats seal arrangements fixed around service entries? Use of jubilee clips? Adequately taped to membrane at joins with double-sided and lapping tape?

GAS PROTECTION MEASURES VERIFICATION AIR LANCE INTEGRITY TESTING RECORD

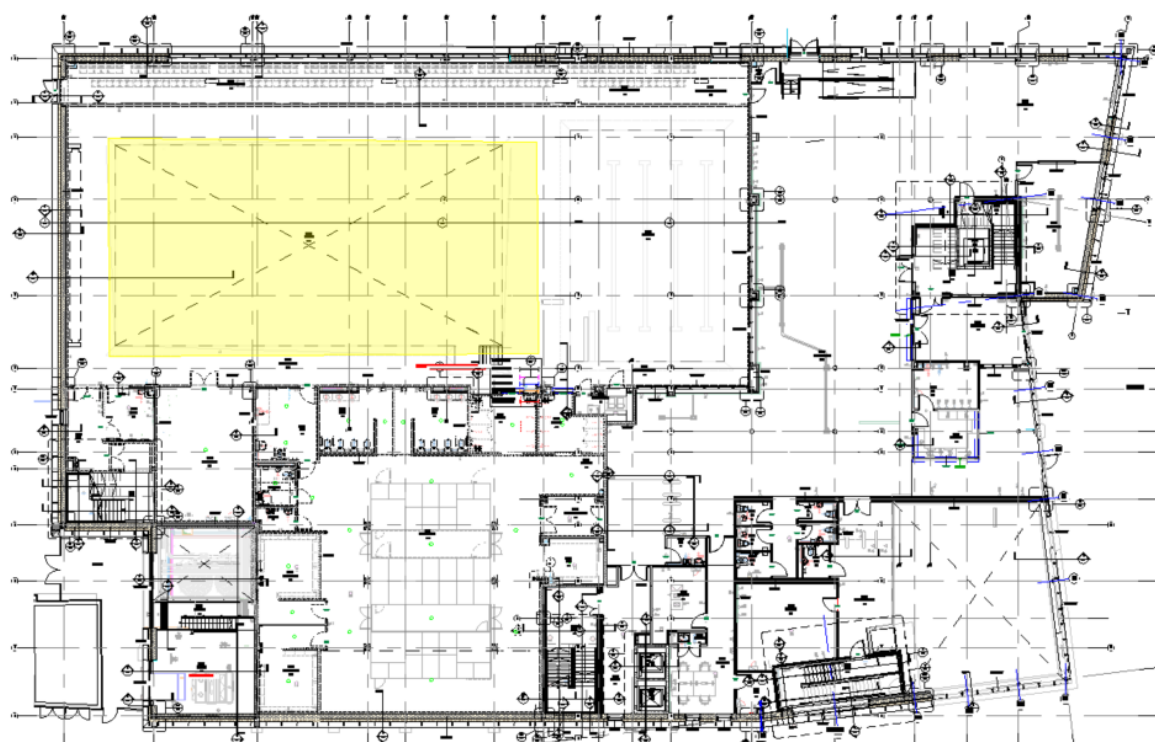


Site Name:	Radcliffe Civic Hub	Gas Characteristic Situation:	Basic Radon Only
Job Number:	5238	Type of development: (Residential/ commercial/ other)	Commercial
Date:	16/04/2025	Building Description:	Multi-Use Civic Hub Including Basement Plant Rooms And Swimming Pools
Integrity Testing Engineer:	LM	Foundation Type: (suspended floor/ raft/ other)	Pile And Beam
Weather during inspection:	Mild, overcast and dry.	Gas Protection Type: (passive/ active)	Passive Radon
Plot number(s):	Main swimming pool		
Gas Protection Components inspected:	Radon membrane installation and sealing with liquid membrane on pile heads.		

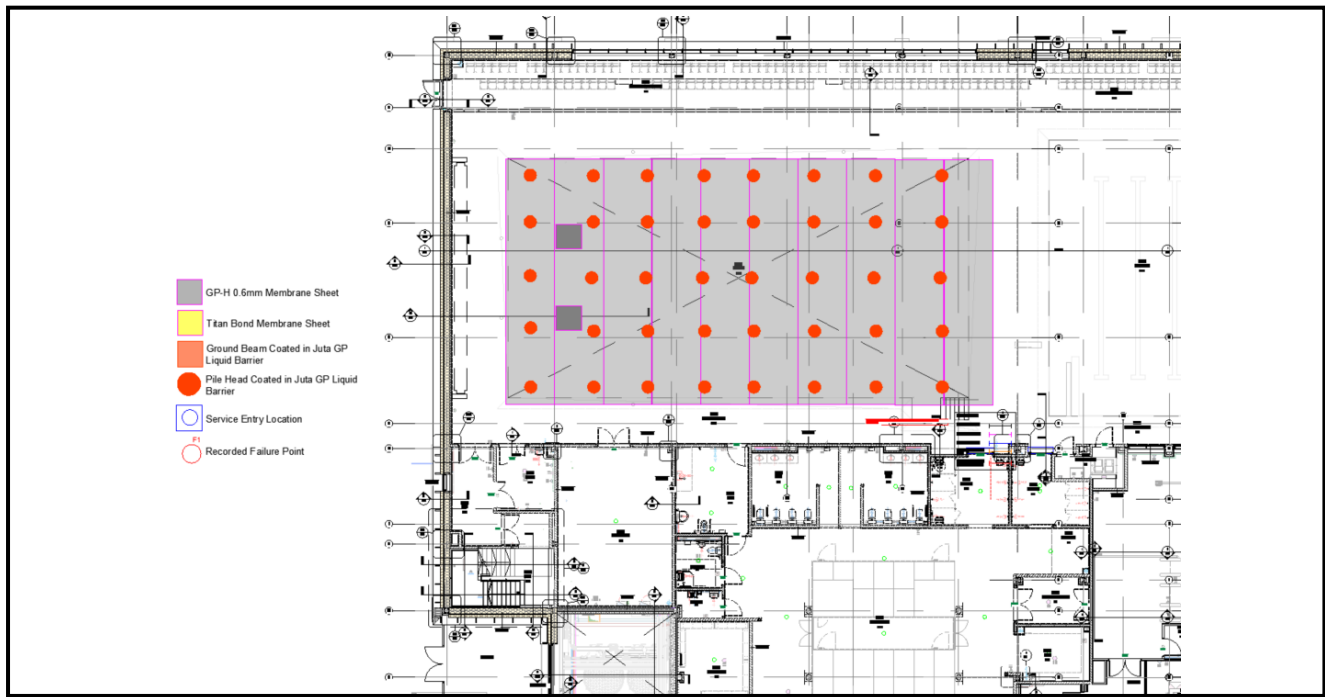
ASTM D4437-08:2013 Air Lance Test—Inspect all seams for unbonded areas using an air nozzle directed on the upper seam edge and surface to detect loose edges, ripples indicating unbonded areas within the seam, or other undesirable seam conditions. Check all bonded seams using a minimum 50 psi (345 kPa) (gage) air supply directed through a 3/16 in. (4.8 mm) (typical) nozzle, held not more than 2 in. (51 mm) from the seam edge and directed at the seam edge.

The box below should be used to present a sketch plan of the building/plot layout and membrane, showing locations of all key joints and seal features of the gas protection system and installation which are subject to air-lance integrity testing (joints, seals, tophats around service penetrations etc).

- Failure points in seams or joints should be marked sequentially 'F₁', 'F₂' etc with approximate dimensions.
- Seams and joints deemed to be satisfactory should be marked with an S. All relative testing details/comments should be recorded in the table below.

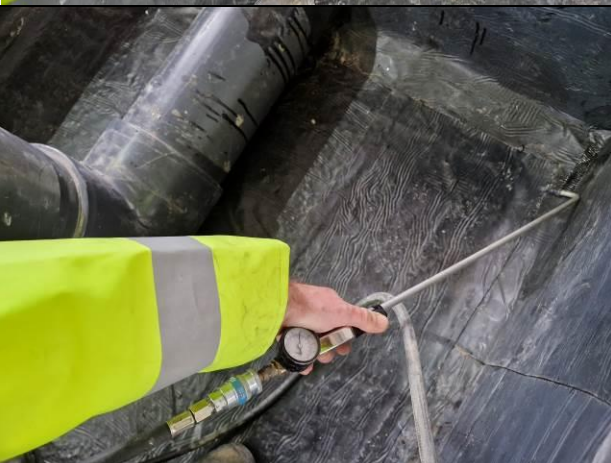


Main swimming pool base gas membrane install – Area of Installation/ Inspection for given date highlighted Yellow



No.	Item	Comments (see notes)
A - Air Lancing Equipment		
Air Lance with outflow nozzle of 4.8mm		All accessible seams, joints and service penetrations tested via air lancing in accordance with ASTM D4437-08:2013 Air Lance Test. Pressure monitored and maintained at 50-60psi at the lance throughout testing.
B - Membrane, Joints and Seals		
Details of gas membrane product used		Juta GP Liquid Barrier Juta GP-H 0.6mm membrane Juta GR-SAM
Details of joining/ lapping tape products used		Juta Titan Tape Juta GR-SAM
Joint/ Lapping design used		Overlaps adequate (meet min. 100mm recommended by manufacturer). Main Titan bond membrane sheet joints heat welded using a Twinny type welder. Titan Tape or GR-SAM used for jointing between Titan Bond membrane and Liquid Barrier Service entries completed using GR-SAM to form seal with membrane.
External vent trenches/ ducts		N/A
No.	Item	Comments (see notes)
C – Air Lance Integrity Test Results		
Test No.	Failed or Satisfactory (F or S)	Detail, comments and recommendations
Membrane to Liquid Barrier Joints	S	All membrane to liquid barrier joints proven to be satisfactory by IDG via ASTM D4437 air lance test.
Membrane to membrane Joints	S	All membrane to membrane seams/join length proven to be satisfactory by IDG via ASTM D4437 air lance test.

4 - Photographs	
Photograph	Description
	IDG's typical Air lance kit set up for integrity testing of the seams/ joints and tophat seals, and compliant with ASTM D4437.
	Photograph showing the radon protection measures installed for the main swimming pool base area. GP Liquid barrier (red) applied to all pile heads as per design. Juta GP-H 0.6mm membrane (black) bonded to GP Liquid barrier using Titan Tape and / or GR-SAM. Membrane joins heat welded using Twinny type welder.
	Air lance testing in main swimming pool base, with pressure gauge showing maintained pressure above minimum of 50psi advocated by ASTM D4437-08:2013.
	Air lance testing of joint between two GP-H membrane sheets in main swimming pool base area, with pressure gauge showing maintained pressure above minimum of 50psi advocated by ASTM D4437-08:2013.

	Air lance testing of joints between GP-H membrane, GR-SAM and Liquid Barrier pile head interface, with pressure gauge showing maintained pressure above minimum of 50psi advocated by ASTM D4437-08:2013.
	Air lance testing of joints between GP-H membrane, GR-SAM and Liquid Barrier pile head interface, with pressure gauge showing maintained pressure above minimum of 50psi advocated by ASTM D4437-08:2013.
	Air lance testing of joints between GP-H membrane, and GR-SAM at water inlet sump pit, with pressure gauge showing maintained pressure above minimum of 50psi advocated by ASTM D4437-08:2013.
	Air lance testing of joints between GR-SAM at water inlet sump pit, with pressure gauge showing maintained pressure above minimum of 50psi advocated by ASTM D4437-08:2013.

REMEDIAL ACTIONS REQUIRED

N/A

CERTIFICATION

The air lance integrity testing was undertaken by a suitably competent IDG testing engineer, using specialist equipment designed to comply with the requirements of ASTM D4437-08:2013, and the site-specific Gas Protection Measures Verification Plan.

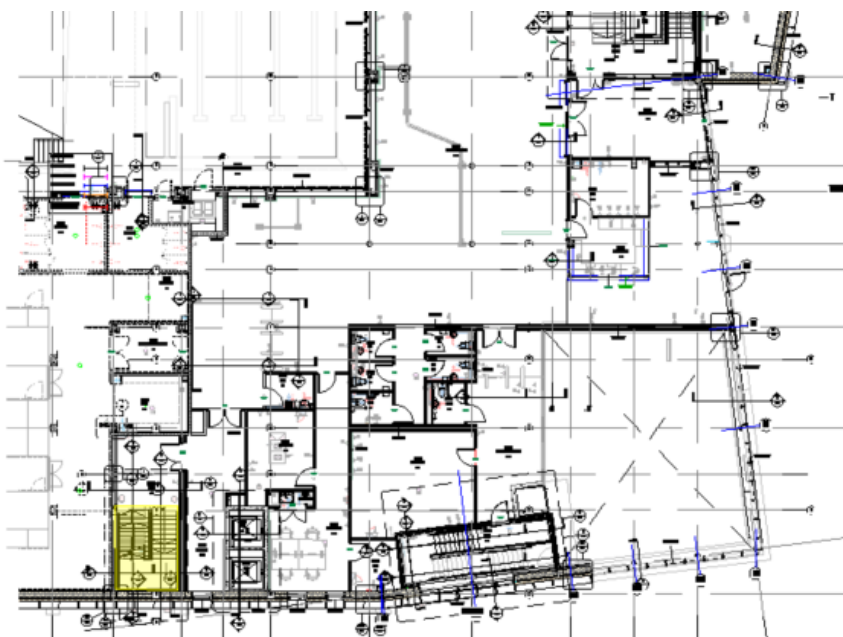
The Gas Protection Measures for this section of work:	A) Have passed both the visual verification inspection and air lance non-destructive integrity testing of all seams and joins. The quality of installation and workmanship are satisfactory and comply with the specification.	✓
	B) Are acceptable but attention is drawn to issues relating to item(s) No.	
	C) Are not acceptable due to issues requiring remedial action as indicated above. <i>This plot should be re-inspected and verified upon completion of any required remedial works.</i>	
NAME	SIGNATURE	DATE
LIAM MURPHY		30/04/25

GAS PROTECTION MEASURES VERIFICATION VISUAL INSPECTION RECORD



Site Name:	Radcliffe Civic Hub	Gas Characteristic Situation:	Basic Radon Only
Job Number:	5238	Type of development: (Residential/ commercial/ other)	Commercial
Date:	25/04/2025	Building Description:	Multi-Use Civic Hub Including Basement Plant Rooms And Swimming Pools
Verification Engineer:	LM	Foundation Type: (suspended floor/ raft/ other)	Pile And Beam
Weather during inspection:	Warm, dry and sunny	Gas Protection Type: (passive/ active)	Passive Radon
Area/ Plot number(s):	Ground Floor Emergency Stairwell Base		
Gas Protection Components inspected:	Radon membrane installation		

The box below should be used to present a sketch plan of the building/plot layout, showing locations of all key features of the gas protection system and installation (vents, joins, seals, service penetrations etc). All relative inspection details/comments should be recorded in the table below.



Ground Floor Lift Pit Radon Protection – Area of Installation/ Inspection for given date highlighted Yellow

No.	Item	Comments (see notes)
1 - Passive Venting		
1.1	Sub-floor void	N/A
1.2	External wall airbricks	N/A
1.3	Internal sleeper walls	N/A
1.4	External vent trenches/ ducts	N/A
2 - Active Venting		

2.1	Active venting System details	N/A
No.	Item	Comments (see notes)
3 - Gas Membrane		
3.1	Condition of sub-grade and underside of membrane	<i>Not visible - no evidence of debris or potentially intrusive materials beneath membrane.</i>
3.2	Details of gas membrane product used	<i>Juta GP Liquid Barrier Juta GP-TitanFlex Juta TitanBond Juta GR-SAM</i>
3.3	Gas membrane condition (rips/ tears/ penetrations)	<i>Generally very good. No punctures/rips or tears identified.</i>
3.4	Details of joining/ lapping tape products used	<i>Juta Titan Tape Juta GR-SAM</i>
3.5	Lapping design	<i>Overlaps adequate (meet min. 100mm recommended by manufacturer).</i>
3.6	Laps, welds and joint seals	<i>Joints generally completed to a good standard. Visual and mechanical point stress did not identify any failure points. Main Titan bond membrane sheet joints heat welded.</i>
3.7	Service entry seals	N/A
4 – Other comments/ considerations		
4.1		
4.2		
5 - Photographs		
Photograph		Description
		<i>Photograph showing the radon protection measures installed for the emergency stairwell base. GP Liquid barrier (red) previously applied to all substructure concrete as per design. GP Titan Bond membrane (grey/black) bonded to GP Liquid barrier using Titan Tape and / or GR-SAM. Membrane lapping up shuttering ahead of next phase of concrete pour.</i>
		<i>Photograph showing the radon protection measures installed for the emergency stairwell base. GP Liquid barrier (red) previously applied to all substructure concrete as per design. GP Titan Bond membrane (grey/black) bonded to GP Liquid barrier using Titan Tape and / or GR-SAM. Membrane lapping up shuttering ahead of next phase of concrete pour.</i>

	Photograph showing the radon protection measures installed for the emergency stairwell base. GP Titan Bond membrane (grey/black) sheet joints heat welded. Membrane lapping up shuttering ahead of next phase of concrete pour.
	Photograph showing the radon protection measures installed for the emergency stairwell base. GP Titan Bond membrane (grey/black) sheet joints heat welded. Membrane lapping up shuttering ahead of next phase of concrete pour.
	Photograph showing the radon protection measures installed for the emergency stairwell base. GP Titan Bond membrane (grey/black) sheet joints heat welded. Membrane lapping up bonded to concrete and liquid membrane.

REMEDIAL ACTIONS REQUIRED

N/A

CERTIFICATION

The visual verification inspection was undertaken by a suitably competent IDG verification engineer, in accordance with the requirements of CIRIA C735 and the site-specific Gas Protection Measures Verification Plan.

The Gas Protection Measures for this section of work:	A) Are acceptable and comply with the specification. <i>Final Certification of this section of work is subject to successful Air Lance Integrity Testing to demonstrate compliance.</i>	
	B) Are acceptable and comply with the specification. <i>Integrity Testing is not required for this this section of work.</i>	✓
	C) Are acceptable but attention is drawn to issues relating to item(s) No.	
	D) Are not acceptable due to issues requiring remedial action as indicated above. <i>This plot should be re-inspected and verified upon completion of any required remedial works.</i>	
NAME	SIGNATURE	DATE
LIAM MURPHY		30/04/25

Inspection Checklist Notes:

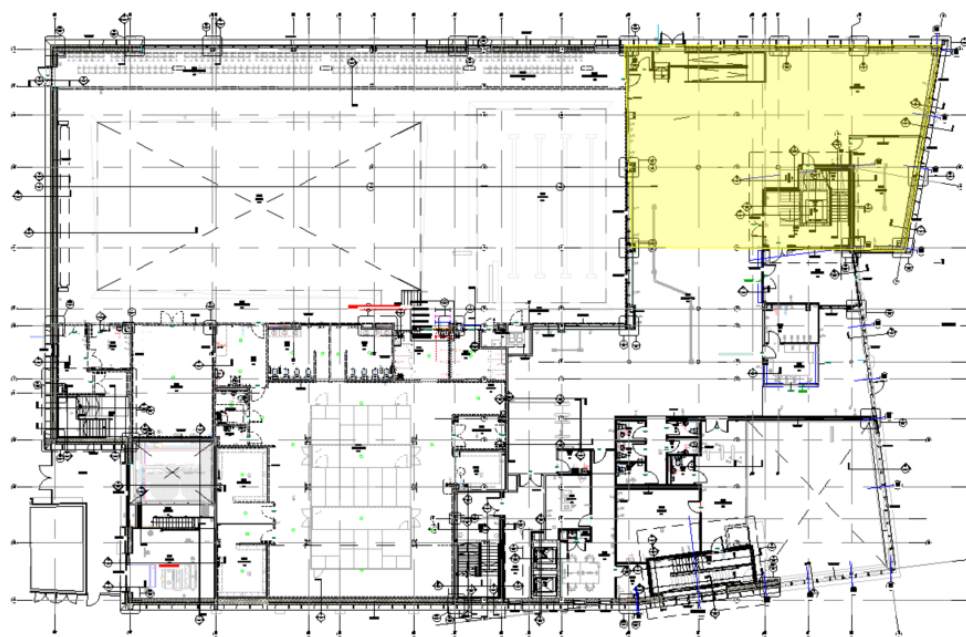
1.1	Sub-floor void	Is a check possible? Void former? Gravel (type/ specification)? Height of void space? Is it clear?
1.2	External wall airbricks	Numbers, size, positions as per design drawing?
1.3	Internal sleeper walls	Ventilation holes (honeycomb brickwork/ pipe crossings)? Size, spacing, location in accordance with design?
1.4	External vent trenches/ ducts	Located/ construction in accordance with design? If open-topped – gravel type, presence of fines? If pipe or other vent, check position and construction for functionality and absence of blockages. Ability of void former to withstand bearing of superstructure?
2.1	System details	Type of air supply: mechanical, natural, combined? Location/ condition/ number of fans and vents? Location and size of inlets? Provision of air-cleaning devices? Supply and exhaust ducting? Alarm provision/ installation? Gas monitoring system in under-floor void?
3.1	Condition of sub-grade and underside of membrane	Check that the sub-grade does not contain rough/uneven surfaces, is appropriately clean and that there are no hard/sharp objects. That protective sand blinding or geotextile (if specified) is present?
3.2	Details of gas membrane product used	Manufacturer and product specification, gauge, colour, brand/name, material, batch/ roll numbers, storage arrangements (to protect from dirt/damage).
3.3	Gas membrane condition (rips/ tears/ penetrations)	Open punctures, tears, rips, stretching? Excessive footprints/ evidence of traffic? Presence of debris? Repairs? Signs of weakness such as raised or sunken indentations? Protection plan in place to restrict access to lain gas membrane?
3.4	Details of joining/ lapping tape products used	Product type, brand, thickness, material, width, colour? Foil backed? Double sided?
3.5	Lapping design	Joints lapped and sealed in accordance with manufacturers requirements/ specification? Minimum overlap ensured? Sections taped twice (double sided and lapping)?
3.6	Laps, welds and joint seals	Welds complete? Appropriate jointing tape used? No creases or folds in sheet edges? Adequately bonded? (confirm by air lance integrity testing as necessary in accordance with the verification plan)
3.7	Service entry seals	Top hats seal arrangements fixed around service entries? Use of jubilee clips? Adequately taped to membrane at joins with double-sided and lapping tape?

GAS PROTECTION MEASURES VERIFICATION VISUAL INSPECTION RECORD



Site Name:	Radcliffe Civic Hub	Gas Characteristic Situation:	Basic Radon Only
Job Number:	5238	Type of development: (Residential/ commercial/ other)	Commercial
Date:	27/05/2025	Building Description:	Multi-Use Civic Hub Including Basement Plant Rooms And Swimming Pools
Verification Engineer:	LM	Foundation Type: (suspended floor/ raft/ other)	Pile And Beam
Weather during inspection:	Mild, overcast with heavy showers.	Gas Protection Type: (passive/ active)	Passive Radon
Area/ Plot number(s):	Phase 4 Floor slab area		
Gas Protection Components inspected:	Radon membrane installation and sealing with liquid membrane on external substructure and lift pit.		

The box below should be used to present a sketch plan of the building/plot layout, showing locations of all key features of the gas protection system and installation (vents, joins, seals, service penetrations etc). All relative inspection details/comments should be recorded in the table below.



Phase 4 Floor slab area gas membrane install – Area of Installation/ Inspection for given date highlighted Yellow

No.	Item	Comments (see notes)
1 - Passive Venting		
1.1	Sub-floor void	N/A
1.2	External wall airbricks	N/A
1.3	Internal sleeper walls	N/A
1.4	External vent trenches/ ducts	N/A
2 - Active Venting		
2.1	Active venting System details	N/A

No.	Item	Comments (see notes)
3 - Gas Membrane		
3.1	Condition of sub-grade and underside of membrane	<i>Not visible - no evidence of debris or potentially intrusive materials beneath membrane.</i>
3.2	Details of gas membrane product used	<i>Juta GP Liquid Barrier Juta GP-H 0.6mm membrane Juta GR-SAM</i>
3.3	Gas membrane condition (rips/ tears/ penetrations)	<i>Generally very good.</i>
3.4	Details of joining/ lapping tape products used	<i>Juta Titan Tape Juta GR-SAM</i>
3.5	Lapping design	<i>Overlaps adequate (meet min. 100mm recommended by manufacturer).</i>
3.6	Laps, welds and joint seals	<i>Visual and mechanical point stress testing confirmed joints generally completed to a good standard and subsequently proven by air-lance testing. Main GP-H membrane sheet joints heat welded using a Twinny type welder. Liquid membrane applied to all beams. Joints between GP-H and Liquid barrier formed using GR-SAM.</i>
3.7	Service entry seals	<i>All service entries completed to a good standard using GR-SAM to form seal with membrane.</i>
4 – Other comments/ considerations		
4.1		
4.2		
5 - Photographs		
Photograph		Description
		<i>Photograph showing the radon protection measures installed for the Phase 4 floor slab area. GP Liquid barrier (red) applied to all substructure concrete as per design. Juta GP-H 0.6mm membrane (black) bonded to GP Liquid barrier using Titan Tape and / or GR-SAM. Membrane joins heat welded using Twinny type welder.</i>
		<i>Photograph showing the radon protection measures installed for the Phase 4 floor slab area. GP Liquid barrier (red) applied to all substructure concrete as per design. Juta GP-H 0.6mm membrane (black) bonded to GP Liquid barrier using Titan Tape and / or GR-SAM. Membrane joins heat welded using Twinny type welder.</i>