DELTA MEMBRANE SYSTEMS LTD

DAMP PROOFING

Date: October 2020

DELTA MEMBRANES

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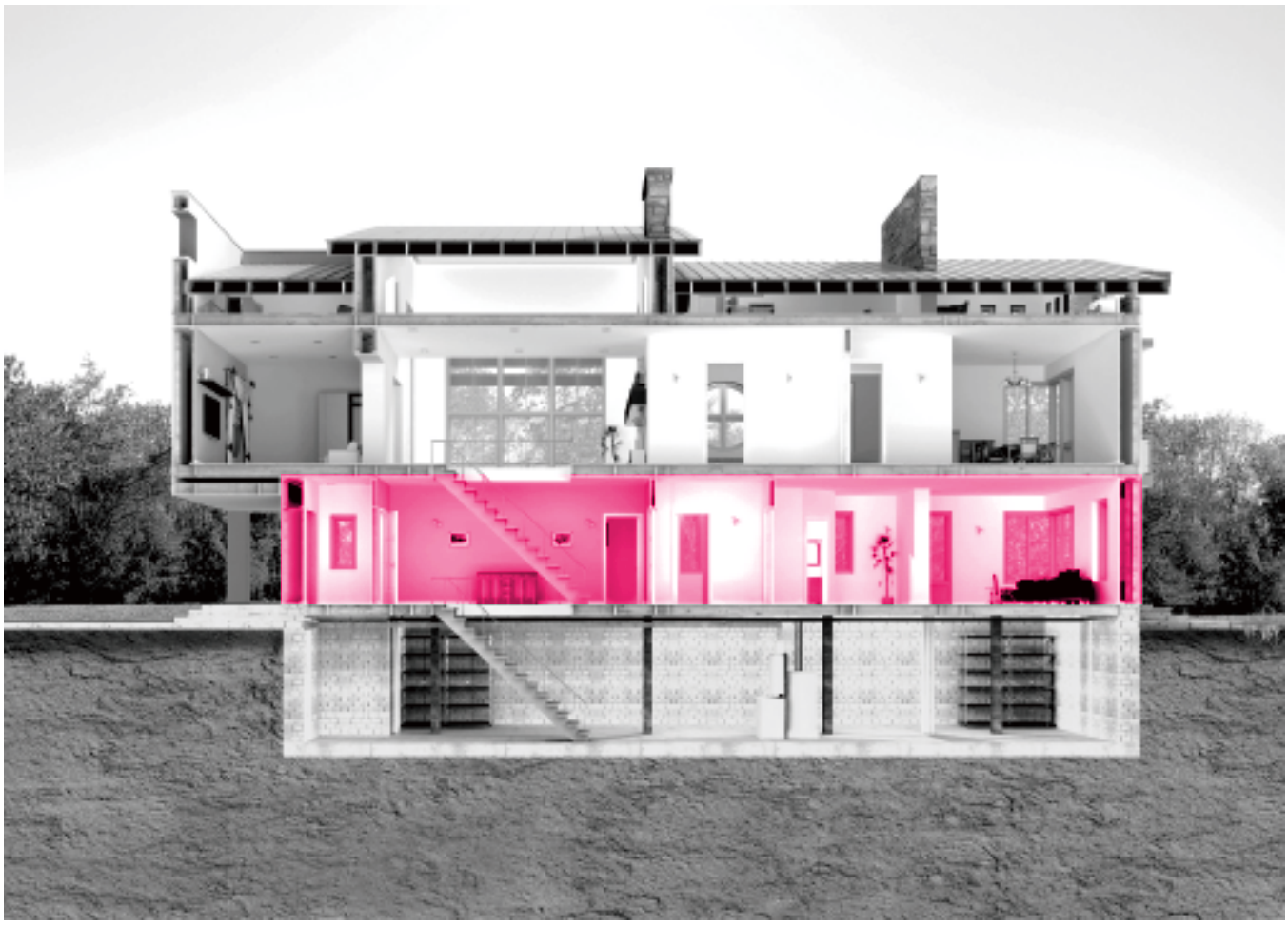
DELTA MEMBRANE SYSTEMS

Delta Membrane Systems Limited is the leading Type C Cavity Drain Membrane manufacturer in the United Kingdom. Our extensive range of waterproofing and damp proofing products are suitable for basement drainage and structural waterproofing (both for new build and existing structures) and in flood resilience. Installing a Delta Membrane System offers complete protection to structures from ground water ingress and contaminates. Our products comply with British Standard 8102:2009, BS 6576:2005+A1:2020 and are BBA Certified. Our dedicated technical team offer knowledge and experience in waterproofing and damp proofing design solutions, provide on-site assistance and advice throughout a project.

- Type C Drainage Protection in accordance with BS 8102:2009
- Damp Proof Remedy in accordance with BS 6576:2005+A1:2012
- BBA Approved
- Suitable for new, existing and retrofit Damp proofing projects
- Suitable for new, existing and retrofit structures below ground
- Ability to easily deal with aggressive ground water conditions
- "Grade 3" performance level (no dampness or water penetration acceptable)
- "Air Gap" Technology
- A reversible system, which will not create damage to historical or heritage structures
- Flexibility to cope in structures where movement or vibration issues can be problematic
- Virgin high density polyethylene studded/moulded sheet (HDPE)
- Easily applied to a variety of different substrates
- An effective barrier to the transmission of salts, liquid water and water vapour
- Suitable for Flood Resilience

BBA APPROVAL INSPECTION TESTING CERTIFICATION
CERTIFICATE 00/3742

CE



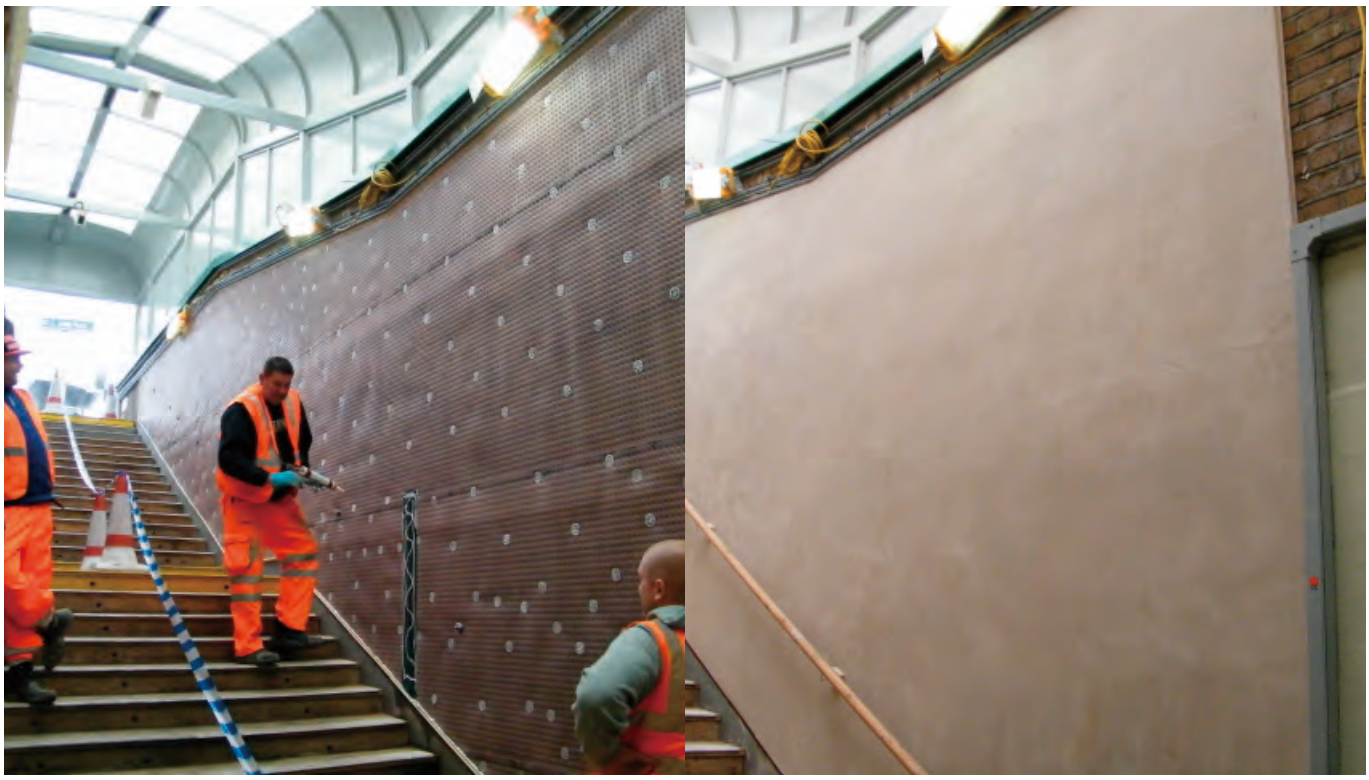
A DELTA SOLUTION

BS 6576:2005+A1:2012 (Code of Practice for the Diagnosis of Rising Damp in Walls of Buildings and Installation of Chemical Damp-proof courses) emphasizes the need to differentiate between rising damp and the other causes of damp conditions. Delta Membrane Systems Limited has a dedicated team of Waterproofing Design Specialists.

Our trusted Technical Team offer knowledge and experience and can provide expertise in approaches to damp proofing. As a Waterproofing Specialist Manufacturer, we work with architects, surveyors, contractors, and engineers alike to provide a design service which complies with BS 6576:2005+A1:2012 and offers the highest level of technical expertise and assurance.

DAMP PROOFING SOLUTIONS FOR:

- Residential Buildings
- Commercial Buildings
- Retail Units and Warehouses
- Leisure Facilities
- Archives/Libraries/Vaults
- Hospitals
- Schools
- Underground Rail Stations and Tunnelling
- Underground Car Parking areas
- Listed Buildings
- Heritage Buildings



SERVICES

SERVICES

Delta Membrane Systems Limited provides a full range of waterproofing and damp proofing solutions suitable for all new, retrofit, refurbishment, and heritage projects. With over 127 years of manufacturing experience Delta is an impeccable partner on every project. Our skills have been mastered through experience in the waterproofing industry. Delta's trusted Technical Team will help from concept to completion. Our hands-on approach and knowledge are what sets us apart.

DESIGN SUPPORT

- Architecture knowledge
- Concept and waterproofing solutions
- Advice on design and best practice
- Custom solutions, as each project is unique in requirements
- Qualified CSSW staff (named on the Waterproofing Design Register)

SPECIFICATION SUPPORT

- Detailed drawings including CAD
- Watertight and locking down structure concepts
- Specifications
- BIM
- NBS Plus
- RIBA Product Selector

SITE SUPPORT

- Training and guidance offered at every step
- Technical Team attendance at site meetings
- Knowledge and experience
- Troubleshooting solutions

DAMP PROOFING

Types of Damp

Structural waterproofing protects the structural integrity of a building, likewise damp proofing will also protect a structure. Dampness can be harmful to the integrity of a building. If not treated, water ingress can cause cracks in masonry along with extensive damage to bricks and mortar. Damp also changes the atmosphere of a structure. If a damp problem is not remedied, it may lead to more serious complications. Different types of dampness will require different treatments.

RISING DAMP

Rising damp is a form of dampness that occurs when ground water rises-up through walls, floors and masonry via a capillary action (sometimes capillarity, capillary motion, capillary effect, or wicking) drawing moisture up though porous elements of a building's fabric. When water rises within the wall it will allow ground salts which are in solution to rise up the wall through capillary action, these salts are typically nitrate and chloride salts which are hygroscopic and actually attract moisture from the air. Ammonium Sulphates are often found in chimneys because of the burning of fossil fuels, these salts are also hygroscopic and classically why damp patches are often exhibited on chimney breasts.

Rising damp is different to condensation, although has the same appearance.

The best example to explain how rising damp occurs is to imagine a sponge being dipped into water. The sponge sucks the water in. House bricks placed onto damp ground behave in an identical way, sucking up water from the wet ground. House bricks tend to suck water up, hence the name "rising damp". Bricks and masonry will continue to suck water up to around 1.2 metres (when gravity intervenes). The damp levels will continue to build up in these affected areas.

Much like the black mould found in condensation afflicted areas, the wet areas involved in rising damp also attracts mould spores, often the first sign that you have a rising damp problem. You may also notice damage to the outside of your home, rising damp offers a tell-tale tide mark on exterior bricks.

PENETRATING DAMP

Penetrating damp is moisture which penetrates laterally through the fabric of a building from the outside (typically because of leaking roofs, pipework, blocked or damaged guttering and cracks in walls).

Penetrating damp is particularly common in older buildings and south-west facing walls.

Ground floor level walls can suffer from penetrating damp (a similar condition to rising damp). Common in cement rendered homes or those where a cavity wall has been filled. Penetrating damp is the result of trapped damp, or an increase in water vapour which overwhelms the few escape routes.

Dampness can be measured with electrical resistance meters or carbide meters, either on the surface or within the building fabric itself. A Calcium Carbide meter can be a fully accurate diagnostic tool especially when profiling is carried out, whilst salts analysis tests determine salt content of the fabric of the building also assisting in the diagnosis of rising damp.

Damp can be caused by problems within a home such as:

- Blocked or leaking gutters meaning rainwater enters a property
- Broken pipes
- Leaking pipes
- Issue with damp course.

DAMP PROOFING

ATMOSPHERIC MOISTURE IMBALANCE

Condensation and rising damp share similar characteristics which is one of the main reasons the two are often confused.

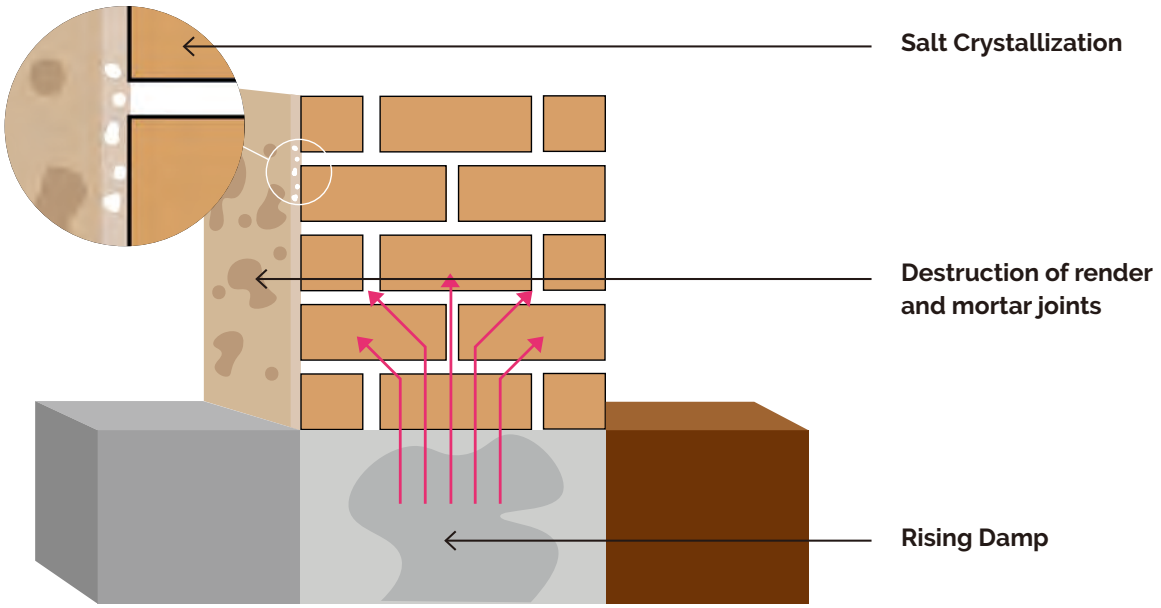
Condensation is formed from airborne moisture (atmospheric water) turning from water vapour to liquid. Naturally occurring there is always moisture in air. When air cools/expands it is unable to hold moisture (water is heavier than air) meaning tiny droplets of water are formed. Condensation within the home is caused by changing temperatures. Water vapour constantly floats around your home and is innocuous. It is only when it meets something cold that it starts to become more troublesome.

When water vapour hits something cold, like a window or a poorly insulated surface, the water vapour drops in temperature and loses strength. It can no longer hold onto its water content and drops onto the colder surface. This recognisable deposit of water is what you see when you notice condensation. You can expect to see condensation on any surface where the cold air of the outside world meets the warmth of your home. Windows and poorly insulated walls are the usual locations to expect condensation.

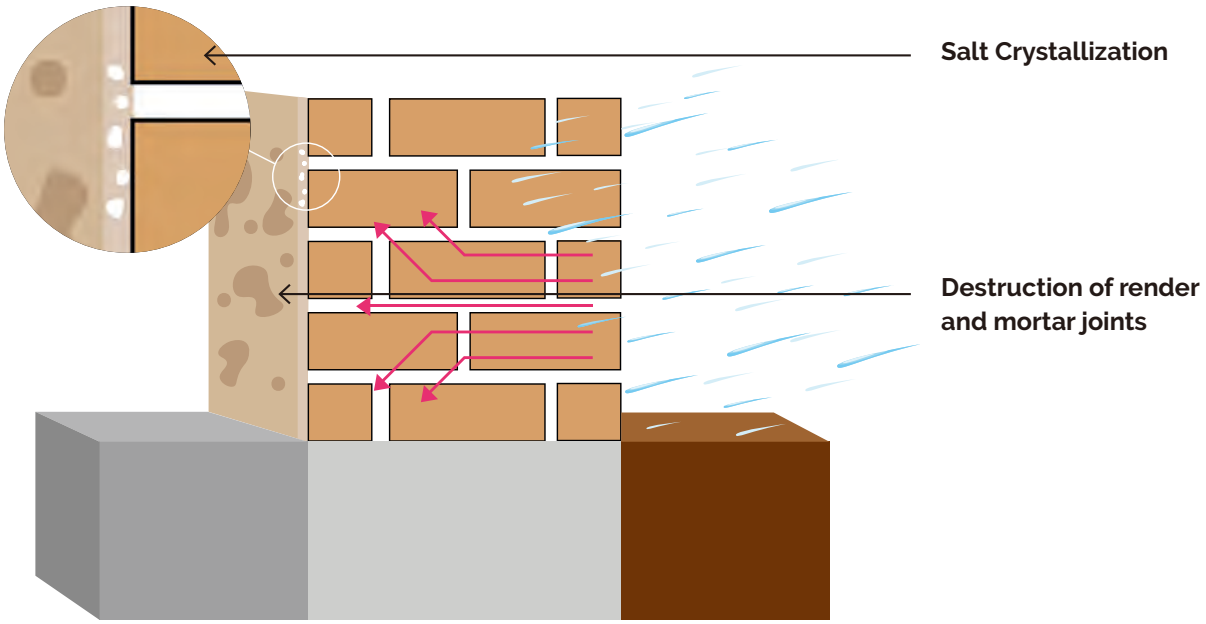
Condensation can lead to black mould, a naturally occurring fungus.

DAMP PROOFING

Rising Damp



Penetrating Damp



DAMP PROOFING

What is a damp proof membrane?

Damp proof membranes are made from High Density Polyethylene (HDPE) which is impervious to moisture and salts. Damp proof membranes are fixed to internal walls after the source of damp has been resolved.

Using damp proof membranes is a great way to damp proof walls. They are easy to install and are extremely flexible. The flexibility of damp proof membranes means that they can cope with structural movement, which ensures your damp proofing lasts for decades.

What are DPC Solutions?

A Damp-proof course (DPC) is the name given to a protective layer which sits between a structure and the external ground. The name applies to the application and the role that the damp proof course plays rather than the specific material used. Having a quality damp proof course (DPC) is essential for maintaining a healthy and structurally sound property. A chemical DPC solution combats rising damp problems at ground level and above. A concentrated, solvent free synthetic resin that works against capillary rising moisture in walls, independent of moisture content and salt contamination.

A chemical DPC solution penetrates deeply into the smallest of capillaries and pores in building materials. Due to its exceptionally low density and a surface tension lower than that of water, a chemical DPC displaces the water in the capillaries. The curing of the injected product is independent of the drying of the masonry. Chemical DPC's are flexible and will not decay or decompose.

What is liquid applied Epoxy?

Water Based Epoxy Resin is suitable for all applications where concrete or masonry requires waterproofing, damp proofing and protection. It is applied in the same manner as ordinary emulsion paint with the added benefit of application in damp conditions. Once dried Water Based Epoxy leaves a tough, non-toxic, waterproof, easy to clean surface.

Water based epoxy resin will coat over most other finishes, but best results are achieved when surfaces are free and clean of other coatings. Any greasy film should be removed prior to application to ensure a sound key. Voids, holes and gaps must be carefully filled.
What are Restoration Plasters? When masonry is just slightly moist, often a restoration plaster is enough to dry the wall and to stop damage from reoccurring. Restoration Plaster allows masonry to dry without further damage.

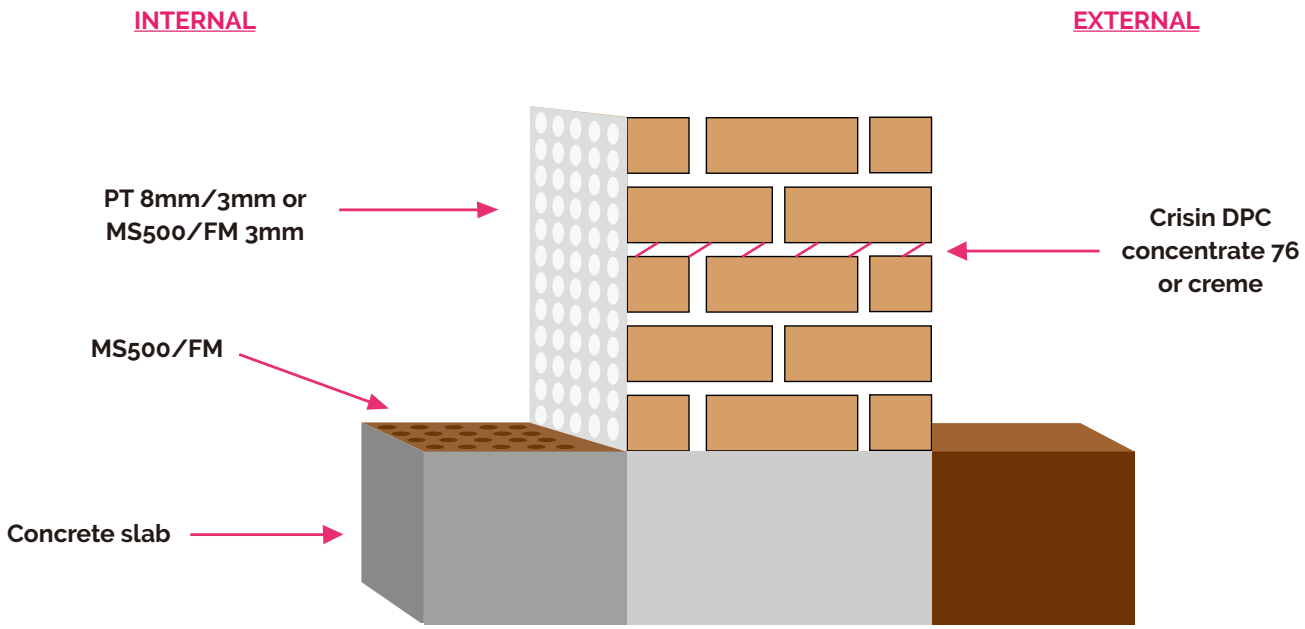
Restoration plasters are specially designed for the restoration of masonry with high salt and moisture contents. Restoration plasters are not affected by high salt contents and prevent those salts from diffusing to the surface of a wall. Restoration plasters also assist in dry out walls affected by damp whilst absorbing any remaining salts. Restoration plasters can withstand moist conditions since they do not contain lime or gypsum. They are open to water vapour diffusion and help to create a healthy and comfortable room climate.

Ventilation / Humidity Control:

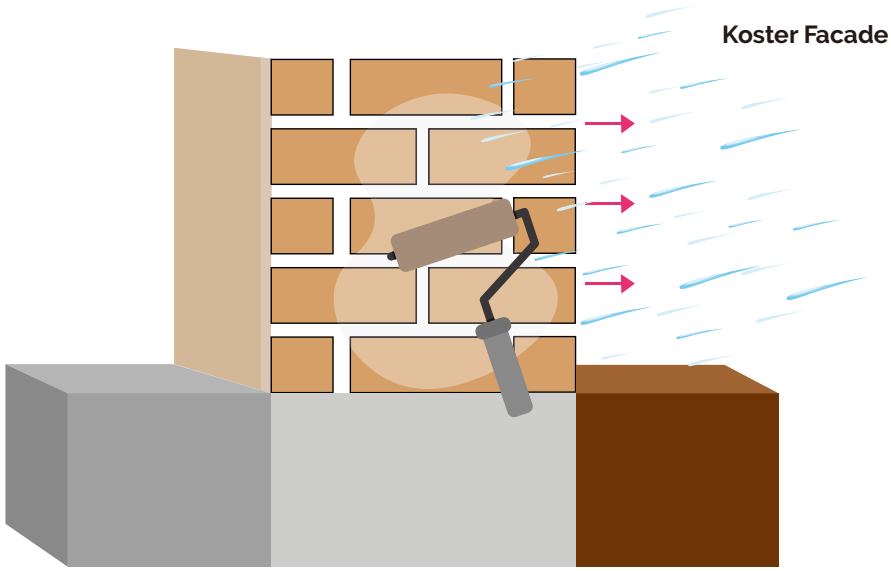
To address issues of condensation environmental control of the internal moisture within a building is essential, the use of air vents, air bricks, and passive ventilation along with other mechanical humidity control measures should be considered as part of a designed solution for addressing condensation issues.

DAMP PROOFING

Damp Proof Membrane

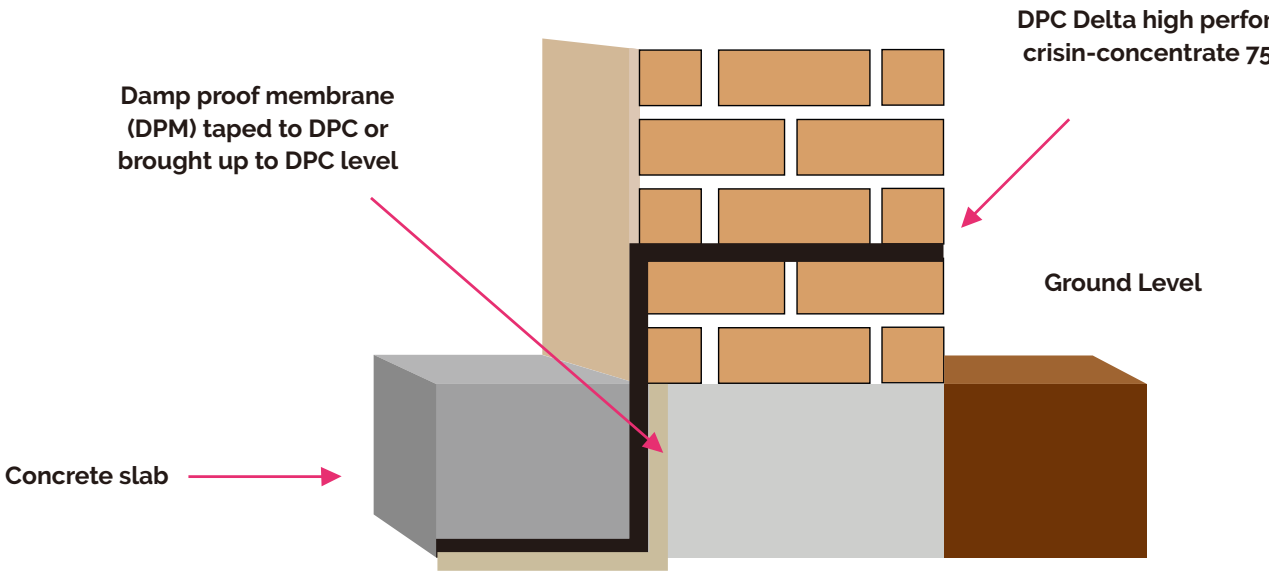


Masonary Protection Cream



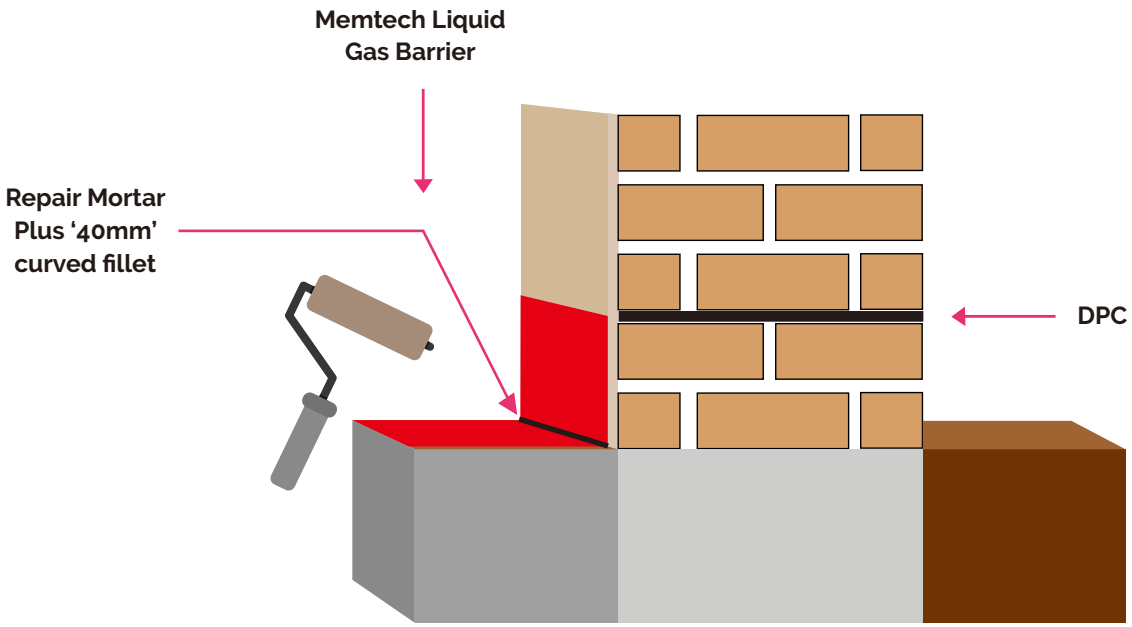
DAMP PROOFING

DPC



*DPC installed 150mm fom external ground level

Radon Protection Membrane/DPC (for gas contaminated sites)



STANDARDS

BRITISH STANDARDS

Established in 1901 the BSI Group (formerly the Engineering Standards Committee), sought to standardise the types of steel manufactured in Great Britain to assist with competitiveness and efficiency. Over decades these standards have been developed to cover numerous aspects of the engineering/ building sector including engineering methodologies, quality, safety, systems and security.

DAMP PROOFING STANDARDS

Damp Proofing Standards Standards are incredibly important within the Damp proofing scope, from investigation to diagnosis to control of dampness in structures.

- BS 6576:2005+A1:2012 'Code of Practice for Diagnosis of Rising Damp in Walls of Buildings and Installation of Chemical Damp-Proof Courses'.
- BS 5250:2011+A1:2016 'Code of Practice for Control of Condensation in Buildings'
- BS 8104:1992 'Code of Practice for Assessing Exposure of Walls to Wind-Driven Rain'
- BS 8215:1991 'Code of Practice for Design and Installation of Damp-Proof Courses in Masonry Construction'

BS 6576:2005+A1:2012 covers (but is not limited to):

- Building Assessments
- Inspection Procedures
- How to diagnose and treat rising damp
- Pre-installation measures
- How to install a damp-proof course
- The need to differentiate between rising damp and other causes of damp conditions
- Gives recommendations for the chemical treatment of rising damp in existing buildings with
- solid walls, cavity walls (unfilled or filled) and random rubble-filled walls
- Essential precautions and procedures for installing chemical damp-proof courses are also indicated
- Finishes

Knowing how to recognise type of damp as well as treat damp is essential when specifying a remedial approach. Damp can damage much more than a structures appearance. If untreated, damp may lead to the deterioration of masonry, plaster and promote timber decay whilst creating unhealthy conditions for occupants.

Delta Membrane Systems specialise in structural waterproofing from basement drainage to waterproofing systems and damp proofing. Our trusted and experienced CSSW surveyors offer a complete technical service. Even if your project has already commenced and you are seeking assistance, we are able to help. We have a passion for providing and sharing knowledge along with our superior quality products. We have a network of specialist installers who can offer long term guarantees and Insurance.

DESIGN PHILOSOPHY

Approaches to damp proofing design are comparable to waterproofing design. Considerations of a holistic approach that encompasses:

- The building/structure
- The Defects
- Materials within the structure
- Does the structure have historical/architectural significance?
- Building Regulations
- Listing requirements if historical
- Future maintenance requirements
- Occupants requirements

Moisture in structures can come from a variety of sources and can often be extraordinarily complex. Evidence of moisture such as penetrating damp, rising damp and condensation can look remarkably similar, but all will require a different damp proofing technique to resolve the issue. Our Design and Build Philosophy is quality driven, working with architects and trades alike, putting at the forefront construction considerations to ensure buildability, functionality, and maintainability. The result of this single approach is a consistent, complete, and quality design that is hard to equal.

Choices of materials

There are several choices of materials available to treat dampness:

- Damp proof membranes
- DPC solutions
- Liquid applied Epoxy
- Restoration Plasters
- Ventilation / Humidity control

HERITAGE STRUCTURES

Heritage Structures/Listed Buildings

When designing a damp proofing solution in a historic building or structure of architectural interest, additional attention needs administering during the design stage to maintain the aesthetic and structural integrity of the structure/building. The design should offer a sympathetic approach.

Determining how the building envelope operates gives a clear picture on the best method for remedial solution. How the exterior and interior interact with environments and these functional purposes must be understood to not endanger the operation of the envelope.

Every building and structure's envelope is unique.

The Delta system has been specified in many listed buildings and structures throughout the United Kingdom due to its sympathetic value. The Delta Membrane System offers an 'air gap' technology which is favoured by English Heritage, The Society for Protection of Ancient Buildings (SPAB) and local authority conservation officers.

The Delta Membrane System itself does not need any aggressive preparation therefore it will not create damage to historical or heritage structures. The Delta Membrane System is a reversible system, which can easily be removed at any time, retaining the structure underneath intact.

A Delta System is not a replacement for lime render. The Delta Membrane System is a compromise, for when lime renders are inadequate in given situations, for example on below ground structures, on structures that have heavy salt contamination and on structures that cannot be effectively repaired and water/damp-proofed sympathetically and adequately from the outside (for example where there are architectural features that cannot be altered).

BARN CONVERSIONS

Barn Conversions

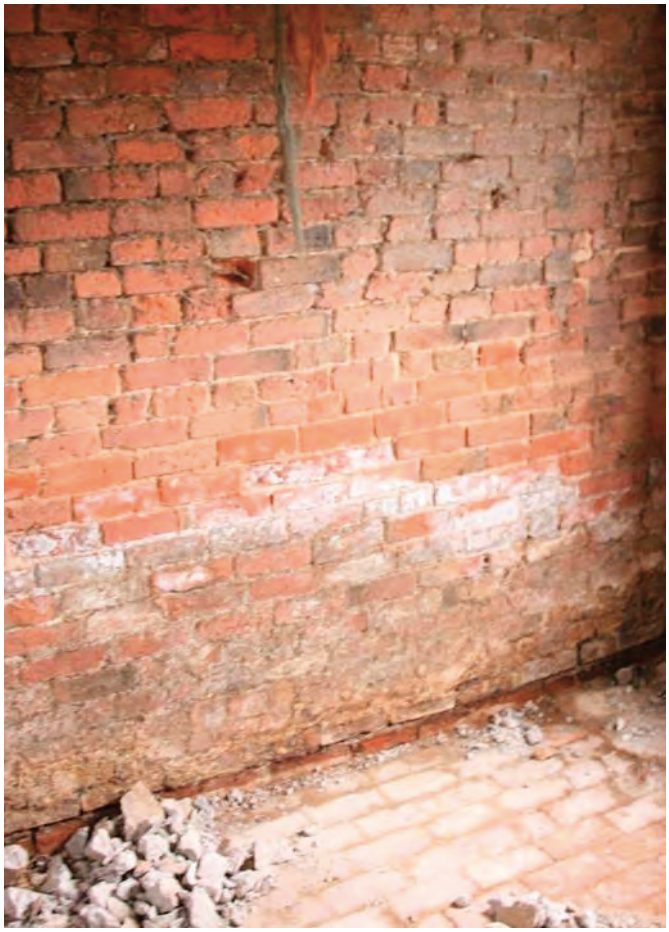
As a result of changes in general farming practice, many barns and agricultural structures have become redundant for agricultural use allowing many to be converted for other uses.

A common problem experienced in barn conversion projects for residential use is damp and salt contamination.

Barns originally had only been designed for agricultural use, often there is little, or no damp proofing installed during construction. Floors and walls to barns also experience salt contamination, particularly if the barn was used to house livestock.

These salts after often hygroscopic which mean they attract moisture from the atmosphere and unless treated will continue attracting moisture from the atmosphere. Typical of the building era, barns are constructed from a range of materials from cob to various types of stone depending on locality. Every building and structure's envelope is unique and will require its own unique damp proofing solution.

Restoration Plasters are classed as salt encapsulating hydrophobic plasters. They can store mineral salts within their "open cell" structure and prevent them from causing surface damage or spoiling of finishes. Koster Restoration Plasters do not contain Gypsum or lime. It also serves to improve the insulative properties of a wall by creating a bridge between the cold wall and the internal environment thereby aiding and reducing the risk of condensate forming on its surface. Restoration plasters can be used internally or externally and for a plaster, exhibit a good compressive and tensile strength. When used on its own, the Koster Restoration Plaster Grey or White finish is an "open pored" texture (Similar to an external render). If this is not desired, then the Koster Restoration Plaster Key can be used to smooth the surface. Along with Delta's Cavity Drainage Membranes are a population solution.



GAS RESISTANT MEMBRANES AND DPCS

Gas membranes (ground gas protection systems) can provide a barrier against harmful ground gases such as radon, methane and carbon dioxide whilst also acting as a damp proof membrane, protecting a property not only from ground gases but also from moisture ingress.

Radon

Radon occurs naturally in the environment, this radioactive gas is, colourless, odourless and tasteless. Radon can migrate into any building that is built over a source. If it accumulates in a building, it increases the risk of lung cancer for occupants. Radon is the cause of 15% of lung cancers worldwide (World Health Organisation 'WHO' 2009).

Gas protection is a technical solution to prevent or to control gas penetration into properties. The control of gas migration is normally achieved by blocking the pathway or removing the source of the gas generation. There are several methods available to achieve the protection to existing and new build properties.

In areas where radon gas is found at higher levels (the average level of Radon in UK homes is 20 Bq m-3. For levels below 100 Bq m-3, individual risk remains relatively low and not a cause for concern. However, the risk to health increases as radon levels increase.), it is important that radon barriers are used to prevent this killer gas from seeping into the building and harming occupants. Radon barrier membranes and Radon DPCs prevent gases entering a property.

HYGROSCOPIC SALTS

Hygroscopic Salts

The term 'hygroscopic' tends to refer to "absorbing", a substance which is classed as hygroscopic is one which can attract and absorb. When dampness has been rising from a wall for a period, the soluble salts (mainly chloride and nitrates) normally found in the ground become concentrated where water has evaporated. These deposits of salts are hygroscopic, and they will continue to attract the everyday moisture found in buildings and structures. Even after a functioning rising damp barrier has been installed, these salts can still absorb residual moisture in the wall or from the room itself. Salt crystal growth at the wall surface causes the breakdown of decorative finishes and will feel damp to the touch.

This 'dampness' is not caused by water rising up through the capillaries of the wall, but due to the dampness in the wall itself evaporating to leave marks. Concentrations of chloride or nitrate salts may increase in as much as 1-2% in walls that have been affected by rising dampness. Uncontaminated building materials usually have a concentrate of less than 0.01%. If left untreated hygroscopic salts can lead to continuous problems in structures. Residue hygroscopic salts are usually removed from a structure by removal of the salt contaminated plaster and re-plastering with a salt resistant restoration plaster. Removing salt contaminated plaster alone will not remove the salt accumulated within the masonry itself. If re-plastering is not carried out with salt resistant restoration plaster, both remaining residual water and hygroscopic salts will migrate through the surface finishing over time and with a higher level of intensity.

DELTA PT (including Delta PT/Plaster Lath)

Delta PT is a High-Density Polyethylene (HDPE) cavity drain membrane. Delta PT has been designed to incorporate a plastic mesh which is welded to the surface of this dimpled sheeting membrane. Suitable as an impermeable damp proofing base for plaster or shotcrete (and as a water control and drainage membrane) in tunnel construction or for remedial damp proofing and waterproofing of existing basements internally.

Specifications

- NBS Specification J40 (Clause 290) Flexible Sheet Tanking/Damp Proofing
- BS 8102:2009 Type C Drained Protection.

- Type C Drained Protection in accordance with BS 8102:2009
- BBA Approved
- A reversible system, which will minimize damage to historical or heritage structures
- Virgin high density polyethylene studded/moulded sheet (HDPE)
- An effective barrier to the transmission of salts, liquid water and water vapour
- Available in 2 stud heights
- Resistant to chemicals, root penetration, rot proof, neutral towards drinking water
- Suitable for Flood Resilience
- Resistant to Carbon Dioxide, Radon and Methane
- Neutral towards drinking water

TECHNICAL DATA	
Material	High Density Polyethylene (HDPE)
Sheet Thickness	0.5mm
Stud Height	8mm/7mm/3mm
Roll Size	DMS001 LATH 1.5 x 10m DMS002 PT 2.0 x 20m DMS027 SLIMLINE 2 x 20m
Compressive Strength	70 kN/M²
Drainage Capacity	5 L/S M 300 L/MIN M 18 100 L/H M
Air Volume Between Studs	5.5 l/m²
Temperature Resistance	-30˚C to +80˚C
Reaction to Fire	EN13501-1 Class E

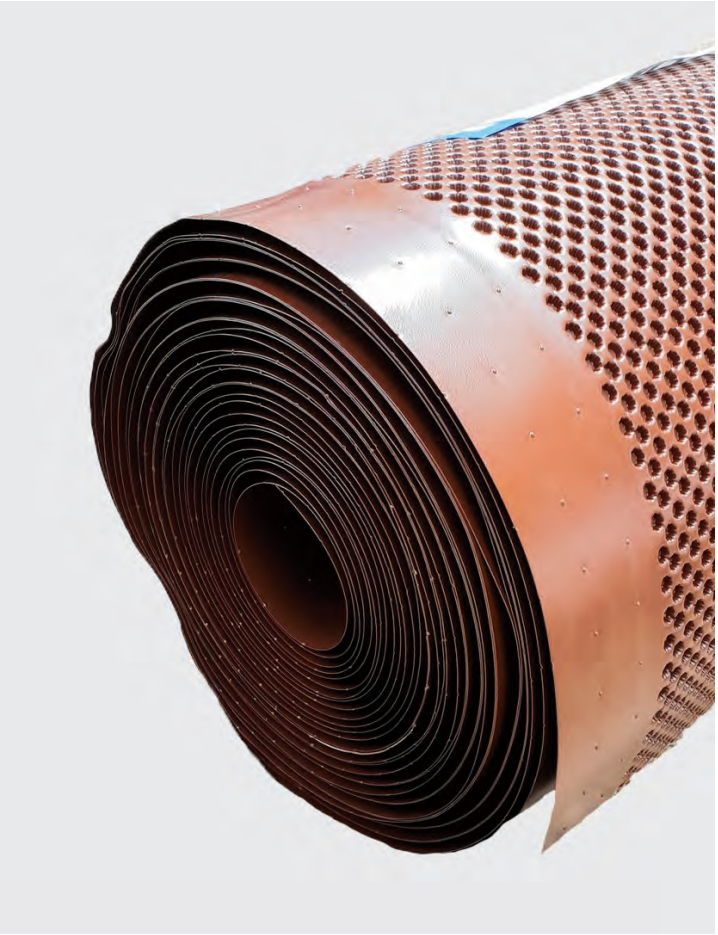
DELTA FM

Delta FM is a Virgin High Performance PE-VHD. Specifically designed for floor applications to combat capillary dampness and contamination. The low stud profile (4.5 mm) minimises the impact upon existing floor levels but still provides an air gap to achieve damp pressure equalisation. The special low profile offered by Delta FM is excellent for detailing existing staircases and tight spaces.

Specifications

- NBS Specification J40 (Clause 290) Flexible Sheet Tanking/Damp proofing
- BS 8102:2009 Type C Drained Protection.

- Type C Drained Protection in accordance with BS 8102:2009
- BBA Approved
- Fast track application
- RH Levels are isolated in the air gap and controlled.
- A reversible system, which will minimize damage to historical or heritage structures
- Virgin high density polyethylene studded/moulded sheet (HDPE)
- An effective barrier to the transmission of salts, liquid water and water vapour
- Delta FM is a fast-track application which allows for various floor finishes to be achieved with zero 'down time'. Delta FM can be used in new build, remedial or refurbishment projects for floors and walls.



TECHNICAL DATA	
Material	Virgin high-performance PE-VHD
Application	Special low stud profile for floor. Can be used on walls
Sheet Thickness	0.6mm
Stud Height	4.5mm
Roll Size	2.0 x 2 m (40m²)
Compressive Strength	700 KN/M²
Air Volume Between Studs	2.6 L/M²
Temperature Resistance	-30˚C to +80˚C
Reaction to Fire	EN13501-1 Class E

DELTA 3MM MESH

Delta PT 3mm mesh membrane has been developed specifically for addressing the issues of damp and contaminated walls, or where fast reinstatement of wall finishes is required after chemical damp proof injection. Delta PT 3mm a High-Density Polyethylene (HDPE) low profile studded membrane with a heat welded polypropylene mesh. The PT 3mm mesh provides a key for plasters, renders and dab fixing of plasterboards.

- Suitable for damp proofing
- Provides key for plaster, renders or dab fix
- Controls damp, salts and isolates other wall contaminants
- An effective barrier to the transmission of salts, liquid water and water vapour
- A "reversible" system, which will minimise damage to historical or heritage structures
- Resistant to chemicals, root penetration, rot proof and neutral towards drinking water
- Fast track installation

Specifications

- NBS Specification J40 (Clause 290) Flexible Sheet Tanking/Damp Proofing

TECHNICAL DATA	
Material	High Density Polyethylene (HDPE)
Sheet Thickness	0.4 mm
Stud Height	3 mm
Roll Size	2 x 20m
Air Volume Between Studs	2 L/M²
Temperature Resistance	-30˚C to +80˚C
R Value	Theoretical value: based on a supposed specific thermal conductivity of HDPE 0,42 W/m x K, the R value would be 0,001
Reaction to Fire	EN13501-1 Class E

DELTA DPC

Delta High Performance DPC is a high performance polymeric material designed to suit all applications. Whether as a dpc at ground level, or for use as a fully designed cavity tray system, Delta DPC is designed to withstand the heaviest of loadings and is fully compatible with all materials it is likely to come into contact with during the normal course of construction and satisfies all the requirements as laid down by current British Standards.

Specifications

- F30 Accessories/sundry items for brick/block/stone walling 360 GAS RESISTANT DPCS/ CAVITY TRAYS
- BS6515:1984 Specification for polyethylene damp-proof courses for masonry

- High-Performance Polymeric Material
- Suitable for use as a DPC in all types of building construction
- Can be used in vertical, horizontal, stepped and cavity tray application
- Available in various thicknesses
- Excellent tear resistance under high compressive loads
- Low permeability to Radon
- Both faces feature a non-slip profile to ensure optimum mortar adhesion
- Bitumen-compatible, rot-proof and UV-stabilized
- Highly flexible even at low temperatures, so that no cracks will occur in the material

CE

TECHNICAL DATA	
Tensile Strength	BS 2782 m320a (100mm/min) MD-12.9N/mm²/TD – 11.2N/mm²
Elongation at Break:	BS 2782 m320a (100mm/min) MD-415%/TD-582%
Tear Strength	BBA Method (Superseeds BS 2782 m260b:1980) MD-122N/mm²/TD – 96N/mm²
Water Absorption	BS 2782 M430A (after 7 days) 0.22%
Water Vapour Transmission	BS 3177 (75% RH 25˚C) 733MNsg-¹
Low Temperature Flexibility	BS 2782 M150B MOAT 27; 5.4.2 -25˚C

KOSTER CRISIN 76 CONCENTRATE

Koster Crisin 76 penetrates deeply into even the smallest capillaries and pores in building materials. Due to its very low density and surface tension lower than that of water, Crisin 76 Concentrate displaces the water in capillaries. Capillaries lined with Crisin 76 Concentrate are lined with resin and hydrophoblic. The curing of the injected product is independent of the drying of the masonry.

Specifications

- NBS Specification C45 Dampproof course renewal / insertion

- Fast reaction, immediately effective
- Remains flexible
- Does not decay or decompose
- Acts neutrally
- Does not effloresce
- Does not affect steel reinforcement
- Resistant to all of the usual corrosives in masonry such as acids, alkalis, and salts
- Easy application
- Seamless application
- Suitable for new construction and repair on existing structures
- Suitable even in cases of high moisture contents until 95 % ± 5%
- Suitable even in cases of high salt contents

CE

TECHNICAL DATA	
Density	0.91 g / cm³
Type of effect	pore restricting/ hydrophobizing
Viscosity	10 - 15 mPa·s
Active ingredients	70%

KOSTER CRISIN CREAM – DPC

Koster Crisin Cream is a retroactive DPC (Damp Proof Course), damp proofing against capillary rising moisture. It can be applied inside and/or outside a structure. This injection DPC cream is based on resin/silane which protects against capillary rising moisture/rising damp (wicking moisture). Crisin Cream is resistant against any moisture/salt content.

Specifications

- NBS Specification C45 Dampproof course renewal/ insertion

- Provides a permanent horizontal barrier against rising damp in masonry
- Easy application
- Seamless application
- Fast curing
- Applied in cases of high degrees of moisture penetration (95%+/-5% saturation)
- Applied in cases of high degrees of salt contamination
- suitable for indoor and outdoor use
- Quickly resistant to rain
- Suitable for new construction and repair on existing structures

CE

APPLICATION

Holes with a diameter of 14 mm are drilled horizontally, ideally in the lowest masonry joint. Drill until 3 cm away from the wall end, do not drill completely through the wall. The drilled holes are cleaned by flushing with water or with compressed air. The holes are spaced 10 cm apart independent of the wall thickness.

KÖSTER Crisin Cream is injected from the cartridge with the proper KÖSTER Hand Pistol fitted with an injection tube. When using the 600 ml tubular bags, the tubular bags are placed in the cartridge gun fitted with the injection tube and the tubular bag opener and pressed into the holes. When installing the material, make sure that the borehole is filled evenly and without voids from the back to the front. The holes can be sealed immediately with KÖSTER KB Fix 5 flush with the wall. When using self-priming processing equipment, the 10 l buckets are used to refill the cartridge. The material consumption must be checked and documented for the purpose of quality assurance.

WATER BASED EPOXY RESIN

Delta Water Based Epoxy Resin is suitable for all applications where concrete or masonry requires waterproofing and protection. It is applied in the same manner as ordinary emulsion paint with the added benefit of application in damp conditions. Once dried Water Based Epoxy leaves a tough, non-toxic, waterproof, easy to clean surface.

Specifications

- NBS Specification J30 Liquid Applied damp proofing/ Tanking 110 – Cold Applied

- As a membrane to prevent raising damp in floors or anti-lime treatment of new concrete
- As a general waterproofing and decorative finish for all brick, concrete, cement and masonry surface
- For application to damp surfaces where other paints Cannot adhere
- As a sealing coat for asbestos containing materials
- Wall coating in areas of food manufacture and storage (Dairies, Grain Silos, Breweries)
- Tank lining for protection against mild chemicals
- All other applications where a waterproofing coating is required
- Can withstand chemical or spray cleaning

CE

TECHNICAL DATA	
Product Code	DMS 148 (Clear) DMS 149 (Grey) DMS 150 (Blue) DMS 144 (White)
Coverage	Coverage rates will vary depending on substrate to which Delta Water Based Epoxy is applied, however as a rule of thumb based on two coat application a 5kg tin will cover approximately 17.5m2

KOSTER NB 1 GREY

Koster NB 1 Grey Crystallizing mineral waterproofing slurry system for sealing against pressurized water (> 13 bar). Koster NB 1 is a mineral coated waterproofing slurry containing crystallising and capillary-plugging agents. It can be used for waterproofing against ground moisture and for non-pressurized and pressurized water. NB 1 Grey is characterized by its excellent resistance to pressure and abrasion as well as chemical and sulphate resistance.

Specifications

- J10 Cementitious Mortar Tanking/Damp Proofing, 110A Cementitious Polymer Modified Tanking Mix/130 Proprietary Crystallization Active Mortar

- Positive and negative side waterproofing against pressurized water
- Resistant against chlorides, sulphates and phosphates
- Certified for drinking water environments
- Penetrates the surface where crystallization leads to inseparable waterproofing-substrate bond – does not contain corrosion promoting ingredients
- No VOC emissions
- No emissions of environmentally harmful ingredients – works also on masonry and on very porous substrates like shotcrete, aerated concrete and cinderblock
- Substrate does not have to be continually kept wet to cure
- Once first layer has cured, can be covered with subsequent layers

TECHNICAL DATA	
Fresh mortar density	1.85 kg / l
Modulus of Elasticity approx.	11,000 N/mm²
Compressive strength (24 hours)	> 5 N / mm²
Compressive strength (7 days)	> 20 N / mm²
Compressive strength (28 days)	> 35 N / mm²
Flexural tensile strength	> 2 N / mm²
Flexural tensile strength (7 days)	> 4.5 N / mm²
Flexural tensile strength (28 days)	> 10 N / mm²
Adhesive tensile strength	> 1.5 N / mm²

KOSTER FAÇADE

Koster Facade Cream is a market leading water-resistant hydrophobic cream for protecting structures and facades from water and driving rain. Koster Facade Creams exceedingly high resistance against alkalinity, is also competent for installation to fresh mineral substrates. Koster Facade Cream is water vapour absorbent, which secures buildings from rainwater and is a repellent to de-icing salts and frost.

Specifications

- NBS Specification J30 Liquid Applied damp proofing/ Tanking 110 – Cold Applied

- Easy application (brush, rolling or spraying)
- High resistance to alkalinity
- Protects buildings from driving and normal rain water
- Water vapour permeable
- Resistant to frost and de-icing salts
- Solvent free
- Colourless after curing
- Liquid (Cream) applied
- Suitable for making absorbent mineral substrates water repellent
- Resistant to saults
- Environmentally friendly
- creamy, stable consistency

CE

TECHNICAL DATA	
Colour Milky	creamy white (transparent after drying)
Active ingredient	Polysiloxane, solvent-free
Content of active ingredient	25 %
Viscosity	3000 mPa.s
Application temperature	+5 °C to +30 °C
Rainproof after approx. 20 min	(20 °C)
Density	1.0 g / cm^3
Flash point	> 100 °C

KOSTER KBE LIQUID FILM

Koster KBE Liquid Film is a highly elastic, solvent-free sealing compound with a rubber/bitumen basis. Suitable for foundation waterproofing and intermediate waterproofing on horizontal areas such as terraces, balconies, wet and moist rooms (under screeds) in above and below ground construction and garages.
KBE Liquid Film is also suitable for waterproofing floor areas against rising damp.

Specifications

- J30 Liquid Applied tanking/dampproofing

- Positive side waterproofing against pressurized water
- Waterproofing on horizontal areas
- Applied over plaster or concrete, flush jointed masonry or Koster NB 1 Grey
- Seamless application
- Suitable for new construction and repair on existing structures
- Suitable for waterproofing basements
- Suitable for waterproofing floor areas against rising damp
- Can be used undiluted in a thin layer as a primer
- Can be applied with a brush, roller, trowel, paint brush or suitable spray equipment
- Fresh coatings can be protected from rain by applying Koster BE Rainproof.

CE

TECHNICAL DATA	
Solids content	> 60 % by weight
pH-value	11.0
Elongation at break	> 900 %
Retraction	> 60 %
Viscosity ca.	8000 mPa*s
Application temperature	+ 5 °C to + 35 °C
µ-value approx.	13000
sd-value approx.	26 m (at 2 mm dry layer thickness)

KOSTER RESTORATION PLASTER WHITE

Koster Restoration Plaster White is a salt and pressure resistant restoration plaster for the restoration of heavily moist and salt burdened substrates, due to its high porosity and hydrophobicity it allows for a damage free drying and desalination of masonry. Restoration Plaster White is suitable for multiple substrates include concrete, masonry consisting of brick, natural stone, porous concrete block, perforated brick, mixed masonry, etc.

- Due to its high porosity and hydrophobicity, Koster Restoration Plaster White allows for damage free drying and de-salting of masonry even in the case of high salt contents
- Restoration Plaster White improves the insulative properties of the wall and therefore helps
- prevent the formation of condensation
- Suitable substrates include concrete, masonry consisting of brick, natural stone, porous concrete block, perforated brick, mixed masonry, etc.
- Restoration Plaster White is free of light fillers and therefore requires no further surface
- treatment prior to the application of breathable paints or wallpaper which is open to vapor diffusion

Specifications

- NBS Specification J10 Cementitious Mortar Tanking/ Damp Proofing

CE

TECHNICAL DATA	
Density of fresh mortar	1.3 kg / l
Porosity of fresh mortar	34 V-%
Compressive strength (7 days)	> 5 N / mm²
Flexural tensile strength (28 days)	> 2.5 N / mm²
Porosity of cured plaster approx.	41 V-%
Setting time approx.	3 hours
Modulus of elasticity	> 6000 N / mm²
Water consumption per 25 kg bag	3.1 - 3.6 l

KOSTER RESTORATION PLASTER GREY

Koster Restoration Plaster Grey is a salt and pressure resistant restoration plaster for the restoration of heavily moist and salt burdened substrates. Restoration Plaster Grey is suitable for multiple substrates include concrete, masonry consisting of brick, natural stone, porous concrete block, perforated brick, mixed masonry, etc. Koster Restoration Plaster Grey can also be used as a water repellent exterior plaster.

- Due to its high porosity and hydrophobicity, Koster Restoration Plaster Grey allows for damage free drying and de-salting of masonry even in the case of high salt contents
- Restoration Plaster Grey improves the insulative properties of the wall and therefore helps
- prevent the formation of condensation
- Suitable substrates include concrete, masonry consisting of brick, natural stone, porous concrete block, perforated brick, mixed masonry, etc.
- Restoration Plaster Grey is free of light fillers and therefore requires no further surface
- treatment prior to the application of breathable paints or wallpaper which is open to vapor diffusion

Specifications

- NBS Specification J10 Cementitious Mortar Tanking/ Damp Proofing

CE

TECHNICAL DATA	
Density of fresh mortar	1.3 kg / l
Porosity of fresh mortar	> 30 Vol.-%
Compressive strength (7 days)	> 5.5 N / mm²
Flexural tensile strength (28 d)	> 2.5 N / mm²
Porosity of cured plaster	> 40 Vol.-%
Setting time approx.	3 hours
Modulus of elasticity	> 6500 N / mm²
Water requirement per 25 kg bag	2.8 - 3.3 kg

KOSTER FINE PLASTER

Koster Fine Plaster is hydrophobic, water, weather and frost resistant plaster. Finely textured thin layer plaster for smooth decorative surfaces on Restoration Plasters and mineral based substrates. It can be applied in layer thicknesses from 2 – 5 mm and is felt-floatable. A very thin, solvent free, concentrated liquid synthetic resin.

Specifications

- NBS Specification J10 Cementitious Mortar Tanking/ Damp Proofing

- Can be finished with paint or wallpaper
- Fine Plaster is especially suitable as an area and fine plaster
- over mineral substrates, Restoration Plasters and base
- plasters
- Easy application
- Seamless application
- Fine Plaster can be used in interior and exterior applications in old and new construction for renovating facades, skirting and interior walls
- Suitable for new construction and repair on existing structures
- Suitable for crack repair with embedded Glass Fibre Mesh and subsequent fine plaster

CE

TECHNICAL DATA	
Color	white
Floatable after approx.	60 min.
Re-coatable after (+ 20 °C)	1 day per mm layer thickness
Compressive strength (28 days)	CS III
Density mortar approx.	1.9 kg / l
Pot life (+ 20 °C)	approx. 1 hour
Max. layer thickness (as plaster)	5 mm
Max. aggregate size	0.7 mm

KOSTER RESTORATION PLASTER KEY COARSE

Koster Restoration Plaster Key Coarse is a thin slurry which is used as a bonding bridge between a substrate and Restoration Plaster. Restoration Plaster Key Coarse is a fast, course plaster key with polymer additives for substrate preparation. Restoration Plaster Key Coarse can be applied on dry, moist, very moist and high salt burdened substrates.

Specifications

- NBS Specification J10 Cementitious Mortar Tanking/ Damp Proofing

- Suited for all absorbent mineral surfaces.
- Suited as primer for restoration plasters
- Type A and Type C Waterproofing
- Positive and negative side waterproofing against pressurized water
- Easy application
- Seamless application
- Suitable for new construction and repair on existing structures
- Can be applied on dry, moist, very moist and high salt burdened substrates

CE

TECHNICAL DATA	
Maximum aggregate	size 3 mm
Pot life approx.	30 min.
Stiffening time approx.	60 min.
Overcoat after approx.	30 - 60 min.
Compressive strength (28 days)	> 10 N/mm²
Bending tensile strength (28 days)	> 5 N/mm²
Water required for mixing	5.0 - 6.0 l

KOSTER REPAIR MORTAR PLUS

Fast setting, expanding repair mortar – Koster Repair Mortar Plus is a watertight, fast setting, slightly expanding repair mortar with excellent adhesion (even to old building material substrates). With the addition of Koster SB Bonding Emulsion, it can be used as a PCC (polymer-modified cement concrete) mortar. Repair Mortar Plus can be used for underfilling machine foundations as well as for filling blowholes, cracks, tie bolt holes & oversized joints.

Specifications

- J10 Cementitious Mortar Tanking/Damp Proofing 340 Sealants

- Watertight
- Fast Setting
- Slightly expanding
- Excellent adhesion
- Can be applied to all mineral substrates
- Suitable for watertight repairs and touch ups to substrates
- Positive and negative side waterproofing
- Can be used internally and externally on concrete, brickwork, blockwork or masonry
- Easy application
- Seamless application

CE

TECHNICAL DATA	
Density of the fresh mortar	1.9 kg / l
Compressive strength after 24 hours	> 10 N / mm²
Compressive strength after 7 days	> 18 N / mm²
Compressive strength after 28 days	> 35 N / mm²
Flexural tensile strength after 24 hours	> 2 N / mm²
Flexural tensile strength after 7 days	> 4 N / mm²
Flexural tensile strength after 28 days	> 6 N / mm²
Pot life	10 – 15 min
Modulus of Elasticity approx.	24,000 N / mm²
Tensile strength min.	1.5 N / mm²

MEMTECH PRO R1 RADON BARRIER

MEMTECH PRO R1 Gas Barrier is a flexible, loose laid proprietary gas barrier for use on sites with Radon (RN) ground gas. MEMTECH PRO R1 is available in various colours, but it Red (top) and Grey (bottom) as standard. The barrier is manufactured by an extrusion/coating process which incorporates a three-layer, low density polyethylene membrane which is reinforced with a polypropylene reinforcement grid.

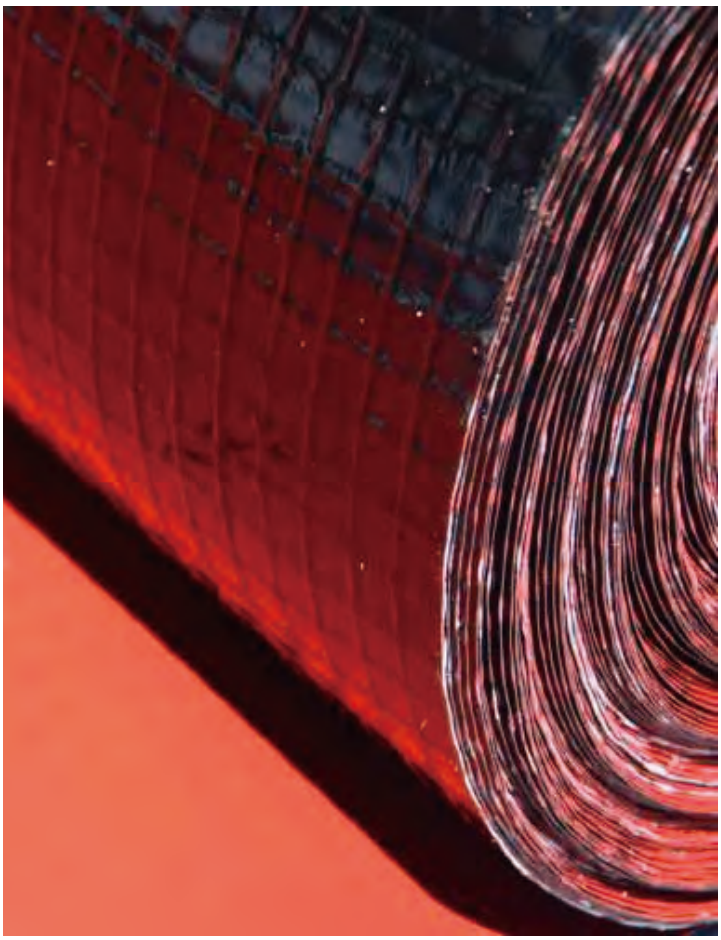
Specifications

- J40 Flexible Sheet Tanking/Damp Proofing
- BRE 211:2015 Radon Guidance on Protective Measures for New Buildings

- Three layer, low density polyethylene membrane
- Reinforced with a polypropylene reinforcement grid
- Extremely flexible for ease of installation
- Robust to cope with all site conditions
- BRE 211:2015, Radon: Guidance on protective measures for new buildings
- Will also protect against damp and therefore will act as a DPM in accordance with CP: 102:1973, section 2 and BS: 8000-4:1989, and National Building Regulation Approved document C.
- Can be tape jointed or heat welded

CE

BBA APPROVAL INSPECTION TESTING CERTIFICATION
CERTIFICATE 00/3742



TECHNICAL DATA	
Roll Length	50m
Roll Width	2m or 3m
Thickness	0.5mm
Colour	Various
Tensile Strength	(N per 50mm)
MD	500
CD	470
MD	15
CD	20
Nail Tear Resistance	
MD	400
CD	350
Radon Permeability	(m^2/sec) 4.3 x 10-12

MEMTECH LGB – LIQUID GAS BARRIER

Memtech LGB is a ready for use specialist styrene butadiene latex based liquid applied gas membrane. It offers a simple, continuous passive gas prevention barrier against the ingress of Methane, Carbon Dioxide, Radon, Ground Gas, VOC, air & Moisture into buildings. Memtech LGB also acts as a waterproofing membrane complying with the requirement C2 and C4 schedule 1 of the Building Regulations 1991 for England and Wales.

Specifications

- J30 Liquid Applied Tanking/Damp Proofing
- BS 8485:2015+A1:2019

- Suitable for new and existing structures
- 3rd Party Accredited/Independently tested
- Acts as a Damp Proof Membrane
- Complies with BRE211:2015 and BS8485:2015
- Supplied in a 15kg container
- MemTech Liquid Gas Membrane can be used for providing damp proofing, gas proofing or waterproofing to a range of applications.
- Hydrocarbons
- Methane (CH_4)
- Carbon Dioxide (CO_2)
- Radon (Rn)
- Volatile Organic Compound (VOCs)

CE

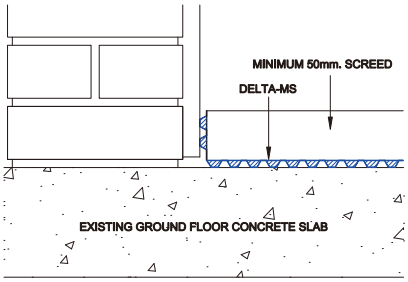
TECHNICAL DATA	
Applied Thickness:	>1.0 mm
Form Supplied:	Viscous Liquid
Pack Size:	15kg
Colour:	Red
Chemical Composition:	Advanced SBS with speciality additives
Water tightness:	EN 1296, EN 1367, EN 1928 - Pass
Methane Permeability:	BS EN ISO 15105-1 ml/ m2/day/atm 0.01
Radon Permeability:	Saarland University, GER mm >1.0mm applied thickness provides a complete barrier to Radon

TECHNICAL DRAWINGS

DELTA SYSTEM 500 - AS DPM TO GROUND FLOOR SLAB / OPTIONS

TYPICAL FLOOR FINISH OPTION

THIS OPTION APPLIES TO 3mm. 8mm. OR 20mm. STUD DESIGN



TYPICAL FLOOR FINISH OPTION

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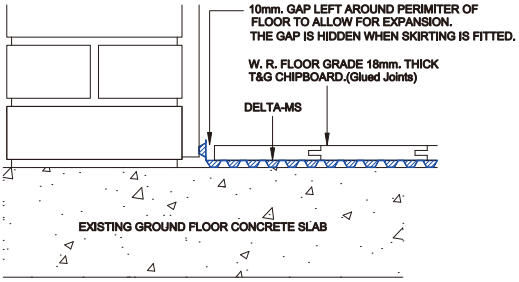

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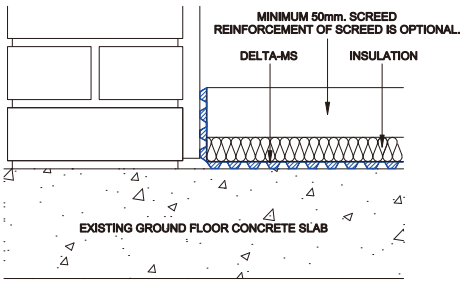

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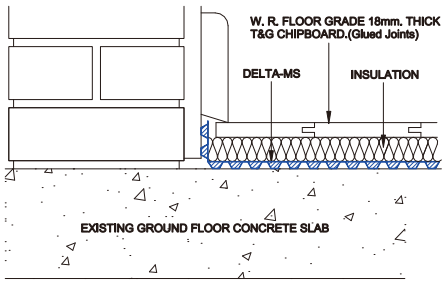
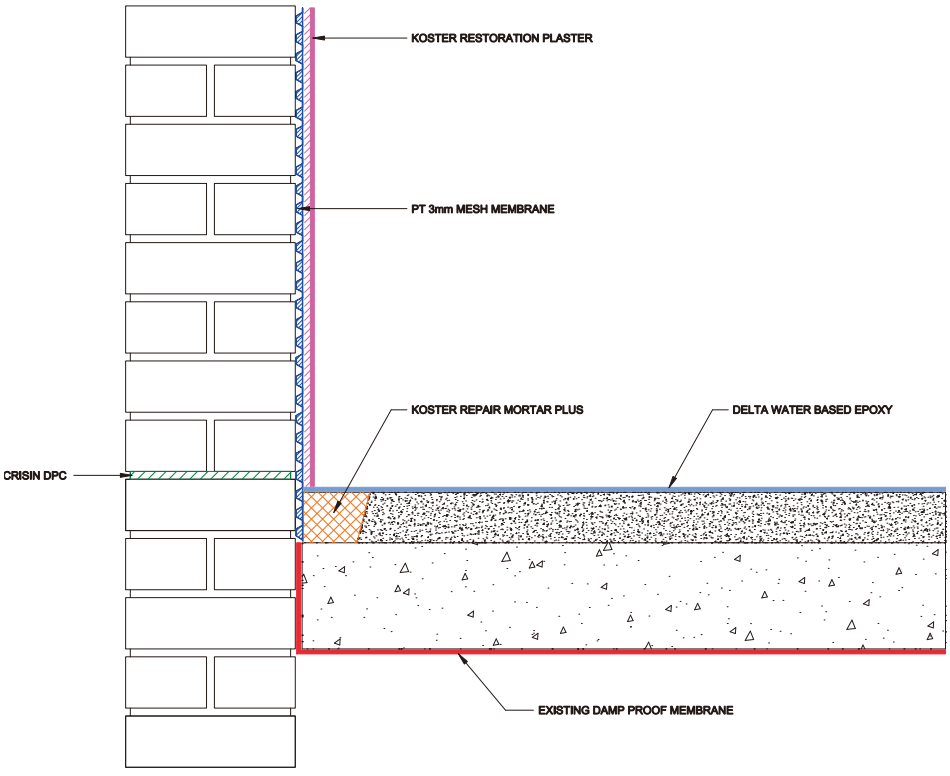
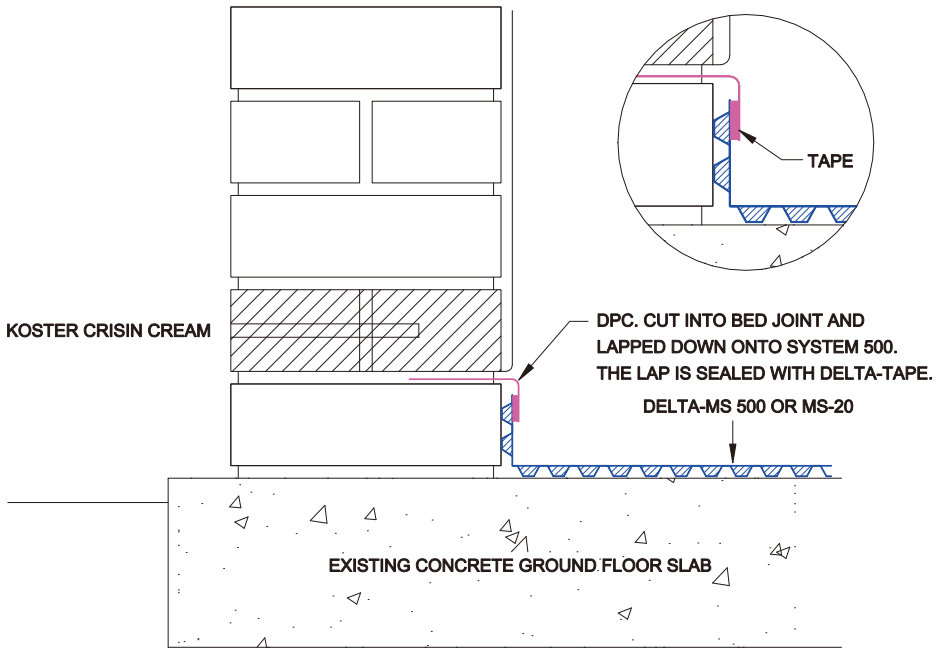


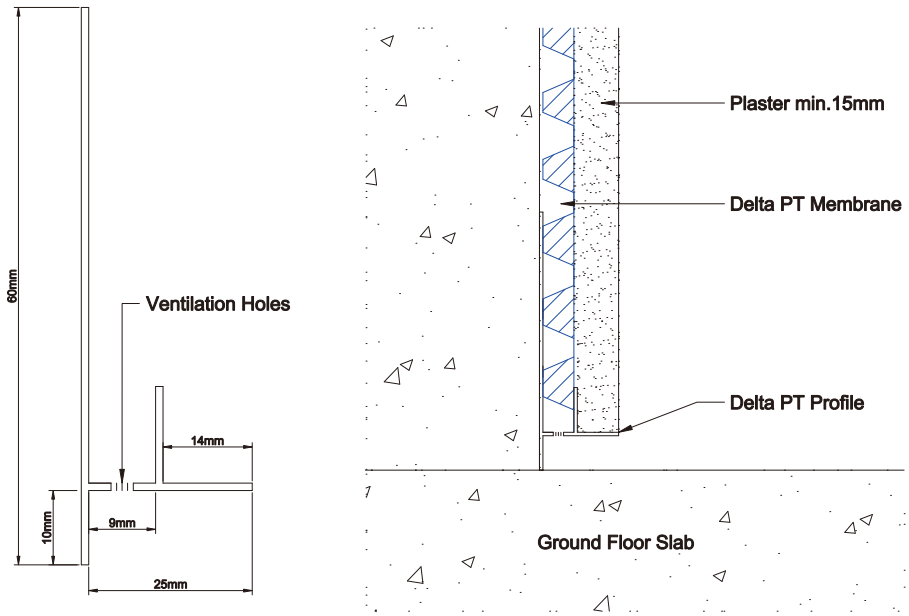


DELTA SYSTEM 500 - EXISTING SOLID WALL DETAIL:-

SYSTEM 500 FLOOR APPLICATION SEALED AT DPC. LEVEL.
THE DPC. CAN BE A CHEMICAL DPC. (AS SHOWN) OR A
PHYSICAL DPC. CAN BE CUT AND SEALED TO SYSTEM 500.



Delta PT Profile

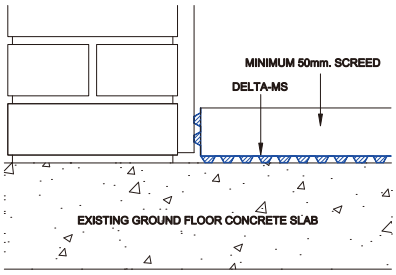


TECHNICAL DRAWINGS

DELTA SYSTEM 500 - AS DPM TO GROUND FLOOR SLAB / OPTIONS

TYPICAL FLOOR FINISH OPTION

THIS OPTION APPLIES TO 3mm. 8mm. OR 20mm. STUD DESIGN



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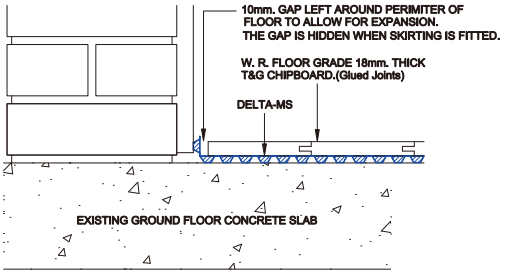

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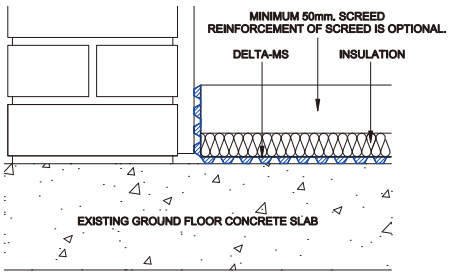

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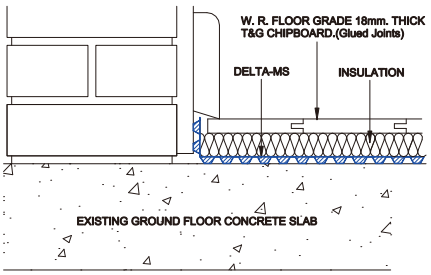
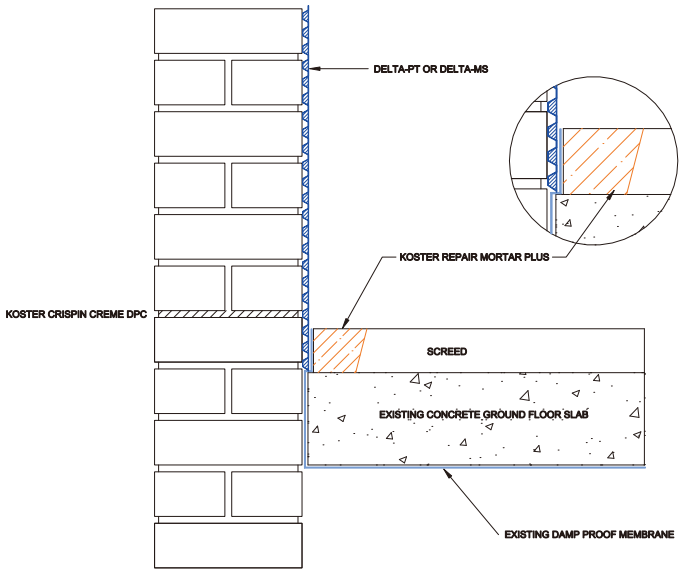


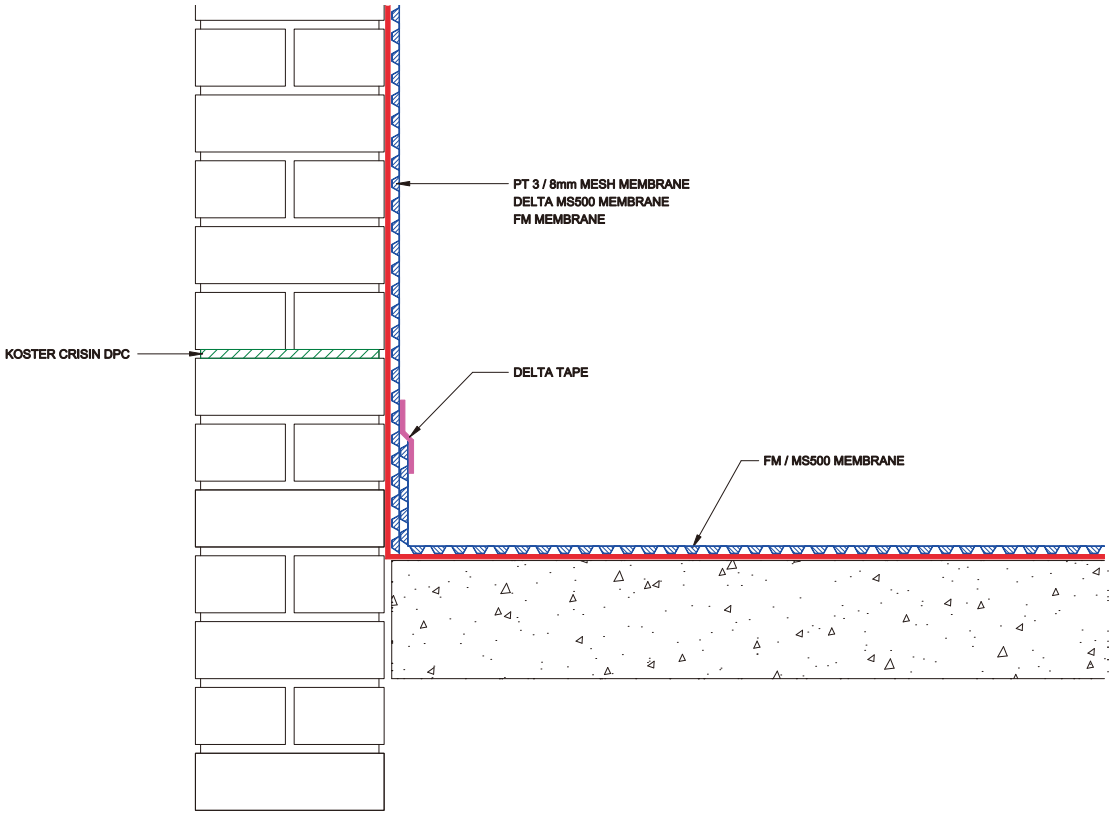
DELTA SYSTEM 500 - ABOVE GROUND DAMP PROOF MEMBRANE

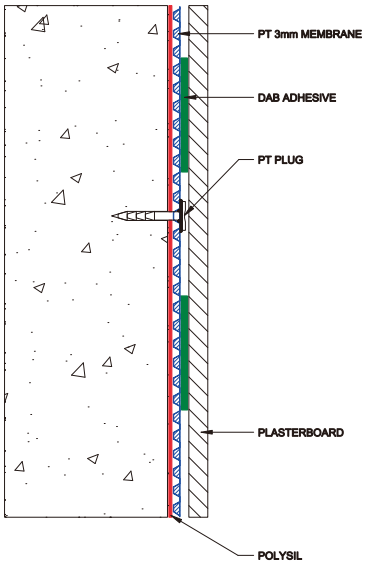


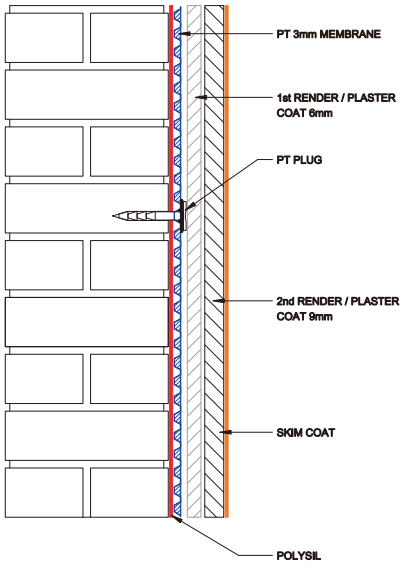
WALL APPLICATION CLOSED AT FLOOR

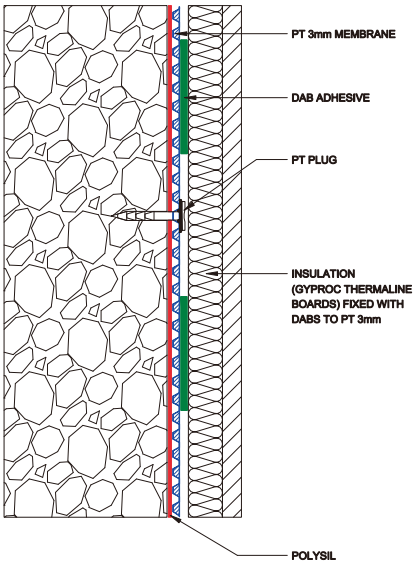
NOTE:-
THIS IS AN ALTERNATIVE DETAIL TO THE VENTILATED WALL APPLICATION.
THIS DESIGN IS NOT RECOMMENEDED FOR RUNNING WATER PROBLEMS. (SEE OUR SEALED DETAIL).
THE CAVITY MUST BE VENTED AT THE TOP EDGE OR EXTERNALLY VIA A VENT IF POSSIBLE.
SEE REF: BD/04/92/104B.

TECHNICAL DRAWINGS

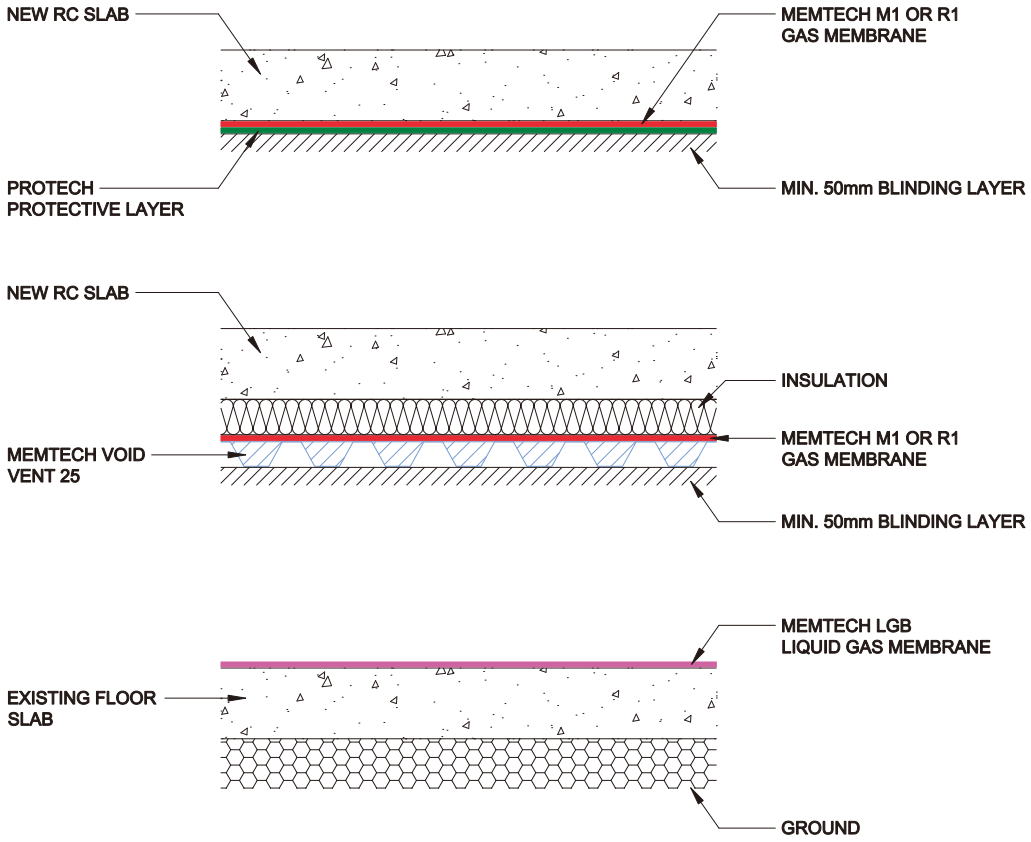


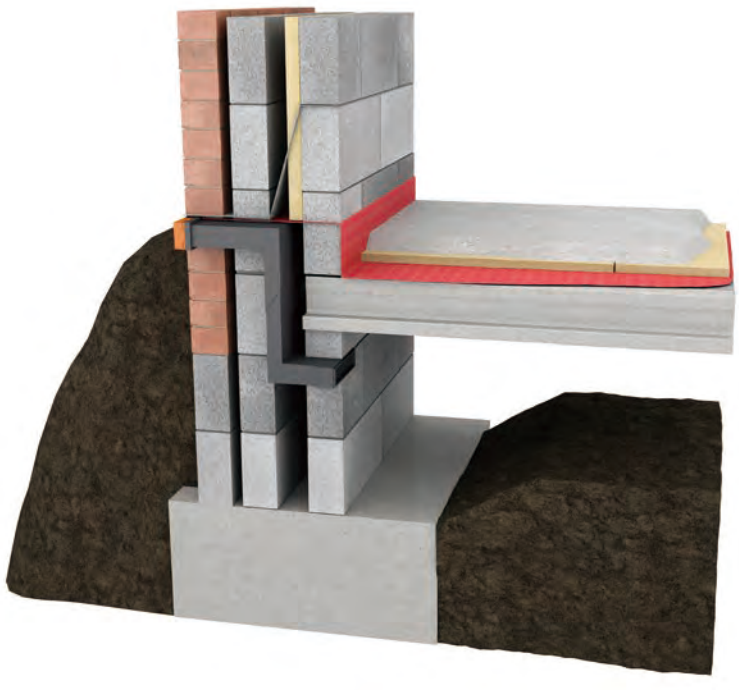






TECHNICAL DRAWINGS





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