Date: 28th May 2025
Reference: 16465-V5

GAS MEMBRANE VALIDATION – EDENFIELD ROAD, NORDEN

Project Name:	Edenfield Road, Rochdale
Project Number:	16-465
Client:	Stonebond Group Ltd
Date:	07-05-2025
Gas Membrane Installers Name & Qualifications:	Arch and Wood Construction & Commercial Ltd NVQ Level 2 Qualified Installer
Ground Gas Risk Assessment	Vapour resistant membranes (Plots 1-10) Characteristic Situation (CS2) (11-49)
Plots:	17-19

The gas mitigation measures validation site inspection record and associated photographs are enclosed within this letter as a Controlled Quality Assurance (CQA) site data capture record.

FINAL QUALITY ASSURANCE

E3P SITE VALIDATION CQA	QUALIFICATIONS	POSITION
Jordan James	CL:AIRE Course – Verification of Gas Protection Measures	Technician

PREPARED BY	QUALIFICATIONS	POSITION
Mark Wilson	BSc (Hons) Ind, FGS, MIEnvSc	Senior Consultant

AUTHORISED BY	QUALIFICATIONS	POSITION
Alex Smith	BSc (Hons), FGS, MIEnvSc, CEnv	Associate Director

Table 1 Validation Letter References

PLOT NUMBER	DATE	REPORT REFERENCE
1-6	22-11-204	V1
7-10	25-11-2024	V2
7-10 New Detail	10-04-2025	V3
1-6 New Detail	23-04-2025	V4
17-19	07-05-2025	V5

GROUND GAS MITIGATION DESIGN

The Ground Gas Risk Assessment for the site determined that the site should be classified as Characteristic Situation 2 in accordance with BS8485 2015 (+A1 2019).

In addition, vapour resistant membranes are required to be installed for plots located within the east and southeast part of the site (Plots 1-10) due to elevated concentrations of volatile contaminants.

A Gas Protection Design Report (GPDR) was prepared by E3P as detailed within their document (Ref: 16-465-R7-2) dated April 2025.

The GPDR has been prepared, reviewed, and authorised by a suitably qualified person who holds the relevant technical and professional qualifications as prescribed within the NHBC Document NF94 2023.

OVERVIEW OF GROUND GAS MITIGATION DESIGN & CONSTRUCTION REQUIREMENTS

Characteristic Situation 2 – Design Mitigation Requirements.

- Passive sub-floor dispersal layer of very good performance which meets all criteria in Paragraph B.6 of BS8485:2015 (minimum 150 mm clear void space and with correct frequency of side ventilation).
- Lapped and taped / sealed gas resistant membrane in the floor slab construction which meets all the criteria as set out in Table 7 of BS8485:2015 (+A1 2019) and Verification in Section 3.2.2 of CIRIA 735:2014.

For Plots 1-10, the following mitigation measures will be required:

Volatile Organic Compounds – Design Mitigation Requirements

- Sealed/welded vapour resistant membrane in the floor slab construction which meets all the criteria as set out in Table 7 of BS8485:2015 (+A1 2019), Verification in Section 3.2.2 of CIRIA 735:2014, and is compliant with CIRIA 748:2014.
- Every second plot constructed will be subject to air lancing integrity testing in accordance with an internationally recognised standard – to be undertaken by specialist third party contractor and reported separately.

A detailed sub-structure design has been prepared by AJP Consulting Engineers as detailed within their Drawing EDE-AJP-XX-00-DR-S-2013, Rev P05, dated 7th April 2025.

The sub-structure design forms a key component of the validation procedure to ensure the constructed mitigation requirements meet the specified design criteria.

Figure 1 **Suspended Floor Slab – Typical Edge – VSC**

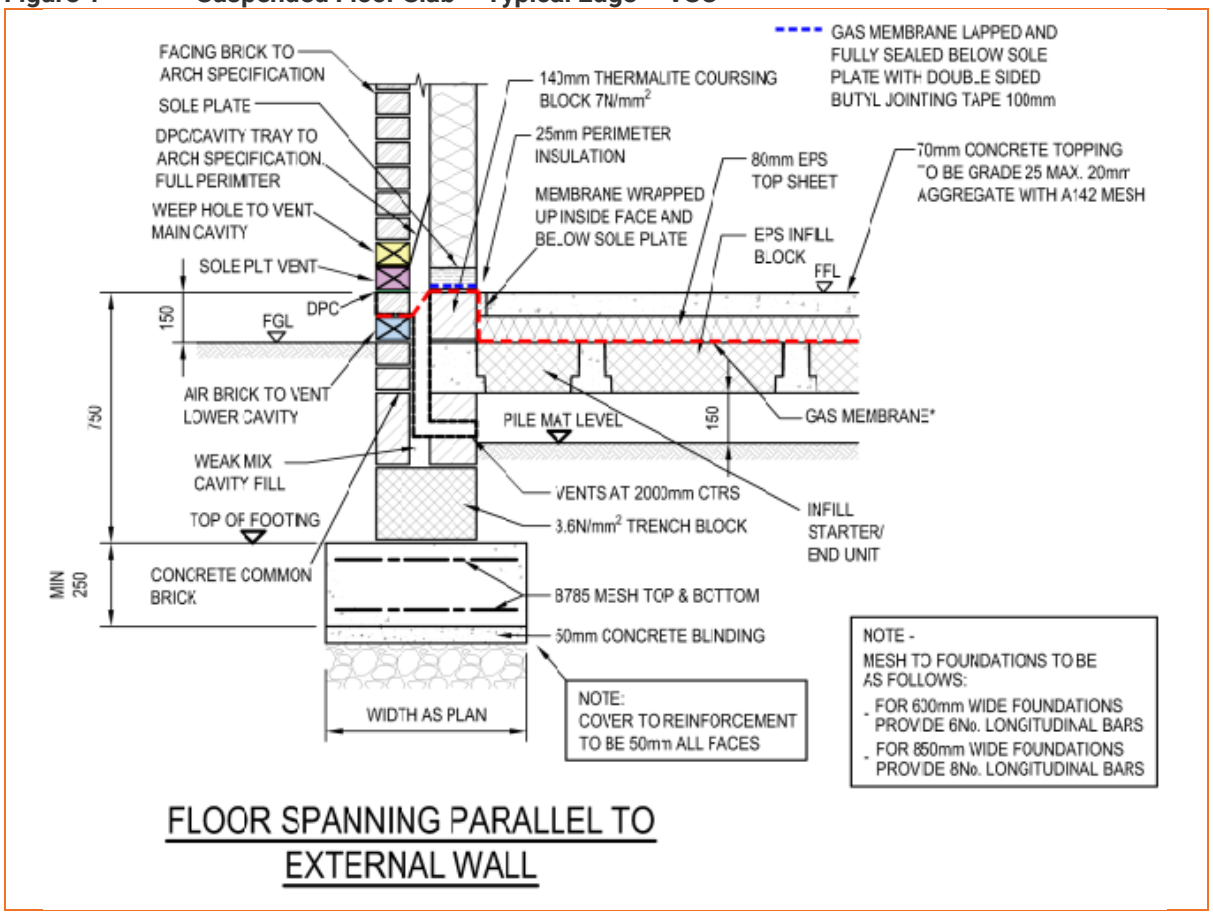


Figure 2 **Suspended Floor Slab – Typical Party Wall**

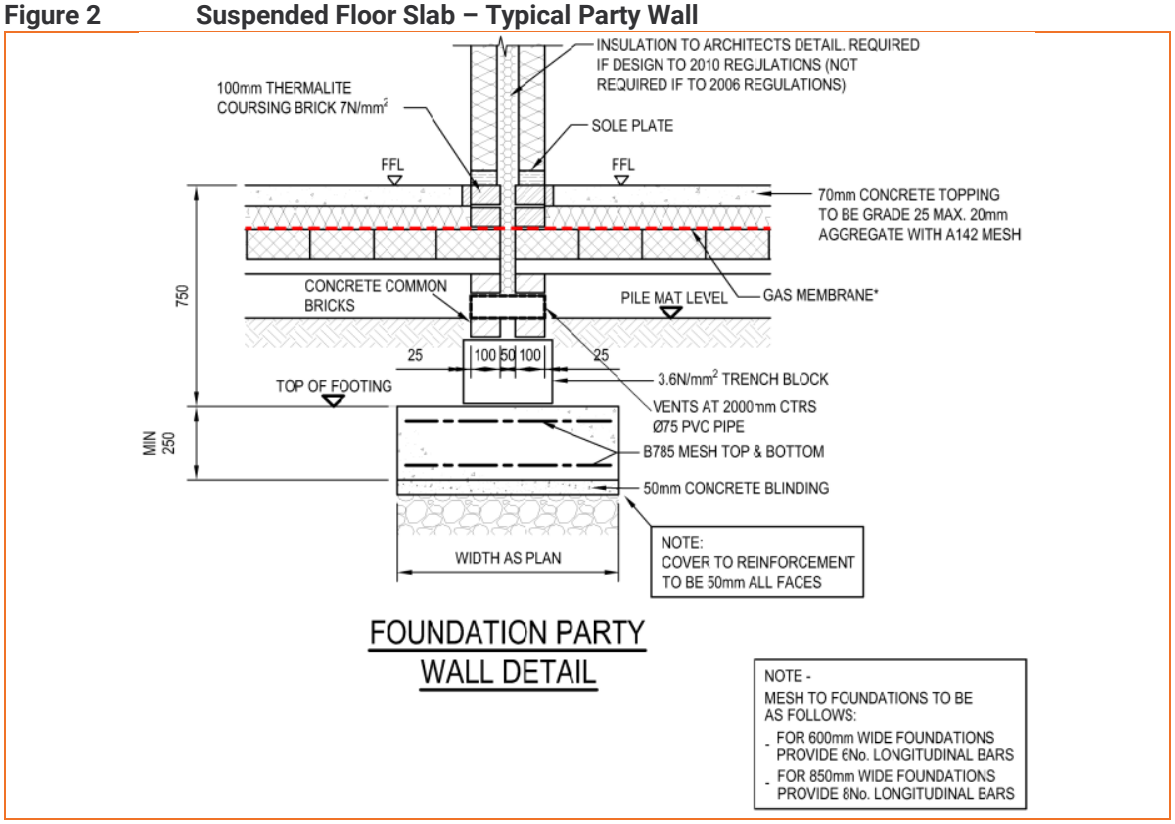


Figure 3 **Suspended Floor Slab - Typical Level Threshold Detail - VSC**

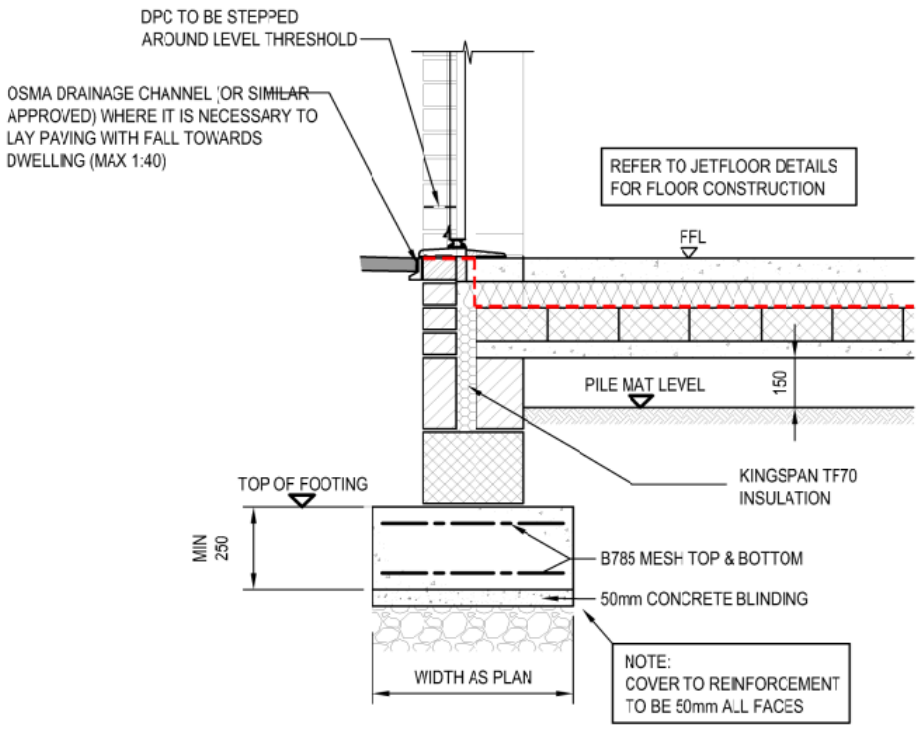
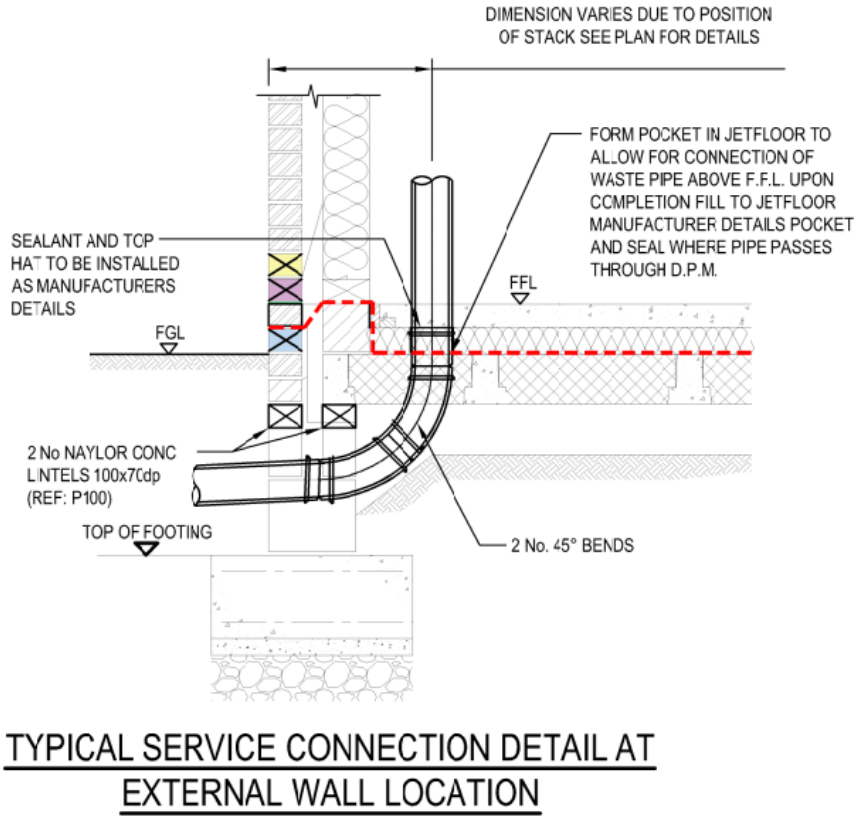


Figure 4 **Suspended Floor Slab – Typical Service Penetration - VSC**



SUMMARY OF VALIDATION INSPECTION & APPROVAL

SUB-FLOOR VOID

As per NHBC guidance and the structural engineers design, the sub-floor voids should be a minimum of 150 mm with no visible inclusions that would limit the performance of the ventilation mechanism.

The GPDR requires sub-floor voids to be inspected every plot for the first ten structures to establish protocols (as and where possible), and then every ten plots thereafter for sub-floor void (minimum 150 mm sub-floor void) and internal sleeper wall ventilation (to ensure uninhibited airflow). Plots requiring vapour-resistant membranes (i.e. Plots 1-10) will require 50% of sub-floor voids to be inspected.

The sub-floor void for Plots 17-19 could not be inspected on this particular occasion. However, the sub-floor voids of Plot 22 was available for inspection. The sub-floor voids were was observed and inspected to be a minimum of 150 mm with no visible inclusions that would limit the performance of this ventilation mechanism.

Photographs of the sub-floor void for Plot 22 are included in the final section of this CQA Validation Report.

AIR BRICKS & TELESCOPIC VENTILATION

As per NHBC guidance and the structural engineer’s design as part of the mitigation a telescopic vent and vent brick is required at 2.00 m intervals in the brick course. E3P can confirm these have also been fitted accurately on all elevations of the plot (party walls exempt) to allow the sufficient function of the passive sub-floor ventilation system.

GAS RESISTANT MEMBRANE

The membrane utilised on-site comprises: Juta - GP1 Gas Barrier resistant to Carbon Dioxide, Methane and Radon.

It has been confirmed as part of the validation that the membrane utilised in the plots discussed herein matches that of **Figures 1-4.**

The E3P Technician has inspected the installation of this membrane in line with the structural engineer's specifications in terms of placement and position (**Figures 1-4),** and the manufacturer's detail in terms of the workmanship.

E3P can confirm that sand blinding has been utilised to protect the membrane and there were no holes or rips at the inspection time.

Where any rips or tares have been noted patches have been applied in line with the manufacturer's detail with sufficient overlap to ensure long-term performance of the membrane.

E3P inspected all joints including corner details, and can confirm that the membrane was overlapped in accordance with the manufacturer's specification and heat welded

All the overlaps were then additionally taped to avoid damage/trip hazards using foil-backed girth tape.

Where any penetration or service duct is present within the floor area, E3P inspected each one in turn and can confirm that rigid black polyethylene top hat units have been adequately sealed against the membrane with double-sided jointing tape at both the base and the protruding pipe as well as being secured against the pipe with a metal jubilee clip.

Upon confirmation of suitable installation, the membrane is to be covered with a floor insulation material which is considered to provide a high degree of protection before the application of the cast in situ concrete monolithic floor slab.

Based on the information provided within this report, the site inspection and validation checklists, E3P can confirm that **Plots 17-19** have been installed with gas protection measures in accordance with the detailed structural design and the requirements of BS8485:2015 (+A1 2019) Characteristic Situation 2, to an acceptable level of workmanship.

E3P ENGINEER'S SITE CHECK SHEET

The engineer check sheet completed whilst on-site during the validation on a plot-by-plot basis is attached, and a complete set of images is presented as evidence. Larger images are presented at the rear of this section.

All information provided within this validation letter report was accurate at the time of construction. E3P operates under the assumption that all data provided by installers is reliable.

WELDED GAS MEMBRANE VALIDATION

Complete

Score	37 / 37 (100%)	**Flagged items**	0	**Actions**	0

Site Name	Edenfield Road
Location	Tenterhouse Mill, Greenbooth Road Rochdale England OL12 7TD United Kingdom (53.62964229203877, -2.218255318095652)
Project Manager	Mark Wilson
Project number	16465
Developer	Stonebond
Site representative Signature	 David - Stonebond 7 May 2025 1:45 PM BST
Conducted on	7 May 2025 8:00 AM BST
Prepared by	Jordan James
Have you got the correct Gas Membrane detail (attached to the job in synergist)?	Yes

Gas Membrane Inspection	36 / 36 (100%)
Plot Inspection 1	12 / 12 (100%)
Plot Number	17
Type of Development: if other add Note	House
Floor Slab Type	Block and beam suspended
Are telescopic vents present?	Yes
Gas Membrane Type: Manufacturer, gauge, and colour. (Take photos were possible showing Label)	Juta - GP1 Gas Barrier
Installer's name, company and qualification	Arch and Wood
Gas Membrane Condition: Open punctures, tears, rips, stretching, Presence of debris, Repairs, Signs of weakness such as raised or sunken indentations, Protection plan in place to restrict access to lain gas membrane? IF FAIL DESCRIPTION IN ACTIONS AND PHOTOS REQUIRED	Pass
Are welds complete?	Yes
Are Joints lapped and sealed in accordance with manufacturer's requirements/ specification?	Yes
Service entries seals: Top hats seal arrangements fixed around service entries? Use of Jubilee clips or Bitumastic Sealant	Pass

Photo 1

Photo 2

Photo 3

Photo 4

Corners / Internal joints: Check all corners are correctly formed or contractor has used preformed corners.	Pass

Photo 5

Photo 6

Photo 7

Photo 8

Photo 9

Photo 10

Photo 11

Photo 12

Photo 13

Photo 14

Photo 15

Photo 16

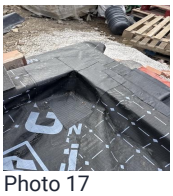


Photo 17

Are folds running in line with joints? (no joints cutting across folds)	Pass
Extent of Coverage: Is the membrane covering the entire plot? Does membrane span over outside walls?	Yes

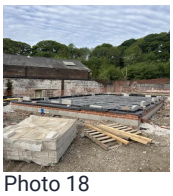


Photo 18

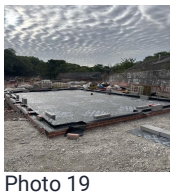


Photo 19

Sealant to the underside of the membrane at the sole plate position (Check with PM if not noted on schedule)	N/A
Condition of sub-grade and underside of gas membrane: Check that the subgrade 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 and meets the design criteria. (Lift back the membrane and photo the subfloor)	Pass
Slab / membrane condition (is membrane clear of snow, standing water, debris or insulation): Can membrane be fully seen and photographed – ask contractor to remove any debris so membrane can be fully seen an inspected – this is a requirement of NHBC and local authorities.	Pass
External Wall Air bricks: Numbers, size. positions as design drawing? (Minimum of 3 walls)	Pass

Photo 20

Photo 21

Photo 22

Photo 23

Photo 24

Photo 25

Photo 26

Photo 27

Plot Inspection 2	12 / 12 (100%)
Plot Number	18
Type of Development: if other add Note	House
Floor Slab Type	Block and beam suspended
Are telescopic vents present?	N/A
Gas Membrane Type: Manufacturer, gauge, and colour. (Take photos were possible showing Label)	Juta - GP1 Gas Barrier
Installer's name, company and qualification	Arch and Wood
Gas Membrane Condition: Open punctures, tears, rips, stretching, Presence of debris, Repairs, Signs of weakness such as raised or sunken indentations, Protection plan in place to restrict access to lain gas membrane? IF FAIL DESCRIPTION IN ACTIONS AND PHOTOS REQUIRED	Pass
Are welds complete?	Yes
Are Joints lapped and sealed in accordance with manufacturer's requirements/ specification?	Yes
Service entries seals: Top hats seal arrangements fixed around service entries? Use of Jubilee clips or Bitumastic Sealant	Pass

Photo 28

Photo 29

Photo 30

Photo 31

Corners / Internal joints: Check all corners are correctly formed or contractor has used preformed corners.	Pass

Photo 32

Photo 33

Photo 34

Photo 35

Photo 36

Photo 37

Photo 38

Photo 39

Photo 40

Photo 41

Photo 42

Are folds running in line with joints? (no joints cutting across folds)	Pass
Extent of Coverage: Is the membrane covering the entire plot? Does membrane span over outside walls?	Yes

Photo 43

Photo 44

Sealant to the underside of the membrane at the sole plate position (Check with PM if not noted on schedule)	N/A
Condition of sub-grade and underside of gas membrane: Check that the subgrade 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 and meets the design criteria. (Lift back the membrane and photo the subfloor)	Pass
Slab / membrane condition (is membrane clear of snow, standing water, debris or insulation): Can membrane be fully seen and photographed – ask contractor to remove any debris so membrane can be fully seen an inspected – this is a requirement of NHBC and local authorities.	Pass
External Wall Air bricks: Numbers, size. positions as design drawing? (Minimum of 3 walls)	Pass

Photo 45

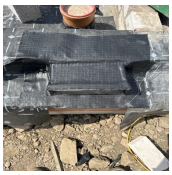


Photo 46

Photo 47

Photo 48

Photo 49

Photo 50

Photo 51

Photo 52

Photo 53

Plot Inspection 3	12 / 12 (100%)
Plot Number	19
Type of Development: if other add Note	House
Floor Slab Type	Block and beam suspended
Are telescopic vents present?	Yes
Gas Membrane Type: Manufacturer, gauge, and colour. (Take photos were possible showing Label)	Juta - GP1 Gas Barrier
Installer's name, company and qualification	Arch and Wood
Gas Membrane Condition: Open punctures, tears, rips, stretching, Presence of debris, Repairs, Signs of weakness such as raised or sunken indentations, Protection plan in place to restrict access to lain gas membrane? IF FAIL DESCRIPTION IN ACTIONS AND PHOTOS REQUIRED	Pass
Are welds complete?	Yes
Are Joints lapped and sealed in accordance with manufacturer's requirements/ specification?	Yes
Service entries seals: Top hats seal arrangements fixed around service entries? Use of Jubilee clips or Bitumastic Sealant	Pass

Photo 54

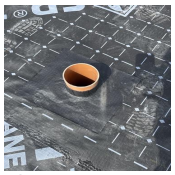


Photo 55

Photo 56

Photo 57

Corners / Internal joints: Check all corners are correctly formed or contractor has used preformed corners.	Pass

Photo 58

Photo 59

Photo 60

Photo 61

Photo 62

Photo 63

Photo 64

Photo 65

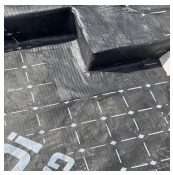


Photo 66

Photo 67

Photo 68

Are folds running in line with joints? (no joints cutting across folds)	Pass
Extent of Coverage: Is the membrane covering the entire plot? Does membrane span over outside walls?	Yes

Photo 69

Photo 70

Sealant to the underside of the membrane at the sole plate position (Check with PM if not noted on schedule)	N/A
Condition of sub-grade and underside of gas membrane: Check that the subgrade 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 and meets the design criteria. (Lift back the membrane and photo the subfloor)	Pass
Slab / membrane condition (is membrane clear of snow, standing water, debris or insulation): Can membrane be fully seen and photographed – ask contractor to remove any debris so membrane can be fully seen an inspected – this is a requirement of NHBC and local authorities.	Pass
External Wall Air bricks: Numbers, size. positions as design drawing? (Minimum of 3 walls)	Pass

Photo 71

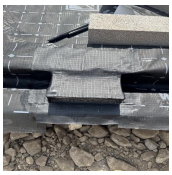


Photo 72

Photo 73

Photo 74

Photo 75

Photo 76

Photo 77

Photo 78

Photo 79

Passive Venting

Sub-floor Void: Is a check possible on future plots (insert Plot number or NO in text box)	Yes – Plot 22

Media summary

Photo 1

Photo 2

Photo 3

Photo 4

Photo 5

Photo 6

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Photo 11

Photo 12

Photo 13

Photo 14

Photo 15

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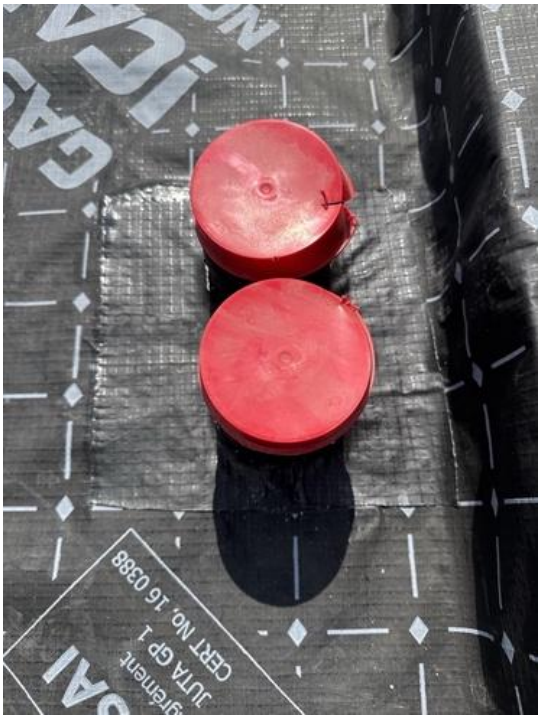

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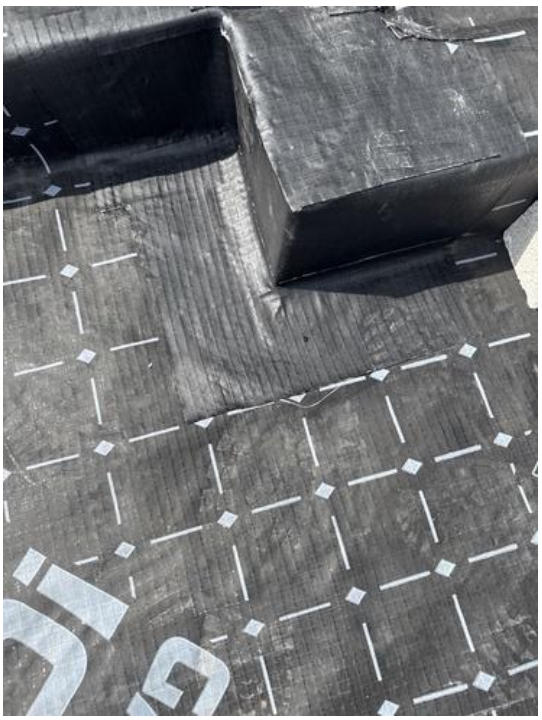

Photo 66

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Photo 68

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Photo 70

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Photo 72

Photo 73

Photo 74

Photo 75

Photo 76

Photo 77

Photo 78

Photo 79

Floor Void Inspection

7 May 2025 / Jordan James

Complete

Score	2 / 2 (100%)
Site Name	Edenfield Road
Project Number	16487
Conducted on	7 May 2025 1:27 PM BST
Prepared by	Jordan James
Location	774 Edenfield Road Rochdale England OL12 7RB United Kingdom (53.626571942661855, -2.2084979955122708)
Plot Inspection	2 / 2 (100%)
Plot Inspection 1	2 / 2 (100%)
Plot Number	22
Is the void clear?	Yes
Depth of Void	240

Photo 1

Are Sleeper Walls Vented?	Yes

Photo 2

Media summary

Photo 1

Photo 2