

# IN FOCUS: Roofing



## LIQUID APPLIED ROOFING SYSTEMS

Roof integrity can often be jeopardised by various factors such as movement during freeze-thaw cycles, physical damage, rain and adverse weather conditions. These effects can prove highly detrimental and damaging to the roof's waterproofing capabilities.

All roofs can be compromised by these effects but flat roofs in particular can deteriorate extremely quickly. The lack of surface run-off causes this rapid deterioration as it produces a high quantity of surface water which can penetrate through the substrate. Other areas susceptible to damage include joints and seams, flashings, gutters and glazing bars as these are areas in which water can easily accumulate.

Once the problem area is identified, it is imperative that it is promptly addressed as deteriorating roofs can incur damage that can be detrimental to the building's structural integrity. Furthermore, the effects of water leakage can be extremely hazardous if for example the water comes into contact with electrical equipment.



Deteriorated flashings

### Common repair techniques

There are many ways in which leaks are commonly fixed. One method is through the replacement of the damaged material with the same material, a like for like repair. Using the same material to replace the damaged material leaves the surface subject to further damage. While this method may temporarily repair the leak, the level of protection this can achieve is limited. As well as this, many original roof surfaces do not lend themselves to use for local repair. This method can also prove highly expensive, taking into account the costs required for the material replacement and the labour required for installation.

Other issues can further be identified when conventional repair techniques are used to rectify a leak. Common solutions use hot work, yet this can prove an unsafe, highly time-consuming and a disruptive method of repair.

Alternative repair materials can be used, but these can contain hazardous solvents that can create numerous Health and Safety implications and incur big disruptions when used in public and commercial areas. >>



Leaking joints

Issue 104

## Contents



### Liquid Applied Roofing Systems 1

Increasing service life and saving costs...



### Roofing Protection with Belzona 2

### Successful Restoration of Roof in Central London 3

Quick and resilient protection - here's the p-roof!



### 40 Years' Protection of Observatory 4

Weather damaged roof? That's a super-NO-va with Belzona.

## ROOFING PROTECTION WITH BELZONA

### EMERGENCY WATER AND WEATHERPROOFING SYSTEM

[Belzona 3121 \(MR7\)](#) is a two-component emergency repair and weatherproofing system for the sealing of all types of roof surfaces.

This liquid applied material is designed for instant waterproofing and can be applied under most weather conditions.

#### Belzona 3121 will:

- » Simplify roofing maintenance
- » Repair easily in an emergency
- » Follow complex roof contours
- » Cure under adverse weather conditions
- » Adapt to roof movements
- » Bond strongly to most substrates



[Belzona 3121](#) is a lightweight seamless membrane system that will bond strongly to a wide range of substrates including concrete, brick, copper, lead, cast iron, galvanised steel, asphalt and stone.



#### Applications for [Belzona 3121](#) include:

- » Parapet walls and coping stone joints
- » Vents
- » Joints and seams
- » Glazing bars
- » Gutter joints
- » Expansion joints



Joints and seams



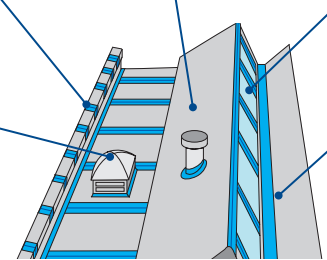
Protrusions



Glazing bars



Skylights



Gutters

» In many ways these methods fall short of achieving a comprehensive repair that is cost-effective, non-intrusive, long-lasting and exceptional in terms of durability.

#### Benefits of liquid applied roofing systems

Liquid applied, solvent-free materials offer an alternative solution to traditional roof repair methods. [Belzona 3111 \(Flexible Membrane\)](#) is a liquid applied, one-component roofing membrane with a water based low odour formulation that eliminates Health and Safety issues of other traditional repairs providing a cost-effective and durable alternative.

#### Belzona 3111 will:

- Water and weatherproof the roof
- Simplify roofing maintenance
- Provide long-term protection – 20 years+
- Bond strongly to all types of roofing substrate
- Follow complex roof contours
- Avoid hot work and odour issues/implications

#### Versatile and flexible

Once cured, [Belzona 3111](#) remains flexible in service allowing the roof structure to move but remain water-tight. (The system has 100% crosswise and 20% lengthwise elongation- BS2782 test). [Belzona 3111](#) lends itself to application onto complex contours and local repairs. It bonds to the vast majority of porous and non-porous substrates including asphalt, felt, lead, glass, asbestos, aluminium, copper and concrete. This versatile material provides outstanding weather and waterproofing properties with excellent protection

against ultra violet radiation.

#### Long-lasting working life

The European Technical Approval ETA-05/0075, issued by the British Board of Agrément, indicated that the assumed working life of [Belzona 3111](#) roofing system is 25 years. An application carried out on a flat roof using [Belzona 3111](#) demonstrates this longevity. The roof was found to be in excellent condition, having withstood various changes in climate and movement, following a revisit 25 years after application.

#### Application Procedure

To successfully apply the Belzona roofing system, it is imperative that appropriate surface preparation is performed. The level of preparation is dependent on the substrate however the basic requirements are to ensure there are no contaminants, all loose material is removed and the substrate is dry. Subsequently, the appropriate Belzona conditioner is applied ensuring the overcoat window is observed. [Belzona 3111](#) can then be applied by brushing through the Belzona 9311 (Reinforcement Sheet). After the first coat has cured, the second coat is applied so that a neat seamless finish is achieved.

#### Minimise disruption

Belzona materials are low odour and low VOC ensuring minimal disruption to operations. This can be seen in a recent roofing application carried out in a busy school environment where the leaking roof was repaired seamlessly without interfering with the students and their studies. ■



Water resistant



Remains flexible in service



Easily applied by brush or roller



Belzona 3111 application in progress

# SUCCESSFUL RESTORATION OF ROOF IN CENTRAL LONDON

Quick and resilient protection- here's the p-roof!

Following a successful roofing application, Belzona were approached again by a top FTSE 100 company to repair and protect a leaking roof in central London.

Despite the roof, covered in a single-ply membrane, appearing to be in good condition it was found to be leaking in several places. The client, a high profile finance company, required a quick, efficient and long-lasting solution to this problem as the leak was above a plant room containing sensitive electrical equipment, making it a business critical situation.

As the area was highly populated, the client also sought a low odour solution in order to ensure minimum disruption during application. They decided to use [Belzona 3111](#) as its low odour and

cold curing formulation makes it ideal for use in public and commercial locations.

The application was carried out in accordance with Belzona Know-How System Leaflet RPA-1. The upper level roof was cleaned and prepared before application of a fully reinforced [Belzona 3111](#) system.

The client expressed themselves thoroughly satisfied with the application. The Project Co-ordinator said, "The contractors who carried out the works did a great job in a professional manner and we experienced no interruptions to business or complaints throughout the entire project." He further added, "I will definitely be recommending Belzona in any future projects where their system can be utilised." ■



Roof cleaned and prepared



Surface conditioned to ensure good adhesion



First coat of Belzona 3111 being applied



Completed application

## THE COMPLETE SOLUTION- LIQUID APPLIED ROOFING SYSTEM



Low odour



Longevity



No hot work



Winter and summer application



Unrivalled waterproofing



Flexibility and high adhesion

### BELZONA 3111

Water and weatherproofing properties with excellent protection against ultra violet radiation and lends itself to application onto complex contours.

With its ability to provide impermeability to liquids, but permeability to water vapor - allowing the roof to breathe - this product offers a solution to roof leaks.



Follows complex contours

#### Suitable on:

- » Joints and seams
- » Gutters and standing water areas
- » Glazing bars and skylights
- » Flashings
- » Lead encapsulation
- » Parapet walls and copings

## ROOFING KNOW-HOW IN ACTION

### Roofing Case Studies

To access all these case studies and more visit [khia.belzona.com](http://khia.belzona.com). In the **Know-How Areas** section, click on **RPA Roof Problem Area** and choose from hundreds of case studies covering roofing applications.

Other Know-How areas include:

- Centrifugal Pumps
- Positive Displacement Pumps
- Heat Exchangers
- Mechanical Power Transmission
- Ships and Offshore Structures
- Fans, Blowers and Compressors
- Valves, Pipes and Fittings
- Solids Handling Machinery
- Tanks and Chemical Containment Areas
- Engines and Casings
- Gaskets, Seals and Shims
- Floor Problem Areas
- Wall Problem Areas

THE BELZONA SOLUTION

Suitable on:

Through a global distribution network covering 120 countries, Belzona can provide a full 24 hour service as well as guidance and technical advice on the application of Belzona products. To find your local distributor, visit [Belzona.com](http://Belzona.com).



Complete supply and apply package

Experience

Since 1952, Belzona has provided global expertise in the development and manufacture of innovative repair and protection solutions. Across a range of industries, Belzona's track record has gained the confidence of countless engineers, contractors and maintenance personnel throughout the world.

Technology

Belzona products are engineered to withstand the most aggressive environments such as erosion, corrosion, abrasion, chemical attack and mechanical damage, extending life and improving efficiency of equipment and structures.



# 40 YEARS' PROTECTION OF ASTRONOMICAL OBSERVATORY

## Weather damaged roof? That's a super-NO-va with Belzona

Forty years ago, Belzona was approached by The Mills Observatory as they were seeking urgent roof protection for the Observatory's rapidly deteriorating papier-mâché domed roof.

The Observatory is unique; built in 1935 the dome is one of only two observatory domes in the UK made from papier-mâché and it is the only surviving full-time public astronomical observatory in the UK. Due to its historical significance, it was paramount that the dome was repaired and protected to the highest of standards, ensuring a long-lasting, durable protection was attained. The

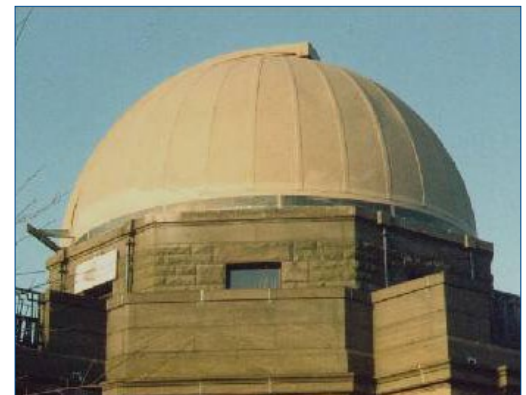
observatory required a solution that would not mask the design of the dome and ensure excellent adhesion to the existing roof substrate.

Belzona was able to provide this using a fully reinforced [Belzona 3111](#) system to encapsulate the dome. This system was further applied in 1988, when the dome was undergoing refurbishment and again in 2003.

Following a recent visit, the dome was found to be in perfect condition and continues to uphold exceptional weatherproofing protection. ■



Original application in 1974



Refurbishment in 1988



Refurbishment in 2003



Application revisited in 2010



Issue No.

104



Click here to find your local Belzona Representative

