



LIQUID WATERPROOFING

ROOFS CAR PARKS BALCONIES WALKWAYS COATINGS



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Sarah Spink, CEO

Foreword

Liquid Roofing and
Waterproofing Association
www.lrwa.org.uk

The liquid roofing industry has changed dramatically over the last 15 to 20 years. As someone who has worked in the sector since 2006, even I remember a time when manufacturers were struggling to find roofing contractors who could apply liquid waterproofing systems. The products were considered to be too niche and didn't fit into the 'traditional' roofing category. Those contractors who did apply liquids tended to be former industrial coating or painting contractors as they had a better understanding of liquids and the best application conditions.

Today's liquid roofing sector looks very different. Through initial training by manufacturers and, more recently, work by the LRWA to provide training and upskilling programmes leading to a Level 2 NVQ, most roofing contractors now offer liquid systems and the industry is thriving. According to our latest research, liquid applied waterproofing is the fastest growing sector in the flat roof market. Within just four years, we have seen our members'

turnover - measured in m² - increase by 35 per cent.

The main reason for this rapid growth is that more contractors and specifiers now recognise the versatility of liquids. In many cases, the same liquid membrane which can be used on a roof can also be used with ancillary products on a car park, balcony, wall and sometimes bridges!

Perceptions have changed too, especially within the last five years. Before this time, liquids were primarily used for complex areas with lots of penetrations or details as the products are so quick and easy to apply. But now, they are being specified for a much broader range of applications and for a variety of reasons, including safety. As highlighted by the entries to the LRWA awards last year, these applications include large-scale projects such as a the roof refurbishment at Heathrow Airport.

There is also a growing awareness of the different types of liquids available, their application and end use. The

choice available is reflected in the wide range of chemistries now represented by the LRWA's UK membership, including Polyurethanes (PU), Polymethyl Methacrylate (PMMA), Glass Reinforced Polyester Resins (GRP), Hot Applied Polymer Modified Bitumens (Hot Melts), Silane Terminated Polymers (STP) Polyurea, Bitumen Emulsions, Acrylics and Thermoplastic Block Copolymers.

The Liquid Waterproofing Supplement has been designed to help reflect these significant shifts in the liquid waterproofing sector and its rapid growth. Featuring case studies and project installations, the supplement highlights the benefits of using liquids and showcases how different liquid waterproofing systems are being used for all types of projects. Through a series of technical articles focused on various applications for liquids, we also provide unbiased guidance for specifiers and/or those who may not have considered using liquids before.

The publication of this supplement comes at a pertinent time for the LRWA as we are approaching our 40th anniversary. The association was originally formed as the BRCMA (Bituminous Roof Coating Manufacturers Association) and evolved in the 90s to include all liquid roofing systems under the name of ELRA (European Liquid Roofing Association) and then ELWA (European Liquid Waterproofing Association). In 2010, it was relaunched as the LRWA (Liquid Roofing & Waterproofing Association).

Although our name has changed a few times our aim hasn't, which is to raise awareness of the technical and financial benefits of specifying liquid applied waterproofing systems and to provide independent advice for specifiers.

As an association, we are incredibly proud of the work of our members, which has made the industry what it is today. We look forward to continuing to work with existing and new members to ensure the sector goes from strength to strength.



Waterproofing Car Parks With Liquids: Five Key Steps

Liquid applied waterproofing systems are regularly specified for car parks as they provide a tough, elastomeric, seamless and decorative finish. These benefits are essential as over time, car parks can be affected by exposure to water, chemicals, chlorides and UV radiation as well as de-icing salts and exhaust fumes.



To help guide contractors who are responsible for waterproofing, surfacing and coating trafficked car park decks using liquids, the LRWA has developed a Code of Practice.



From this, we outline five key steps for contractors to take when applying liquid waterproofing on car parks to ensure the safest and most effective solution:

1. Carry out a preliminary inspection

Prior to specifying a liquid applied waterproofing system, contractors should carry out a full inspection of the structure to establish the most appropriate product and to check for any remedial work required as well as potential issues.

Car parks can be constructed using several different techniques, some of which can increase the risk of issues such as movement and deflection, so understanding how it has been built is essential.

An inspection should take into account the condition of the supports, structural decks, parapets and safety barriers, existing waterproofing, any expansion joints and the drainage system.

If any deck can't be inspected from below, core samples should be taken from the external surface through to the deck to assess the condition.

2. Check the suitability of the substrate

To enable the liquid waterproofing system to be installed effectively, there must be a suitable substrate.

Vehicles braking and accelerating on a surface exert a considerable amount of force on the waterproofing system. It is therefore essential that there is good adhesion and cohesive strength within the surface of the substrate.

Surface coating treatments should only be carried out on substrates that are structurally sound. Care should be taken to ensure that the application of a new decorative coating is not masking a deterioration problem within the substrate that could go undetected.

For construction of new car parks, the surface finish should be specified by the manufacturer of the liquid waterproofing system to minimise the need for additional surface preparation.

Unformed concrete surface finishes can be placed, finished and cured in a variety of ways that can significantly affect surface strength, regularity and texture. The concrete specification can define the

method used to finish the concrete and achieve the surface characteristics.

Asphalt substrates will generally be found on existing car parks where the client requires a new liquid waterproofing system.

“For construction of new car parks, the surface finish should be specified by the manufacturer of the liquid waterproofing system to minimise the need for additional surface preparation.”

Overlaying the existing asphalt surface can reduce disruption, save costs and minimise loss of revenue for the client.

Mastic asphalt has historically been most widely used on car park decks. When considering if this is suitable for an overlay, consider the possibility that some water or moisture may be trapped between the asphalt and the structural deck beneath. Typically, if this is the case, the asphalt will already show significant signs of blistering.

3. Thoroughly prepare and clean the roof

Before applying the liquid waterproofing system, the substrate must be clean, uncontaminated and stable.

When cleaning, it is important to ensure that debris doesn't block the rain down pipes and other drainage. Drainage gullies are commonly found on parking decks, so they should be plugged before preparation works begin to prevent blockages.

Rain water gullies should, where possible, be prepared into the throat of the drainage pipe so that the liquid waterproofing system can be continued well into the gully detail to ensure a watertight seal in this vulnerable area.

Metal flashings should be lifted or removed to allow the system



to be installed on upstands. Flashings should then be replaced if required or alternatively the manufacturer should recommend a suitable detail which may avoid the need to replace the flashings.

Where an existing chase is present in the upstand, any existing filler should be removed to allow the membrane to be dressed in. The chase should then be re-pointed with a suitable mastic/filler in accordance with the manufacturer's instructions.

4. Make safety a priority

It is common to carry out repairs and preparation work on a phased basis in live car parks and it is therefore extremely important to consider traffic management and the safety of the general public. These considerations should be covered in health and safety method statements.

Contractors should make the client aware of cure periods during which the liquid waterproofing area must not be trafficked either by the public or vehicles. Access should be prohibited with suitable traffic and pedestrian management.

Prior to opening up the area, contractors should carry out a joint inspection with the client to sign off the deck ready for trafficking.

5. Keep on top of training

All contractors involved in applying liquid coatings on car park decks must be appropriately trained, so they can apply the waterproofing effectively and identify potential problems with the materials to be used, how laying conditions may affect the end product, and how the substrate should be prepared prior to applying materials.

Contact the Liquid Roofing and Waterproofing Association

For further information on liquid waterproofing for car parks or guidance on application and specification, the full Code of Practice for car parks can be downloaded via www.lrwa.org.uk





It's No MUGA's Game!

Liquid waterproofing came into its own when a rooftop games area for a South East London school required careful specification and attention to detail.

The demand for more school places, and the need to create more space within a limited footprint, means that the requirement for rooftop games areas are on the increase. Byford Roofing Services, a member of BMI's network of



space at ground level," reports Andrew Byford, Director at Byford Roofing, which specialises in flat roofs.

The challenge in selecting the waterproofing layer for a roof that will be used as a multi-use games area, or MUGA, is that it must be suitable for a zero falls flat roof, and also very robust. For the Stewart Fleming Primary School project, speed of installation was an important element too.

"Because of the limited storage space on site, we needed to get the hot melt laid as fast as we could so that we could use the roof area for storage of the other roofing materials," says Byford. "That meant it also had to be robust to cope with movement of people and materials around it."

Byford chose BMI Icopal's Parabit Holt Melt Duo, which it applied to the concrete deck of the roof. Over that went a layer of inverted insulation and paving slabs ready to receive the MUGA pitch finish. "I chose Parabit because it's a system we know well, we're comfortable laying it and therefore it gave us confidence in achieving the target programme completion date,"

says Byford.

Byford's £104,000 roofing contract was carried out for main contractor WW Martin of Ramsgate, who were delivering the first of a two-phase expansion programme for the client, London Borough of Bromley. Phase 1 provided the single-storey extension with its rooftop MUGA, which is now home to additional classrooms for the school, WW Martin's package included increases to circulation spaces, toilets, storage areas and offices.

The expansion – phase 2 of which began this summer - will see the primary school grow from two-form to three-form entry to cope with the growing need for primary places in the London Borough of Bromley. The local council reports that between 2011 and 2017, the Borough saw an increase in demand for primary places of almost 300 pupils.

Flat challenge

From an installation perspective, the most challenging aspect for Byford Roofing was ensuring that it provided a totally flat surface for the application of the sports surfacing. This meant accuracy in installing the insulation layer



and the paving slab ballast. "It had to be completely level to ensure the MUGA could be laid to the correct tolerances," says Byford.

"The challenge in selecting the waterproofing layer for a roof that will be used as a multi-use games area, or MUGA, is that it must be suitable for a zero falls flat roof, and also very robust."

To ensure the contractor met that requirement, Byford chose a paving support system that offered minimal build up with the most support. "After that it

was all about making precise cuts, taking time to get it right and achieve that level finish," says Byford. "We increased our labour on site to include the highest skilled operatives to make sure we did that."

Working in a live school environment, combined with the lack of storage space, meant that lorry movements had to be tightly controlled. "We used just-in-time deliveries, getting the materials delivered and lifted to roof level the day before we needed them," adds Byford.

Most of the 800m² roof area was applied in an initial period of two-to-three weeks. Beyond that, Byford made return visits to site to work with the sequencing of other works by the main contractor. One of the later tasks was waterproofing with BMI Icopal Elastoflex around the fence posts that had been installed into the waterproofed parapet wall around the roof's perimeter.

Asked what he would have done differently, Byford struggles to find an answer: "I



am happy with the spec we put forward," he says. "It has worked well and it enabled us to complete the project on time and within budget. Working

with materials that we trust such as BMI Icopal Parabit Hot Melt Duo, helped us achieve a really satisfying outcome."

Contact Icopal

Please contact Icopal by
telephone: 0843 224 7400,
email: sales.admin@bmigroup.com
or visit : www.bmigroup.com/uk.





Sika Liquid Plastics and Installation Pros Celebrate as Six LRWA Award Entries are Shortlisted

“We’re delighted that five of our LRWA Award entries have been shortlisted,” Pete Hollingworth, Head of Sales comments from Sika Liquid Plastics. “It demonstrates the variety, quality and versatility



Victoria Law Courts, Birmingham

within our portfolio. We’re also very pleased that the contractors responsible for installation on these projects are being recognised for their excellent work”.

Mark Monk from Sika Liquid Plastics has also been shortlisted as Trainer of the Year, highlighting the importance that the company places on skills and installation integrity.



The Flower Bowl, Preston

The shortlisted Sika Liquid Plastics entries feature in three categories and both new build and refurbishment projects have been included on the shortlist, along with a Grade 1 listed heritage scheme, a challenging curved roof and a famous visitor attraction.

Project of the Year Less than 1000m²

The National Space Centre project involved the roof for a new entrance and ticketing facility, known as ‘The Launchpad’, which has been constructed between the main building and the visitor attraction’s famous rocket tower; an ‘inflatable’ structure comprising inner and outer layers of PTFE (Polytetrafluoroethylene), with a layer of air in between to act as an insulator.

The roof had to be completed with no hot works or risk of damaging the rocket tower in any way. Sika Liquid Plastics was able to provide a complete solution, combining Decotherm insulation with the Decothane Ultra 25-year system, installed by Midland Roofing. This not only avoided the use of any hot works and provided a system compatible with the PTFE interface but also provided a

virtually odourless solution, avoiding any nuisance odours for visitors to the Space Centre while the works were carried out.

At The Willows After School Club, Decothane Ultra cold-applied liquid membrane was installed by Ploughcroft as part of a roof refurbishment that also included a new ply deck, raised kerb expansion joints and sealed gutters to permanently resolve leaks caused by the failure of the modular building’s expansion joints. The Decothane Ultra cold-applied liquid membrane not only provided the ideal solution for the expansion joints and sealing in the gutters but also answered the health and safety and low odour requirements of the live school site.

Project of the Year Over 1000m²

A Grade I listed building, the Victoria Law Courts, Birmingham, is a red brick and terracotta building that houses Birmingham Magistrates’ Court. The building features a combination of slate pitched roofs and a number of flat roof areas where the asphalt was coming to the end of its service life.

Absolute Roofing Solutions installed the Decothane Ultra system as an overlay on a number of flat roof areas. The system met the requirements for building control and conservation, while offering a robust solution with a guaranteed 25-year service life. It also enabled the law courts to remain operational throughout the project by avoiding any hot works or nuisance odours.

The two main school buildings at Poulton Lancelyn Community Primary School both had problems with water ingress through the roof and needed thermal performance improvements to meet current building regulations. Sika Liquid Plastics partnered with surveyor, E3 Cube, to help the school bid for funding for a roof

refurbishment and Mars Construct stripped back the roof of the infant block before installing a tapered layer of Decotherm insulation, replacing 53 roof lights with new Decolight roof lights and applying the Decothane Ultra system. The same warm roof

Poulton Lancelyn Community Primary School, Wirral



Intu Merry Hill, Brierley Hill



‘The Launchpad’ at the National Space Centre, Nottingham



The Willows After School Club, Shipley

system was installed on the junior block and the virtually odourless system enabled the work to be carried out during term time.

Project of the Year in a Buried Application

A large new-build leisure complex adjoining an existing garden centre, The Flower Bowl features a curved green roof, reflecting the local landscape of rolling hills, and there are even plans to graze sheep on the roof!

The client specifically requested a Sika Liquid Plastics system because of his trust in the brand. Decotherm insulation was mechanically fixed to the profiled metal roof, creating the contours of the curved roof and the Decothane Root Resistant system was then installed by W Hughes and Son prior to seeding of the green roof.

Intu Merry Hill was carried out using the Sika Liquid Plastics Decothane Ultra System on 11 roofs over 18,000 square metres that were in poor condition resulting in leaks to shops and store rooms within the shopping centre. Despite the horrendous weather the contract was completed to a very high standard in difficult conditions under the guidance of Makers and the technical support from Sika Liquid Plastics.





Waterproofing Balconies and Walkways: a Guide to Specification

There are several different types of balconies and walkways, but each will require a highly durable waterproofing solution. In this guide, the LRWA explains why liquid technologies are ideal for these applications and offers guidance on specification.

Balconies and walkways are often exposed to the destructive forces of the elements, including rain, sunlight and freezing conditions. Furthermore, foot traffic and the corrosive effects of road salt transferred by pedestrians create a hostile environment for the substrate, which is often reinforced concrete or asphalt.

Liquid systems are ideal as they offer good chemical resistance and excellent durability against long term UV radiation, heat and water ponding. They can protect the substrate, providing a well-adhered skid-inhibiting finish, and can also be quickly and effectively applied around complex details, such as handrails.

Specification Considerations

Balconies and walkways can be constructed in different forms and this will dictate which

type of liquid waterproofing system should be used.

Some balconies can project out from the building, so are above unoccupied spaces. Referred to as cantilevered balconies, these will usually require a partially reinforced liquid waterproofing and surfacing system.

Balconies can also form the roof (or part of a roof) to a room below. For these applications, the thermal performance must be considered. A fully-reinforced liquid waterproofing system is usually specified with a trafficable surface layer. There are also specialist systems which can be used beneath coverings and in buried build-ups.

Walkways are areas of communal access to flats. Like balconies, walkways can form part of the roof and can have a wearing surface as part of the

liquid applied system or be finished with bonded tiles.

For heavy duty areas such as stairwells, systems with a trafficable surface are available. Some of these feature proprietary or resin-based edge nosings to provide a safe solution for the visually impaired.

Quick Curing Options

The refurbishment of balconies and walkways in larger residential schemes needs to minimise disruption for residents, ensuring people can access their home within an acceptable time period.

Fast application is essential, allowing the contractor to be on and off site in the minimum amount of time, whilst reducing the possible need for temporary access such as HAKI staircases which can be costly.

For these types of projects, PMMA-based systems are a popular choice as they can dry in 30 – 40 minutes even at temperatures of around 0°C.

These systems tend to have a minimum of two components. The cold-applied liquid resin cures following an extremely rapid in-situ polymerisation,

which is activated by the addition of a peroxide catalyst.

The membrane is reinforced with a polyester fleece and is installed wet-on-wet. This means that the polyester

“Whether a new build or refurbishment project, waterproofing these structures requires a very robust solution.”

reinforcing fleece is first saturated with liquid resin, bonding the membrane to the substrate, with the surface layer then applied onto the bonding coat whilst still wet – therefore forming a single seamless membrane of uniform thickness.

Other options include polyurethane liquid systems and flexible polyester.

Polyurethane products are available as both single and

twin packs, and may use glass fibre matting or polyester fleece reinforcement. They can be applied wet-on-wet in a single application or multi-layered and can be reactive systems, moisture triggered or moisture cured.

Some polyurethane products are odour free, so are well suited for use in sensitive areas such as nurseries, hospitals, and schools, causing little disruption to occupiers of the building.

Flexible polyester technology consists of an unsaturated polyester resin, reinforced with either fibreglass mat or polyester fleece. The polyester resin incorporated within the system must be specially formulated to provide a high degree of flexibility and elasticity, combined with fire performance.

Both flexible polyester and polyurethanes can be applied with an activator or accelerator to speed up cure times in colder weather.

Smaller Projects

For smaller areas, especially in the domestic sector, Glass Reinforced Plastic is often used. Usually referred to as

GRP, glass fibre or fibreglass, this system consists of a glass fibre reinforced polyester resin.

The installation of GRP involves preparing and laying the timber substrate to form a structurally sound deck. Then, preformed edge trims are fitted around the perimeter of the roof, at any significant junction or change in pitch.

The waterproof laminate of a GRP system is applied onto the deck, made up of roofing resin combined with a catalyst which

is used to saturate a reinforcement mat. Once the laminate has cured, a coloured topcoat, which is mixed with a catalyst, is applied over the surface using a brush or soft roller.

Best Practice

When waterproofing balconies and walkways, liquids offer significant benefits. As highlighted however, there are a number of considerations for specifiers and contractors.

Contact the Liquid Roofing and Waterproofing Association

To provide further advice, the LRWA has developed a Roofs, Balconies and Walkways Code of Practice, which offers comprehensive guidance on waterproofing these structures and treatment of associated fittings and constructions,

The Code of Practice and other guidance notes can be downloaded via www.lrwa.org.uk





The Complete Solution in Roof Liquid Waterproofing Systems for Every Need and Budget

Suitable for warm, cold and inverted roofs Tor Coatings's Elastaseal Z™ Roof Coating System is a cold-liquid waterproofing solution designed to offer long-term protection for flat roofs, gutters and pitched roofs.

The user-friendly system uses innovative technologies to deliver a fast, safe and completely odourless application that causes virtually no disruptions to the day-to-day operations of a building or its residents.

Following the success of the system, Tor Coatings are proud to have been shortlisted for two awards in the upcoming LRWA Roofing awards for the use of Elastaseal Z™ in the refurbishment of Benson House in Leeds and the historic restoration of the Temperate House in London's Kew Gardens.

Kew Gardens

The spectacular, Grade I-listed Temperate House in Kew Garden is the largest Victorian glasshouse in the world and attracts over one million visitors annually. It first opened in 1863

and is home to over 10,000 plants.

But by 2012, the glass and metal structure was in a state of disrepair and urgently

required restoration and reinstallation of unique components, including the original cast iron gutters that extended around the perimeter of the multi-tiered roof structure.

The Temperate House was closed to the public for a five-year refurbishment, during which time it was shrouded in an enormous protective tent large enough to cover three Boeing 747 planes.

Around 35% of the guttering had to be taken from the site to a shot blasting facility, where existing layers of paint were removed to leave a bare metal surface.



Tor Coatings Elastaseal Z™ coating system was then applied. Based on a high solids formula, with built-in fibreglass reinforcement, the system delivers incredible tensile strength and resistance to water. It includes proprietary components, to encapsulate bolt heads and bridge joints, that ensure a seamless waterproof finish.

To facilitate the re-coating and re-glazing, 69,151 individual components were dismantled and stored, with digital records kept of their original positions. The Temperate House was re-opened by the famous English broadcaster and naturalist Sir David Attenborough on May 3rd 2018.



“The user-friendly system uses innovative technologies to deliver a fast, safe and completely odourless application that causes virtually no disruption.”



Benson House

Benson House was originally occupied by accounting firm Price Waterhouse Cooper for over 20 years. It was then acquired by law firm Walker Morris, becoming the biggest single site law firm outside of London.

The building needed to undergo a comprehensive £10m refurbishment to provide a premium working environment for Walker Morris without causing disruption to

the surrounding offices. The existing standing seam zinc roof sheets, perimeter gutters, inverted plant room areas and external vertical cladding and louvres were in poor condition - however, due to time constraints, full removal and replacement of the roof was not feasible.

Tor Coatings was asked to provide specifications for all of Benson House's roof elements. Elastaseal Z™ was chosen as it comfortably met the design

brief and delivered a 25 year warranty, something the law firm were keen to secure.

Initially, there was concern regarding the adhesion of the new system to the weathered zinc roof surface. However, after carrying out adhesion checks with the Elastaseal Z™ primer, the results demonstrated that the required adhesion could be achieved without any mechanical preparation, saving a significant amount of time and

removing any risk of disruptive mechanical noise during application.

In addition to this, all elements of the Elastaseal Z™ system, including the primers, localised reinforcement coatings and the waterproofing itself, are completely odourless and therefore could be used on the gutters and the inverted plant room areas with minimal disruption.

Contact Tor Coatings

To use Elastaseal Z™ on your next project call 0191 411 3140 or visit www.elastaseal.co.uk





The World's Leading Polyurethane Liquid System – Now BBA Accredited!

After 35 years of manufacturing and distributing materials across the globe, Alchimica are bringing their Hyperdesmo Polyurethane Liquid Waterproofing system to the UK market.

The Hyperdesmo system has recently been awarded BBA Certification for a membrane that's applied at just 1.5kg/m²! With the BBA certificate achieved at this application rate, you'll need less material for the job, saving you money in material and labour costs. And with it being BBA and EOTA approved for a 25 year expected working life your clients will have a waterproof roof for years to come!

The system comes with a number of benefits including:

- It is touch dry in 30 minutes trafficable in just 3-4 when used with Accelerator 3000A making it ideal for jobs where time is tight
- It can be applied in just one coat with just localised reinforcement between different substrates and design movement joints and penetrations.
- It can be applied with a brush or roller and can even be spray applied!
- It's a cost-effective system with up to 25 years expected working life

- It can be overlaid on virtually any roofing substrate to restore its waterproofing including felt, asphalt, concrete, OSB, GRP, fibre cement and asbestos and single ply
- Insurance-backed guarantees available

Alchimica has always been at the cutting edge of the polyurethane liquids market

and is constantly developing new products and solutions to the problems faced by the construction industry. We have a full range of polyurethane products for the construction industry including:

- Joint sealing
- Adhesives
- Resin binding for flooring and driveways



Slaters Menswear

The roof of the Slaters Menswear Warehouse in Aberdeen has leaked for many years despite all of the work done to resolve it. There was a significant challenge here given the terrible condition of the roof and its extensive failures. Replacing the entire roof would have been immensely costly to the building owner, though they were also no longer prepared to pay for a half measure.

They installed a warm roof system with several different Hyperdesmo liquids. When we spoke to the owners several months later they were delighted that their roof was finally waterproof!

- Industrial floor coatings
- Waterproof paints
- Cementitious concrete repair materials
- Waterproofing mortars
- DPM and underground waterproofing
- Solvent-less waterproofing
- Asbestos encapsulation

Cost

As the manufacturer, ordering directly from us can save you significant money.

With the Hyperdesmo system starting from as little as £10/m² for the primer and topcoat (excluding ancillary materials as needed) you'll have a hard time finding a PU liquid that's better value.

Some of the most prestigious work Alchimica Building Chemicals has been involved in includes:

Georgian Parliament

As a country that's still fairly young, the new national parliament building for Georgia in Eastern Europe was their chance to showcase themselves to the world and it didn't disappoint! The architecture, though impressive, was difficult to waterproof with other systems. Hyperdesmo, however, was easily applied owing to its versatility as a waterproofing system.



Asbestos Renovation

Asbestos is a big problem in the UK. Hyperdesmo is the perfect solution for this as it can safely encapsulate the old asbestos, not only restoring its waterproofing abilities, but also sealing in the dangerous fibres that cause so many health problems.

The Clubhouse at Royal Porthcawl Golf Course

This was a challenging job. The roof is difficult to protect as the clubhouse is just 100 yards from the coast and exposed to some harsh weather, especially wind. The need for a system that can take some real punishment was paramount.

By using Hyperdesmo liquid to coat this roof we were able to easily secure the roof against the wind and rain and, by applying Hyperdesmo ADY-E topcoat we were also able to give the red finish in keeping with the rest of the building.

Contact Alchimica

Readers of Roofing Today can find out more about the products and a special offer at www.alchimica.co.uk/roofing-today or by calling 01437 563564.





Protecting External Concrete Walls: Your Questions Answered



Damaged external walls can lead to major structural problems in concrete buildings, especially those exposed to harsh weather conditions, and potentially undermine the waterproofing system. The LRWA addresses the most common queries relating to this issue and offers advice on treating and protecting concrete parapets and facades.

What can damage concrete?

Generally, three basic origins can cause damage to concrete including:

1. **Chemical** - for example, an alkali aggregate reaction (AAR), aggressive chemical exposure, bacteria or efflorescence.
2. **Mechanical** - for example overloading, movement or vibration.
3. **Physical** - for example, thermal movement, erosion, abrasion and shrinkage.

What can damage reinforced concrete?

Often and more seriously, there may be defects due to deterioration of reinforcement. This is usually caused by:



Typical effects of carbonation

1. **Carbonation** - This is the loss of the protective passivation pH value of the concrete. Concrete naturally will have a pH of 12-13 which passivates the steel surface preventing deterioration.

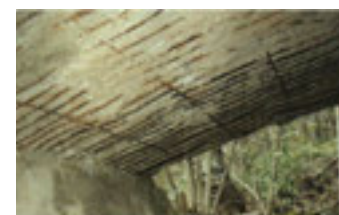
Progressive reaction between the CO₂ in the atmosphere and calcium hydroxide in the concrete reduces the pH level to around 9. This is still alkaline but not now sufficiently so to offer the

necessary protection, so the steel corrodes, expands and exerts sufficient pressure to break off sections of concrete exposing the steel to yet further damage.

How quickly the carbonation will progress and become damaging is dependent on a number of factors including the concrete quality, depth of cover, prevailing atmosphere and general RH level, etc. It is possible to know how far carbonation has penetrated and predict the rate of anticipated progression using simple testing.

2. **Chlorides** - Dissolved chlorides from marine environments or de-icing salts at concentrations as low as 0.2-0.4% can also negate the passivation layer and cause the steel to rust. This often forms severe pitting in the reinforcement.
3. **Electrical current** - This is caused by differing metals creating a cell. The most likely to be seen regularly associated with roof works is carbonation, unless the structure is very near the sea. However, if any of these issues are not corrected, there could be

damage to the concrete portion itself and immediate failure of a component due to loss of the reinforcement's tensile load contribution.



Inadequate cover of steel reinforcement

Any of the deterioration causes will be exacerbated by other factors such as cracking, which however small may allow more direct routes for gasses like CO₂ or chemicals such as chlorides. Any of the causes of damage to concrete or reinforcement may occur in isolation or in combination.

What products can I use to prevent carbonation and protect reinforced concrete external walls?

There is a wide range of liquid coatings and penetration systems available offering long-term protection not only against carbonation but water ingress, atmospheric chemicals and other forms of deterioration including the growth of mould, fungi and algae.

These products are usually but not exclusively water-based and often acrylic. Each will offer slightly different features and benefits but broadly speaking can protect a wall from anti-carbonation and other penetrating causes for deterioration for up to 15 years.

Importantly, they should be vapour permeable allowing substrate moisture to escape preventing blistering and enabling the structure to breath.

Additional benefits of liquid coatings are that they are UV stable and elastomeric so can withstand thermal and structural movement, eliminating the risks of cracks and can be used to bridge existing cracks as well.

Different colours as well as fast-drying and textured options are also available.

Can liquid coatings be used on tiled concrete walls?

Yes, always consult the manufacturer's information but generally, liquid coatings can be used on external tiled walls. Reduction in water penetration and subsequent freeze thaw cycles ensures that the tiles remain bonded to the structure, minimising future maintenance.

What do I need to consider before specifying an anti-carbonation coating?

For the coating, you need to establish whether only carbonation protection is required or if you need to factor in other qualities such as resistance to specific chemicals for example.

To be effective, anti-carbonation coatings should comply with EN 1504 – 9, achieve an equivalent air resistance of at least 50m to CO₂ and be sufficiently vapour permeable allow normal

Also consider third party accreditations which guarantee the products meets certain quality standards including those which have a European Technical Assessment (ETA), British Board of Agrément (BBA) and BDA certifications from KIWA.



“There is a wide range of liquid coatings and penetration systems available offering long-term protection not only against carbonation, but water ingress, atmospheric chemicals and other forms of deterioration.”

Carbonation protection may be provided for prevention in new structures or as part of a repair scheme to an existing structure providing the concrete is not already showing evidence that the carbonation zone is beyond the reinforcing bars. At this point, more extended repair systems could be used.

Correctly identifying the problem is essential to provide the right solution. Ascertain, with the services of an expert if necessary, that the problem is carbonation either in isolation or acting in combination with other deterioration factors.

Establish whether repairs to the reinforcement are required and if concrete needs to be replaced and why - for example, is it purely for aesthetic reasons or to replace cover, restore strength etc. This will help you to select the correct repair materials. Again, consult a professional engineer or manufacturer for assistance.

movement of moisture out of the structure

Before specifying an anti-carbonation coating, we advise examining the site and noting the existing coatings, defects and contamination. The areas' moisture content should also be measured to ensure it complies with the manufacturer's surface condition requirements usually found on the data sheet. Take advice from the manufacturer of the coating and if possible, apply it in a reasonable sized trial area for your client's approval before using on the entire surface.

Contact the Liquid Roofing and Waterproofing Association

Further advice can also be obtained from the LRWA's technical team. For further information, please visit www.lrwa.org.uk





Why use Proteus Waterproofing's innovative Cold Melt® system?

Zip World, Bangor chose Cold Melt® because it protects against the most severe weather conditions, is BBA certified for the life of the structure, is cold-applied, and has virtually no-odour.

“Concrete dies when it dries! But trades can continue working on newly laid concrete after just three days by using Proteus' innovative primer which uses moisture to create strong hydrated concrete!”

With winter fast approaching, the newly laid concrete deck at Zip World Bangor, needed effective protection from the elements without delaying the installation of the Visitor Experience Centre. The use of Proteus' innovative Cold Melt® Primer meant the new concrete could be overlaid whilst still wet. This was essential as it was laid in October and the Snowdonia winter weather closed in.



High Performance Waterproofing Solution

Proteus Waterproofing installed an inverted application on the terraces using Cold Melt®, a seamless, cold applied waterproofing system. Due to the time of year and deteriorating weather conditions, a fast and efficient system was required. Using Proteus Waterproofing's Cold Melt® Primer meant the building works were able to continue as the primer allowed the contractor to waterproof green concrete after three days, therefore preventing any delays in the waterproofing installation. Cold Melt®, a fast to install, flexible solution that incorporates recycled rubber crumb material with a high elasticity, preventing cracking could then be applied.

Quality Control

Proteus Waterproofing works in close partnership with all Proteus Approved Contractors to ensure all projects are delivered to an incredibly high standard. Proteus Waterproofing operates a national network of Proteus Approved Contractors, who are trained to professionally install a wide range of Proteus waterproofing membranes and systems. Proteus Waterproofing training is accredited by LRWA to be BCP (Basic Competency Programme) certified, skills are further assessed via ongoing site visits and installation monitoring.

Cold Melt® Benefits:

Cold Melt® is a cold applied waterproofing membrane, modern day replacement for mastic asphalt and hot melt.

- ❑ BBA certified for the life of the structure
- ❑ Applications: Inverted roofs, living roofs, podium decks, protected balconies, terraces
- ❑ Cost-effective
- ❑ Low odour
- ❑ Cold-applied
- ❑ Seamless, monolithic bond
- ❑ Elastomeric incorporates recycled rubber crumb and other organically grown product
- ❑ Fast to install
- ❑ Flexible solution around combusting high detail items such as plastic pipes, PVC windows & doors and awkward details etc.
- ❑ Can be laid on a flat roof deck with zero falls

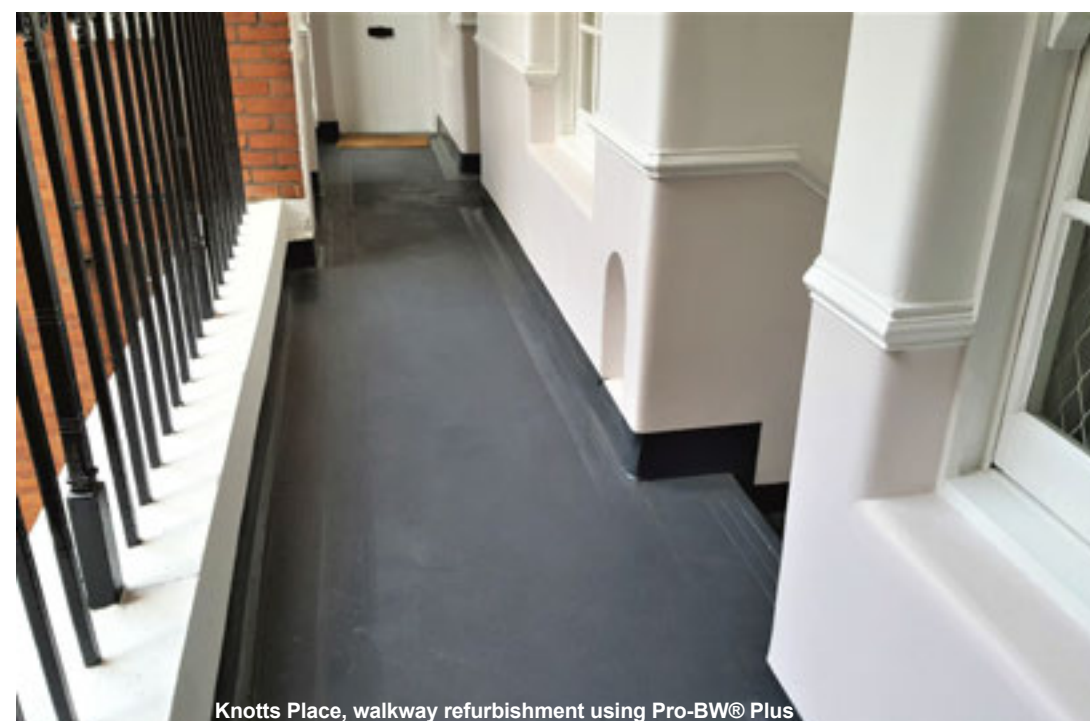
Pro-BW® Plus Benefits:

Pro-BW® Plus is a high performance, rapid curing, protective waterproofing membrane for balconies and walkways.

- ❑ High performance, waterproofing membrane for balconies and walkways
- ❑ BBA certified
- ❑ Cold applied
- ❑ Rapid cure times
- ❑ Minimal disruption
- ❑ Effective for awkward details
- ❑ Suitable for a variety of external applications
- ❑ Flexible with a high level of tensile strength
- ❑ Skid-inhibiting when aggregates applied
- ❑ Durable, up to 25 years to first major maintenance
- ❑ Wide range of substrate applications

Proteus Waterproofing offers:

- Insurance-backed guarantees
- Thermal value calculations to Building Regulations Part 'L'
- Tapered design services
- Building Regulations Part B (fire) compliance options



Knotts Place, walkway refurbishment using Pro-BW® Plus

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Metal Roof Lifecycle Solutions

“We provide a comprehensive range of hands-on training programmes and system guarantees to support contractors at every stage of the process, from initial repair to full roof restoration.”



With over 30 years' experience in the gutter and roof sector working alongside our network of Trained Contractors, Sharmans are the UK market leading experts in the metal roofing repair and refurbishment sector. Over 5,000,000 metres of gutter lining and 20,000,000 metres of roof coatings have been installed since 1985 - our products have stood the test of time and ensure quality assurance and complete peace of mind. We provide a comprehensive range of hands-on training programmes and system guarantees to support contractors at every stage of the process, from initial repair to full roof restoration.

Gutter systems

Failing gutter joints: Seamsil 300 is a silicone coating specifically designed for sealing gutter joints without the need for a primer. It combines flexibility and elasticity to withstand building and thermal movement and doesn't decay with UV exposure.

Corroding gutter surfaces: Delcote GR is a silicone membrane with vapour breathable elastomeric properties engineered for the harsh gutter environment. Combined with Seamsil 300 the system provides seamless protective weatherproofing for gutter surfaces.

Full gutter restoration: Plygene Gutterline is the only BBA accredited gutter lining system specifically engineered to restore and preserve gutter performance. Manufactured from a thermoplastic blend it is seamless, non-bonded, resistant to mechanical damage, durable, weathertight and UV resistant, maintaining the system's performance integrity for the full lifecycle of the roof.

Roof systems

Cut edge corrosion: Seamsil 100 is the go to proven performance system for contractors. Its silicone technology doesn't break down over time and maintains its full flexibility for the product lifecycle. The system design completely encapsulates the lap joint preventing both top side and underside sheet corrosion.

Roof re-coating: Delcote Architectural Coatings use silicone technologies to create a naturally water repellent and breathable membrane. It doesn't sacrificially wear over time and therefore maintains its UV barriers and anti-corrosion pigments for the full lifecycle. No primers are required.

Rooflight coating: Delglaze is polyurethane technology designed to resist weathering caused by sunlight, ultra violet radiation, snow and rain in the rooflight environment. It cures to provide a clear, tough membrane with crack bridging capabilities.

Fixings corrosion: Seamsil 400 provides the benefits of silicone technology to provide sealing encapsulation to the existing head of fixings, reducing the risk of further corrosion.

Guarantees

Sharmans unique scope of proven performance and certification underpins our market leadership in the metal roof repair and refurbishment sector. Independently tested against leading rigorous industry standards, the systems have been designed to meet the challenges of the roofing environment. With a comprehensive range of product guarantees and materials and installation/application guarantees ranging in duration from 5 to 25 years, we support contractors' needs at every stage of the process.

Contractor support

Contractor training: Training is provided on all aspects of our systems at a choice of purpose built training centres. The popularity of these training courses has been phenomenal as contractors choose to become part of our Trained Contractor Network.

Site inspections and audits: Our national team of Technical Services Managers provide site inspections and audits as an integral part of our support service.

Project management: On major projects, we offer full project management support at every stage of the process from initial site survey right through to installation audit and inspection prior to authorising the release of the Single Point Guarantee (materials and installation/application).

Pre-start support: Our Technical Services Managers combine in-depth product knowledge with a wealth of practical hands-on roofing experience to provide best in class advice and support.



Contact Sharmans

For more information, please contact the Sales team on 01298 812 371. www.hdsharman.co.uk



Polyroof Refurbishment of Aston Martin's Headquarters

As described by Aston Martin Lagonda Ltd, "The Gaydon Design Studio [its headquarters] combines cutting-edge technology with hand-craftsmanship and traditional techniques, providing an infrastructure ideally suited to innovation, creativity and advanced engineering. Providing a tailor-made space for our world-leading design team, the Gaydon Design Studio has enabled Aston Martin to tightly integrate its renowned design capability with engineering and production processes." It comes as no surprise then, that when the roof started leaking, they wasted no time finding the right high-performance and rapid solution for this problem.

After carefully considering the options available for refurbishing the roof, the client elected to use Polyroof's advanced liquid roofing systems as the optimum solution for the job. As a company passionate about UK manufacturing, Aston Martin's choice to work with Polyroof - the only independent UK manufacturer of cold-applied liquid systems - was a natural one.

A number of key criteria for the roofing works were set out by the client. The new roofing system had to be cold-applied to eliminate the risk of accidental fire during installation and new insulation was desirable to further improve the thermal performance of the roof. It was essential to reduce disruption to the operations of the facility, meaning any new system must be rapid to install with the existing roof predominantly being kept in place.

After initial consultations with the client, Polyroof Technical Services conducted a detailed roof survey to put together a comprehensive set of recommendations that met every aspect of Aston Martin's stringent performance criteria.

The Polyroof Solution

The findings of Polyroof's survey were presented to Aston Martin in the form of a bespoke specification, where the Protec Warm Roof System was the recommended solution. Core tests taken during the inspection had revealed that despite the leaking through the existing PVC single-ply membrane, the existing build-up of 60mm PIR insulation was found to be dry

and in sound enough condition to be retained as the base for the new roofing system.

It was also identified during these tests that the current insulated roof configuration was missing a Vapour Control Layer, meaning the roof was at risk of condensation issues. This problem was designed out by the installation of 120mm Polyroof RES Insulation above the existing single-ply membrane, which was made good to form an effective vapour control layer. By creating a 'hybrid' roof with double the insulation above the vapour barrier than below, the risk of condensation was eliminated and this was demonstrated by analysis conducted on the proposed build-up.



The roof had also been suffering from standing water issues which the client wanted to eliminate. This was achieved through the formation of sumps around the existing outlets, greatly improving their drainage capacity, and offering a highly cost-effective solution when compared to the need to alter the falls of the roof.

The roofing works were carried out by Polyroof Approved Contractor, Mars Construct Ltd to an extremely high standard that was worthy of such a prestigious client. After

removing the existing chippings from site, the single-ply membrane was made good and cleaned and the claddings around the perimeters were temporarily released to accommodate the new insulation. 120mm Polyroof RES Insulation was bonded to the existing coverings using Polyroof's high-performance twin pack PU adhesive, a process which is extremely rapid and offers superior wind-uplift resistance.

Once the insulation was in place, the board joints were locally reinforced with Protec resin and a 450g/m² fibreglass bandage to strengthen these details. Next, the first layer of Protec was applied direct to the insulation, incorporating Polymat 450 reinforcement.

After only 30-60 minutes after application, the second coat of Protec resin was applied to complete the system.

The finished roof provided a seamless and extra-tough waterproof membrane that was supported by the trusted Polyroof Accredited System Guarantee, with a separate insurance-backed scheme provided at no cost to the client. Aston Martin Lagonda now have the peace of mind that the roof above this landmark facility will be leak-free for decades to come.

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