Visqueen Vapour Control Layers

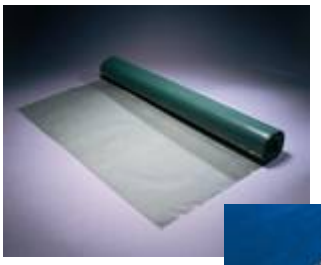
- Range suitable for all internal building conditions
- Used within roof, wall and floor constructions
- Reduces the likelihood of interstitial condensation
- Loose laid or self adhesive options
- Also used as separation layers above rigid urethane foam insulations
- Manufactured in the UK

Description

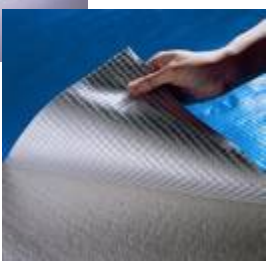
Visqueen Vapour Control Layers are a range of loose laid and self adhesive elastomer membranes. They are designed to prevent the occurrence of interstitial condensation in the fabric of a building by protecting the thermal insulation incorporated in the building structure.

Application

The control of condensation to within safe limits is an important consideration in the design and construction of buildings.



The occupants of a building and their associated activities produce water vapour which, if unmanaged, can condense within or between building elements; a process referred to as interstitial condensation. This condensation can have serious detrimental effects upon the fabric of the building such as causing the decay of timber elements and corrosion of metal components, and reducing the thermal effectiveness of insulating materials.



With the progressive increases in thermal efficiencies of buildings in order to reduce energy usage, any reduction in the effectiveness of the installed insulation can have long term financial implications. The negative effect upon the fabric of the building increases the incidence of moulds and mildews, which in turn can have a harmful effect upon the health of the building occupants.

Visqueen Vapour Control Layers provide a means of protecting the warm side of the thermal insulation incorporated in a building by creating a barrier to the movement of warm, moist air. The vapour control range, which provides suitability for all internal building conditions, consists of the following systems:

- Visqueen Vapour Check
- Visqueen Vapour Barrier
- Visqueen High Performance Vapour Barrier
- Visqueen High Performance Fully Bonded Vapour Barrier

Design

To avoid harmful condensation, careful consideration should be given to the design of the thermal insulating elements and particular attention given to ventilation and the appropriate level of vapour control required.

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It is recommended that the risk of interstitial condensation be assessed by calculation method (undertaken by the insulation manufacturer) in order to determine where it is likely to take place, whether it will be harmful and the optimum level of vapour control for that part of the structure.

Penetrations of the vapour control layer will downgrade performance and as such should be avoided wherever possible. Where penetrations occur, vapour tight seals should be formed.

Selection of the appropriate vapour control layer is by reference to the buildings internal humidity conditions, as follows:

- Visqueen Vapour Check is a loose laid membrane designed for use in roofs, walls and floors subjected to humidity levels less than 50% at 15°C or less than 35% at 20°C (BS5250: 2002 class 1 condition) e.g. warehouses, industrial units and storage areas.

- Visqueen Vapour Barrier is a loose laid membrane designed for use in roofs, walls and floors subjected to humidity levels less than 60% at 20°C (BS5250: 2002 class 2 and 3 conditions) e.g. offices and domestic dwellings with low occupancy.

- Visqueen High Performance Vapour Barrier is a loose laid membrane designed for use in roofs, walls and floors subject to humidity levels greater than 60% at 20°C or greater than 45% at 25°C (BS5250: 2002 class 4 and 5 conditions) e.g. domestic dwellings with high occupancy, sports halls, swimming pools, communal shower areas, laundries, canteens and buildings with wet industrial processes.

- Visqueen High Performance Fully Bonded Vapour Barrier is a self adhesive membrane designed for use in roofs, walls and floors subject to humidity levels greater than 60% at 20°C or greater than 45% at 25°C (BS5250: 2002 class 4 and 5 conditions) where a fully bonded vapour control layer is required.

When designing buildings used as service and retail outlets where specific use, and hence humidity levels, may be unknown at design stage, the likelihood is that there will be a high degree of variability in the vapour protection requirements. In these instances, the choice of vapour control layer should err on the side of caution and include for an adequate margin of safety.

When designing the system in which the vapour control layer is to be incorporated, careful consideration should be given to compatibility with the other components or their method of application e.g. thermoplastic membranes are suitable for use with mechanically fixed polymeric single ply flat roofing systems, and unsuitable for use with bitumen bonded flat roofing systems due to the high temperatures involved during application.

For cold storage areas, contact Visqueen Technical Support for specific design advice.

The following design considerations are not exhaustive but are offered to provide general guidance for typical applications.

Design consideration – roofs

Incorporated between the insulation and internal lining in pitched roofs with inclined insulation and ceilings, the vapour control layer should be sealed at all roof details e.g. hips, valleys, ridges, abutments and fire walls.

With cold deck flat roof constructions, the vapour control layer is included between the insulation and ceiling. Perimeter detailing should be effectively sealed.

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When incorporated in warm deck flat roof constructions, the vapour control layer should be secured in position between the structural deck and insulation ensuring that it envelopes the insulation at upstands, abutments and penetrations.

Design consideration – walls

Commonly incorporated in masonry cavity walls and solid walls with internal insulation, timber framed walls, metal framed walls where the frame is within the main insulation layer and site assembled twin skin wall systems, the vapour control layer should be secured in position between the insulation and the internal lining. All fixings penetrating the layer and detailing around window and door openings should be sealed with Visqueen Vapour Tape.

Design consideration – floors

With precast concrete floors or ground bearing floors, a vapour control layer should be provided on the warm side of the insulation when insulation is positioned above the structural floor. Perimeter detailing should be effectively sealed.

Vapour control layers also function as separating layers in solid floor construction. Commonly incorporated between rigid urethane foam insulations and the floor screed, they prevent contamination of the insulation by the screed and minimise cracking should movement occur below the screed.

Installation

Visqueen Vapour Control Layers should be installed in accordance with the recommendations of BS5250: 2002 'Code of practice for control of condensation in buildings'.

The vapour control layer should be of the appropriate vapour resistance and should be situated on the warm side of the insulation.

The laps of the vapour control layer and junctions with metal, timber, glass, cementitious boarding and plastic building elements should be sealed with Visqueen Vapour Tape. Abutments to masonry units or junctions where structural movement is anticipated should be sealed with Visqueen Vapour Edge Tape. Failure to suitably connect the vapour control layer to other building elements will seriously reduce performance.

Loose Laid Vapour Control Layers

All joints in the vapour control layer should be lapped by minimum 75mm, and sealed with Visqueen Vapour Tape applied equidistant over the lap. To aid formation, laps should be made over a solid substrate.

Where possible reduce the number of laps to a minimum by using full rolls of membrane.

The heads of any mechanical fixings penetrating through the membrane should be sealed with Visqueen Vapour Tape.

Tears, cuts or holes should be repaired with Visqueen Vapour Edge Tape extending minimum 75mm beyond the damaged area.

Vapour tight seals should be formed around all service entry points. Visqueen Preformed Top Hat Units are available for sealing around pipe penetrations. The base and collar of the preformed unit should be sealed using Visqueen Vapour Tape and the collar secured with a mechanical fastening.

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Other penetrations through the membrane such as electrical cabling should be kept to a minimum and sealed during construction with Visqueen Vapour Tape.

The perimeter of the installation should be sealed to ensure full vapour protection. Where perimeter detailing involves sealing to masonry units such as brickwork, blockwork, etc ensure vapour proof continuity by sealing with Visqueen Vapour Edge Tape applied equidistant over the junction.

Ensure all surfaces are clean, smooth and dry prior to the application of Visqueen Vapour Tape or Visqueen Vapour Edge Tape. Surfaces do not require priming prior to tape application.

Self Adhesive Vapour Control Layer

All surfaces to which the membrane is to be bonded should have a smooth finish, be dry and free from dust and loose particles.

When bonding to porous surfaces, adhesion can be improved by priming the substrate with Visqueen Tanking Primer which should be allowed to dry. However, compatibility should be ensured between primer and substrate before application. If in doubt, contact Visqueen Technical Support before application.

Visqueen High Performance Fully Bonded Vapour Barrier should be laid by peeling back the protective release paper and applying the adhesive face onto the prepared surface.

All lap joints should be a minimum of 75mm and well rolled with firm pressure, using a lap roller to ensure complete adhesion and continuity.

Damaged areas should be repaired by patching with an oversize piece of the same material. Ensure the surface is clean and dry prior to application of the patch. Extend minimum 75mm beyond the damaged area and roll firmly with a lap roller to ensure complete adhesion and continuity.

Vapour tight seals should be formed around all service entry points. Visqueen Preformed Top Hat Units are available for sealing around pipe penetration. The base and collar of the preformed unit should be sealed using Visqueen Vapour Tape and the collar secured with a mechanical fastening.

Other penetrations through the membrane such as electrical cabling should be kept to a minimum and sealed during construction with Visqueen Vapour Tape.

The perimeter of the installation should be sealed to ensure full vapour protection. Where perimeter detailing involves sealing to masonry units such as brickwork, blockwork, etc ensure vapour proof continuity by sealing with Visqueen Vapour Edge Tape applied equidistant over the junction.

Ensure all surfaces are clean, smooth and dry prior to the application of Visqueen Vapour Tape or Visqueen Vapour Edge Tape. Surfaces do not require priming prior to tape application.

Precautions

Visqueen Vapour Control Layers are classified as non-hazardous when used in accordance with BS5250: 2002.

Care should be taken to avoid accidental damage when handling the membranes on site. Membrane installation is not recommended below 5°C.

Visqueen Vapour Control Layers are not intended for use where they will be exposed for long periods of outdoor weathering.

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Technical

	Visqueen Vapour Check	Visqueen Vapour Barrier	Visqueen High Performance Vapour Barrier	Visqueen High Performance Fully Bonded Vapour Barrier
BS5250 conditions	Class 1	Class 2 & 3	Class 4 & 5	Class 4 & 5
Application method	Loose laid	Loose laid	Loose laid	Self adhesive
Roll dimensions (m)	2.45 or 4 x 50	2 x 50	1.6 x 30 or 60	1 x 20
Roll weight (kg)	14 or 23	28	17 or 34	26
Water vapour min. resistance (MNs/g)	260	530	1100	2000

The values given are indicative and correspond to typical results obtained in laboratories and testing institutes.

Additional System Components

- Visqueen Vapour Tape (75mm x 15m roll) – high performance tape for sealing laps of loose laid vapour control layers and junctions with metal, timber and plastic building elements
- Visqueen Vapour Edge Tape (150mm x 15m roll) – high performance tape for sealing vapour control layer masonry abutments
- Visqueen Preformed Top Hat Unit – preformed unit for sealing around service pipe penetrations
- Visqueen Tanking Primer (5L tin) – for preparation of surfaces prior to application of self adhesive vapour barrier. Coverage rate on concrete is 4-6m² per litre. Drying time is 4-8 hours depending on temperature and ventilation.

Technical Support

For advice on design, detailing or installation, contact Visqueen Specification Sales Office on tel: 0870 609 2084 or fax: 0870 850 8169.

Availability

Visqueen Vapour Control Layers are available through Builders Merchants and Distributors nationwide. For details of your local stockist contact Visqueen Sales Office on tel: 01685 846150.

January 2009

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