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BUILDING REGULATIONS SPECIFICATION FOR

**R K WILSON BUILDERS LTD
ERECTION OF PAIR OF SEMI-DETACHED DWELLINGS
ADJ: CORNER HOUSE
CHURCHGATE
WHAPLODE
SPALDING
LINCS
PE12 6TA**

JOB REF: 3690-20
DATE: NOVEMBER 2021.

REVISION A – SAP DETAILS ADDED – JAN '2021.

REVISION B – GAS BARRIER ADDED – FEB '2021.

Preparation: -

Excavate site down approximately 100mm to remove topsoil and vegetation.

Foundations: -

Provide generally GEN 3 concrete strip footings under walls as shown on drawing. 700 wide x 225 deep under cavity wall. Non-loadbearing walls to be built off beam and block floor. Foundations taken down to an approved firm base approximately 900mm below ground level, subject to Local authority inspections. Depth of foundations around existing trees and shrubs to be in accordance with NHBC Guidance Note No. 4.

Sub-structure Walling: -

100mm thick class A dense concrete blocks (7N/mm²) made upped 600mm above ground level with FL quality splash course brickwork (engineering brickwork). Provide weak mix concrete infill to base of cavities to terminate 225mm below lowest DPC level. (See Flood Resilient Construction at rear of specification).

DPC's: -

All openings to be formed with vertical and horizontal polythene DPC's in cavity. DPC minimum 300mm above ground level to be lapped to ground floors DPM minimum 50mm. To lintels above openings on external walls provide suitable DPC cavity tray over lintel with stopends and at least 2no. catnic or sim. Weepholes in brickwork per opening not more than 450mm apart.

Underground drainage: -

To be 110mm diameter UPVC pipes by approved manufacturer to be laid at a minimum fall of 1:70 bedded and surrounded in 100mm thick pea gravel. Where drains pass through walls provide over wall pre-cast concrete lintel, also leave 50mm gap around pipe and fill with compressible sealant, also mask both sides of opening with rigid sheet material to prevent entry of fill or vermin. Inspection chambers to be either 300 or 450mm-diameter UPVC base and risers with cast iron frame and cover (same manufacturer as pipes). Covers to be Grade C- light duty covers (to be screwed down) unless IC's are in driveways where Grade B – medium duty covers are to be used. Inspection chambers not to exceed 1000mm below ground level (any deeper and a manhole will be required constructed to latest local authority specifications). Back inlet gullies to be roddable type. Protection to underground pipes as follows; where pipes are not under a road and have less than 600mm cover, concrete paving slabs should be laid as bridging above the pipes on minimum 100mm-pea gravel. If under a road and have less than 900mm cover, reinforced concrete bridging should be used in lieu of paving slabs. In both cases a layer of compressible material needs to be placed under the bridging. All underground drainage to BS 8301.

Prestressed beam and block floor: -

Provide 150mm deep beams by Floorspan Contracts of Wisbech (tel. 01945 476161) or similar approved and lay them in accordance with manufacturers design and details, which are to be submitted to building control 28 days prior to erection on site. The ground below the beams should be free from vegetation and surface soil and treated with a weedkiller. There is to be a clear void left between the underside of the beams and the soil of at least 150mm and where the potential for soil heave exists this should be increased to at least 225mm. Joists to be laid onto a DPC with a minimum 90mm end bearing (ensure beams do not protrude into cavity). The whole floor should be grouted with a 1:3 cement/ sharp sand mix as soon after laying as possible. Where 2 or 3 beams are placed close together they should be infilled with concrete. Domestic garage floors must have a minimum 50mm thick 20 N/mm² concrete screed reinforced with A98 steel mesh applied direct. The underfloor areas must be ventilated and ventilation must be provided at not more than 3m centres equal to 1500mm² per metre run of external wall. Floorspan Precast air bricks & telescopic vents will satisfy this requirement.

Walling (to achieve U Value 0.24W/m²K): -

302 cavity walling to consist of face brickwork to BS 3921: 1974 for clay bricks and BS 187: 1978 for calcium silicate bricks: 100 cavity: build into cavity Knauf Dritherm 32 cavity wall batts insulation boarding in accordance with makers instructions and agreement certificate no. 83/1087. 100mm Thermalite Aircrete Shield blocks or similar. Cavity walls tied together using suitable stainless steel wall ties set 750 horizontally and 450 vertically to BS 1243: 1978 wall ties positioned at 300 vertical centres at all unbonded closures of cavity (within 225mm); close cavities with "Thermabate" preformed closer and provide bitumen felt DPC to CP 121: Movement joints to be installed in brickwork and blockwork in accordance with BS: 5628, part 3, 1985 and manufacturers own design considerations.

Internal Wall Finish:-

Walls to received 12.5mm plasterboard on dot and dads with 3mm skim finish.

Joinery: -

Doors, frames, linings, skirting, architrave's, window board and timber moldings etc. to be of standard manufacturer.

Rainwater goods: -

UPVC gutters 115mm half round and 68mm dia down pipes to match including all bends, outlets, clips, brackets, connectors etc. and connect to underground drain to and Soakaway.

Soakaway: -

To be a minimum 5000mm from any building and to be 2m³ rubble filled with inlet pipe discharging to centre of soakaway.

Party wall construction - E-WM-15: -

275mm cavity wall to consist of 2no. leaves of 100mm Thermalite Aircrete Sheild 3.6N/mm² solid insulation blocks with normal dry density of 600 Kg/m³. 75mm (min) Cavity with 35mm (min) ISOVER RD35 Mineral Wool Acoustic Batt. Insulation retaining wall ties to Approved Document E 'Wall Type A'. Both faces to receive Gypsum-based board (nominal 9.8kg/m²) mounted on dabs with 3mm skim finish. All floor joists perpendicular to party wall to be supported in galvanised steel hangers. All party walls taken up to the underside of the roof covering and fire stopped using Rockwool fire mat or similar approved. Void between fascia board and wall to be similarly fire stopped. At junction of cavity with flank wall cavity provide 400mm wide Rockwool fire mat or similar approved to full height. All masonry joints to be filled and sealed with mortar. All electrical socket positions to be staggered on opposite side of the party wall. See rear of specification for Robust Detail. The new dwellings must be registered with Robust Details before commencement on site.

Flashings: -

At roof and wall abutments provide code 4 lead flashing and dress up wall in 150mm steps and over tiles all in accordance with BS 1178. Connect to patent stepped cavity tray system within cavity to stop the passage of water.

Lintels: -

All lintels to be manufactured by Messrs. Keystone Lintels Ltd to be installed in accordance with makers instructions and to have minimum end bearing of 150mm and at external positions to have cavity tray DPC to CP 121. (See separate note). Internal lintels not specified are either BOX/K-100 for load bearing walls and INT/K- 100 lintel for non load bearing. All external lintels to be Hi-Therm.

Studwork partitions: -

Form stud walls in 38 x 89 CLS softwood studs at 600mm centers with 38 x 89 CLS head and sole plates and noggins at 1200mm centers. Clad with 12.5mm Gyproc SoundBloc, scrim, tape joints and skim finish. Pack 25mm thick Isowool Acoustic partition roll between studs.

Ceilings: -

Provide and fix 12.5mm Gyproc wallboard to all new roof ceilings. Provide and fix 12.5mm Gyproc SoundBloc to all new non-roof ceilings (ie. Ceiling between two floors) and within floor fully fill with fiberglass insulation. Nog all perimeters and board joints prior to fixing plasterboard too fully support sheeting. Fix Gyproc coving and artex or skim finish to ceiling.

Doors and Windows: -

To be UPVC by specialist manufacturer. Style as shown on elevations. All to be fitted with Argon filled double-glazed sealed units (at least 16mm cavity) using soft low-E glass (0.05). The windows are to offer a **U value of 1.4W/m² K**. The doors if fully glazed will offer the same, but if half glazed will offer **U value of 1.6W/m² K**.

All highlighted doors and windows on separate opening schedule on plan to be designed to:

- a) Manufactured to a design that has been shown by test to meet the security requirement of British Standard Protection PAS 24:2012 or
- b) Designed and manufactured in accordance with Approved Q Appendix B.

In summary:- All easily accessible doors (inc garage doors and communal entrance doors) that provide access into a dwelling or building containing a dwelling to be a secure door. The main doors for dwelling entrance to be fitted with either a door viewer or have clear glass within the door or to the side of the door. Doors should also be fitted with a door chain or door limiter. If a letterbox is fitted to have a max aperture of 260mm x 40mm and be located / designed to hinder any attempt use the letterbox as an access point.

Any window located at ground level, basement level or any other easily accessible point (including rooflights) to be a secure window. With all frames being mechanically fixed to the structure of the building.

Decoration: -

Allow for decorating all new surfaces; ensure full and proper preparation of all surfaces in accordance with the coating manufacturers specification.

Smoke alarm: -

Provide mains operated self-contained smoke alarms that conforms to BS5446 Part 1. Provide at least one on each floor positioned within 7000mm of living room, kitchen doors and 3000mm of bedroom doors. More than one smoke alarm to be interconnected and wired to a separately fused circuit. See drawing for positions.

Protected glazing areas: -

Provide toughened glass to BS6206 (1981) to following areas. To all windows within 800mm of finished floor level. To all door glazing within 1500mm of finished floor level. This also applies to side screens within 300mm of door. Protected glazing to be permanently marked with BS kite mark.

Wall tiling: -

Provide and fix in new bathroom to walls and window cill, kitchen window cill and over work tops ceramic wall tiles with waterproof fix and grout. Tiles to be selected and areas to be tiled to be determined later.

Roof construction: -

Tiles on 25 x 38 softwood treated timber battens on underfelt to BS 747 (type 1F) lapped 150mm horizontally and vertically. On prefabricated fink trusses at 600 centres and 35° pitch as stated on drawings all in accordance with BS 5268 part 3 (1985). All bracing to be 25 x 100 softwood and positioned all in accordance with manufacturers instructions. Bracing to be fixed to gable wall. Trusses to be well secured to 50 x 100 wallplate. Provide 30 x 5 galvanized mild steel anchor and lateral restraint straps along line of wall plate, rafters and ties at 1800mm centres. Strap to be fixed to gable wall + span 3no. trusses. Provide pack and noggins to trusses at strap position. Roof truss design and certificate to be supplied to building control prior to erection on site.

Above ground drainage: -

To be UPVC push fit by an approved manufacturer. 40mm diameter waste from wash hand basin, shower, sink, 50mm diameter from bath and 110mm diameter from WC. All traps to be 75mm deep seal. All pipework etc. to be accessible throughout their runs for cleansing, repair and replacement. Shower floors to be raised minimum 150mm. Provide anti-siphon traps to appliances if the pipe run exceeds that shown in diagram 3 page 5 of approved document H. Provide 110mm diameter soil and ventilating pipes as shown to terminate 900mm above window heads with a suitable ventilating terminal. Internal soil and vent pipes to terminate through roof void with flexi-ducting to suitable vent ridge or tile by tile manufacturer. Any internal stub-stacks fitted with a pressure relief valve vent to be at least 1000mm above finished floor level. Drainage from condensing boiler to discharge into main via a minimum pipework of 22mm diameter through a 75mm condensate trap. If an additional trap is provided externally to the boiler to provide the 75mm seal, an air gap should be provided between the boiler and the trap.

First floor construction: -

Provide and fix 19mm tongued and grooved flooring grade wood particle board see drawing for trimming arrangement and sizes. Joists to be 97 x 225 Posi Joists PS-9 at 400mm c/c. All stair trimming & trimmer joists to be 2no. 97 x 225 PS-9 Posi joists. Trebled up joists under partitions in addition to normal joist spacing, which will also take floor decking either side. Joists supported by internal walls to full bearing width of wall. At external wall positions joists to be supported by internal leaf of cavity construction which is then to be sealed around with silicone sealant or similar to the blockwork. Provide 30 x 5 galvanized mild steel lateral restraint straps along line of joist parallel with wall at 1800mm centers. Strap to be fixed to wall + span 3no joists. Provide pack and noggins to joists at strap position. Joist design to be submitted to SHDC Building Control 30 days prior to erection.

Lighting: -

All fixed light fittings should be fitted with low energy lamps. (A light fitting may contain one or more lamps. Cupboards and storage facilities not included). To achieve a luminous efficacy greater than 45 lumens per circuit-watt (not using GLS tungsten lamps with bayonet cap or Edison screw bases). External lighting which can be in a porch but not a garage or carport which automatically extinguish when there is enough daylight, and when not required at night or have sockets that can only be used with lamps having an efficacy greater than 40 lumens per circuit-watt (such as fluorescent or heights between 450mm and 1200mm from finished floor level).

Hot water and heating etc.: -

Wet Radiator system. Heating and Hot Water to be provided by mains gas combi boiler situated in kitchen with passive flue heat recovery system, efficiency not less than 89.6% (SAP2009) (Ideal LOGIC CODE COMBI ESP1 33 or equivalent). Install hot water heating pipework to provide hot and cold water supplied to all new appliances in the building and provide space heating to all new areas. Radiator positions to be as directed. The heating system should be controlled by time and temperature zone control (TTZC). TTZC is defined as either:- a) separate plumbing circuits, either with their own programmer, or separate channels in the same programmer, or b) programmable thermostatic radiator valves (TRVs) or communicating TRVs that are able to provide time and temperature zone control (conventional TRVs without a timing function provide only independent temperature control). Heating engineer to provide a suitable commissioning certificate in accordance with that published as part of the benchmark code of practice upon completion (which is to be forwarded to the Building Control).

Water Supply: -

Provide new hot and cold water supply to the new wash hand basins, showers and baths in new WC, bathroom and en-suites. Provide new cold water supply to new W.C.'s. Where possible water supply pipes to be run below finished floor level. Where pipes have to run in the roof space, pipes to be insulated with material with a Thermal Conductivity not exceeding 0.0045 W/mK. Wholesome or Softened Wholesome water to be provided to all washbasins, bidets fixed bath and shower in any bathrooms, also to and wash basins in or adjacent to any room containing a sanitary convenience. In addition, any area or room used for the preparation of food must contain a sink supplied with wholesome or softened wholesome water.

Hot Water System Safety:**Vented System:**

For a hot water storage system that has a vented storage vessel:

- (a) the storage vessel has a suitable vent pipe connecting the top of the vessel to a point open to the atmosphere above the level of the water in the cold water storage cistern and over it; and
- (b) in addition to any thermostat, either the heat source, or the storage vessel is fitted with a device that will prevent the temperature of the stored water at any time exceeding 100 deg C; and
- (c) the hot water system has pipework that incorporates a provision for the discharge of hot water from the safety devices to an appropriate place open to the atmosphere where it will cause no danger to persons in or about the building.

Un-Vented System:

For a hot water system that has an unvented storage vessel :

- (a) the storage vessel has at least 2 independent safety devices, such as those that release pressure and so prevent the temperature of the stored water at any time exceeding 100 deg C in addition to any thermostat; and
- (b) the hot water system has pipework that incorporates a provision for the discharge of hot water from the safety devices to be visible at some point and safely conveys any hot water discharge from safety devices to an appropriate place open to the atmosphere where it will cause no danger to persons in or about the building.

Conservation Of Water:-

The water consumption calculation will be provided to the local authority building control department prior to the completion of the building works.

Where the operating temperature of domestic hot water in the storage vessel can exceed 80°C under normal operating conditions, the outlet from the storage vessel should be fitted with a device to ensure that the temperature supplied does not exceed 60°C.

A temperature control device to be fitted to all installed baths to ensure that delivered hot water cannot exceed 48°C.

Water G Calculation compliance:-

Kitchen Taps – 6.00 litres / minute

Taps – 6.00 litres / minute

Shower – 8.00 litres / minute

Bath – 180.00 litres to capacity

Toilets – 4.00 Full Flush 2.60 Part Flush

Dishwasher – 1.25 litres / place setting

Washing Machine – 8.17 litres / kg dry load

On completion of works confirmation of the above by means of invoice stating manufactures and type used to be sent to SHDC Building Control so the final calculation can be undertaken.

Condition 10 on the Planning Permission states the water consumption of each dwelling should not exceed 110 litres per person per day.

Ventilation: -

Natural ventilation area of windows (purge) to offer at least 1/20th of room floor area if the window opens at least 30 degrees to the closed position. Alternatively to offer at least 1/10th of room area if the window opens at least 15 degrees to the closed position.

Mechanical extractor fans to be provided to: -

- i) Kitchen offering 60 litres per second or cooker hood offering 30 litres per second.
- ii) Bathroom offering 15 litres per second.
- iii) WC offering 6 litres per second.

The flow rates of the extract fan must be tested and results passed to SHDC Building Control to show compliance that the extraction rate is adequate for the room. Where mechanical extractor fans are fitted in rooms with no natural ventilation, provide fans that have 15 minute overrun that may be operated intermittently. Background ventilation is to be provided by trickle ventilators to tops of windows unless stated otherwise. Trickle ventilators to provide 5000mm² per habitable room and 2500mm² for wet rooms. Ensure enough ventilators are provided to satisfy this requirement and wherever possible try and provide ventilators on opposite sides of the building to promote cross ventilation. Also ensure all doors have a 10mm gap underneath door to floor finish. **The Total Equivalent Area (EA) of Background Ventilator required 60000 (mm²) per dwelling (minimum) – see chart on drawing.**

Access for all part 'M1': -

Obstructions in corridors on the ground floor will be satisfied if a short length (no more than 2000mm) of local permanent obstructions, such as a radiator, would be acceptable provided that the unobstructed width of the corridor is not less than 750mm for that length, and the local permanent obstruction is not placed opposite a door to a room if it would prevent a wheelchair user turning into or out of the room. Also doors to habitable rooms and a room containing a w.c. on the ground floor have a minimum clear opening of 775mm when accessed by corridors or passageways whose width is not less than 1050mm. Drives to be hard surfaced (not gravel unless suitably designed) with concrete, tarmacadam or block paving and to be laid level at some point with footpath (around main dwelling) for total accessibility.

The principal entrance (Kitchen/Dining Area French Doors) is to give a minimum 850mm clear opening width. Provide suitable and established level entry threshold access. The principal access route to be min. 1000mm width ramped footpath gradient 1:16 (approx. length 6000mm long) leading to a level area 1000mm x 1000mm. At front door provide 2 No steps 150mm rise x 300mm going to lead down to footpath on either side. Maximum top of steps to be 300mm from ground level. Provide switches and socket outlets for lighting and other equipment in habitable rooms at appropriate heights between 450mm and 1200mm from finished floor level. All consumer units should be mounted so that the switches are 1350-1450mm above floor level.

Ground floor finish (to achieve U value of at least 0.15W/m² K): -

Off beam and block floor provide 100mm thick Celotex XR4000 or similar approved product, then Visqueen Gas Barrier to BS8485:2015 D.P.M laid in strict accordance with manufacturers instructions. (See details are rear of specification). 75mm sand / cement screed with 1no. layer of chicken wire reinforcement.

New buildings to Approved document L: -

The building will be built in accordance with LABC Registered Construction Details. The building when finished will be Pressure Tested (to latest approved procedure). An Air Tightness Test result of 5.00m³/hr.m² (@50Pa) or below is required. The Target CO₂ Emission Rate will be forwarded to the Local Authority when to hand. Thermal Bridging references taken from SAP are listed on drawing.

Roof insulation: -

Insulation to horizontal roof space to be 400mm thick fibreglass laid 100mm between and 300mm over ceiling ties to offer approx. **U value 0.11W/m² K.** Ensure there is a spacer fitted in the eaves so that the insulation can be installed over and beyond the wall plate.

Electrical installation: -

All electrical work required to meet the requirements of Approved Document Part P (Electrical Safety – Dwelling) – 2013 edition must be designed, installed, inspected and tested by a person competent to do so. Prior to completion of the works the Council must be satisfied that either

- a) an electrical installation certificate issued under a competent person scheme has been issued, or
- b) an appropriate electrical installation certificate has been issued for the work, and that it has been signed by a person competent to do so.

Staircase: -

To be private stairway giving 900mm unobstructed clear width. Handrail to be 900mm above pitch line of the staircase and 1000mm above finished floor level on landing. Balusters to be of vertical type and are not to be able to permit passage of a 100mm diameter sphere between them. Ensure 2000mm headroom above pitch line of stairs. All balustrades to be capable of withstanding 0.36 kn./m horizontal force. Ground floor to first floor going 223mm 13no. risers 200mm pitch 42 degrees.

In-Building Physical infrastructure : -

The building to have provision so that in the future, copper or fibre-optic cables or wireless devices capable of delivering broadband speeds greater than 30Mbps can be installed. To be installed with telephone point in hallway.

Feature brickwork: -

Project brickwork at eaves and gables as shown on drawing. Rainwater goods to fix directly to brickwork.

Fire escape windows: -

All habitable rooms in the upper story's of a house should have a window with an unobstructed openable area that is at least 0.33m² and at least 450mm x 750mm (the route through the opening may be at an angle rather than straight through). The bottom of the openable area should be not more than 1100mm above the floor.

Roof ventilation: -

Provide ventilation to roof space at eaves via patent system giving the required air circulation as follows: -

- 1) On a pitched roof of 15 degrees or more provide at eaves ventilation equal to a 10mm continuous gap running along eaves.
 - 2) On a roof where pitch is less than 15 degrees or where the ceiling follows the line of the roof i.e.; attic trusses, provide at eaves ventilation equal to a 25mm continuous gap running along eaves.
 - 3) Also on roofs where ceilings follow roofline ventilation is required at ridgeline with suitable ridge vent (by tile manufacturer), to give ventilation equal to a 5mm continuous gap running along ridge.
 - 4) At roof/wall abutment ventilation required in form of a tile vent or similar to give ventilation equal to a 5mm continuous gap along abutment.
- Ensure 50mm gap between insulation and underfelt.

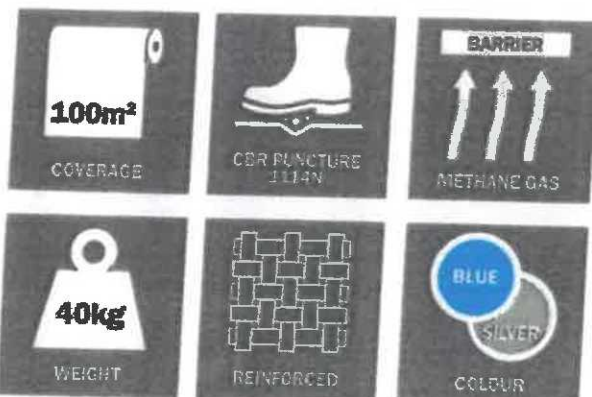
Gas Barrier

A multi-layer reinforced polyethylene membrane with an integral aluminium foil

- BBA approved, fully complies with BS8485:2015
- Low permeability to methane, radon and carbon dioxide
- Approved for use in NHBC Amber 2 applications
- Multi-layer reinforced LDPE membrane with aluminium core



Visqueen Gas Barrier is a 400 gsm multi-layer reinforced polyethylene membrane with an integral 20 micron aluminium foil that is approved for use in BS8485:2015 and NHBC Amber 2 applications. For ease of identification on site Visqueen Gas Barrier is coloured blue on one side and silver on the reverse. The barrier combines strength and performance with flexibility and easy installation. Visqueen Gas Barrier also acts as a damp proof membrane.



AVAILABLE ON THE WEBSITE

- Comprehensive datasheets including performance data
- Storage and Handling
- MSDS
- Standard details
- NBS and BIM specification

APPLICATION

- Carbon dioxide and methane sites in accordance with BS8485:2015
- Radon affected sites in accordance with BRE211:2015
- NHBC Amber 2 sites

The membrane should be installed blue side up

USE WITH:

- Visqueen Double Sided Tape 50mm x 10m
- Visqueen GR Foil Tape 75mm x 50m

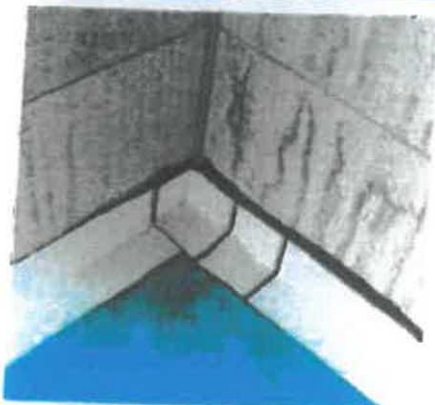
TECHNICAL DETAILS

Colour	Weight	Dimension	Code		
Blue/Silver	40kg	2m x 50m	RS056551		
Characteristic	Test method	Unit	Criteria	Result	
BS8485:2015 -- Methane testing					
Methane permeability	ISO 15105-1	ml/m ² /d/atm	<40	Pass	
Puncture CBR	BS EN ISO 12236	N	MDV	1114	
Impact resistance	EN12691	mm	MDV	1000	

To view all our comprehensive test data please visit our website www.visqueen.com

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Gas Protection Systems


VISQUEEN
BUILDING PRODUCTS


NS5718

- BBA approved, fully complies with BS8485:2015
- Low permeability to methane, radon and carbon dioxide
- Approved for use in NHBC Amber 2 applications
- Multi-layer reinforced LDPE membrane with aluminium core
- High puncture and tear resistance

Description

Visqueen Gas Barrier is a 400 gam multi-layer reinforced polyethylene membrane with an integral 20 micron aluminium foil that is approved for use in BS8485:2015 and NHBC Amber 2 applications. For ease of identification on site Visqueen Gas Barrier is coloured blue on one side and silver on the reverse. The barrier combines strength and performance with flexibility and easy installation. Visqueen Gas Barrier also acts as a damp proof membrane.

BS8485:2015

When risk assessing under BS8485:2015 for sites which are affected by methane and carbon dioxide then the Visqueen Gas Barrier is an ideal solution.

The membrane has been modified to be 400 gam with the multi layer structure greatly enhanced to improve its puncture and impact performance.

Visqueen utilise a 20 microns foil to avoid issues associated with thinner (12microns) foils.

Application

The Building Regulations require that proper precautions be taken to prevent danger to health and safety when building on contaminated land. Visqueen Gas Barrier offers a safe solution for the protection of buildings against methane, radon, stythe (a gas commonly found from disused mines, also known as blackdamp), and carbon dioxide, when installed in accordance with the relevant codes of practice such as BRE, CIRIA and the Chartered Institute of Environmental Health Ground Gas Handbook.

Typically these are sites previously used as coalfields, landfill or are contaminated industrial sites.

The membrane should be installed blue side up

System components

- Visqueen Double Sided Jointing Tape
- Visqueen Gas Resistant (GR) Foli Tape
- Visqueen Top Hat Units
- Visqueen TreadGUARD1500
- Visqueen Detailing Strip

Installation Guidelines

Visqueen Gas Barrier and ancillary components must be installed in accordance with the recommendations of Building Research Establishment BRE 414 "Protective measures for housing on gas contaminated land" and CIRIA C665 "Assessing risks posed by hazardous ground gases to buildings", NHBC guidelines, and the Chartered Institute of Environmental Health Ground Gas Handbook. The product is not intended for use where there is a risk of hydrostatic pressure. The membrane should be installed blue side up



The membrane should be installed on a compacted sand blinding layer or smooth concrete float finish. In areas where high levels of unsupported membrane occur it is recommended that Visqueen Pre Applied Membrane is used. To avoid slip or shear planes and high compressive loadings it is not recommended to take the membrane through the wall. In order to provide a continuous barrier across the cavity Visqueen Gas Resistant DPC should be taken through the blockwork and incorporated below the damp proof course cavity tray in the outer leaf.

Laps can be joined together by either using the Visqueen Gas Barrier jointing system or welded by our specialist on-site contractors.

Jointing and Sealing

Visqueen Gas Barrier should be overlapped by at least 150mm (Welded membranes can be by less than 150mm as long as the joint integrity is not compromised) and bonded with Visqueen Double Sided Tape. The joint should be secured with Visqueen Foil Backed Girth Jointing Tape. Ensure that the membrane is clean and dry at the time of jointing.

Airtight seals should be formed around all service entry points. Visqueen Pre-formed Top Hat Units must be used for sealing service entry pipes. The base of the top hat should be sealed using Visqueen Double Sided Tape and Visqueen Foil Backed Girth Jointing Tape is used to secure the joint.

Punctures

If the membrane is punctured or perforated, then a patch of material with identical thickness should be lapped at least 150mm beyond the limits of the puncture and bonded with Visqueen Double Sided Jointing Tape and seal with Visqueen Foil Backed Jointing Tape. Alternatively a patch can be formed using Visqueen Detailing Strip and lapped at least 150mm beyond the limits of the puncture. External and internal corners should be round and reinforced with Visqueen Detailing Strip. Where this is not possible and the 3 dimensional shapes are complex it is recommended a pre-formed unit is used.

NB. In demanding site conditions use Visqueen GR Lap Tape as a high performance alternative to Visqueen Foil Jointing Tape.

Ventilation

When medium to high levels of ground gases are present or when the generation of gases still occurs, then an open void beneath the ground floor should be constructed, as ventilation beneath the ground floor will dilute and disperse the gases to atmosphere. Open voids are normally restricted to beam and block floors or other precast concrete floor systems, an alternative for providing ventilation to in situ concrete floor slabs is to install a Visqueen Ventilation System.

Covering

Visqueen Gas Barrier should be covered by a protective layer as soon as possible after installation. 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 contacting the barrier.

It is recommended that the barrier is covered with Visqueen Protection Boards or screed before positioning the reinforcement. When underfloor heating is being installed, it is recommended that the barrier is positioned between the blinded hardcore and insulation. This will protect the insulation from moisture and avoid any risk of overheating the membrane.

Storage and Handling

Visqueen Gas Barrier is classified as non-hazardous when used in accordance with the relevant Code of Practice (CP 1021973). The product is chemically inert and is not affected by acids and alkalis that may be present in the



sub-solts. The material is not recommended for uses where it will be exposed to long periods of outdoor weathering as exposure to ultraviolet light will embrittle the product. Weathering will not occur when the membrane is installed in accordance with CP102 1973. Care should be taken to avoid accidental damage when handling the membrane on site. When the weather is cold, Visqueen Double Sided Jointing Tape and Visqueen Foil Backed Girth Jointing Tape should be kept in a warm, dry place until needed. Installation is not recommended below 5°C.

Technical Data and CE Mark

Visqueen Gas Barrier complies with the requirements and clauses of EN 13967 - Flexible sheets for waterproofing - Plastic and rubber damp proof sheets including plastic rubber basement tanking sheet - Definitions and characteristics.

British Board of Agreement performed the initial inspection of the manufacturing plant and of factory production control and the continuous surveillance, assessment and evaluation of factory production control, and issued the certificate of constancy of conformity of the factory production control 0636-CPR-13/F060 applies.



Product Data

Test	EN 13967-2	Unit	Minimum Value	Maximum Value
Visible defects	EN 1848-2	-	Pass/Fail	Pass
Length	EN 1848-2	m	-0%/+10%	25 or 50
Width	EN 1848-2	m	-0%/+10%	2
Thickness	EN 1848-2	mm	-10%/+10%	0.52
Mass	EN 1848-2	g/m ²	-7%/+7%	400
Tensile Strength - MD	EN EN12311	N	>MLV	350
Tensile Strength - CD	EN EN12311	N/mm ²	>MLV	350
Tensile Elongation - MD	EN EN12311	%	>MLV	17
Tensile Elongation - CD	EN EN12311	%	>MLV	15
Joint Strength	EN12317-2	N	>MLV	332
Waterproofness 2kPa	EN 1929	-	Pass/Fail	Pass
Resistance to impact	EN 12091	mm	>MLV	200
Dart Impact	BS 2782	g	MDV	731
Low temperature flexibility	EN 405-5	°C	-40	Pass
Durability against ageing	EN 1296 and EN 1228	-	Pass/Fail	Pass
Durability Chemical Resistance	EN 1847	-	Pass/Fail	Pass
Resistance to tearing (nail shock) CD	EN 12310-1	N	MDV	358
Resistance to tearing (nail shock) MD	EN 12310-1	N	MDV	309
Resistance to static loading	EN 12730	Kg	>MLV	Pass 20
Water vapour transmission - resistance	EN 1931	MN/g	MDV	7000
Water vapour transmission - permeability	EN 1931	g/m ² /d	MDV	0.03
Reaction to Fire	EN 13501-1	Class	MDV	F

BS4885:2015 testing requirements

Mass	EN 1848-2	g/m ²	Average >570	400
Methane Permeability	ISO15105-1	mL/m ² /kPa/m	Pass/Fail	<40 Pass
Puncture CBR	98 EN ISO 12236	N	MDV	1114
Impact resistance	EN12891	mm	MDV	1000
Tensile Yield strength MD	ASTM D4885-01	N/m ²	MDV	12.5
Tensile Yield strength CD	ASTM D4885-02	N/m ²	MDV	7.3
Yield elongation MD	ASTM D4885-03	%	MDV	18
Yield elongation CD	ASTM D4885-04	%	MDV	19
Tear resistance - trouser method A - MD	BS ISO 34-1	N/m	MDV	49.2
Tear resistance - trouser method A - CD	BS ISO 34-1	N/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	50.6



**Visqueen Building Products**

Visqueen is the market leader in the manufacture and supply of structural waterproofing and gas protection systems. Visqueen offers the complete package - a proven, reliable range backed by a technical support service that goes unmatched in the market - everything you would expect from a reputable and ethical company.

System Accessories

To ensure full waterproofing protection please use the following certified system components:

- Visqueen High Performance (HP) Tanking Primer
- Visqueen TreadGUARD1500
- Visqueen Protect&Drain
- Visqueen Top Hat Unit

Downloads Library

- Technical Datasheet
- Declaration of Performance
- Visqueen's Guide to CE Marking

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