



Facilitate

BELZONA'S FACILITIES MAINTENANCE NEWSLETTER

ISSUE 3

MAY 2012

INSIDE FACILITATE

FOCUS ON:

THE POLICE SERVICE

Safety Grip Systems

AUTHORISED CONTRACTORS

SAS

and more...

Belzona's Cold Curing
Pipe Repair Solution



BELZONA WEATHERPROOFS HARBOUR BUILDING, Goole, Yorkshire

Due to its exposed location, the harbour office building in Goole was deteriorating. Heavy rain, high winds and varying degrees of salt deterioration to the walls and roof had resulted in both repairs and protective coatings being applied every six to twelve months.

The client contacted Belzona looking for a more permanent repair solution which would protect the building from the harsh weather conditions it faced. Belzona recommended the damaged

concrete areas be repaired using Belzona 4141 (Magma-Build) followed by a three coat system of Belzona 5151 (Hi-Build Cladding).

The failing coating on the building was thoroughly cleaned and prepared using a high pressure water jet. Then, the damaged areas of the building were rebuilt and repaired using Belzona 4141 (Magma-Build) a lightweight repair composite for the rebuilding of damaged vertical and overhead concrete surfaces. Once the Belzona





BELZONA 3111
(FLEXIBLE MEMBRANE)

product had fully cured, a three coat system of Belzona 5151 (Hi-Build Cladding) was roller applied to the building. This product offers long term waterproofing and weatherproofing of exterior and interior walls.

The final application Belzona provided was a total encapsulation of the building's roof using Belzona 3111 (Flexible Membrane). This solvent free, microporous coating was applied to provide the building with long term protection from extreme weather conditions including ultra violet and heavy rain.

This application was carried out in 2008 and to date there have been no further issues. The building is showing no signs of weather damage and the client is extremely pleased with the outcome.

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BELZONA AUTHORISED CONTRACTOR REPAIRS 60 YEAR-OLD BANDSTAND, Macclesfield



DAMAGED CONCRETE



BELZONA 4131 (MAGMA-SCREED)



BELZONA 9311 (REINFORCEMENT SHEET)



BELZONA 3111 (FLEXIBLE MEMBRANE)

The domed roof, gutter, parapet and decorative copings on the Bandstand showed signs of spalling and deterioration.

It was discovered that the cause of the problem was the lack of an effective roof coating on the dome rendering it porous. This was compounded by vegetation growth in and around the gutters resulting in blockages to the gutter drains. If the bandstand had been left untreated it would have ultimately become structurally unsafe.

After initial preparatory works, installation of the scaffolding and edge protection, the domed roof was cleaned and the vegetation removed. During the removal of the vegetation roots, some of which were a considerable size, it became apparent that they had undermined sections of the concrete gutter: deeming the extent of the concrete damage very serious.

Belzona Authorised Contractor, Specialised Access Solutions (SAS) excavated the affected areas of concrete and replaced them with Belzona 4131 (Magma-Screed), a concrete rebuilding and re-surfacing system. A waterproof coating was then applied to the domed roof, gutter detail and parapet walls to prevent further ingress and reduce the likelihood of future spalling. Belzona 3111 (Flexible Membrane) in a sand colour, matching the original colour of the band stand, was the product selected as it provides a high performance, long life waterproofing and weatherproofing system.

The application was completed within 2 weeks and the Belzona system is expected to provide complete and long life weather and waterproofing protection to the domed roof structure in the future.

For further information on Belzona Authorised Contractor SAS please see page 14-15.



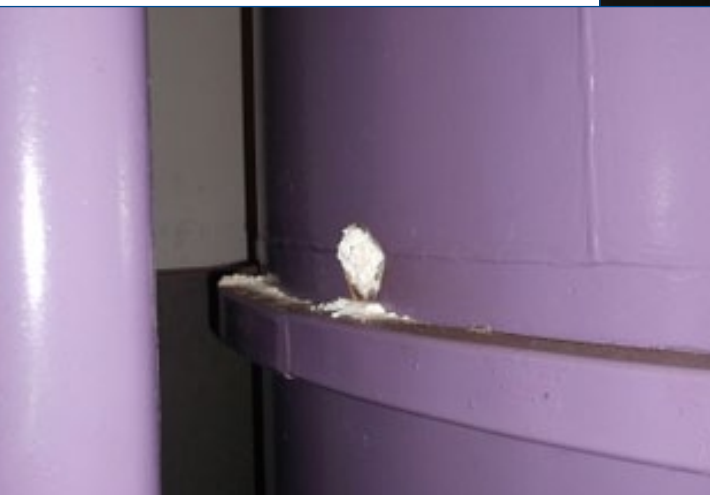


BEFORE



Belzona Authorised Contractor,
Specialised Access Solutions recently
completed a repair application on a 60
year old bandstand in Macclesfield

“Belzona 1111 (Super Metal) is a multi-purpose, machinable, repair and rebuilding system. The two-component paste grade product is based on a ceramic steel reinforced polymer system which when cured is durable and chemical resistant.”



BELZONA REPAIRS LEAKING CAUSTIC TANK

In September 2011, Belzona refurbished a leaking caustic tank for a global soft drink manufacturer at their bottling plant in London.

The engineers at the plant were looking for a long term repair solution for a caustic tank suffering leaks on the welded seams where the caustic acid was leaking from the painted mild steel tank. The tank was situated within a stainless steel secondary containment area and was made up of four half round sections which were welded together. The tank contained around 8000 litres of 28% caustic soda.

The tank was fully drained prior to the application and the front of the

secondary containment area was removed to aid access. A scaffold was erected to gain access to the higher parts of the tank.

Application service provider Belzona Technosol Ltd won the contract to refurbish the tank. The entire area was pressure washed to ensure full adhesion of the Belzona products. An 80mm wide repair area was then masked off along the length of the welded seam and prepared using a Monti® MBX Bristle Blaster, a hand-held surface preparation tool suitable for use on a variety of substrates including metals, rubbers and plastics.

The product selected for the repair of the leaking areas was Belzona 1111 (Super Metal) a

multi-purpose, machinable, repair and rebuilding system. The two-component paste grade product is based on a ceramic steel reinforced polymer system which when cured is durable and chemical resistant. The product is ideally suited to applications on tanks, pipes, casings, keyways, bearing housings, shafts, hydraulic rams, engine blocks and flange faces.

The first layer of Belzona 1111 (Super Metal) was applied incorporating Belzona 9341 (Reinforcing Tape) to the repair area. Once cured, a second coat of the reinforced product was applied. After removing the masking tape the product was left to cure. This application will provide a long term, corrosion protection solution.

BELZONA'S COLD CURING PIPE REPAIR SOLUTION



Epoxy based polymeric coatings and repair materials provide cost effective solutions for rebuilding, repairing and protecting industrial equipment from corrosion, erosion and chemical attack.

Belzona can provide a diverse range of products which can be applied to a vast range of applications across a variety of industries. Recently an application was completed on a duct pipe elbow at a manufacturer of suspended ceilings in Gateshead, UK.

The Client advised Belzona Independent Consultant Sid Crow that they had ducting installed in early 2011. Due to the nature of their process and the products running through the pipe, wear damage had been found at the pipe elbows within a very short time since installation.

Belzona recommended a simple plate bonding solution which ensured a quick and safe repair.

The application involved repairing a holed duct pipe elbow using Belzona 1111 (Super Metal) a high performance adhesive. The outer surface of the pipe elbow and the fabricated steel plate were prepared using blast cleaning to allow maximum adhesion of the Belzona product. Belzona 1111 (Super Metal) was then applied to both the steel plate and the surface of the duct pipe and bonded over the damaged areas of pipe.

The second stage of the application involved coating the internal bend with Belzona 1812 (Ceramic Carbide FP) a protective lining for the protection of surfaces subject to corrosion and abrasive attack.

The application was completed in a fraction of the time and at a fraction of the cost of hot work and weld repair. Belzona products are ideal for use in confined spaces, due to not producing any VOCs.

Due to production cycles at the distillery Belzona Technosol Ltd had limited time to complete the application. The floor was repaired over a weekend ensuring no disruption to the client.

Floor areas are susceptible to damage due to wear, impact and chemical attack. Belzona can provide a cost-effective solution which will simplify maintenance procedures and provide long term protection.

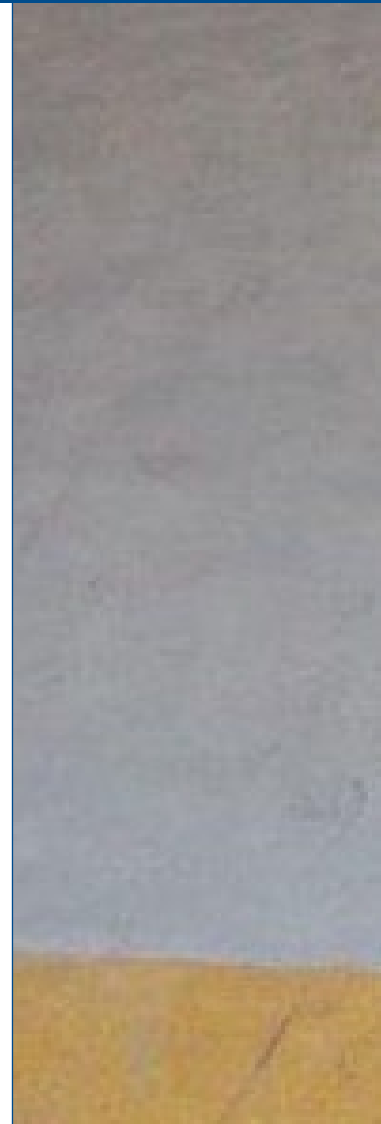
By way of example, in November 2011, Belzona Technosol Limited repaired a resin based floor at a premium whisky distillery in Scotland. Alternative repair solutions had previously been used to attempt to repair the floor in the bottling room but had failed. The areas of degraded floor were causing a health and safety hazard so the client contacted Belzona looking for a repair solution.

Belzona recommended that the existing resin flooring and underlying screed be removed to a depth of 80mm as this was the extent of the damage. Belzona 4131 (Magma-Screed) a high performance, non-porous resurfacing material for concrete was then applied incorporating concrete slabs. This method of application

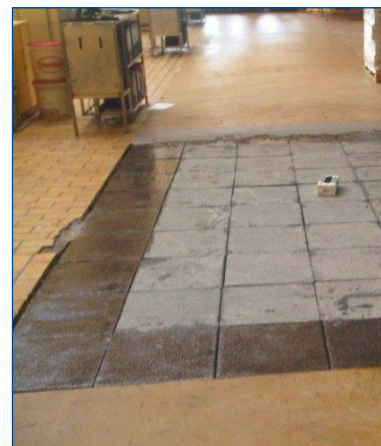
was selected to ensure the client was provided with the most cost effective repair.

The repair areas were dug out using power tools and hand tools including high performance dust extraction units. The floor surface and the underside of the concrete slabs were then prepared and conditioned using Belzona 4911 (TX Conditioner). Belzona 4131 (Magma-Screed) was then mixed and applied at a depth of approximately 6mm and the conditioned concrete slabs were placed on top and the floor area made level ready for the final 6mm coat of Belzona 4131 (Magma-Screed)

Once cured, the top surface of the concrete slabs were conditioned using Belzona 4911 (TX Conditioner) and a final layer of Belzona 4131 (Magma-Screed) was applied. This ensured the surface was level with the surrounding area leaving a non-porous 70 newton strength finish.



DAMAGED FLOOR AREA REMOVED





BEFORE

BELZONA REPAIRS BUSY BOTTLING ROOM FLOOR





BEFORE

Belzona Repairs Leaking Roof

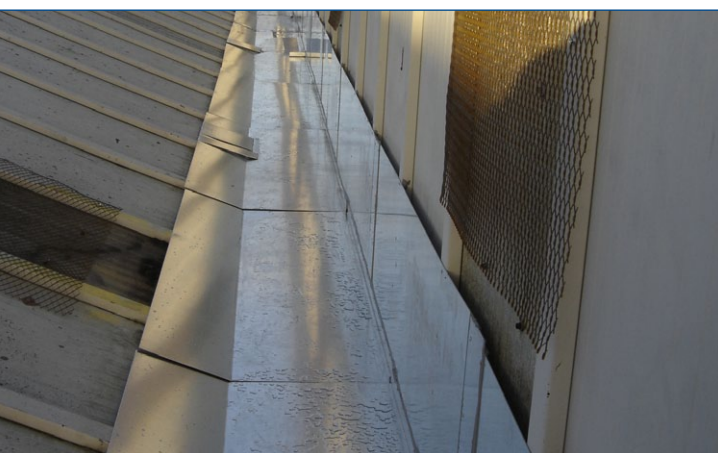
Belzona recently completed an application to a train operator's workshop in Newcastle which was damaged due to harsh weather conditions.

Weather can often cause serious damage to buildings and structures, which as a result, require a quick repair before any danger or permanent damage occurs. The train operator was experiencing severe flooding into the workshop where the trains are maintained. The uncontrollable flooding was caused by heavy

downpours. This water created a hazard due to the presence of electric rails throughout the workshop. Belzona suggested that redirecting the rain water from the drain pipes into the valley gutter would be the best option as the drain pipes were totally blocked and could not handle the heavy downpours. Due to the proximity of the adjoining building, access to the gutters and downpipes was extremely difficult, making redirecting the rain water the only solution.

Panels were fabricated and riveted in place. These panels were then totally encapsulated and sealed onto the clad steel roof using Belzona 3131 (WG Membrane) instantly solving the problem. Belzona 3131 (WG Membrane) was the selected product as it can be applied at a low temperature and offers excellent long term adhesion to the steel cladding.

The customer was extremely satisfied with the application as it required minimum downtime and left the workshop safe from any future damage. The customer was extremely impressed with Belzona's entire solution and work conducted.



FABRICATED STEEL PANELS

Long Lasting Concrete Repair and Protection from Belzona

Belzona products have been used in the Water/Wastewater industry for decades to combat common maintenance issues such as: chemical attack, abrasion issues, water leaks, corrosion, erosion, cavitation and water ingress.

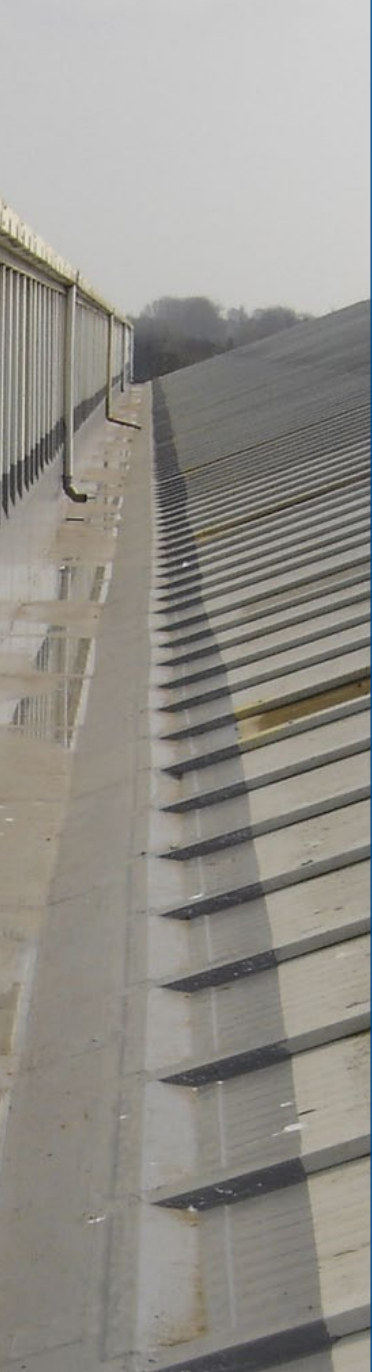
Belzona's long term repair solutions provide chemical resistant protective barrier coatings from the harsh environmental conditions that they are working within. Concrete can be repaired and rebuilt quickly without any specialist tools or formers, using Belzona's range of magma polymers.

By way of example, Belzona 4131 (Magma-Screed) a high performance concrete resurfacing product has been used to repair and fully encapsulate PST tank copings where the drive wheel runs on the top surface of the tanks. The range of Belzona concrete repair products have high compression and crush strength but also a high resistance to the chemicals used within the water

industry.

The damaged areas of concrete were removed and brought back to a firm and dry substrate before the application of Belzona 4921 (Magma GP Conditioner). This product was applied to the damaged areas including all of the exposed metal reinforcement bars to provide a protective seal on the concrete and to prevent any further corrosion. Belzona 4131 (Magma-Screed) was then applied to the concrete surfaces to provide hard wearing protection against future attack. The repair composite was applied by hand into the damaged concrete areas and shaped back to the original specification/profile with a pointing trowel and metal float.

Belzona is also used regularly in the Water/Wastewater industry to provide protective coatings for tanks, bunds, floors, walls and roofs. Most of these coatings are low odour and are fast curing to minimise the down time.





THE POLICE SERVICE

Safety Grip Systems

Belzona provide solutions for the repair and protection of damaged concrete. Offering a range of concrete repair products and positive grip systems, Belzona's versatile product range can provide long-term, cost effective solutions to many of the problems arising within your facility.

By way of example, in November 2011 a police station in Lincolnshire contacted Belzona looking for a repair solution for their damaged concrete steps. The stairs leading into the station had become damaged and worn resulting in a dangerous slip hazard to pedestrians. In addition, signs of carbonation had appeared underneath the concrete stairway.

The use of Belzona's high performance composite repair solutions were recommended for the repair and Authorised Contractor, ARG Mansfield Ltd completed the application.

Belzona 4131 (Magma-Screed) was used to repair the damaged areas of concrete on the staircase. This product provides excellent protection against the effects of harsh weather, abrasion and chemical attack. Once the concrete was repaired three coats of Belzona 5811 (Immersion Grade) were applied to the total staircase area including the steps and the underside. This product was combined with a coarse aggregate to provide a complete anti-slip system on the staircase.

The final element to this application was the creation of a safety grip system. Belzona 4411 (Granogrip) a three component system with aggregate encapsulated in safety yellow was applied to the step nosing's providing a safe and durable surface for pedestrians.

The application was completed over three days with minimum disruption to the police station. The Council was very pleased with the solution provided and has since recommended the restoration of several other stair cases within the area.



CORN SILO ROOF REPAIRED WITH BELZONA SOLVENT FREE MEMBRANE

The roof of the silo generally receives the brunt of the physical and environmental abuse. To keep the materials within the silo safe and dry the roof must be properly maintained.

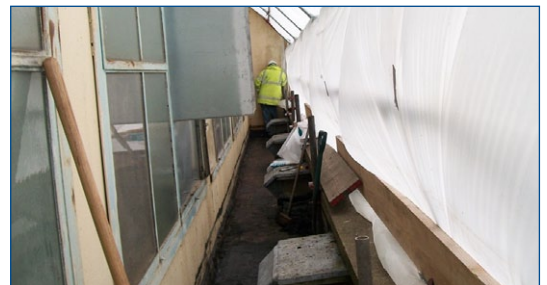
Belzona can provide a fully reinforced, single component, solvent free, microporous coating for the long term repair and protection of all types of roofs. This versatile liquid applied material provides outstanding weatherproofing and waterproofing properties with excellent protection against infrared and ultra violet radiation.

In December 2010, Belzona Authorised Contractor Sam Grain Contracts completed an application on a silo at an Oat Mill in Bedford. The roof of the silo containing ground corn was leaking causing water to penetrate into its contents. The client requested a water-based solution as solvents would taint the flavour of the corn.

Belzona rose to the challenge and offered Belzona 3111 (Flexible Membrane) as an ideal solution. To aid the application a tented area was created to ensure the Belzona 3111 (Flexible Membrane) could be applied whilst being protected from the external freezing conditions. It was also clear that a lot of heat was rising from the silo areas underneath so this helped with the application.

The application commenced with the removal of the previous roof coating. Once the coating was removed it was found that the original asphalt substrate had cracked in several areas allowing water to penetrate through to the contents of the silo. Belzona 3921 (GSC Conditioner) was applied to the roof area prior to a two coat reinforced system of Belzona 3111 (Flexible Membrane) being applied.

Belzona have revisited the application 12 months on to find the silo roof to be in perfect condition still providing excellent



FOCUS ON: Authorised Contractors

SAS (Specialised Access Solutions)



APPLICATION AREA

Roof repair and protection solutions

LOCATION

The Manchester Central Convention

PROBLEM AREA

Leaking metal box gutter

APPLICATION DETAILS

The client was experiencing water ingress issues around a single ply lined metal box gutter and they believed the main cause to be poor flashing detail.

SAS recommended the use of Belzona 3131 (WG Membrane) to fully encapsulate the flashing detail and one brick course above to ensure this aspect of the gutter detail was weather proof.



APPLICATION AREA

Roof repair and protection solutions

LOCATION

A University building in Manchester

PROBLEM AREA

Damaged lead covered dormer roofs

APPLICATION DETAILS

Whilst having window repairs to three dormers the client identified some damp areas appearing in a wooden lined internal roof. On further investigation it was found that this damp was caused by damaged areas of guttering on the lead covered dormer roof. Belzona 3131 (WG Membrane) was selected to completely encapsulate the three roofs including all up-stands and gutter details.



For over 40 years Belzona Polymerics Limited has been working alongside a nationwide network of local Authorised Contractors to provide our clients with a quality application service of their products. Currently Belzona work with around 100 Authorised Contractors across the UK to provide expert repair and maintenance solutions in a wide range of industries. In early 2011, Belzona joined forces with Liverpool based SAS (Specialised Access

Solutions). With over 15 years of experience in the building industry SAS offer a wide variety of maintenance solutions specialising in work-at-height and applications in difficult areas. Using qualified IRATA technicians, SAS are able to respond quickly to the many opportunities where rope access is the most cost effective and efficient option. This can often negate the need for scaffolding which can prove expensive and can create its own H&S issues particularly if sited close to public access.



APPLICATION AREA

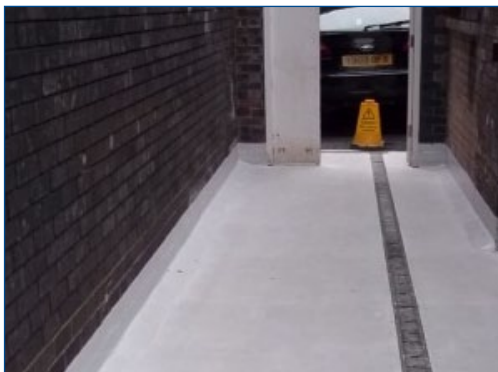
Concrete repair and protection solutions

LOCATION

A University building in Manchester

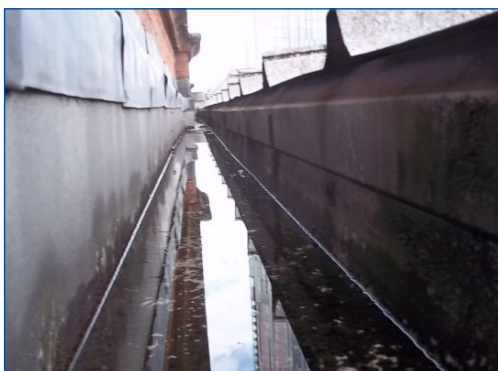
PROBLEM AREA

Water ingress on concrete walkway



APPLICATION DETAILS

A concrete walkway had been experiencing water ingress. Drainage had been unsuccessfully installed resulting in further deterioration. A two coat system of Belzona 3131 (WG Membrane) provided a seamless coating of the entire walkway incorporating the internal gutter detail. A third coat of Belzona 3131 (WG Membrane) was then applied incorporating Belzona 9221 (Surefoot Aggregate) to improve resistance to wear from foot traffic.



APPLICATION AREA

Roof repair and protection solutions

LOCATION

The Manchester Central Convention


PROBLEM AREA

Galvanised box gutter



APPLICATION DETAILS

SAS were contacted by a client experiencing water ingress issues. On inspection, it was identified that the problem emanated from the box gutter areas. Belzona 3131 (WG Membrane) was selected to fully line the gutter detail including the up-stands and flashing areas where it was extended one brick course above the flashing detail to provide a complete water and weatherproof coating.



To arrange your **FREE** consultation of how Belzona can help you or if you would like to see your problem featured in the next issue of Facilitate, please contact the Editor.

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BELZONA
Repair • Protect • Improve