



GeoShield Verification Plan



PROJECT DESCRIPTION

GEO105226
European Screeding Ltd
New School Building, North Huddersfield Trust School
Woodhouse Hall Road,
Huddersfield,
HD2 1DJ

The proposed development for which gas protection measures are required involves the construction of a new school block.

In accordance with BS8485:2015 + A1 2019, the Type B building must conform to a Characteristic Specification (CS) rating of 2, so mitigation will need to be 3.5 points.

Geoshield have adopted the highest design and verification principles associated with BS8485:2015 + A1 2019, BR 211, Public Health England, NHBC Technical Extra April 2016 and CIRIA 735.

This pre-verification plan reviews the design to ensure it is compliant with the developer and planning authority requirements and in conjunction with the relevant investigation report in accordance with BS8485:2015 +A1 2019.

In summary, the design does achieve a required level of attention to detail with its robust specific gas membrane design (2 points), the structural barrier of a beam and block floor with sub floor ventilation with very good performance (1.5 points)

The pre-verification plan confirms how the installation will be tested in accordance with CIRIA735. The verification visits will be documented in verification reports during the project that are suitable for submission to the local planning authority in order to satisfy and discharge planning consent.

All faults identified during inspection and the verification site visit of the ground gas system will be itemised as remediations which will need to be signed off in the remediation log for the proposed building.



GeoShield Verification Plan



PROJECT DESCRIPTION

Pre-Verification Plan

GeoShield are appointed by the Client to carry out independent validation, verification and integrity testing of the ground gas protection system on site. The Pre-Verification plan sets out the requirements and procedures that GeoShield will adopt to ensure that the installation is in line with the proposed design, relevant UK standards and guidance.

GeoShield take no responsibility for any warranties to third parties for the design of the system or the installation.

Limitations

The Pre-Verification plan prepared by GeoShield Limited is limited to the proposed ground gas protection measures installed. The Pre-Verification plan has been prepared in line with the relevance UK Standards and Guidance (BS8485:2015+A1:2019 & CIRIA 735) alongside the information made available to GeoShield by the Client. The conclusions made in the report are considered to be correct at the time of writing, but additional information provided/discovered may require amendments to the Plan. GeoShield recognises that changes to relevant standard and guidance may occur at any time which may cause the conclusions made to be incorrect - GeoShield do not accept any responsibility or liability for the implications of such changes.

The Pre-Verification plan does not in itself constitute verification that the membrane has been installed in accordance with this document. Validation and verification of the installed membrane will be covered in separate verification reports following physical inspection of the gas barrier and will include photographic evidence of the installation.

Waterproofing elements (where applicable) do not fall into the remit of this Pre-Verification plan or future inspections. GeoShield will provide the opinion on membrane's suitability for ground gas protection purposes – no liability is offered or implied for the waterproofing element which should be checked by others.



GeoShield Verification Plan



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GeoShield Verification Plan



PROJECT REFERENCE: GEO105226

PROJECT: New School Building, North Huddersfield Trust School

PROJECT ADDRESS: Woodhouse Hall Road,

Huddersfield,

HD2 1DJ

SPECIFICATION: Verified in accordance CIRIA 735.

Design in accordance with BS8485 2015 + 2019 for Methane and Carbon Dioxide.

Substrate prepared in-accordance with manufactures instructions

Visqueen Gas Barrier

Visqueen GR SAM

Visqueen Ultimate DPC

Visqueen Butyl Tape

Visqueen Foil Lap Tape



GeoShield Verification Plan



NAME OF SURVEYOR:

Paul Colbeck

VERIFICATION COMPANY:

GeoShield Limited

Icon Business Centre

4100 Park Approach

Thorpe Park

Leeds

CONTACT NUMBER:

EMAIL ADDRESS:

ORDER NUMBER:

To be confirmed

PER VISIT:

YES:

NO:

PROJECT:

YES:

NO:



GeoShield Verification Plan



INFORMATION INCLUDED

Remediation Strategy

Engineers drawings

Material Specification Technical Data Sheets

Radon Maps Uk

Information presented to at the pre-verification stage assumed correct

Any change client will let GeoShield know or this Pre-verification Plan will be void.



GeoShield Verification Plan



SPECIFICATION

Environmental Geotechnical Specialists

**PHASE 3
REMEDiation STRATEGY
REPORT**

job number	C1349/24/E/5465	date	04.09.2024
site address	New School Building, North Huddersfield Trust School, Fartown Huddersfield, HD2 1DJ		
written by	S. Alexander	checked by	R. Palmer
issued by	S. Alexander		

Please consider the environment before printing this report.

Constructionline QMS ISO 9001:2015 QMS ISO 14001:2015 QMS ISO 45001:2018 UKAS

Rogers Geotechnical Services Ltd
Offices 1 & 2 Barncliffe Business Park, Near Bank, Shelley, Huddersfield, HD8 8LU
Tel: 01484 604254 Company No: 5120864

Title Reference & Description:

Remediation Strategy

Front page



GeoShield Verification Plan



SPECIFICATION

Report No: C1349/23/E/5465 

Phase 3: Remediation Statement

Location:	North Huddersfield Trust School Woodhouse Hall Road, Fartown, Huddersfield, HD2 1DJ		
For:	Triton Construction		
Consultant:	AHR		
Report No.	C1349/23/E/5465	Report date:	September 2024

For and on behalf of **Rogers Geotechnical Services Ltd**

Scott Alexander BSc FGS Senior Geo-environmental Engineer	Rob Palmer MSc FGS ACIEH Engineering Director
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1. Introduction

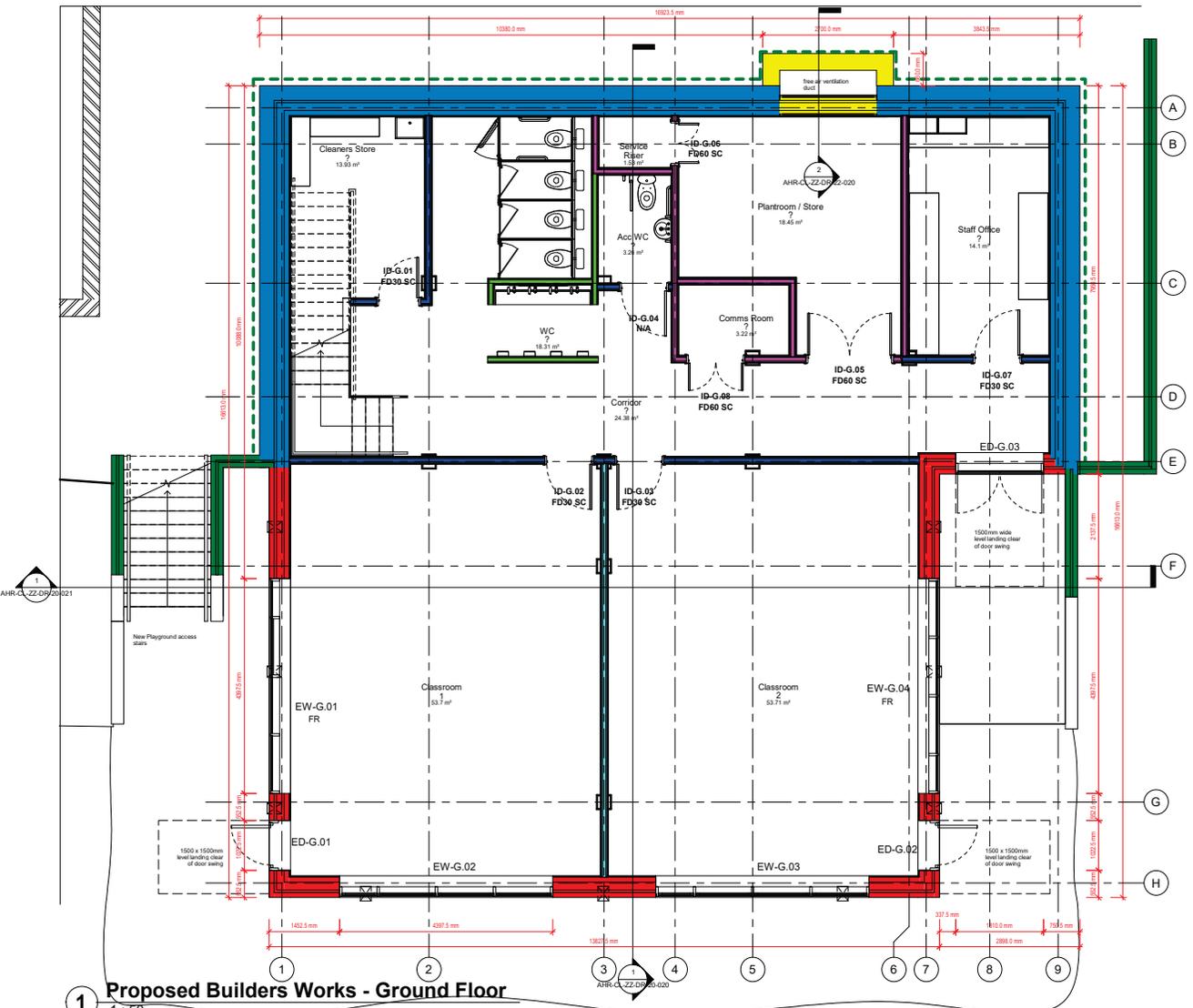
Further to the site-specific risk assessment provided within the geo-environmental report (C1349/22/E/3843, July 2022) and subsequent gas monitoring addendum letter report (C1349/21/E/GM 14th September 2022) and revised conceptual model, it is considered that no remediation will be required with respect to soils. However, some remedial works will be required to protect against bulk hazardous gases at this site. This report provides the strategy for that remediation.

From the geo-environmental investigation, it was considered that the ground gas protection measures will be required due to recording bulk carbon dioxide in excess of 5.0%. Ground gas protection measures in line with Characteristic Situation 2 (CS2) were recommended. In addition to carbon dioxide, quantities of carbon monoxide were recorded between 0ppm and 8ppm during the monitoring period.

Title Reference & Description:

Remediation Strategy

CS2 protection measures required.



1 Proposed Builders Works - Ground Floor

External Walling Specifications

Wall Type Ex 1

Upon new reinforced concrete foundations as Structural Engineers details, allow for the construction of new external cavity walling designed to achieve a U-Value of not less than **0.18W/m²K**.

Outside to Inside

1-layer 102.5mm Facing brick to match existing external brickwork, to be BSI Kitemarked and approved to BS EN 771-3. All brickwork shall be bedded onto 10mm mortar joints designed in accordance with BS 5628-3.

Stainless steel wall ties to be provided at vertical and horizontal centres as Structural Engineers details, and as recommended by manufacturer. All to be installed in full accordance with manufacturers details.

Where external wall face is to be exposed below DPC level, allow for constructing external leaf using 100mm Plasmor Textured external blockwork, to match existing external wall. Samples to be provided to CA for approval.

50mm clear air cavity, then 160mm High Performance Partial Fill Rockwool cavity wall insulation with close butted joints, secured in place using proprietary insulation retaining clips as supplied by wall tie manufacturer. Insulation board to achieve a thermal conductivity of not less than 0.035W/m K.

Inner leaf to be 100mm medium density 'Standard Grade' external blockwork, to be BSI Kitemarked and approved to BS EN 771-3. To be Lignacite 'GP' or similar and equal approved. All blockwork shall be bedded onto 10mm mortar joints designed in accordance with BS 5628-3.

Internally, allow for 12.5mm plasterboard and 3mm skin finish.

Wall Type Ex 2

Upon new reinforced concrete foundations as Structural Engineers details, allow for the construction of new external retaining walling designed to achieve a U-Value of not less than **0.18W/m²K**.

Outside to Inside

300mm - Retaining Wall Structure - Waterproof Reinforced Concrete

Stainless steel wall ties to be provided at vertical and horizontal centres as Structural Engineers details, and as recommended by manufacturer. All to be installed in full accordance with manufacturers details.

Where external wall face is to be retaining wall structure, refer to S.Engineers specifications for full construction details.

50mm clear air cavity, then 160mm High Performance Partial Fill Rockwool cavity wall insulation with close butted joints, secured in place using proprietary insulation retaining clips as supplied by wall tie manufacturer. Insulation board to achieve a thermal conductivity of not less than 0.035W/m K.

Inner leaf to be 100mm medium density 'Standard Grade' external blockwork, to be BSI Kitemarked and approved to BS EN 771-3. To be Lignacite 'GP' or similar and equal approved. All blockwork shall be bedded onto 10mm mortar joints designed in accordance with BS 5628-3.

Internally, allow for 12.5mm plasterboard and 3mm skin finish.

Wall Type Ex 4 - Ventilation Duct

Upon new reinforced concrete foundations as Structural Engineers details, allow for the construction of new external retaining walling designed to achieve a U-Value of not less than **0.18W/m²K**.

Outside to Inside

350mm - Retaining Wall Structure

Stainless steel wall ties to be provided at vertical and horizontal centres as Structural Engineers details, and as recommended by manufacturer. All to be installed in full accordance with manufacturers details.

Where external wall face is to be retaining wall structure, refer to S.Engineers specifications for full construction details and Mechanical Engineers for void details.

160mm High Performance Partial Fill Rockwool cavity wall insulation with close butted joints, secured in place using proprietary insulation retaining clips as supplied by wall tie manufacturer. Insulation board to achieve a thermal conductivity of not less than 0.035W/m K.

Inner leaf to be 100mm medium density 'Standard Grade' external blockwork, to be BSI Kitemarked and approved to BS EN 771-3. To be Lignacite 'GP' or similar and equal approved. All blockwork shall be bedded onto 10mm mortar joints designed in accordance with BS 5628-3.

Internally, allow for 12.5mm plasterboard and 3mm thistle skin finish.

Wall Type Ex 5 - Stair / Ramp Retaining Walls

Upon new reinforced concrete foundations as Structural Engineers details, allow for the construction of new external retaining walling as below.

Outside to Inside

1-layer 102.5mm Facing brick to match existing external brickwork, to be BSI Kitemarked and approved to BS EN 771-3. All brickwork shall be bedded onto 10mm mortar joints designed in accordance with BS 5628-3.

Stainless steel wall ties to be provided at vertical and horizontal centres as Structural Engineers details, and as recommended by manufacturer. All to be installed in full accordance with manufacturers details.

50mm cavity filled with oversite concrete to meet S.Engineers specifications.

Above ground level, inner leaf to be finished with facing brick to match above, below ground level, leaf to be 100mm medium density 'Standard Grade' external blockwork, to be BSI Kitemarked and approved to BS EN 771-3. To be Lignacite 'GP' or similar and equal approved. All blockwork shall be bedded onto 10mm mortar joints designed in accordance with BS 5628-3.

Above all to meet S.Engineers specifications.

Internal Wall Types

Wall Type Int 1 - 45dB Rw

Supply and construct new full height (to underside of structural soffit) proprietary steel stud and plasterboard partition system with acoustic quilt fill to achieve min 45dB Rw reduction and 60mins fire protection as fire and acoustic layouts, to consist as a minimum;

Proprietary 70mm 'C' Stud @ max 600mm centres installed into floor and ceiling channels as manufacturers details. To be British Gypsum 'Gyframe' system or similar and equal approved.

Provide 50mm Isover APR 1200 insulation within the cavity in accordance with manufacturers details.

Generally, allow for cladding each side of wall with 2 layers 12.5mm 'Wallboard' plasterboard by British Gypsum or similar and equal approved and 1 layer 18mm plywood. Include for all required angle and stop beads as manufacturers recommendations to be 'Thistle Hardwall' with Thistle Multi-finish skim over to either sides.

Wall Type Int 2 - 35dB DnTw

Supply and construct new full height (to underside of structural soffit) proprietary steel stud and plasterboard partition system with acoustic quilt fill to achieve min 35dB DnTw reduction and 30mins fire protection as fire and acoustic layouts, to consist as a minimum;

Proprietary 70mm 'C' Stud @ max 600mm centres installed into floor and ceiling channels as manufacturers details. To be British Gypsum 'Gyframe' system or similar and equal approved.

Generally, allow for cladding each side of wall with 1 layer 15mm 'SoundBloc' plasterboard by British Gypsum or similar and equal approved and 1 layer 18mm plywood. Include for all required angle and stop beads as manufacturers recommendations to be 'Thistle Hardwall' with Thistle Multi-finish skim over to either sides.

Wall Type Int 3 - 45dB DnTw

Supply and construct new full height (to underside of structural soffit) proprietary steel stud and plasterboard partition system with acoustic quilt fill to achieve min 45dB DnTw reduction and 30mins fire protection as fire and acoustic layouts, to consist as a minimum;

Proprietary 70mm 'C' Stud @ max 600mm centres installed into floor and ceiling channels as manufacturers details. To be British Gypsum 'Gyframe' system or similar and equal approved.

Provide 25mm Isover APR 1200 insulation within the cavity in accordance with manufacturers details.

Generally, allow for cladding each side of wall with 2 layers 15mm 'SoundBloc' plasterboard by British Gypsum or similar and equal approved and 1 layer 18mm plywood. Include for all required angle and stop beads as manufacturers recommendations to be 'Thistle Hardwall' with Thistle Multi-finish skim over to either sides.

Wall Type Int 4 - 40dB Rw

Supply and construct new full height (to underside of structural soffit) proprietary steel stud and plasterboard partition system with acoustic quilt fill to achieve min 40dB Rw reduction and 30mins fire protection as fire and acoustic layouts, to consist as a minimum;

Proprietary 70mm 'C' Stud @ max 600mm centres installed into floor and ceiling channels as manufacturers details. To be British Gypsum 'Gyframe' system or similar and equal approved.

Provide 25mm Isover APR 1200 insulation within the cavity in accordance with manufacturers details.

Generally, allow for cladding each side of wall with 2 layers 12.5mm 'Wallboard' plasterboard by British Gypsum or similar and equal approved and 1 layer 18mm plywood. Include for all required angle and stop beads as manufacturers recommendations to be 'Thistle Hardwall' with Thistle Multi-finish skim over to either sides.

U VALUE NOTES:

External Walls - Target U-value is 0.18W/sq.m/K

Roofs - Target U-value is 0.14W/sq.m/K

Ground Floor Slab - Target U-value is 0.15W/m²K

Windows - Glazed/translucent panels to U-value 1.4W/m²K

Solid panels, metal cladding and metal, spandrel panels Target U-value is 1.4W/m²K

Rooflights - Glazed/translucent panels to U-value 2.1W/m²K

External Doors - Target U-value is 1.9W/m²K

Air Tightness - Target value 3

This drawing is to be read in conjunction with AHR / Structural Engineers information and all specialist sub-contractors details and is intended for design intent only.

Ground Floor Construction - Suspended Beam & Block

(To extent as indicated by hatch, provide insulated ground floor to incorporate beam and block floor slab as structural engineers details to achieve a U-value of not less than 0.15 W/m² K)

External to Internal

Beam and Block Flooring as Structural Engineers Details.

New Gas barrier connected to GR DPC within external walls by Visqueen or similar and equal approved to be compliant with the current version of BS 9485 including all amendments for gas protection

Contractor to ensure detailing and installation in line with gas details as noted in ground investigation report, and for engaging specialist design and sign off in design development.

Kocitherm K103 floor 90mm board by Kingspan laid over full extent of gas Membrane barrier DPM. Thickness of insulation to be confirmed by contractor to meet required U-Value set out above.

1no lathing paper layer to form separating layer

Finishing layer to be min 65mm screed K-Screed, to be site-mixed including PP fibre reinforcement. Screed to be laid level to SR2 tolerance and finished ready to receive new floor finishes as detailed elsewhere.

Underfloor void to be ventilated, allow for the installation of telescopic vents to ensure cross ventilation across the building is achieved.

Floor finish above as AHR 40_Series drawings

FIRAS Approved Works

Contractor to note all works associated with fire doors or running services through fire compartments must be undertaken and certified by FIRAS approved installer. Refer to Fire Strategy layout AHR-0-75-001 for locations.

FIRAS Certification and sign off to be documented and provided prior to CA issuing Practical Completion Certificate

Contractor to offer Doors and Fire Stopping Works to CA for review prior to covering / installing architraves in each location.

31 Series Door and Window Schedule

Wall Construction Generally

When constructing new walls, provide necessary provision to ensure no mortar slurry encroaches into clear cavity or is allowed to rest upon new cavity wall ties. All bed and perpendicular joints of block and brickwork shall be fully filled with mortar ensure no air gaps for optimal thermal and sound insulation. All new external brick or render shall be submitted to the CA for approval prior to construction.

All new cavity wall construction shall include for ST1 stainless steel wall ties at 450mm vertical and 750mm horizontal centres plus insulation retaining clips as recommended by the manufacturer. Cavity wall ties to be in accordance with BS EN 845. Ties shall be of stainless steel material and long enough to be embedded at least 50mm into each leaf.

Allow to include for all gas protection measures including all slab penetration, steel column base and abutment details and lagging of DPC / DPM to new and existing building. Gas protection to encompass all areas of external walling where the ground floor is below ground level.

Allow supply and install proprietary 'pend' 'Beaktype' type plastic weep holes at max. 450mm centres. Fully installed as manufacturers recommendations.

Allow for installation of fire rated cavity closers on all internal compartment lines along with the full perimeter of the new windows and doors.

Proposed Builders Works

Drawing to be read in conjunction with all other sub-consultant drawings.

Structure

Refer in all instances to Structural Engineers details. Allow for all propping and temporary works, and all builders works in relation to the installation of lintels, steelwork and support etc including for making good works on completion.

Mechanical and Electrical Works

In all instances refer to specialist M+E consultants specifications. The contractor shall include for all necessary builder's work and fire stopping in relation to M+E additions including but not limited to forming of new openings, chases in slabs and walling and alike, and all associated making good works on completion.

At all penetrations, the contractor shall allow for the installation of new proprietary intumescent fire batts tightly fitted, with all abutments sealed with manufacturers recommended intumescent sealant. As Rockwool Ablative coated batt, or similar and equal approved, T.0871 222 1750.

Joinery

The specification of doors are detailed within the following locations:

Drawing 31_Series - Internal Door Schedule.

Furniture

Refer to Fixtures and Fittings layouts 70_Series for all proposed furniture and equipment to be installed.

Ground Floor Gas Vents / Air Bricks

In order to provide a ventilated void to the suspended ground floor, allow for installation of adjustable Z vents and air bricks to nominal ground levels shown on plan. Bricks to match style and colour of external brickwork

Wall Tanking

Where external walls and floor extend below external ground line, contractor to allow for the installation of vertical gas barrier and waterproof tanking system as Visqueen GR SAM or similar and equal approved to ensure building is protected and sealed. Refer to Ground Investigation report for full ground details on ground gas requirements.

Allow for including engagement with specialist to ensure below ground tanking with gas protection is sealed. Contractor to allow for design development and specialist design sign off in submission.

NOTE:

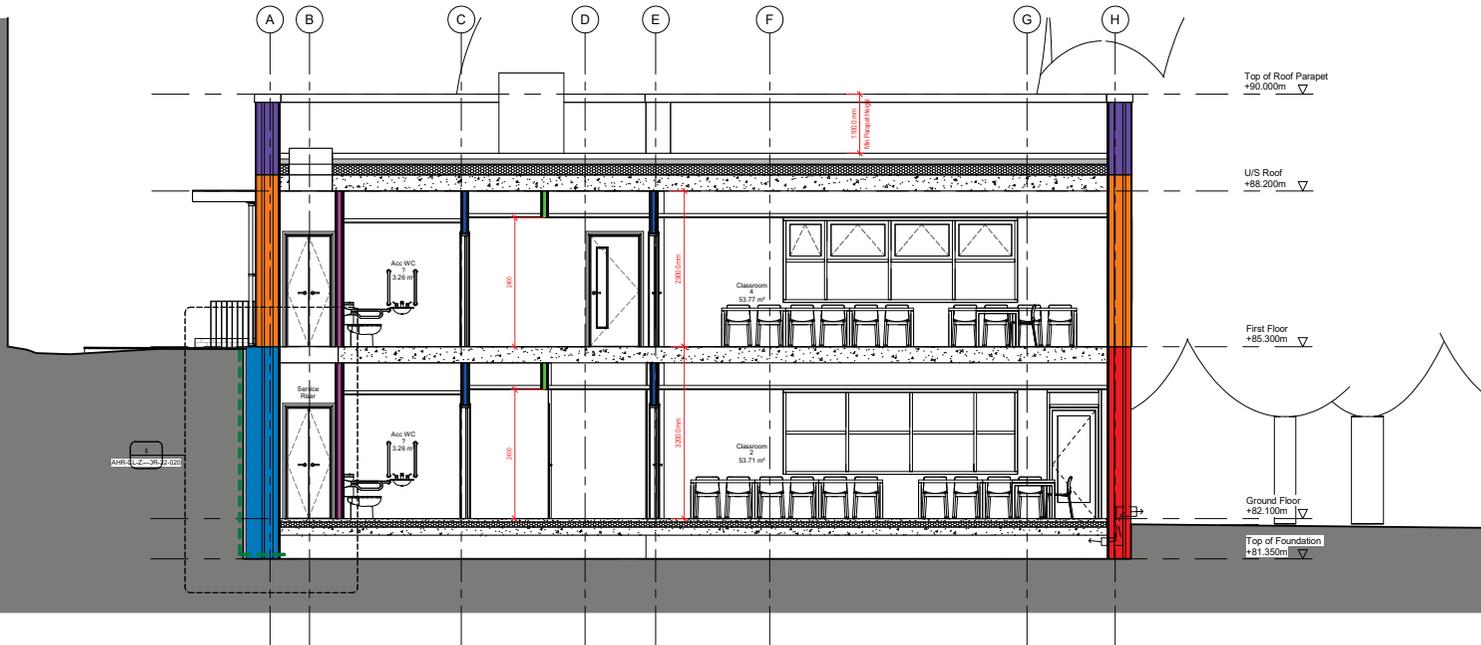
THIS DRAWING IS INDICATIVE AND SHOWS DESIGN INTENT ONLY TO RIBA STAGE 4. THE CONTRACTOR IS TO CONFIRM CO-ORDINATION, SIZES AND SPECIFICATION UNDER THE DESIGN AND BUILD CONTRACT.

Rev	Description	Date	Dr	App
original	BY	10/17/22	LS	



client name	KSSL	drawn	Proposed Builders Works - Ground Floor
project	North Huddersfield Trust School New Teaching Block	computer file	AHR-CL-ZZ-DR-2010
drawing	Proposed Builders Works - Ground Floor	date created	10/17/22
drawn	Proposed Builders Works - Ground Floor	date checked	10/17/22
checked	Proposed Builders Works - Ground Floor	scale	As indicated @A1
approved	Proposed Builders Works - Ground Floor	signature	Tender

This drawing is to be read in conjunction with all related drawings. All dimensions must be checked and verified on site before commencing any work or producing shop drawings. The originator should be notified immediately of any discrepancy. This drawing is copyright and remains the property of AHR.



Ground Floor Gas Vents / Air Bricks
 In order to provide a ventilated void to the suspended ground floor, allow for installation of adjustable Z vents and air bricks to nominal locations shown on plan. Bricks to match style and colour of external brickwork.

Wall Tanking

Where external walls and floor extend below external ground line, contractor to allow for the installation of vertical Gas barrier and waterproof tanking system as Visqueen GR SAM or similar and equal approved to ensure building is protected and sealed. Refer to Ground Investigation report for full ground details on ground gas requirements.

Allow for including engagement with specialist to ensure below ground tanking with gas protection is sealed. Contractor to allow for design development and specialist design sign off in submission.

Ground Floor Construction - Suspended Beam & Block

[To extent as indicated by hatch, provide Insulated ground floor to incorporate beam and block floor slab as structural engineers details to achieve a U-Value of not less than 0.15 W/m² K].

Beam to Internal

Beam and Block Flooring as Structural Engineers Details.

New Gas barrier connected to GR DPC within external walls by Visqueen or similar and equal approved to be compliant with the current version of BS 8485 including all amendments for gas protection

Contractor to ensure detailing and installation in line with gas levels as noted in ground investigation report, and for engaging specialist design and sign off in design development.

Kootherm K103 floor 90mm board by Kingspan laid over full extent of gas Membrane barrier DPM. Thickness of insulation to be confirmed by contractor to meet required U-Value set out above.

1no layer building paper to form separating layer

Finishing layer to be min 65mm Increte K-Screed, to be site-mixed including PP fibre reinforcement. Screed to be laid level to SR2 tolerance and finished ready to receive new floor finishes as detailed elsewhere.

Underfloor void to be ventilated, allow for the installation of telescopic vents to ensure cross ventilation across the building is achieved.

Floor finish above as AHR 40_Series drawings

1 Proposed Section A-A
 1 : 50

20 SERIES NOTES:

Refer to 20 series drawings for external wall information, drawings to be read in conjunction with other package drawings for details of other elements.

Any structural or services detail shown is drawn indicatively for coordination only, refer to relevant Consultants information for details.

Design of External Windows / Doors and Curtain Walling, and Associated Flashings:

The drawings and specification prepared by the Architect are to indicate design intent only and to coordinate the works packages into the overall design. The Sub-contractor is responsible for the detailed design of the works. The Sub-contractor should issue shop / fabrication drawings to the Architect for comment prior to commencement of fabrication or installation of those works on site.

All masonry wall and frame ties to Structural Engineers details, not always indicated on Architects details.

Vertical cavity barriers and fire stops to be provided at junctions with floors and internal walls and to limit sizes of cavity, detailed and installed by sub-contractors (to be tightly fitted to a rigid construction).

Steelwork Encasement

All steelwork to be encased in 2no layer of 12.5mm thick 'Freline' plasterboard over proprietary encasement system as British Gypsum Gyplynex Encase. Lining to encase full and complete steel structure to provide min 50mins fire protection, in all instances, terminating only at structural concrete soffits and masonry walling. Allow for finishing encasement with plaster skim finish (above suspended ceiling level type and fill will be acceptable). Include for scrim taping all joints and fittings and for all stainless steel angles and stop beads as required. Ensure encasement is sealed all round to achieve required fire resistance and airtightness. All the above to be installed in strict accordance with manufacturers recommendations.

FIRAS Approved Works

Contractor to note all works associated with fire doors or running services through fire compartments must be undertaken and certified by FIRAS approved installer. Refer to Fire Strategy layout AHR-D-75-001 for locations.

FIRAS Certification and sign off to be documented and provided prior to CA issuing Practical Completion Certificate.

Contractor to offer Doors and Fire Stopping Works to CA for review prior to covering / installing architraves in each location.

Wall Construction Generally

When constructing new walls, provide necessary provision to ensure no mortar slurry encroaches into clear cavity or is allowed to rest upon new cavity wall ties. All bed and perpendicular joints of block and brickwork shall be fully filled with mortar ensuring no air gaps for optimal thermal and sound insulation. Prior to orders being placed, samples for external brick or render shall be submitted to the CA for approval prior to construction.

All cavity wall construction shall include for ST1 stainless steel wall ties at 450mm vertical and 750mm horizontal centres plus insulation retaining clips as recommended by tie manufacturer. Cavity wall ties to be in accordance with BS EN 845. Ties shall be long enough to be embedded at least 50mm into each leaf.

As indicated on section details allow to supply new high performance DPC from Hyfoad range by Ruberoid or similar and equal approved.

As indicated on section details supply and install proprietary perpend Beakweep type plastic weep holes at max. 450mm centres. Fully installed as manufacturers recommendations.

Install insulated proprietary cavity closers as indicated on section details.

Proposed Builders Works

Drawing to be read in conjunction with all other sub-consultant drawings.

Structure

Refer in all instances to Structural Engineers details. Allow for all propping and temporary works, and all builders works in relation to the installation of inlets, steelwork and support etc including for making good works on completion.

Mechanical and Electrical Works

In all instances refer to specialist M+E consultants specifications. The contractor shall include for all necessary builder's work and fire stopping in relation to M+E additions including but not limited to forming of new openings, chases in slabs and walling and alike, and all associated making good works on completion.

All penetrations, the contractor shall allow for the installation of new proprietary intumescent fire bolts tightly fitted, with all abutments sealed with manufacturers recommended intumescent sealant. As Rockwool Ablative coated batt, or similar and equal approved.

M+E Coordination

All at locations where new ducting, cable trays and the like are to pass through internal walling, the contractor shall allow for providing fully framed openings.

All fire stopping works to be undertaken by approved FIRAS registered contractor.

Joinery

The specification of doors are detailed within the following locations: Drawing 3_Series - Internal Door Schedule.

Furniture

Refer to Fixtures and Fittings layouts 70_Series for all proposed furniture and equipment to be installed.

External Walling Specifications

Wall Type Ex 3

Upon new reinforced concrete foundations as Structural Engineers details, allow for the construction of new external cavity walling designed to achieve a U-Value of not less than **0.18w/m²K**.

Outside to Inside

The wall construction shall consist of Proprietary cement gauged through colour render incorporating cement based, polymer modified leveling coat @ max. 15mm thick, reinforcing glass fibre mesh and decorative acrylic resin render finish as 'Wetherby Heck, Silcona K' system by Wetherby Ltd or similar and equal approved. All installed as manufacturers details over.

1-layer 100mm medium density 'Standard Grade' external blockwork, to be BS1 Kitemarked and approved to BS EN 771-3. To be Lignacite 'GP' or similar and equal approved. All blockwork shall be bedded onto 10mm mortar joints designed in accordance with BS 5628-3, to meet S E details

Stainless steel wall ties to be provided at vertical and horizontal centres as Structural Engineers details, and as recommended by manufacturer. All to be installed in full accordance with manufacturers details.

Where external cavity wall face is to be exposed below DPC level, allow for constructing external leaf using 100mm Plaster Textured external blockwork, to match existing external wall. Samples to be provided to CA for approval.

50mm clear air cavity, then 160mm High Performance Partial Fill Rockwool cavity wall insulation with close butted joints, secured in place using proprietary insulation retaining clips as supplied by wall tie manufacturer. Insulation board to achieve a thermal conductivity of not less than 0.035W/m K.

Inner leaf to be 100mm medium density 'Standard Grade' external blockwork, to be BS1 Kitemarked and approved to BS EN 771-3. To be Lignacite 'GP' or similar and equal approved. All blockwork shall be bedded onto 10mm mortar joints designed in accordance with BS 5628-3.

Internally, allow for 12.5mm plasterboard and 3mm skim finish.

Wall Type Ex 6 - Parapet Upstand - Contractor Design Portion

Upon new external wall Ex 3 as noted, allow for the construction of parapet upstand with SFS stud inner leaf.

Outside to Inside

External leaf construction to match perimeter walling.

50mm clear air cavity, then 80mm High Performance Partial Fill cavity wall insulation with close butted joints, secured in place using proprietary insulation retaining clips as supplied by wall tie manufacturer. Insulation board to achieve a thermal conductivity of not less than 0.035W/m K.

Inner leaf to be high performance VCL laid over 12mm Calcium silicate board fixed over SFS frame fixed with Rockwool insulation and finished with 18mm Marine plywood.

3 layer roof system to be dressed up entire face of upstand as detailed.

SFS frame and build up to be confirmed by specialist contractor

Rev	Description	Date	Dr	App
original by RB		10/17/22	approved by LS	

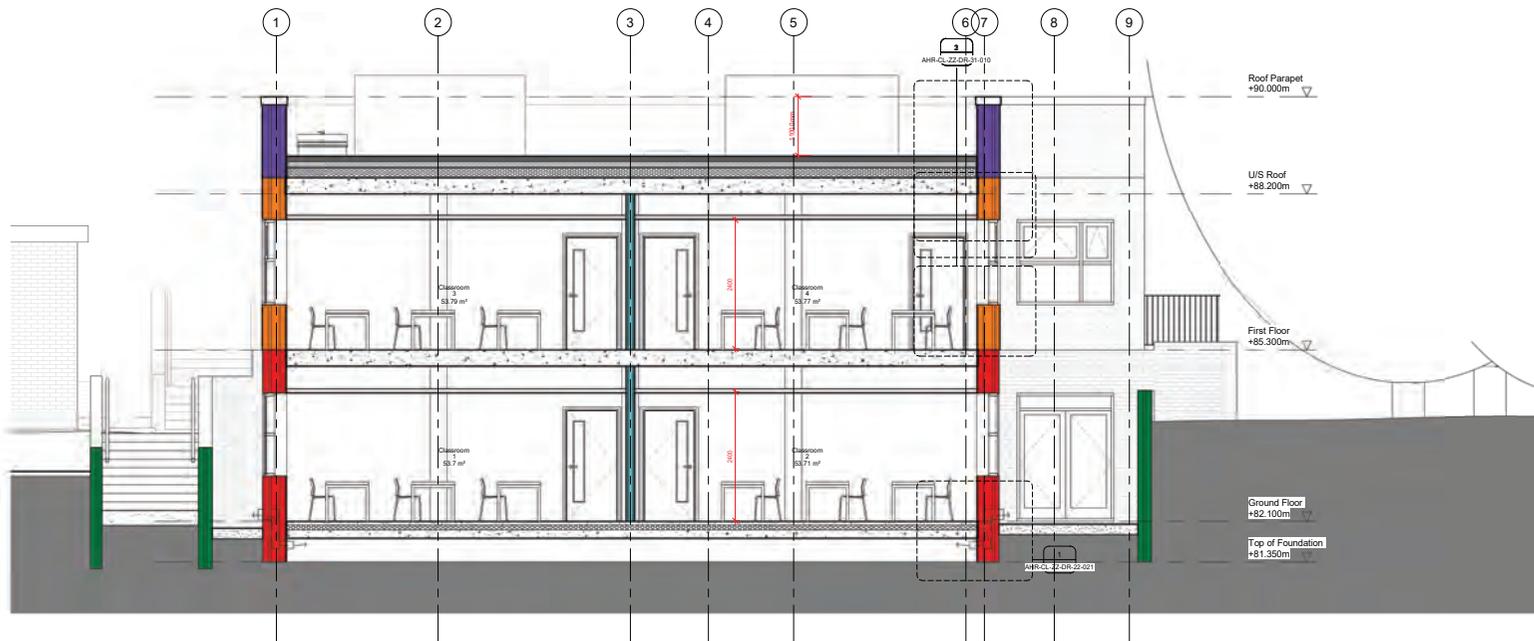


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 F +44(0)1484 530332
 E hudsonfields@ahr.co.uk
 www.ahr.co.uk

client name	KSSL		
project	North Huddersfield Trust School New Teaching Block		
drawing	Proposed Builders Works - Section AA		
computer file	2022-0004-0005	issue date	Oct 22
revision	As indicated @A1	scale	
project number	AHR-CL-ZZ-DR-20-020	date issued	Tender

NOTE:
 THIS DRAWING IS INDICATIVE AND SHOWS DESIGN INTENT ONLY TO RIBA STAGE 4. THE CONTRACTOR IS TO CONFIRM CO-ORDINATION, SIZES AND SPECIFICATION UNDER THE DESIGN AND BUILD CONTRACT.

This drawing is to be read in conjunction with all related drawings. All dimensions must be checked and verified on site before commencing any work or producing shop drawings. The contractor should be notified immediately of any discrepancy. This drawing is copyright and remains the property of AHR.



1 Proposed Section B-B
1 : 50

Ground Floor Gas Vents / Air Bricks
 In order to provide a ventilated void to the suspended ground floor, allow for installation of adjustable Z vents and air bricks to nominal locations shown on plan. Bricks to match style and colour of external brickwork.

Wall Tanking
 Where external walls and floor extend below external ground line, contractor to allow for the installation of vertical Gas Barrier and waterproof tanking system as Visqueen GR SAM or similar and equal approved to ensure building is protected and sealed. Refer to Ground Investigation report for full ground details on ground gas requirements.
 Allow for including engagement with specialist to ensure below ground tanking with gas protection is sealed. Contractor to allow for design development and specialist design sign off in submission.

Ground Floor Construction - Suspended Beam & Block
 [To extent as indicated by hatch, provide insulated ground floor to incorporate beam and block floor slab as structural engineers details to achieve a U-Value of not less than 0.15 W/m² K].

External Insulation
 Beam and Block Flooring as Structural Engineers Details.
 New Gas barrier connected to GR DPC within external walls by Visqueen or similar and equal approved to be compliant with the current version of BS 8495 including all amendments for gas protection.
 Contractor to ensure detailing and installation in line with gas levels as noted in ground investigation report, and for engaging specialist design and sign off in design development.

Kooltherm K103 floor 90mm board by Kingspan laid over full extent of gas Membrane barrier DPM. Thickness of insulation to be confirmed by contractor to meet required U-Value set out above.

1no layer building paper to form separating layer
 Finishing layer to be min 65mm Isocrete K-Screed, to be site-mixed including PP fibre reinforcement. Screed to be laid level to SR2 tolerance and finished ready to receive new floor finishes as detailed elsewhere.

Underfloor void to be ventilated, allow for the installation of telescopic vents to ensure cross ventilation across the building is achieved.
 Floor finish above as AHR_40_Series Drawings

20 SERIES NOTES:
 Refer to 20 series drawings for external wall information, drawings to be read in conjunction with other package drawings for details of other elements.
 Any structural or services detail shown is drawn indicatively for coordination only, refer to relevant Consultants information for details.
 Design of External Windows / Doors and Curtain Walling, and Associated Flashings:
 The drawings and specification prepared by the Architect are to indicate design intent only and to coordinate the works packages into the overall design. The Sub-contractor is responsible for the detailed design of the works. The Sub-contractor should issue shop / fabrication drawings to the Architect for comment prior to commencement of fabrication or installation of those works on site.
 All masonry wall and frame ties to Structural Engineers details, not always indicated on Architects details.
 Vertical cavity barriers and fire stops to be provided at junctions with floors and internal walls and to limit sizes of cavity, detailed and installed by sub-contractors (to be tightly fitted to a rigid construction).

Steelwork Encasement
 All steelwork to be encased in 2no layer of 12.5mm thick 'Frelife' plasterboard over proprietary encasement system as British Gypsum Gyplyne Encase. Lining to encase full and complete steel structure to provide min 50mins fire protection, in all instances, terminating only at structural concrete soffits and masonry walling. Allow for finishing encasement with plaster skim finish (above suspended ceiling level tape and fill will be acceptable). Include for scrim taping all joints and forges and for all stainless steel angles and stop beads as required. Ensure encasement is sealed all round to achieve required fire resistance and airtightness. All the above to be installed in strict accordance with manufacturers recommendations.
FIRAS Approved Works
 Contractor to note all works associated with fire doors or running services through fire compartments must be undertaken and certified by FIRAS approved installer. Refer to Fire Strategy layout AHR-01-75-001 for locations.
 FIRAS Certification and sign off to be documented and provided prior to CA issuing Practical Completion Certificate.
 Contractor to offer Doors and Fire Stopping Works to CA for review prior to covering / installing architraves in each location.

Wall Construction Generally
 When constructing new walls, provide necessary provision to ensure no mortar slurry encroaches into clear cavity or is allowed to rest upon new cavity wall ties. All bed and perpend joints of block and brickwork shall be fully filled with mortar ensuring no air gaps for optimal thermal and sound insulation. Prior to orders being placed, samples for external brick or render shall be submitted to the CA for approval prior to construction.
 All cavity wall construction shall include for ST1 stainless steel wall ties at 450mm vertical and 750mm horizontal centres plus insulation retaining clips as recommended by tie manufacturer. Cavity wall ties to be in accordance with BS EN 845. Ties shall be long enough to be embedded at least 50mm into each leaf.
 As indicated on section details allow to supply new high performance DPC from Hydrof range by Ruberoid or similar and equal approved.
 As indicated on section details supply and install proprietary perpend 'Beakweep' type plastic weep holes at max. 450mm centres. Fully installed as manufacturers recommendations.
 Install insulated proprietary cavity closers as indicated on section details.

Proposed Builders Works
 Drawing to be read in conjunction with all other sub-consultant drawings.
Structure
 Refer in all instances to Structural Engineers details. Allow for all propping and temporary works, and all builders works in relation to the installation of inlets, steelwork and support etc including for making good works on completion.
Mechanical and Electrical Works
 In all instances refer to specialist M+E consultants specifications. The contractor shall include for all necessary builder's work and fire stopping in relation to M+E additions including but not limited to forming of new openings, chases in slabs and walling and alike, and all associated making good works on completion.

All penetrations, the contractor shall allow for the installation of new proprietary intumescent fire batts tightly fitted, with all abutments sealed with manufacturers recommended intumescent sealant. As Rockwool Abhesive coated batt, or similar and equal approved.
M+E Coordination
 At all locations where new ducting, cable trays and the like are to pass through new internal walling, the contractor shall allow for providing fully framed openings.
 All fire stopping works to be undertaken by approved FIRAS registered contractor.
Joinery
 The specification of doors are detailed within the following locations:
 Drawing 3_Series - Internal Door Schedule.
Furniture
 Refer to Fixtures and Fittings layouts 70_Series for all proposed furniture and equipment to be installed.

External Walling Specifications
Wall Type Ex 3
 Upon new reinforced concrete foundations as Structural Engineers details, allow for the construction of new external cavity walling designed to achieve a U-Value of not less than **0.18W/m²K**.
Outside to Inside
 The wall construction shall consist of Proprietary cement gauged through colour render incorporating cement based, polymer modified levelling coat @ max. 15mm thick, reinforcing glass fibre mesh and decorative acrylic resin render finish as 'Weiberty Heck Silicone K' system by Weiberty Ltd or similar and equal approved. All installed as manufacturers details over.
 1-layer 100mm medium density 'Standard Grade' external blockwork, to be BS1 Kitemarked and approved to BS EN 771-3. To be Lignacite 'GP' or similar and equal approved. All blockwork shall be bedded onto 10mm mortar joints designed in accordance with BS 5628-3, to meet S E details
 Stainless steel wall ties to be provided at vertical and horizontal centres as Structural Engineers details, and as recommended by manufacturer. All to be installed in full accordance with manufacturers details.
 Where external cavity wall face is to be exposed below DPC level, allow for constructing external leaf using 100mm Plasmor Textured external blockwork, to match existing external wall. Samples to be provided to CA for approval.

50mm clear air cavity, then 160mm High Performance Partial Fill Rockwool cavity wall insulation with close butted joints, secured in place using proprietary insulation retaining clips as supplied by wall tie manufacturer. Insulation board to achieve a thermal conductivity of not less than 0.035W/m K.
 Inner leaf to be 100mm medium density 'Standard Grade' external blockwork, to be BS1 Kitemarked and approved to BS EN 771-3. To be Lignacite 'GP' or similar and equal approved. All blockwork shall be bedded onto 10mm mortar joints designed in accordance with BS 5628-3.
 Internally, allow for 12.5mm plasterboard and 3mm skim finish.

Wall Type Ex 6 - Parapet Upstand - Contractor Design Portion
 Upon new external wall Ex 3 as noted, allow for the construction of parapet upstand with SFS stud inner leaf.
Outside to Inside
 External leaf construction to match perimeter walling.
 50mm clear air cavity, then 80mm High Performance Partial Fill cavity wall insulation with close butted joints, secured in place using proprietary insulation retaining clips as supplied by wall tie manufacturer. Insulation board to achieve a thermal conductivity of not less than 0.035W/m K.
 Inner leaf to be high performance VCL laid over 12mm Calcium silicate board fixed over SFS frame filled with Rockwool insulation and finished with 18mm Marine plywood.
 3 layer roof system to be dressed up entire face of upstand as detailed.
 SFS frame and build up to be confirmed by specialist contractor

Rev	Description	Date	Dr	App
original by RB		10/17/22		approved by LS

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client name	KSSL
project	North Huddersfield Trust School New Teaching Block
drawing	Proposed Builders Works - Section BB
computer file	file name: AHR-CL-ZZ-DR-20-021.dwg User: RB Title: AHR-CL-ZZ-DR-20-021.dwg Date: 10/17/22 Project number: 2022.00040.005
print date	Oct 22
scale	As indicated @ A1
drawing number	AHR-CL-ZZ-DR-20-021
revision	1
status	Tender

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Visqueen Gas Barrier

Features & benefits

- BBA certified - third party accreditation
- Complies with NHBC Foundation's NF94 guidance for use in Type A membrane locations
- Complies with the methane gas transmission rate, mass per unit area and thickness requirements of BS 8485:2015 + A1:2019 - industry standard for methane and carbon dioxide protection
- Also provides radon and damp proof membrane protection
- Dual jointing methods - lap joints can be taped or heat welded

Product description

Visqueen Gas Barrier is a multi-layer reinforced polyethylene gas barrier with a 20 micron aluminium foil. The barrier is coloured blue on the upper surface and silver on the reverse. The product is supplied in single wound rolls (not folded), 2m x 50m.

Approvals and standards

- Third party accreditation (BBA 13/5069)
- Complies with the methane gas transmission rate, mass per unit area and thickness requirements of BS 8485:2015 + A1:2019
- Suitable for all Characteristic Gas Situation (CS) ground gas regimes
- Complies with NHBC Foundation's NF94 guidance for use in Type A membrane locations
- Conforms to the specification requirements of NHBC Amber 1 and Amber 2 applications
- Conforms to the specification requirements of BR 211:2023
- UKCA UKNI CE to EN 13967:2017
- Visqueen certified with Quality Management System ISO 9001:2015
- Visqueen certified with Occupational Health and Safety System ISO 45001:2018
- Visqueen certified with Environmental Management System ISO 14001:2015

Usage

Visqueen Gas Barrier is suitable for use in all types of buildings to prevent the ingress of harmful levels of ground gases e.g. methane, carbon dioxide and radon.

The barrier can be positioned above or below reinforced cast in situ concrete floor slabs or above precast suspended segmental subfloors, e.g. beam and block floor.

The barrier can also be used as a high performance radon membrane and/or damp proof membrane.

Radon, carbon dioxide, and methane protection - NHBC NF94 guidance:

Visqueen Gas Barrier when installed with either taped or welded joints complies with NHBC Foundation's NF94 publication, Hazardous ground gas - an essential guide for housebuilders, in Type A membrane locations in precast suspended segmental subfloors and reinforced cast in situ concrete floor slabs (ground bearing, suspended or raft). For site or zone characteristic gas situations of CS4 and above, contact Visqueen Technical Services.

The product is not intended for use where there is a risk of hydrostatic pressure.

System components

- VisqueenPro Double Sided Jointing Tape, 50mm x 10m
- Visqueen Gas Resistant Foil Lap Tape, 75mm x 50m
- VisqueenPro Detailing Strip, 300mm x 10m, 500mm x 10m
- Visqueen TreadGUARD 1500, 1m x 2m
- Visqueen TreadGUARD 300, 2m x 75m
- Visqueen Ultimate Top Hat Units
- Visqueen GR Lap Tape, 150mm x 10m

Storage and handling

Visqueen Gas Barrier should be stored horizontally, under cover in its original packaging.

Care should be taken when handling the product in line with current manual handling regulations.

Preparation

Visqueen Gas Barrier should be installed on a smooth continuous surface e.g. grouted beam and block floor, a compacted blinding layer e.g. 50mm thick sand blinding, or smooth concrete blinding. The substrate should be free from irregularities such as voids or protrusions.

The barrier can be cut with a sharp retractable safety knife or robust scissors.

When installing the membrane in demanding site conditions, use Visqueen GR Lap Tape in place of Visqueen Gas Resistant Foil Lap Tape.

Visqueen Gas Barrier

Installation

Visqueen Gas Barrier should be loose laid on the substrate with the blue side up so as to avoid sunlight glare.

The barrier should be clean and dry at the time of jointing. It should be overlapped by at least 150mm, bonded with Visqueen Pro Double Sided Jointing Tape and sealed with Visqueen Gas Resistant Foil Lap Tape. Alternatively lap joints can be heat welded to achieve an effective seal. The overlap in the barrier is typically 100mm and when hand welding, a 35mm weld is normally achieved. When hand welding, a roller must be used.

Airtight seals should be formed around all service entry points. Visqueen Preformed Top Hat Units are recommended for sealing service entry pipes. The base of the top hat and the upstand should be bonded using VisqueenPro Double Sided Jointing Tape and sealed with Visqueen Gas Resistant Foil Lap Tape. The upstand should be secured with the supplied jubilee clip. Alternatively VisqueenPro Detailing Strip can be used to seal service entry points. The upstand should be secured with a jubilee clip.

Forming an effective barrier to gases may give rise to complex three-dimensional detailing where, it is recommended Visqueen Preformed Units are used e.g. corners. Alternatively VisqueenPro Detailing Strip can be used to seal awkward junctions.

If the barrier is punctured or perforated a patch of the same material should be lapped at least 150mm beyond the limits of the puncture and bonded with Visqueen Pro Double Sided Jointing Tape and sealed with Visqueen Gas Resistant Foil Lap Tape. Alternatively a patch can be formed using VisqueenPro Detailing Strip and lapped at least 150mm beyond the extents of the puncture.

Long periods of exposure to ultraviolet light will reduce the effectiveness of the membrane. The membrane should be covered by a protective layer immediately after installation to prevent damage from following trades, ultraviolet light, etc. Care should be taken to ensure that the membrane is not punctured, stretched or displaced when applying a screed or final floor covering. A minimum thickness of 50mm screed is recommended. When reinforced concrete is to be laid over the barrier the wire reinforcements and spacers must be prevented from puncturing the barrier. Where there is a high risk of potential damage, the barrier should be covered with Visqueen TreadGuard protection, screed or other approved protection material before positioning the reinforcement.

Usable temperature range

It is recommended that Visqueen Gas Barrier and all associated system components should not be installed below 5°C.

Additional information

When used in accordance BS8485:2015 + A1:2019 a subfloor ventilation system or pressure relief maybe required Where hydrocarbon or VOC contamination is present use Visqueen Ultimate HC Blok or Ultimate GeoSeal gas protection systems

To assist build sequencing, Visqueen Ultimate Gas DPC is available for gas protection through the wall constructions

For additional detailing information, contact Visqueen Technical Services +44 (0) 333 202 6800

The information in this datasheet was correct at the time of publication. It is the user's responsibility to obtain the latest version of the datasheet as it is updated on a regular basis. The information contained in the latest datasheet supersedes all previously published editions.

Property	Test method	Units	Compliance criteria	Result
Dimensions	BS EN 1848-2	m		2 x 50
Overall thickness including scrim mesh	BS EN 1849-2	mm	+/-10%	0.52
Mass	BS EN 1849-2	g/m ²	-0%/+5%	400
Tensile strength - MD	BS EN 12311	N/50mm	MLV	350
Tensile strength - CD	BS EN 12311	N/50mm	MLV	350
Tensile elongation - MD	BS EN 12311	%	MLV	20
Tensile elongation - CD	BS EN 12311	%	MLV	21
Joint strength	BS EN 12317-2	N	MLV	332
Watertightness at 2kPa for 24 hours	BS EN 1928	-	Pass/Fail	Pass
Resistance to impact	BS EN 12691	mm	MDV	150
Dart impact	BS EN 2782	g	MDV	731
Low temperature flexibility	BS EN 495-5	°C	MDV	-40

Visqueen Gas Barrier

Durability against ageing	BS EN 1296 and BS EN 1928	-	Pass/Fail	Pass
Durability chemical resistance	BS EN 1847	-	Pass/Fail	Pass
Resistance to tearing (nail shank) CD	BS EN 12310-1	N	MDV	358
Resistance to tearing (nail shank) MD	BS EN 12310-1	N	MDV	368
Resistance to static loading	BS EN 12730	kg	MLV	20
Water vapour resistance	BS EN 1931	MNs/g	MDV	240,000
Water vapour permeability	BS EN 1931	g/m ² /d	MDV	0.0008658
Water vapour resistance factor	BS EN 1931	μ	MDV	120,000,000
Equivalent air layer thickness	BS EN 1931	SD in m	MDV	47,700
BS 8485:2015 + A1:2019 testing requirements				
Mass	BS EN 1849-2	g/m ²	Average >370	400
Methane gas transmission rate	BS ISO 15105-1	ml/m ² /day/atm	MDV	<0.15
Puncture CBR	BS EN 12236	N	MDV	1114
Tensiles yield strength MD	ASTM D4885-01	kN/m	MDV	12.5
Tensiles yield strength CD	ASTM D4885-02	kN/m	MDV	7.3
Resistance to static loading	BS EN 12730	kg	>MLV	20
Yield elongation CD	ASTM D4885-04	%	MDV	19
Tear resistance - trouser method A - MD	BS ISO 34-1	kN/m	MDV	48.2
Tear resistance - trouser method A - CD	BS ISO 34-1	kN/m	MDV	44.8
Tear resistance - angle method B - MD	BS ISO 34-1	N	MDV	53.5
Tear resistance - angle method B - CD	BS ISO 34-1	N	MDV	60.6

Health and safety information

Refer to the Visqueen Gas Barrier safety datasheet (SDS).

About Visqueen

Visqueen is a leading provider of construction membrane technologies and design-based solutions for ground gas, structural waterproofing, damp proofing and fire protection.

We offer complete support at every stage of the specification, including the supply chain process. As the UK's principal technical authority, we are best placed to ensure that the principal designer and contractor specify the most technically suited, durable, and competitive solution to guarantee their project is protected for the lifetime of the building.

Visqueen is at the forefront of advanced membrane technology and innovation in the construction industry, earning the trust and loyalty of specifiers throughout the UK and Europe.

For more information, visit [visqueen.com](https://www.visqueen.com) or contact our sales office at [+44 \(0\) 333 202 6800](tel:+4403332026800) or enquiries@visqueen.com

Complete Range, Complete Solution



Passive Fire Protection



Gas Protection



Damp Proof Membrane



Air and Vapor Control



Stormwater



Damp Proof Course



Temporary Protection

Visqueen Technical Support

Visqueen Gas Barrier

Visqueen offer a comprehensive full nationwide technical support. Our team of CSSW qualified technical support managers provide on site design-based solutions for specifiers, contractors and builders merchants, and will ensure that from design stage to installation the project is fully risk assessed and the specification is approved by all stakeholders.

Our Technical Office, can design, prepare and manage CAD detailing, together with assisting in quantity take offs, while offering advice on technical installations and product selection.

Competency & Design

Visqueen promotes competency in building design by ensuring that its technical team possesses the necessary skills, knowledge, experience, and ethical practices. The company adopts the "golden thread of information," ensuring all project data is digitally secure and accessible throughout a building's lifecycle. This approach aligns with the Building Safety Act and aims to foster accountability and compliance with evolving regulations, providing clients with confidence in the safety and reliability of their projects.

Visqueen CPD Seminars

Visqueen's CPD Seminars offer insights into Building Regulations, Standards, and industry guidance related to damp proofing, hazardous ground gas protection, and structural waterproofing. These one-hour seminars are tailored for construction design professionals and delivered by our Technical Support Managers. Visit our website to book a free CPD.

Visqueen Contract Design Services

Visqueen Contract Design Services offers a bespoke design service led by our team of Certified Surveyors in Structural Waterproofing (CSSW), providing experienced and specialised waterproofing design expertise for complex projects. We provide comprehensive support throughout the entire project, ensuring that all work meets the requirements of warranty providers and adheres to the highest standards of quality, reliability and current legislation.

Visqueen Training Academy

Based at our Derbyshire facility, the Visqueen Training Academy offers a variety of training programs across the UK. These include one-day product awareness sessions for distributors and builders' merchants, and intensive two-day courses for hands-on product installation training. Contact us for more information.

Visqueen Ultimate Gas Damp Proof Course

Features & benefits

- Complies with CIRIA C748:2014 - industry standard for volatile organic compounds (VOC) protection
- Complies with the methane gas transmission rate, mass per unit area and thickness requirements of BS 8485:2015 + A1:2019 - industry standard for methane and carbon dioxide protection
- Provides protection against radon, carbon dioxide, methane and VOCs
- Dual jointing methods - lap joints can be taped or heat welded
- Visqueen Ultimate Preformed Units available - simplifies complex or awkward detailing

Product description

Visqueen Ultimate Gas DPC is a 0.5mm thick, flexible 7 layer co-extruded film providing volatile organic compound (VOC) and ground gas resistance.

The DPC has an embossed/debossed finish, is coloured gold/white and can be installed with either surface facing upwards.

It is supplied in 20m length rolls and the following widths as standard: 500mm, 600mm, 750mm and 900mm.

Approvals and standards

- Complies with CIRIA C748:2014
- Complies with the methane gas transmission rate, mass per unit area and thickness requirements of BS 8485:2015 + A1:2019
- Suitable for all Characteristic Gas Situation (CS) ground gas regimes
- Conforms to the specification requirements of NHBC Amber 1 and Amber 2 applications
- Conforms to the specification requirements of BR 211:2015
- Shear strength tested to BS EN 1052-4:2000 Methods of test for masonry - Part 4.
- Flexural mortar bond strength tested in accordance with DD 86-1:1983
- UKCA UKNI CE to EN 14909:2012 Type A
- Visqueen certified with Quality Management System ISO 9001:2015
- Visqueen certified with Occupational Health and Safety System ISO 45001:2018
- Visqueen certified with Environmental Management System ISO 14001:2015

Usage

Visqueen Ultimate Gas Damp Proof Course is suitable for installation in external cavity walls with a masonry outer leaf, including walls with a light gauge steel frame, structural timber frame or masonry inner leaf. The DPC is suitable for residential, commercial and multi storey buildings. It can be site formed into a built-in or surface fixed cavity tray to manage the downward passage of water in cavity wall applications.

The DPC is used to prevent harmful volatile organic compounds (VOCs) and hazardous ground gases from entering into the cavity from the ground or entering the building via internal walls. The DPC is also suitable for use on NHBC Amber 1 and 2 sites or where radon gas exists. It can also be used on sleeper walls below a ground floor construction e.g. beam and block floor system.

System components

- Visqueen Zedex DPC Surface Fixing System
- Visqueen HP Tanking Primer, 5L
- Visqueen DPC Joint Support
- Visqueen 100mm Double Sided Butyl Tape, 100mm x 15m

Storage and handling

Visqueen Ultimate Gas Damp Proof Course should be stored vertically, under cover in its original packaging.

Care should be taken when handling the product in line with current manual handling regulations.

Preparation

Visqueen Ultimate Gas Damp Proof Course can be cut with a sharp retractable safety knife or robust scissors.

Different jointing options are available depending on product use. Where protection against VOCs or hydrocarbon contamination is required, the DPC should be applied with welded joints.

Installation

DPCs and DPC cavity trays systems to be designed and installed in accordance with the relevant sections of BS 8215:1991, PD 6697:2019 and BS 8000-3:2020.

When built into a masonry wall construction the DPC should be installed on an even bed of wet mortar, and any perforations in adjacent courses of masonry should be completely filled with mortar. To ensure mortar adhesion, as

Visqueen Ultimate Gas Damp Proof Course

soon as possible after laying the DPC, lay at least one further course of masonry including a bed of mortar. If positioned on the sleeper walls below a suspended ground floor e.g. beam and block floor system, the DPC can be dry laid, however all sharp protrusions must be removed from the substrate. The DPC must extend through the full thickness of the masonry wall, including pointing, applied rendering or other facing materials.

When used as a site formed cavity tray, the DPC can be either built-in to the inner leaf or surface fixed to the cavity face of the inner leaf.

When surface fixing the cavity tray, the substrate should be primed with Visqueen HP Tanking Primer and allowed to dry. The DPC should be bonded to the inner leaf using Visqueen 100mm Double Sided Butyl Tape and permanently secured using Visqueen Fixing Strip and fixing suitable for the substrate. Visqueen Fixing Pins for both rigid urethane foam insulation boards, and pins for masonry substrates are available.

To simplify complex or awkward junctions e.g. corners, changes of level, etc, an extensive range of Visqueen Ultimate Preformed Units are available.

All DPC to DPC laps and DPC to Visqueen Ultimate Preformed Unit laps should be a minimum of 100mm and bonded with Visqueen 100mm Double Sided Butyl Tape. Different jointing options are available depending on product use. Where protection against VOCs or hydrocarbon contamination is required, the DPC system should be applied with welded joints.

Usable temperature range

It is recommended that Visqueen Ultimate Gas Damp Proof Course and all associated system components should not be installed below 5°C.

Additional information

For additional detailing information, contact Visqueen Technical Services +44 (0) 333 202 6800.

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Property	Test method	Units	Criteria	Result
Colour				Gold/white
Weight		g/m ²		490
Length	BS EN 1848-2	m	-0/+10%	20
Width	BS EN 1848-2	mm	-0/+10%	500, 600, 750 and 900
Thickness	BS EN 1849-2	mm	+/-10%	0.5
BS 8485:2015 and C748:2014 physical test results		Units	Criteria	Result
Puncture	BS EN ISO 12236:2006	N	MDV	1640
Impact resistance Method A hard surface	BS EN 12691	mm	MDV	200
Impact resistance Method B soft surface	BS EN 12691	mm	MDV	1250
Tensiles yield strength MD 1	ASTM D4885-01	kN/m	MDV	5.1
Tensiles yield strength CD 1	ASTM D4885-01	kN/m	MDV	4.91
Yield elongation MD 1	ASTM D4885-01	%	MDV	76
Yield elongation CD 1	ASTM D4885-01	%	MDV	62
Tear resistance - trouser method A - MD	BS ISO 34-1	kN/m	MDV	60.2
Tear resistance - trouser method A - CD	BS ISO 34-1	kN/m	MDV	66.1
Tear resistance - angle method B - MD	BS ISO 34-1	N	MDV	48.7
Tear resistance - angle method B - CD	BS ISO 34-1	N	MDV	49.6
1 - at yield and not break as equipment used was not strong enough to break the				

Visqueen Ultimate Gas Damp Proof Course

DPC				
BS 8485:2015 - Methane testing	Test method	Units	Criteria	Result
Methane permeability unjointed	ISO 15105-1	ml/m ² /d/ atm	<40	1.3
Methane permeability welded joint	ISO 15105-1	ml/m ² /d/ atm	<40	24
Carbon dioxide	ISO 15105-1	ml/m ² /d/ atm	<40	8.3
C748:2014 - Permeation vapour tests - 100% concentration		Criteria	ml/m ² /d	mg/m ² /d
Benzene	ISO 15105-2	MDV	0.08	70
Toluene	ISO 15105-2	MDV	0.09	78.5
Ethyl benzene	ISO 15105-2	MDV	0.11	93.8
m,p xylene	ISO 15105-2	MDV	0.01	6.7
Hexane	ISO 15105-2	MDV	gas	2.6
Vinyl chloride	ISO 15105-2	MDV	0	6.4
Tetrachloroethene (PCE)	ISO 15105-2	MDV	0	3.2
Trichloroethene (TCE)	ISO 15105-2	MDV	solid	0.3
Naphthalene	ISO 15105-2	MDV	0.03	19.7
UKCA, CE, UKNI Mark EN 14909:2012				
Characteristic	Test method	Units	Criteria	Result
Tensile strength - MD	BS EN 12311	N/mm ²	MDV	32.8
Tensile strength - CD	BS EN 12311	N/mm ²	MDV	33.1
Tensile elongation - MD	BS EN 12311	%	MDV	699
Tensile elongation - CD	BS EN 12311	%	MDV	723
Joint strength	BS EN 12317-2	N	MDV	265
Watertightness 2kPa	BS EN 1928	-	Pass/	Pass

Health and safety information

Refer to the Visqueen Ultimate Gas Damp Proof Course safety datasheet (SDS).

About Visqueen

Visqueen is a leading provider of construction membrane technologies and design-based solutions for ground gas, structural waterproofing, damp proofing and fire protection.

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Complete Range, Complete Solution





Visqueen Ultimate Gas Damp Proof Course

Passive Fire Protection Gas Protection Damp Proof Membrane Air and Vapor Control Stormwater Damp Proof Course Temporary Protection

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VisqueenPro Double Sided Jointing Tape, 50mm x 10m

Features & benefits

- Part of a Visqueen's DPM and gas protection BBA approved jointing system
- Provides resistance to harmful bulk gases ingress and moisture ingress

Product description

VisqueenPro Double Sided Jointing Tape is a blue, double sided butyl based self adhesive lap bonding tape with an oversize quick release film. It is available in roll format 50mm x 10m.

Approvals and standards

- Visqueen certified with Quality Management System ISO 9001:2015
- Visqueen certified with Occupational Health and Safety System ISO 45001:2018
- Visqueen certified with Environmental Management System ISO 14001:2015

Usage

VisqueenPro Double Sided Jointing Tape is used to bond membranes (gas or damp) together along the lap joints.

To complete the joint, seal with the appropriate Visqueen single sided tape.

System components

- Visqueen Top Hat Units

Storage and handling

Store in a dry and clean environment in its current packaging. The tape should not be exposed to long periods of ultraviolet light. Prior to use, ensure that the tape is stored at temperatures above 5°C.

The tape can be cut with a sharp retractable safety knife.

Care should be taken when handling the product in line with current manual handling regulations.

Preparation

Ensure all lap joint surfaces are clean, dry and free from contamination such as dust or sand. Ensure the surface and working area is not water logged. Avoid areas of unsupported jointing.

Installation

Apply VisqueenPro Double Sided Jointing Tape to the lap area of the laid sheet starting approximately 50mm from the membrane edge. Apply pressure to the tape to ensure the tape has adhered to the membrane. Remove release paper from the tape and overlap the adjoining membrane by minimum 150mm. For Visqueen damp proof membranes and gas protection membranes lap joints should then be sealed using the appropriate Visqueen lap tape. Once the tape is applied, the completed lap should be well rolled with firm pressure to ensure a completely sealed joint has occurred, and continuity with the adjacent sheet has been achieved.

Usable temperature range

It is recommended that VisqueenPro Double Sided Jointing Tape should be installed above 5°C.

Additional information

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Property	Result
Width	50mm
Length	10m
Colour	Blue
Adhesive type	Butyl
Dynamic Shear Adhesion	14 N/cm ²

VisqueenPro Double Sided Jointing Tape, 50mm x 10m

Dynamic Tensile Adhesion	18 N/cm ²
180° Peel Adhesion	11 N/cm ²
Moisture Vapour Transmission Rate	0.24 g/m ² /d
Service Temperature Range	-40 to 90°C
Application temperature	>5°C

Health and safety information

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Air and Vapor Control



Stormwater



Damp Proof Course



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VisqueenPro Double Sided Jointing Tape, 50mm x 10m

legislation.

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Visqueen Gas Resistant Foil Lap Tape, 75mm x 50m

Features & benefits

- BBA certified jointing system - third party accreditation
- Provides an overlap seal to Visqueen gas protection membranes
- Joint integrity - reduces the risk of poured concrete entering the lap joint

Product description

Visqueen Gas Resistant (GR) Foil Lap Tape is a single sided overlap tape which has a solvent acrylic adhesive with a composite aluminium/PET carrier therefore it is resistant to alkaline which is present in cement and concrete. The tape also has a release film.

The product is supplied in roll format 75mm x 50m.

To be used in conjunction with VisqueenPro Double Sided Jointing Tape, 50mm x 10m.

Approvals and standards

- Third party accreditation (BBA 13/5069)
- Visqueen certified with Quality Management System ISO 9001:2015
- Visqueen certified with Occupational Health and Safety System ISO 45001:2018
- Visqueen certified with Environmental Management System ISO 14001:2015

Usage

Visqueen Gas Resistant Foil Lap Tape is used to seal lap joints on gas protection membranes. It can be used internally and externally and is suitable in compressed load applications.

Storage and handling

Store in warm, dry and clean environment in its current packaging. The tape should not be exposed to long periods of ultraviolet light. In very cold weather, prior to use ensure that the material is stored in warm conditions above 5°C.

Preparation

Ensure all surfaces are clean and dry. The membrane joint surfaces should be dry and free from contamination such as dust or sand. Ensure the surface and working area is not water logged. Avoid areas of unsupported jointing.

Installation

The membrane should be overlapped by at least 150mm, bonded with Visqueen Pro Double Sided Jointing Tape and sealed with Visqueen Gas Resistant Foil Lap Tape.

When using Visqueen Gas Resistant Foil Lap Tape, apply the tape equidistant over the lap area of the laid sheet and the overlap adjoining membrane. Apply pressure to the jointed area to ensure adhesion. Once the tape is applied, the completed lap should be well rolled with firm pressure to ensure a complete seal joint has occurred, and continuity with the adjacent sheet has been achieved.

Usable temperature range

It is recommended that Visqueen Gas Resistant Foil Lap Tape should not be installed below 5°C.

Additional information

In demanding site conditions seal lap joints with Visqueen GR Lap Tape.

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Property	Result
Dimensions	75mm x 50m
Peel adhesion	750N/m
Adhesive type	Solvent acrylic

Visqueen Gas Resistant Foil Lap Tape, 75mm x 50m

Health and safety information

Please refer to Visqueen Gas Resistant Foil Lap Tape safety datasheet (SDS).

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Visqueen Gas Resistant Foil Lap Tape, 75mm x 50m

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Visqueen Gas Resistant Self Adhesive Membrane

Features & benefits

- BBA certified - third party accreditation
- Type A Barrier Membrane (Tanking Membrane) - resistant to ground water in accordance with BS 8102:2022
- Complies with the methane gas transmission rate, mass per unit area and thickness requirements of BS 8485:2015 + A1:2019 - industry standard for methane and carbon dioxide protection
- Also provides radon and damp proof membrane protection
- Self adhesive application - no jointing tapes required

Product description

Visqueen Gas Resistant Self Adhesive Membrane is a foil lined modified bitumen rubber membrane with a self adhesive coating protected by a removable polyethylene release film. The product is silver on the upper surface and supplied in rolls 1m x 20m.

Approvals and standards

- Third party accreditation (BBA 15/5208)
- Suitable for use as a Type A Barrier Membrane (Tanking Membrane) to BS 8102:2022
- Conforms to the specification requirements of BS 8485:2015 + A1:2019
- Conforms to the specification requirements of BR 211: 2023
- UKCA UKNI CE to EN 13969:2004
- Visqueen certified with Quality Management System ISO 9001:2015
- Visqueen certified with Occupational Health and Safety System ISO 45001:2018
- Visqueen certified with Environmental Management System ISO 14001:2015

Usage

Visqueen Gas Resistant Self Adhesive Membrane is a cold applied product, suitable for use as a Type A Barrier Membrane (Tanking Membrane) for above and below ground applications e.g. basements, retaining walls and lift pits.

It is also suitable for use in all types of buildings to prevent the ingress of harmful levels of ground gases e.g. methane, carbon dioxide and radon.

The membrane can be applied to a variety of substrates including concrete, flush pointed blockwork, flush pointed brickwork, particle boards and steelwork, in both vertical and horizontal applications.

The membrane can be used to achieve one form of waterproofing to Grades 1, 2 and 3 as defined in BS 8102:2022.

System components

- Visqueen HP Tanking Primer, 5L
- Visqueen Pile Cap Sealer, 25kg
- Visqueen TreadGUARD 1500, 1m x 2m
- Visqueen Ultimate Top Hat Units
- Visqueen IGW5 and IGW10 Waterstops

Storage and handling

Visqueen Gas Resistant Self Adhesive Membrane should be stored vertically under cover in its original packaging.

Care should be taken when handling the product in line with current manual handling regulations.

Preparation

All surfaces to which Visqueen Gas Resistant Self Adhesive Membrane are to be applied should be free from cavities or projections, have a smooth finish, be dry and free from dust, loose particles and frost. Masonry, concrete or metal surfaces should be primed using Visqueen HP Tanking Primer and allowed to dry thoroughly.

When applying to blockwork or brickwork the joints must be flush pointed or the masonry rendered prior to applying the membrane.

The membrane can be cut with a sharp retractable safety knife.

Installation

Visqueen Gas Resistant Self Adhesive Membrane lap joints should be a minimum of 150mm and should be pressed and rolled to form a continuous bond and to ensure watertightness.

At 90 degree changes of direction a Visqueen Axiom UniSeal fillet should be formed prior to membrane installation.

For vertical applications cut the membrane to a suitable length allowing an additional 150mm for laps. Position and

Visqueen Gas Resistant Self Adhesive Membrane

peel back release film and apply the self adhesive face to the substrate. Apply pressure to ensure a full bond is achieved. Commence at the top of the wall and work downwards, progressively removing the release film.

For horizontal applications unroll the membrane where required allowing an additional 150mm for laps. Re-roll one half of the membrane and cut release film taking care not to damage the membrane. Roll out the membrane progressively removing the release film. Press the membrane onto the substrate e.g. using a soft broom to ensure full adhesion. Repeat for the other half of the roll.

Watertight seals should be formed around all service entry points. Visqueen Preformed Top Hat Units should be used for sealing service entry pipes.

If the membrane is punctured or perforated, a patch of the same material should be lapped and bonded at least 150mm beyond the extents of the puncture.

The membrane should always be fully protected immediately after it is installed. When used externally on a retaining wall, the membrane should be protected from backfill with Visqueen Protect&Drain, which also provides a preferential pathway for ground gases.

When forming day joints, the upper edge of the membrane should be adequately secured e.g. bonding onto the top of the retaining wall, or if terminated on a vertical face, the upper edge should be secured with Visqueen Fixing Strip and Visqueen Fixings Pins for Masonry.

Usable temperature range

It is recommended that Visqueen Gas Resistant Self Adhesive Membrane and all associated system components should not be installed below 5°C.

The membrane requires no additional bonding methods however during cold weather conditions the application of hot air to the self adhesive coating will aid adhesion.

Additional information

Where hazardous ground gases are not present use Visqueen Self Adhesive Membrane
 Where concrete construction joints occur Visqueen IGW Waterstop system should be incorporated
 When waterproof concrete is required, or for additional detailing information, contact Visqueen Technical Services +44 (0) 333 202 6800.

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Property	Test method	Units	Compliance Result
			criteria
Length	BS EN 1848-2	m	-0%/+5%
Width	BS EN 1848-2	m	-5%/+5%
Thickness	BS EN 1849-2	mm	-5%/+10%
Mass	BS EN 1849-2	g/m ²	-10%/+10%
Watertightness to 60kPa for 24 hours	BS EN 1928	-	MDV
Durability after artificial ageing	BS EN 1847	-	Pass/Fail
Durability against chemicals	BS EN 1847	-	Pass/Fail
Resistance to tearing (nail shank) MD	BS EN 12310-1	N	>
Resistance to tearing (nail shank) CD	BS EN 12310-1	N	>
Resistance to static loading	BS EN 12730	kg	MLV
Resistance to Impact method A and B	BS EN 12691	mm	>
Reaction to fire	BS EN 13501-1		Class
Joint Resistance	BS EN 12317-1	N	>
Tensile properties - MD	BS EN 12311-2	N/mm ²	>
Tensile properties - CD	BS EN 12311-2	N/mm ²	>
Tensile elongation - MD	BS EN 12311-1	%	>

Visqueen Gas Resistant Self Adhesive Membrane

Tensile elongation - CD		BS EN 12311-2	%	>
Reaction to fire		BS EN 13501-1	Class	MDV
Methane permeability		ISO 15105-1	ml/m ² /d	MDV
Radon transmission rate		SP RI.SE	m/s	MDV
Radon permeability		SP RI.SE	m ² /s	MDV
Mean water vapour resistance factor		BS EN 1931	(μ)	MDV
Mean water vapour diffusion equivalent air layer thickness		BS EN 1931	(Sd) in m	MDV
Mean water vapour resistance		BS EN 1931	MNs/g	MDV
Mean water vapour permeability		BS EN 1931	g/m ² /day	MDV

Health and safety information

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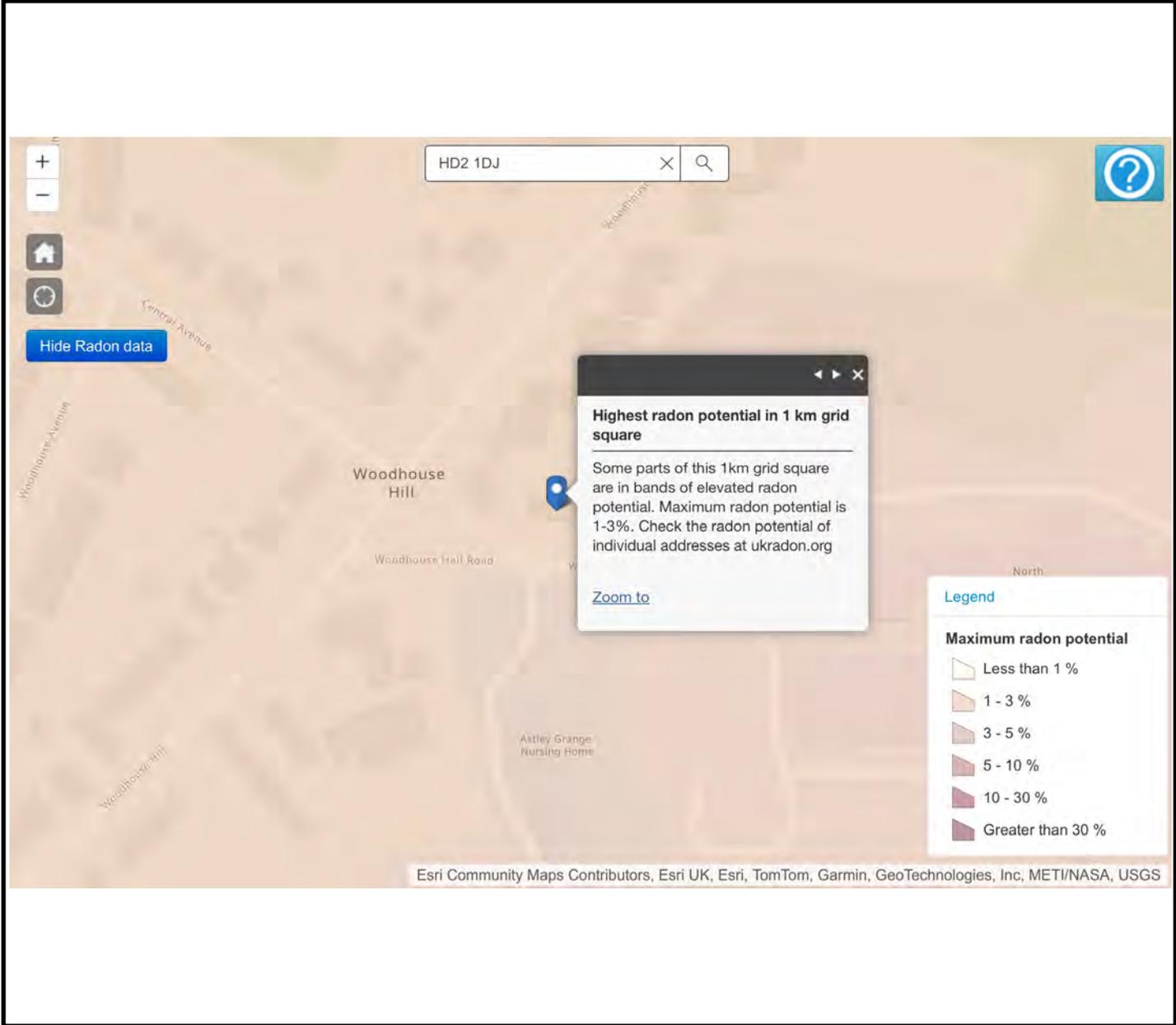
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GeoShield Verification Plan



RADON MAPS UK - (Map 1) Site Location



Maximum Radon Potential: 1-3%

Description: No radon protection measures are required.

Postcode: HD2 1DJ



GeoShield Verification Plan



CLIENT DETAILS

CLIENT CONTACT: Lisa Cooke

CONTACTS ROLE:

MOBILE PHONE:

EMAIL ADDRESS:

CLIENT CONTACT:

CONTACTS ROLE:

MOBILE PHONE:

EMAIL ADDRESS

NOTES:



GeoShield Verification Plan



APPLICATOR'S DETAILS

APPLICATOR NAME: TBC

COMPANY: European Screeding Ltd

APPLICATOR TEL:

APPLICATOR EMAIL:

APPLICATOR NAME: TBC

COMPANY: European Screeding Ltd

APPLICATOR TEL:

APPLICATOR EMAIL:

NOTES: The name of the installers are unknown at this point so the installers will

either be identified at the pre-verification meeting or the first site visit.



GeoShield Verification Plan



HEALTH AND SAFETY

INDUCTION:

YES



NO:



INDUCTION TIME:

CSCS CARD:

YES



NO:



CSCS CARD NUMBER:

5369294

METHOD STATEMENT:

YES



NO:



RISK ASSESSMENT:

YES



NO:



COSHH:

YES



NO:



SITE SPECIFIC HAZARDS:

Materials falling from height

Slips, trips and falls

Excavations

Confined spaces

Plant



GeoShield Verification Plan



APPLICATOR'S DETAILS

TRAINING LEVEL:

SPECIALIST CONTRACTOR:	<input type="checkbox"/> YES	<input type="checkbox"/>	<input type="checkbox"/> NO	<input checked="" type="checkbox"/>
NVQ LEVEL 2:	<input type="checkbox"/> YES	<input type="checkbox"/>	<input type="checkbox"/> NO	<input checked="" type="checkbox"/>
NVQ LEVEL 4:	<input type="checkbox"/> YES	<input type="checkbox"/>	<input type="checkbox"/> NO	<input checked="" type="checkbox"/>
COMPETENT APPLICATOR :	<input type="checkbox"/> YES	<input checked="" type="checkbox"/>	<input type="checkbox"/> NO	<input type="checkbox"/>

REASON FOR VISIT:

DURING INSTALLATION:	<input checked="" type="checkbox"/>	UNDERSLAB VENTILATION	<input checked="" type="checkbox"/>
PRE - POUR:	<input type="checkbox"/>	DPC MEMBRANE CONNECTION	<input type="checkbox"/>
TESTING:	<input checked="" type="checkbox"/>	OTHER (PLEASE SPECIFY):	<input type="checkbox"/>

NOTES:

NOTES:



GeoShield Verification Plan



In accordance with guidance from CIRIA 735 & CIRIA C748.

Radon gas protection measures specify to the guidance from the BR 211 document:

VOC/Hydrocarbons

RADON BASIC

RADON FULL

Characteristic Specification (CS) Rating

CS 2

Building Type:

TYPE B

POINTS REQUIRED UNDER BS8485:2019

3.5 POINTS

POINTS GAINED FROM BS8485:2019

Score for Structural Barrier:

N/A

Grade 2 Basement:

N/A

Grade 3 Basement:

N/A

Score for Venting:

1.5 POINTS

Car Park:

N/A

Score for Membrane:

2.0 POINTS

POINTS ACHIEVED UNDER BS8485 2019:

3.5 POINTS



GeoShield Verification Plan



TESTING PROCEDURES

- VISUAL: PICK & PROBE/MECHANICAL POINT STRESS TEST:
- NON-DESTRUCTIVE COMPRESSED AIR LANCE TEST:
- NON-DESTRUCTIVE SMOKE TEST:
- DESTRUCTIVE JOINT TESTING:
- NON-DESTRUCTIVE TRACER GAS TESTING:
- DIELECTRIC POROSITY TEST:
- PUMP TEST FOR "Twinny" WELD

NOTES: From the risk assessment GeoShield will initially conduct a visual

NOTES: and pick and probe testing regime for this project.

NOTES: Air lance testing will be conducted to test the installed membrane in

NOTES: accordance with CIRIA 735.

NOTES:

NOTES: Only if the application falls below the accepted standard will other testing

NOTES: be used.

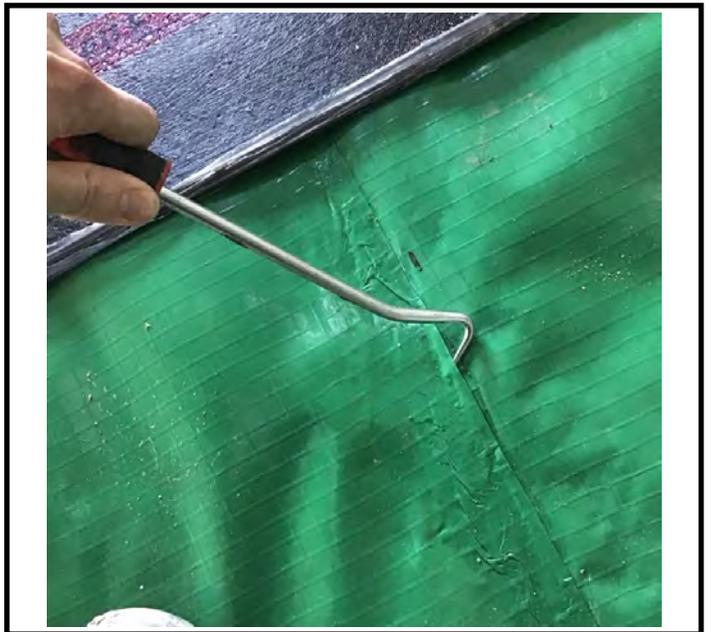
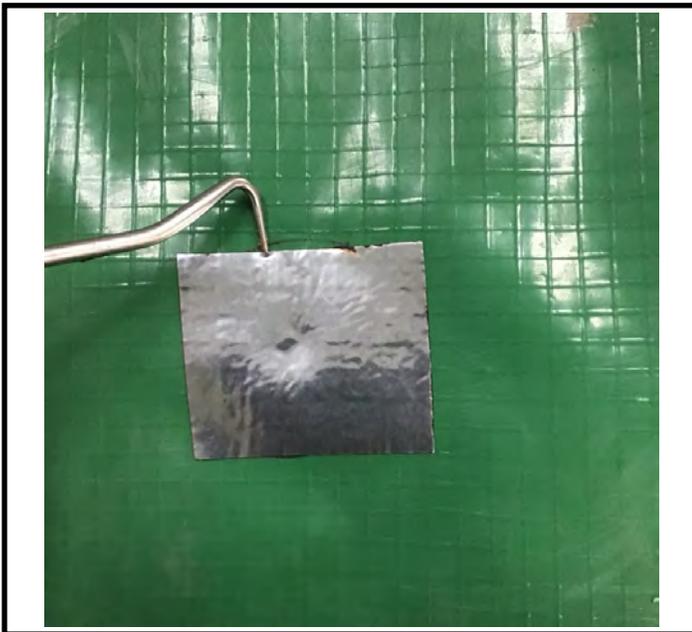


GeoShield Verification Plan



SPECIFICATION

Mechanical Point Stress/ 'Pick and Probe' Testing



CIRIA 735

4.3.2 - Mechanical point stress tests involve running a blunt instrument (e.g. a screwdriver) along the edge of a seam to identify any unbonded seams. This method is not as effective as air lancing but it can be especially useful in hard to reach areas where it is not possible to air lance.

The instrument used should not puncture the gas membrane. This method is less appropriate for materials that are easily punctured where an air lance test is more suitable (although if a gas membrane can be easily punctured its suitability as a membrane is open to question).



GeoShield Verification Plan



SPECIFICATION

Air Lance Testing



CIRIA 735

4.3.3 - Air lance testing identifies unbonded areas of seam by directing a high pressure jet of air at the seam. The air is at a minimum pressure of 345kPa via a 4.8mm nozzle and is located no more than 50mm from the seam being tested.

In order to achieve the requirements of ASTM D4437-08:2013 bespoke specialist equipment is required to maintain the required pressure.



GeoShield Verification Plan



RISK ASSESSMENT

SITE SPECIFIC CIRCUMSTANCES	1	2	3	4	5
Complexity of Design	1	✓ 2	3	4	5
Repetition of design	1	2	✓ 3	4	5
Experience of workforce	1	✓ 2	3	4	5
Gas regime	1	✓ 2	3	4	5
Project management experience	1	✓ 2	3	4	5
Installation conditions (exposed?)	1	2	✓ 3	4	5
Robust Project specific gas design	1	2	✓ 3	4	5

TYPE OF RISK	RANGE	RISK
High Risk	23 - 30	
Medium High Risk	19 - 22	
Medium Risk	15 - 18	17
Medium Low Risk	11 - 14	
Low Risk	0 - 10	

GeoShield have classed this project as a medium risk.

GeoShield will lay all parameters down for standards at the pre-verification meeting to assist both the installer and the main contractor.



GeoShield Verification Plan



VERIFICATION REPORT

These items will be included in the report

- NUMBER 1 GAS MEMBRANE SPECIFICATION
- NUMBER 2 ELEMENTS OF THE GAS MEMBRANE
- NUMBER 3 DATE, TIME and WEATHER CONDITIONS
- NUMBER 4 PLANS and DETAILS ISSUED
- NUMBER 5 INSTALLATION PHOTO's RELATING TO GRID LINES
- NUMBER 6 REPORTING DEFECTS AND LOGGING IN REMEDIATION LOG
- NUMBER 7 AREAS OF LIMITATION (areas unable to inspect)
- NUMBER 8 LOGGING AND REPORTING RESULTS OF TESTING

VERIFICATION REPORT ISSUE

HARD COPY: YES NO EMAIL: YES NO

DROP BOX LINK: YES NO FLASH DRIVE: YES NO



GeoShield Verification Plan



GEOSHIELD COMPETENCE

>GeoShield was founded in 2015

>GeoShield solely verifies, they are fully independent of installers, manufacturers and geotechnical companies.

>GeoShield follow guidance in CIRIA 735 (sufficient experience, membership of

relevant professional organisations) GeoShield are members of the BVC, BGA, ERA

The RADON Council, and UKRA

>Currently GeoShield hold the Chairmanship of the British Verification Council

>Two employees are NSAC Level 3 assessors for the NVQ 2 Gas Membrane install

>GeoShield were key in forming the NVQ 4 Verification qualification in which 2

Verification officers are undertaking this qualification

>GeoShield have the only qualified assessor for the NVQ 4 Verification qualification

>GeoShield Verification officers currently keep up to date CPD's

>All GeoShield Verification Officers have a full understanding of gas membrane

install including 3 experienced (NVQ 2) installers in the GeoShield team

>GeoShield Verification Officers are all independent carrying there own air

compressors. Other testing equipment GeoShield have access to are 2 x Buckley

Dielectric Testing machines and also inert gas testing equipment



GeoShield Verification Plan



METHOD STATEMENT - Page 1

EXPECTED VISITS:- 1 site visit is deemed necessary for verification, however

extra visits may be considered for potential remediations before sign off.

TESTING:- Mechanical Point Stress (Pick & Probe) testing on taped/welded

Areas. Air lance testing will be carried out (as per CIRIA C735 Annex 1, Table A3).

Only if the application falls below the accepted standard will other testing be used.

This project will NOT achieve sign off for gas membrane installation unless

independent verification is carried out.

PURPOSE:- Geoshield are 3rd party gas membrane verifiers in accordance with

CIRIA 735 and for this project to be compliant with BS8485:2019, the gas system

must meet certain criteria from Tables 5, 6 & 7 to achieve mitigation of score for

verification. The chosen membrane must be verified by Geoshield to ensure the

materials have been installed in accordance with the manufacturer's specification.

REPORTING:- Each site visit will be accompanied with a written and electronic report.

Any remediations either completed on the visit or outstanding will be recorded

and logged, sign off will not be achieved for each section area until all

remediations have been completed. This will be fully recorded at all times.



GeoShield Verification Plan



METHOD STATEMENT - Page 2

GROUND GAS RISK:- From the Remediation Strategy this project has been classified as a Type B building and a CS2 rating in accordance with BS8485:2015+A1 2019, so this project will require a minimum score of 3.5 points for mitigation.

This will be achieved by 3rd party verification of the gas membrane, block and beam and ventilation provisions, where applicable to the site specific design.

A combination of which will achieve the necessary requirements.

GAS MEMBRANE PROTECTION:- It is advised that the substrate should be prepared by removal of loose stone and debris. Other forms of protection could be in the form of either a protection board, geotextile fleece and insulation. In addition labels will be issued by Geoshield to restrict access to the installed area by follow on trades and help raise awareness to encourage a better duty of care. This will help to reduce the risk of potential damage caused to the gas membrane system.

FINAL:- Geoshield will liaise with the projects site supervision and all relevant parties prior to the installation start. This plan will be presented and reviewed, all points made clear as previously stated. Any alterations will be listed at the end of this plan as an all party agreed way forward.

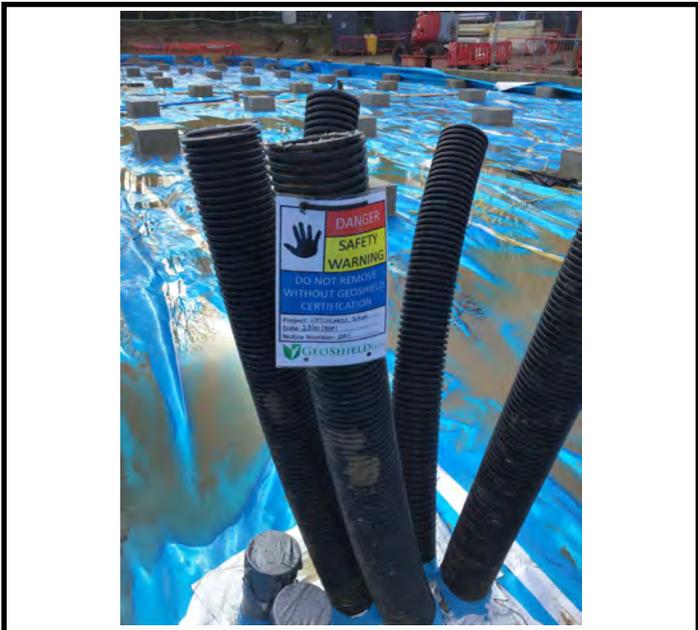


GeoShield Verification Plan



TESTING PROCEDURE

Method Statement - Pipe Penetrations and Service Entries Notice Signs



Geoshield Notice Signs -

During testing on site, notice signs will be tied to all pipe penetrations and a service entries which have not passed inspection. Areas cannot be passed unless verification stickers have been applied to the Notice Signs, once remediations have been successfully carried out.



GeoShield Verification Plan



TESTING PROCEDURE

Method Statement - Membrane Sticker Notice Signs



Geoshield Notice Signs -

During testing on site, areas cannot be passed unless verification stickers have been applied, once remediations have been successfully carried out.



GeoShield Verification Plan



SUBSTRATE METHOD STATEMENT

SUBSTRATE TYPE:

Block and Beam Construction	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>
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Minimum Preparation	Swept Clear	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>
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Minimum Preparation	Vacuuming	Yes	<input type="checkbox"/>	No	<input checked="" type="checkbox"/>
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Minimum Preparation	Compressed air to remove	Yes	<input type="checkbox"/>	No	<input checked="" type="checkbox"/>
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Minimum Preparation	Remove Mortar Droppings	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>
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Stone Substrate	Yes	<input type="checkbox"/>	No	<input checked="" type="checkbox"/>
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Minimum Preparation	Minimum 25mm Sand Blinding	Yes	<input type="checkbox"/>	No	<input checked="" type="checkbox"/>
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Minimum Preparation	Limestone Dust	Yes	<input type="checkbox"/>	No	<input checked="" type="checkbox"/>
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Minimum Preparation	Compacted Substrate	Yes	<input type="checkbox"/>	No	<input checked="" type="checkbox"/>
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Minimum Preparation	No large stones	Yes	<input type="checkbox"/>	No	<input checked="" type="checkbox"/>
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Concrete Substrate	Yes	<input type="checkbox"/>	No	<input checked="" type="checkbox"/>
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Minimum Preparation	No Hollows	Yes	<input type="checkbox"/>	No	<input checked="" type="checkbox"/>
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Minimum Preparation	Troweled Surface	Yes	<input type="checkbox"/>	No	<input checked="" type="checkbox"/>
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Remarks:	
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GeoShield Verification Plan



PRE-CONTRACT MEETING

Items for discussion at the Pre-Contract meeting

>Induction Procedure

>Identification of installation team and point of contact

>Identification of Project management team

>Identification of Sub-Contractors associated with membrane installation

>Validation of Membrane and design specification

>Verification procedure

>Notifications for Verification

>Preparation of substrate

>Program of works

>Utility entry

>Protection of Membrane

>Remediation Procedure

>Testing Procedures

>Sign off Procedure

>Installer PI

>Installer PI

>Installer PI

All information is assumed correct at time of issue.

DATE:



GeoShield Verification Plan



PRE-CONTRACT MEETING SUMMARY

As discussed in this Pre Verification Plan, the installation and verification of Visqueen products. All details and drawings in this verification plan have been discussed so now the installers must run through how they will install the Visqueen products. The indented method and manufacturers specification have been discussed in relation to the details provided for the project. Methods for preparation before installation have been laid out so the workers are made aware of the standards required to gain consent from the local authorities in order to satisfy and discharge planning consent. In addition to this aftercare of the Visqueen products such as the gas barrier, Visqueen Gas Barrier during, after installation, and after verification.

Finally GeoShield have discussed the site visits that are required and what testing and verification will be carried out to the highest standard and verification principles associated with CIRIA 735 and BS8485:2015 +A1 2019.



GeoShield Verification Plan



PRE-CONTRACT MEETING SUMMARY

A pro-forma quality assurance document will be discussed during the Pre-Verification meeting and training undertaken with the management team for non verified areas.

The Pre-Verification meeting will be led by Geoshield and should include all relevant parties who have an impact on the installation and future protection. Geoshield will provide guidance and strategy for all parties.

The site specific checklist will be covered as well as the risk assessment.

This site has been classified as a CS2 Type B building.

Any design alterations will be discussed and included in a revised Pre-Verification Plan.

Any specification changes must also be included in a revised Pre-Verification Plan.

All items will be minuted by the Geoshield representative.

This Pre-Verification plan follows all current guidance and the aim is to make all parties aware of the ramifications of poor installation and their responsibilities if they damage the membrane.

