

VISQUEEN

COMPLETE GAS PROTECTION



MKM
BUILDING SUPPLIES

“My Kind of Merchant”

COMPLETE GAS PROTECTION

WITH THE INCREASE OF “BROWNFIELD” SITES BEING USED FOR HOUSING REQUIREMENTS AND MORE DWELLINGS RECOGNISED AS BEING AT RISK FROM GAS CONTAMINATION INCREASINGLY A GAS RESISTANT MEMBRANE SHOULD BE INCORPORATED INTO GROUND SLABS. THE BUILDING REGULATIONS (APPROVED DOCUMENT C) REQUIRES THAT PROPER PRECAUTIONS BE TAKEN TO PREVENT DANGER TO HEALTH AND SAFETY WHEN BUILDING ON CONTAMINATED LAND AND THOSE RESPONSIBLE FOR THE PLANNING AND IMPLEMENTATION OF CONSTRUCTION PROJECTS WHERE GAS CONTAMINATION MAY OCCUR HAVE A DUTY OF CARE TO PROTECT AGAINST HEALTH RISKS.

The term Brownfield Site refers to land that is or was occupied by a permanent structure, which has become vacant, underused or derelict and has the potential for redevelopment.

Since brownfield sites have been used for a broad range of industrial process many have varying degrees of contamination. A thorough investigation is always necessary to ascertain the nature of the contamination and decide how best to deal with it.

Visqueen Building Products have developed a range of gas protection systems which are suitable for any brownfield site.

Visqueen Building Products is the recognised leader in the development, production and supply of high performance construction membranes and for over 50 years, Visqueen has been developing high quality systems protecting against both gas and damp ingress.



RADON PROTECTION



WHAT IS RADON?

Radon is a colourless, odourless radioactive gas that can accumulate in buildings. It moves through fissures in the rock or the sub-soil and is finally released into the atmosphere or, if there are buildings, into any spaces beneath them.

When radon is in the atmosphere, its concentration is relatively low and therefore not dangerous, but if it is allowed to enter buildings and accumulate in enclosed spaces, its concentration can be raised to a point where it could present a cancer risk. Current estimates suggest radon is responsible for 2500 lung cancer deaths per year (about 5% of all lung cancers) making radon gas the second largest cause of lung cancer after smoking.

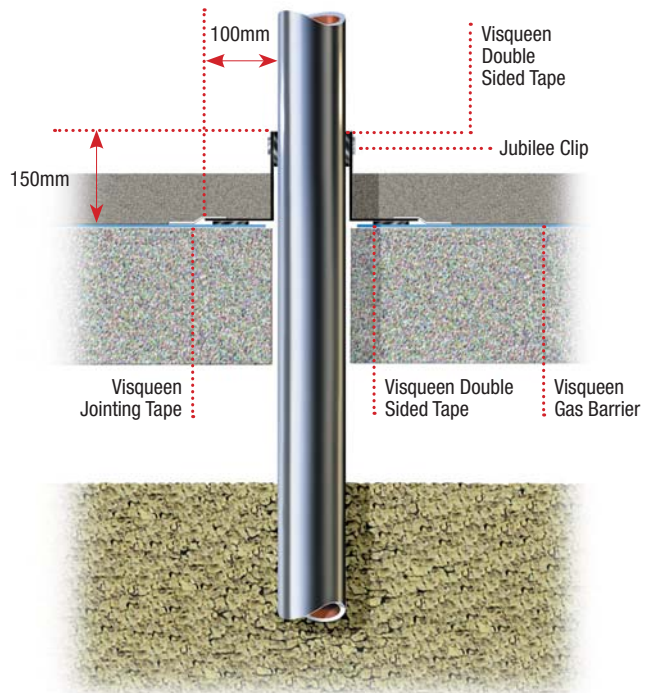
WHERE IS RADON FOUND?

The Health Protection Authority have produced a map of areas affected by Radon. In addition, BRE Report BR211 includes maps for determining the need for radon protection and the required degree i.e. 'basic' or 'full'. It is also worth requesting a detailed assessment of your particular area from the British Geological Survey (BGS).

VISQUEEN RADON MEMBRANE

Visqueen Radon Membrane is an un-reinforced polyethylene membrane suitable for protecting buildings from the entry of radon gas. Accredited to BRE Certification, Certificate Number 083/01, Visqueen Radon Membrane is the suitable choice for preventing the ingress of radon gas and also acts as a damp proof membrane.

To prevent the ingress of radon gas through joints, Visqueen recommends the use of Visqueen Double Sided and Single Sided Jointing Tapes, for pipe penetrations seal using Visqueen Top Hat Units and for areas where full protection is necessary, Visqueen Radon Sumps are recommended for sub-floor depressurisation.

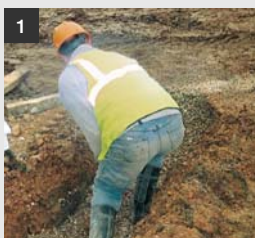


HOW TO INSTALL A RADON SUMP AND LAY THE RADON MEMBRANE

VISQUEEN BUILDING PRODUCTS HELPS BUILDERS GET TO GRIPS WITH THE INCREASING NEED FOR RADON PROTECTION. IN THE FIRST OF THREE 'HOW TO' ARTICLES, THIS SECTION WILL FOCUS UPON INSTALLING A RADON SUMP FOR FULL RADON PROTECTION AND JOINING THE RADON MEMBRANE TO ENSURE AIR TIGHT SEALS.

With the Approved Document C 2004 edition now in force a number of buildings' still need radon protection and the level of risk differs across the country. The main source of guidance on the risks and solutions is available in BRE Report BR 211 which includes maps to determine the level of risk for where your site is situated. The level of protection needed is purely dependant upon the site location. Your local Building Control Officer or local Approved Inspector should be able to give you guidance on what level of protection is needed. Basic radon protection means you only need to lay a ground floor radon membrane whereas full protection has an additional need for you to make provision for under floor depressurisation using a Visqueen Radon Sump.

HOW TO INSTALL A PROPRIETARY RADON SUMP AND EXHAUST PIPE AT THE EXTERNAL WALL



Excavate a pit for the sump, ensuring that, for maximum depressurisation, any fill used beneath the slab does not contain excessive fines.



Remove the blanking piece from the proprietary sump and connect a 110mm diameter PVC-U pipe to one outlet of the sump.



Extend the pipe horizontally so that it passes through the external wall. Ensure that all joints and couplings are airtight.



Backfill using a clean permeable material without excessive fines.



Terminate the pipe just above ground level, and cap it. It will then be ready for extension to form a vent if necessary.



Position the capped section of pipe so that it is about 100mm from the face of the external wall. This will allow space to accommodate a fan if necessary. Provide a plate on the wall to indicate the presence of the radon exhaust pipe.

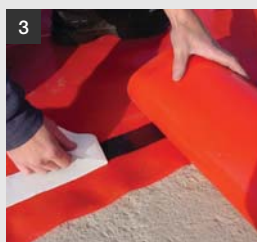
HOW TO LAP AND JOIN THE RADON MEMBRANE ABOVE A FLOOR SLAB



Remove loose debris from the surface of the floor slab and unroll the first sheet of Visqueen Radon Membrane. The surface of the slab should be smooth and free from projections or indentations – if very rough, apply a sand blinding.



Remove the protective paper from one side of the Visqueen Double Sided Jointing Tape and apply it to the first sheet, starting about 50mm from the edge. Ensure that all surfaces are dry for maximum adhesion.



Unroll the second sheet along the joint, overlapping the first by at least 150mm. Press firmly onto the double-sided tape, gradually removing the protective paper.



Seal the edge of the overlap with Visqueen Single Sided Jointing Tape.

HOW TO JOIN THE CAVITY TRAY TO THE MEMBRANE AND TURNING CORNERS

IN THE SECOND PART OF THIS HOW TO SERIES VISQUEEN BUILDING PRODUCTS HELPS BUILDERS TO ENSURE THAT THEY ACHIEVE A PERFECT SEAL BY JOINING THE CAVITY TRAY TO THE MEMBRANE AND USING PREFORMED UNITS AT THE CORNERS OF THE BUILDING.

It is well known that, even for damp-proofing, great care needs to be taken to ensure that cavity trays do not create a weak point, particularly at joints and at corners. Often for damp-proofing, you need only overlap the components, but, if you are in an area where you need to provide radon protection, there needs to be a perfect gas-tight seal over the entire ground floor, right to the outside of the external wall, including at cavity trays. It is because of the difficulties of achieving this seal at internal and external corners that many builders prefer to use pre-formed units.

In order to provide basic protection it is only a question of ensuring that an airtight barrier is provided over the entire ground floor of your building, maintaining continuity through the external walls with DPC or a cavity tray.

HOW TO JOIN THE CAVITY TRAY TO THE MEMBRANE AT THE FLOOR PERIMETER



1 Install the DPC/cavity tray, starting from the outside of the external wall, over the inner masonry leaf and finishing at least 200mm from the wall.



2 Just before the floor topping is applied (or floor slab is cast), clean any mortar droppings, or other debris from the DPC/cavity tray. Remove the protective paper from the Visqueen Double Sided Jointing Tape and apply the tape to the DPC/cavity tray, starting about 50mm from the edge.



3 Lay the radon membrane over the floor slab (or sub-floor blinding), overlapping the DPC/cavity tray by at least 150mm. Press firmly onto the Visqueen Double Sided Jointing Tape, gradually removing the protective film.



4 Seal the edge of the overlap with Visqueen Single Sided Jointing Tape.

HOW TO LINK PRE-FORMED COMPONENTS TO FORM A SEAL AT CORNERS



1 Build the masonry up to the height of the horizontal joint where the cavity tray is to be built in. Place the Pre-Formed upstand unit tight into the corner of the masonry wall.



2 Remove the protective paper from the back of the Visqueen Double Sided Jointing Tape and apply it to the upstand unit at a height that will ensure a good overlap when the downstand unit is in place. Remove the protective paper from the face of the tape.



3 Place the Pre-Formed downstand unit tight into the corner with the horizontal element sitting on the masonry wall. Press the vertical leg of the downstand unit firmly against the upstand unit, starting at the internal corner and working outwards.



4 Apply two lengths of double-sided tape vertically across both upstand and downstand units, one on each return wall, ready to receive the lengths of cavity tray. When the cavity trays are sealed to the upstand units, join them to the floor membrane.

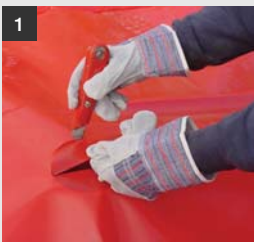
HOW TO MAKE A GAS TIGHT SEAL

IN THE THIRD PART OF THIS HOW TO SERIES VISQUEEN BUILDING PRODUCTS HELPS BUILDERS GET TO GRIPS WITH THE INCREASING NEED FOR RADON PROTECTION AND ENSURING THAT THERE IS AN AIRTIGHT SEAL.

As indicated in the first part of this series it is absolutely essential for “basic” radon protection to ensure that there is a perfect seal across the whole of the ground floor area. This means that there should be no weak point where pipes pass through the slab from the sub-floor into the occupied space. If there is, then you will have left a path through which radon gas can enter the building.

In this third article, we show you how to ensure that there is an airtight seal whenever pipes pass through the radon membrane.

HOW TO MAKE A GAS TIGHT SEAL WHEN A PIPE PASSES THROUGH THE MEMBRANE



1 Cut a circular hole in the radon membrane as close as possible to the pipe, or pipe socket. Ensure that pipe penetrations do not occur at joints in the membrane.



2 With the pipe in position, slide the Visqueen Pre-Formed Top Hat Unit over the pipe (various diameters are available – 110mm being the most common).



3 Mark the extent of the square horizontal skirt over the radon membrane and also mark the line of the top of the top hat unit around the pipe.



4 Raise the top hat unit and cut four lengths of Visqueen DPM Double Sided Jointing Tape, one for each side of the horizontal skirt, allowing for an overlap at each corner. Cut one length to go round the pipe.



5 Start to remove the protective paper from the double-sided tape around the pipe and raise it up at an angle so that it will project above the top hat unit when it is stuck to the membrane.



6 Release the protective paper from each of the four lengths of double-sided tape. Lower the top hat unit, ensuring that the free end of the protective paper around the pipe is reachable, and seal the horizontal skirt to the radon membrane.



7 Gradually remove the remainder of the protective film from the double sided tape round the pipe.



8 Seal the junction of the horizontal skirt and the membrane with Visqueen DPM Jointing Tape and secure the top hat unit to the pipe with a jubilee clip.

THE COMPLETE GAS PROTECTION SYSTEM



RADON GAS ISN'T THE ONLY GAS WHICH IS HARMFUL TO HEALTH WHEN BUILDING ON BROWNFIELD SITES, METHANE, CARBON DIOXIDE AND HYDROCARBONS ARE ALSO CONTRIBUTORS TO HEALTH RISKS.

A number of political and economic factors have led to the need for commercial and residential developments to be located on sites with the potential for gas contamination.

WHAT IS METHANE?

Methane is an odourless and flammable gas that is explosive when released to atmosphere levels as low as 5% and exposed to a source of ignition. Methane is formed wherever there is below ground degradation of organic substances, e.g. landfill sites, sewage treatment areas, mining localities and peat bogs.

WHAT IS CARBON DIOXIDE?

Carbon Dioxide (CO₂) is a colourless gas that in high concentrations can result in asphyxiation and is formed by the oxidation of carbon compounds such as in landfill sites.

WHAT ARE HYDROCARBONS?

Hydrocarbons are a chemical compound containing hydrogen and carbon and occur naturally in petrol, natural gas, coal and wood.

WHAT PROTECTION IS AVAILABLE?

Visqueen Building Products is able to offer a solution for the prevention of all these gases and provide a damp proof membrane.

VISQUEEN CO₂ MEMBRANE

Visqueen CO₂ Gas Membrane offers a safe solution for the protection of buildings against carbon dioxide when installed in accordance with BRE Report 414 'Construction of buildings on gas contaminated land'.

Visqueen CO₂ Gas Membrane is a robust Co-Polymer Thermoplastic membrane which is both flexible and easy to install and is suitable for use as a damp proof membrane.



For complete protection against CO₂, Visqueen recommends using Visqueen Double Sided and Single Sided Jointing Tapes for sealing all laps and joins.

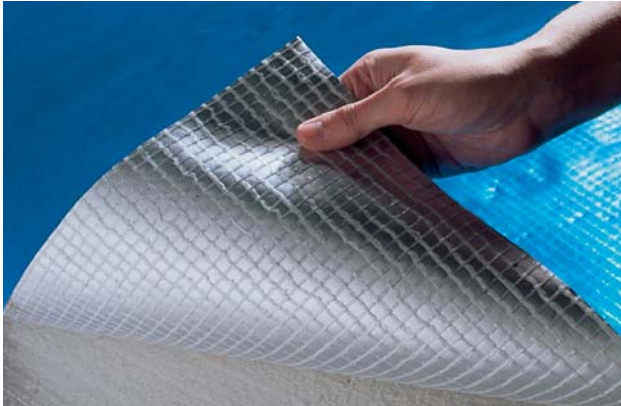


THE COMPLETE GAS PROTECTION SYSTEM

VISQUEEN GAS BARRIER

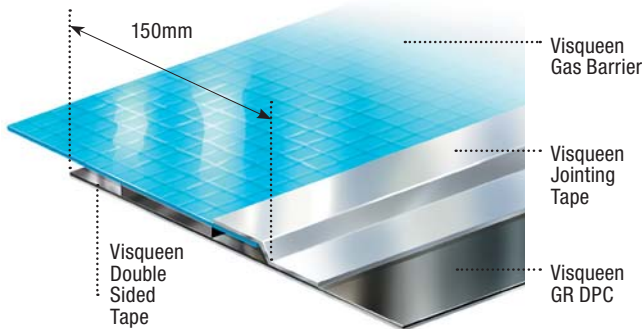
For the ultimate in gas protection, Visqueen can offer a complete membrane protecting from methane, radon and CO2.

The Visqueen Gas Barrier is a five layer, precision co-extruded single sheet film providing a one piece barrier which incorporates layers of polyethylene sandwiching aluminium foil.



The Visqueen Gas Barrier is a flexible and strong membrane which is also suitable for use as a damp proof membrane.

To ensure maximum protection Visqueen Gas Barrier should be used in conjunction with the Visqueen Gas Barrier Jointing System which includes the Visqueen Double Sided Jointing Tape and the Visqueen Foil Backed Girth Jointing Tape.



VISQUEEN GX GEOMEMBRANE

Visqueen GX Geomembrane is a high quality single layer HDPE membrane for use on brownfield sites that require protection from dangerous hydrocarbons such as Petrol, Diesel, Toluene and Xylene.

As with all gas protection systems from Visqueen Building Products, the Visqueen GX Geomembrane is an effective damp proof membrane.

To ensure maximum protection, Visqueen GX Geomembrane should be used in conjunction with the Visqueen GX Jointing System and Visqueen GX DPC.



FOR THE COMPLETE RANGE

For the complete range of damp proof membranes and damp proof courses available from Visqueen Building Products, complete technical support and literature please visit visqueenbuilding.co.uk.



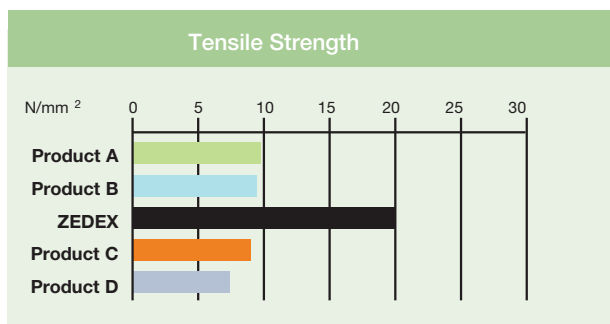
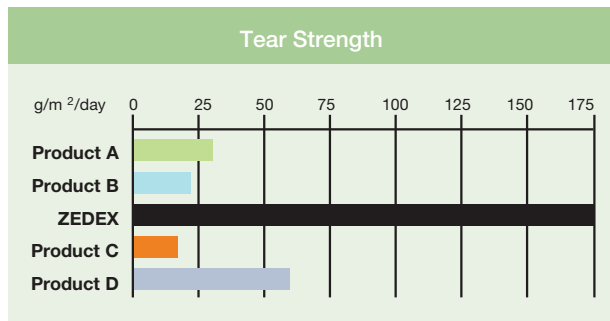
SELECTION OF HIGH PERFORMANCE DPCS

A BREAKTHROUGH IN HIGH PERFORMANCE DAMP PROOFING

- Zedex CPT High Performance DPC out performs all other high performance flexible DPCs.
- Contains no pitch, bitumen or PVC.
- Made of modern Co-Polymer Thermoplastic (CPT), it is safe, clean to handle and inert.
- Retains it's properties providing long term stability - contains no volatiles to leach out.
- Zedex is compatible with complete Visqueen range of damp proofing & gas protection products.

New generation Visqueen Zedex CPT High Performance DPC out performs all other high performance flexible DPCs. It is the new generation of damp proof course, designed to provide a new higher level of security and durability. Made from Co-Polymer Thermoplastic CPT using the latest polymer technology, it possesses the characteristics we believe are necessary in a DPC for it to perform effectively under harsh conditions. It has also been accredited by the British Board of Agrément (94/3059).

As a result of extensive research, development and a rigorous independent testing programme, Visqueen Zedex CPT High Performance DPC has made a number of significant advances.



STRENGTH

Not only does Visqueen Zedex CPT High Performance DPC have almost twice the tensile strength of other pitch polymer damp proof courses, it is also able to withstand twice the amount of stretching. In fact Visqueen Zedex CPT High Performance DPC can be stretched by over 500% from its original dimension - a level of resilience which for example, allows Zedex to accommodate cracking in walls yet maintain the integrity of the waterproof seal.

EASE OF INSTALLATION

Visqueen Zedex CPT High Performance DPC has been specifically designed for ease of use on site and to reduce the risk of poor workmanship, which is generally recognised as one of the most common causes of failure in waterproofing systems.

Visqueen Zedex CPT High Performance DPC is easy to join. It is also easy to trim, with its higher resistance to tear and lack of fibres allowing for clean and accurate detailing. Visqueen Zedex CPT High Performance DPC has excellent adhesion to mortar due to a unique surface finish. This assists with the correct positioning of the DPC during building work.

SAFE AND CLEAN TO HANDLE

The materials used in Visqueen Zedex CPT High Performance DPC are chemically stable and inert, free of both solvents and aggressive chemicals. Visqueen Zedex CPT High Performance DPC is also clean and safe to use, requiring no special conditions for storage, transport, handling, usage or recycling.

COMPATIBILITY

Visqueen Zedex CPT High Performance DPC avoids the risks of any incompatibility between coal based pitch and oil based bitumen waterproofing materials. It can be used with bituminous liquid DPMs and mastics. Such compatibility is essential in securing a continuous waterproof barrier in a building.

WALL STRENGTH INTEGRITY

Visqueen Building Products commissioned Ceram Building Technology to test Visqueen Zedex CPT High Performance DPC under BSI's DD86 Part 1 1983 for flexural bond strength and shear strength. These independent tests show that Visqueen Zedex CPT High Performance DPC has excellent mortar adhesion characteristics. With DPCs being used extensively outside the original ground level applications, understanding the effect of a damp proof course on wall strength becomes increasingly important.

ROBUSTNESS

High tear and puncture resistance characteristics help avoid the failures caused by damage during installation, such as clearing mortar droppings out of the cavity, general manhandling on site and during transport. Independent testing shows the tear strength of Visqueen Zedex CPT High Performance DPC to be many times that of pitch polymer DPCs.



HOW TO INSTALL HIGH PERFORMANCE DPCS

THE COMPLETE SYSTEM APPLICATIONS

Visqueen Zedex CPT High Performance DPC is suitable for use as a DPC in all types of building construction and can be used in vertical, horizontal, stepped and cavity tray applications. Visqueen Zedex CPT High Performance DPC provides an effective barrier against the passage of moisture and forms an effective waterproof seal.

- Visqueen Zedex CPT High Performance DPC must extend through the full thickness of the wall, including pointing, applied rendering or other facing materials.
- Visqueen Zedex CPT High Performance DPC must be laid on a wet, even bed of mortar, and perforations in adjacent courses of brickwork must be completely filled with mortar.
- Visqueen Zedex CPT High Performance DPC must not be damaged by cavity cleaning after installation.

Further information is available from BBA Certificate (94/3059), available from our web site visqueenbuilding.co.uk

JOINTING

All joints in lengths of DPC must be a minimum of 100mm, lapped and bonded using Visqueen Zedex Jointing Tape. All joints between lengths of cavity tray and joints between linear cavity trays and Pre-Formed cavity tray units must be a minimum of 100mm, lapped and bonded using Visqueen Zedex DPC Joint Support.

SURFACE FIXING

Visqueen Zedex DPC Fixing Strip should be used when the construction programme or the design require the DPC to be post or surface fixed to the cavity face of the inner leaf. The surface should first be primed, the DPC then bonded to the inner leaf using Visqueen Zedex Jointing Tape and finally permanently secured using Visqueen Zedex Fixing Strip and Pins at 150mm intervals.

PRE-FORMED CAVITY TRAY UNITS

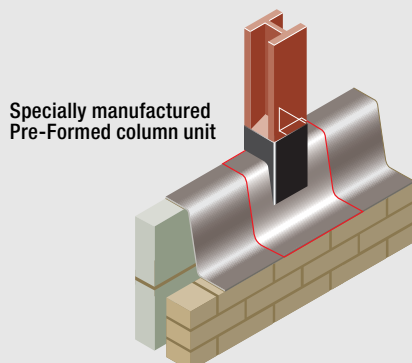
- Made of new advanced CPT damp proofing material.
- Use of Visqueen Pre-Formed Cavity Tray Units reduces the time required for installation of DPC at complex corners.
- Standard sizes available for domestic cavity widths.
- Built in and Surface Fixed Designs.
- Special Shapes designed and supplied.

DESCRIPTION

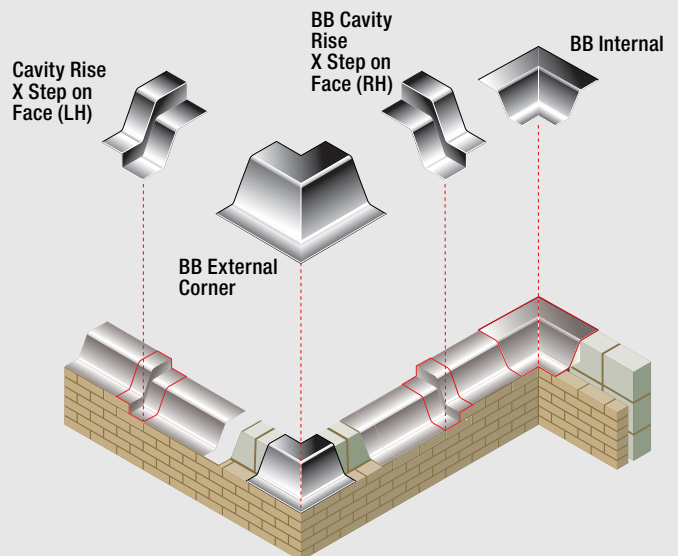
An integral part of the Visqueen Zedex High Performance Damp Proofing System, the Zedex range of Visqueen Pre-Formed Cavity Tray Units simplify detailing at corners, stop ends and change of levels. They reduce the time required on site to install a DPC in these complex applications. Visqueen Zedex Pre-Formed Cavity Tray Units are manufactured in tough Co-Polymer Thermoplastic material. This material is flexible enough to accommodate normal building tolerances.

Visqueen Zedex Pre-Formed Cavity Tray Units are available in brick to block or surface fixed designs.

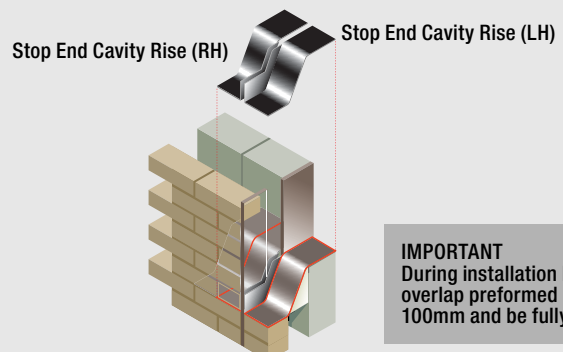
COLUMN IN CAVITY



BRICK TO BRICK APPLICATIONS



EXPANSION JOINT



IMPORTANT
During installation DPC must overlap preformed unit by 100mm and be fully sealed.

HOW TO INSTALL HIGH PERFORMANCE DPCS

CPT HIGH PERFORMANCE DPC JOINTING SYSTEM

- A comprehensive system for ensuring integrity of Visqueen Zedex CPT High Performance DPC laps and joins.
- Visqueen Zedex DPC Jointing Tape for sealing laps.
- Visqueen Zedex DPC Fixing Strip for applications where DPC cannot be built into the inner leaf.
- Visqueen Zedex Joint Support Units to provide support when sealing joins in cavity trays.

DESCRIPTION

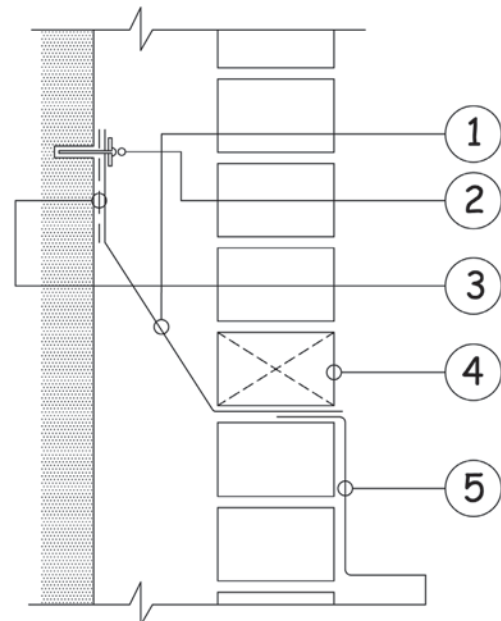
Visqueen Zedex Jointing Tape is a double sided butyl based jointing tape suitable for use in the lapping and sealing of Visqueen Zedex DPC as well as in the surface fixing applications.

APPLICATION

Visqueen Zedex DPC Fixing Strip is a 2m linear strip with pre-drilled holes and should be used when the construction programme or the design require the DPC to be surface fixed to the cavity face of the inner leaf. Fixing pins are available for masonry, concrete and insulation substrates.

INSTALLATION

All joins in lengths between DPC and Visqueen Pre-Formed Cavity Tray Units must be a minimum of 100mm lapped and bonded using Visqueen Zedex Jointing Tape. The surface should first be primed, using Visqueen Primer the DPC then bonded to the inner leaf using Visqueen Zedex DPC Jointing Tape and finally permanently secured using the fixing strip, mechanically fixed to the inner leaf at 150mm centres.



Key:

- 1) Zedex High Performance DPC (Preformed cloaks to suit).
- 2) Plastic Fixing Strip (25x3mm, pre-drilled), plugged & screwed at 150mm centres.
- 3) Zedex Double-Sided Jointing Tape on primed, flush inner skin.
- 4) Weepholes at 900mm centres (Min. 2no. per opening).
- 5) Flashing to Architect's detail.

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GETTING TO KNOW MKM

WHO ARE MKM?

- The UK's 8th largest and fastest growing **Builders' Merchant** with an expanding branch network
- Employing a **local 'hand picked' team** of experts

WHAT SERVICES CAN WE PROVIDE?

- A fast, friendly, **reliable and efficient** counter and telephone service
- Our team are **knowledgeable** and here to help you get exactly what you need

OUR PRODUCTS

- A **one-stop-shop** for all building, plumbing, timber and landscape materials

HOW DO I START TRADING?

- Call into the branch, **meet our team** and activate an account

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