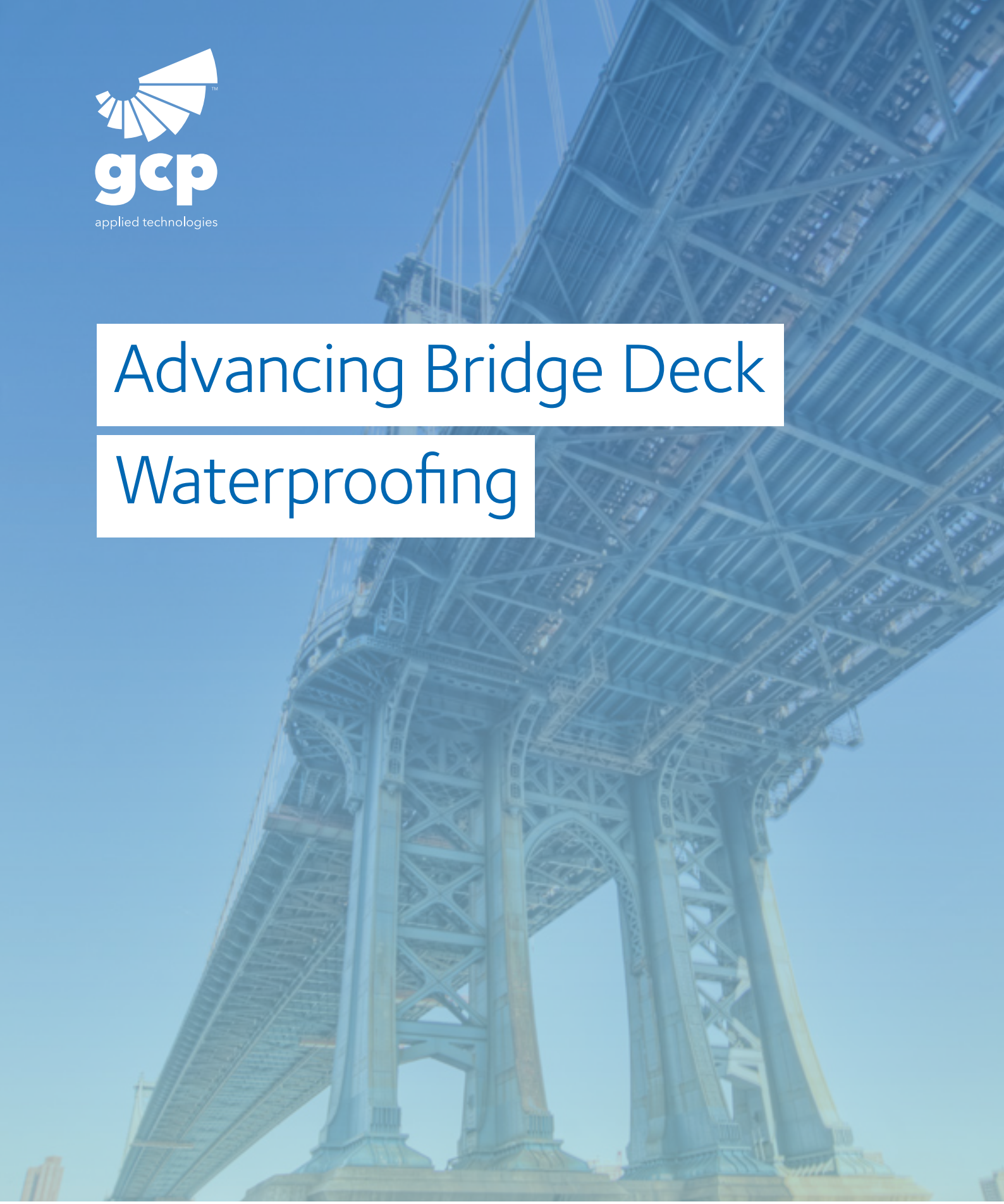
gcp
applied technologies

Advancing Bridge Deck Waterproofing



From brand new megastructures
to time critical refurbishment projects

Setting the standard in Bridge deck waterproofing.

Urbanisation is putting increasing pressure on existing infrastructure and delivery of future proofed transport networks globally.

Bridges are usually constructed to provide essential transport links in the busiest parts of the world.

Once constructed they are essential infrastructure, therefore, maintenance and disruption must be kept to a minimum.

Keeping traffic moving all over the world.

Stirling Lloyd, now GCP Applied Technologies, has been protecting bridge decks and other structures around the world with high performing waterproofing systems for over 40 years.

Our products have been chosen for their ease and speed of application and class-leading long term protection in the harshest of climates.

We develop systems that are fast and effective to apply, with the durability to protect for the long term. This approach means maintenance cycles, closures, costs and disruption are kept to a minimum to keep traffic moving.

We offer long lasting, low maintenance solutions for every type of bridge.

Contents

PROTECTING INFRASTRUCTURE IN OVER 60 COUNTRIES

Meeting the varying needs of bridge design.

The Design Advantage

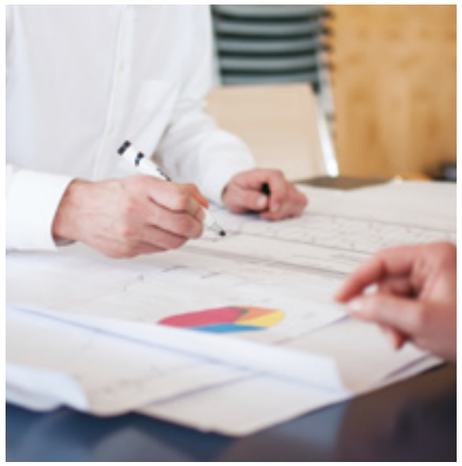
Early involvement in the design stage helps GCP to influence product specifications and compatibility analysis to ensure the product selection provides the structure with long lasting protection, reducing on-going maintenance and unnecessary costs.

Working together with bridge designers and engineers, the application and performance characteristics of our systems enable us to provide solutions that deliver protection for the long term.

Tailored to your specification to get the best results on every project.

Viaducts, rail over road, road over rail, cycle and foot bridges, whatever the bridge structure, it will be vulnerable to attack from water, ice, chloride and atmospheric pollutants, leading to deterioration and loss of structural integrity.

Substrate and surface materials, expansion, contraction, minimum and maximum application and service temperatures and traffic loading are all vital considerations in the design of a waterproofing solution for any bridge project.



EVERY BRIDGE TYPE HAS ITS OWN UNIQUE SET OF CHALLENGES

USA

Road Bridges.

Waterproofing is essential in the protection of bridge decks as moisture ingress leads to corrosion and accelerates deterioration. With a proven track record in protecting new and refurbishing aging road bridges, we understand the complex challenges of each.

For new and iconic bridge structures, where engineering principles are continuously developing, the understanding of the connection between deck, waterproofing membrane and surfacing is paramount in the delivery of long term protection and ride quality.

Minimising disruption during refurbishment is essential, particularly in densely populated areas where, in many cases, closing the bridge is not an option.

GCP's range of waterproofing products have been developed by engineers to meet the demanding needs of road bridges, both new and old.

USA

SYSTEM

APPLYING SECOND COAT OF ELIMINATOR®

"Helping the structure to stand up to the changing traffic profile for the long term."

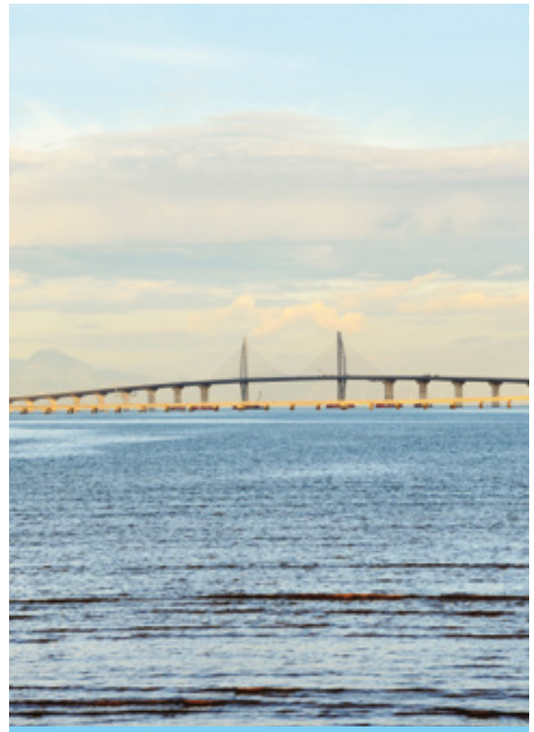
Rail Bridges.

We have provided the rail industry with a range of coatings designed to protect bridges, tunnels, platforms and other structures for the long term.

New rail infrastructure developments across the world are demanding exacting maintenance regimes, structural longevity and safety for passengers.

GCP's understanding of the specific requirements of the industry, together with a unique manufacturing expertise in the area of polymer chemistry, has resulted in a range of specialist products that meet the exacting waterproofing and structural protection needs of rail infrastructure.

These include the ELIMINATOR® cold, liquid applied bridge deck waterproofing membrane, the SENTINEL® movement joints and our loose-lay waterproofing product HYTEC™.



CHINA

SYSTEM

- **ELIMINATOR®** cold, liquid applied bridge deck waterproofing membrane
- **HYTEC™** loose-laid, flexible sheet waterproofing membrane for fast track, limited rail possession
- **BRIDGEMASTER®** 3 in 1 lightweight waterproofing, wearing and skid resistant solution
- **SENTINEL®** movement joints
- **METASET®** fast and effective levelling and repair materials
- **SAFETRACK®** range of high performance road maintenance, colour demarcation, surfacing and patch repair systems for trafficked or pedestrian zones
- **Primers** and **Bond Coats** range of innovative products for specific project requirements

"Meeting the demand for exacting maintenance regimes, structural longevity and safety for passengers."

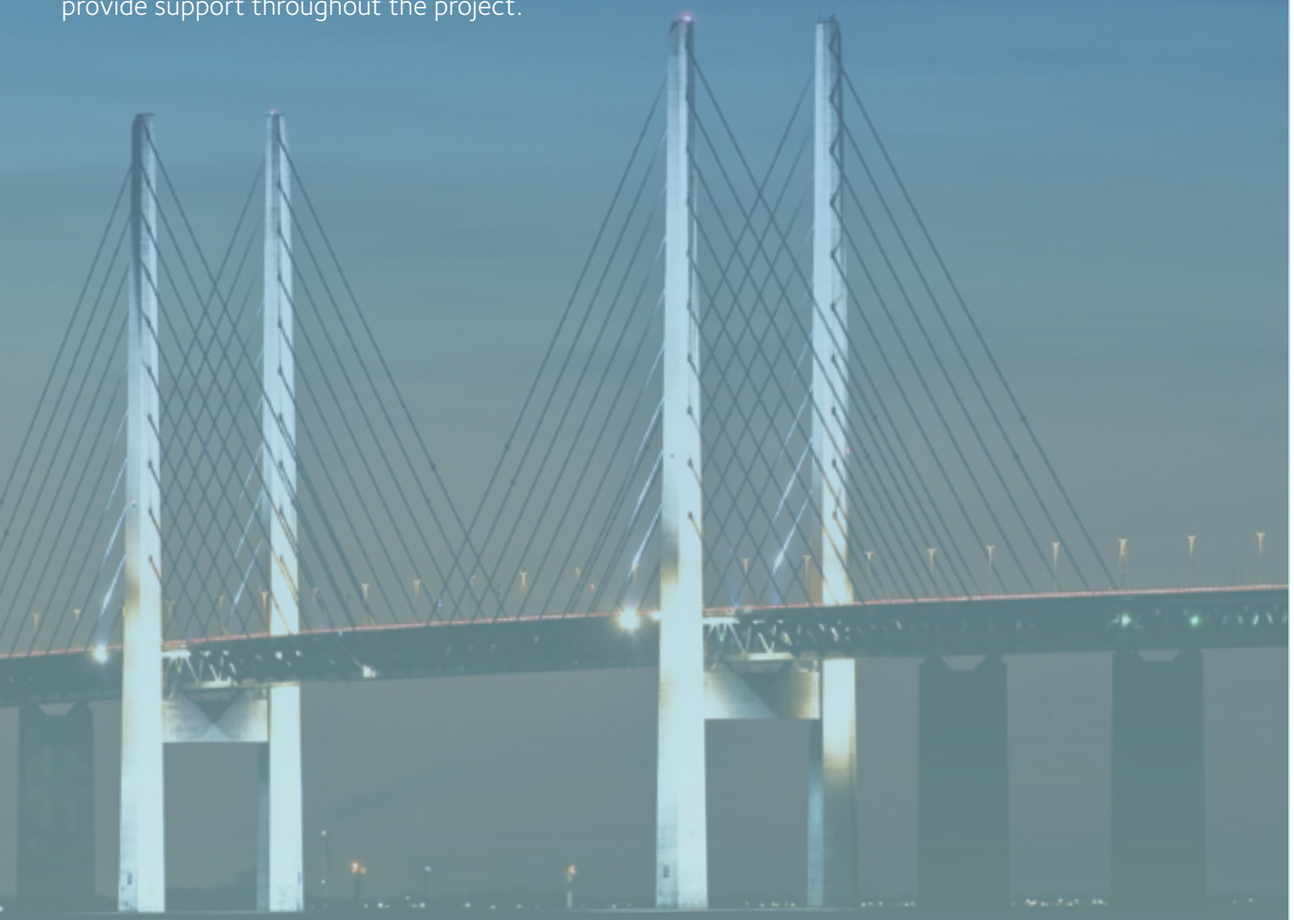
Our products have a long history of success.

Product Performance

The GCP approach to successful bridge deck waterproofing is to consider the whole structure including all detailing and surfacing requirements.

Understanding the issues of compatibility between deck, asphalt, joints and waterproofing on bridge decks is vital to provide long lasting solutions which benefit from reduced whole life cost and value engineering.

We don't just develop and manufacture our products, we provide support throughout the project.



The ELIMINATOR® bridge deck waterproofing system.

ELIMINATOR® was developed to satisfy the demand for a more robust, flexible, simple and effective bridge deck waterproofing solution.

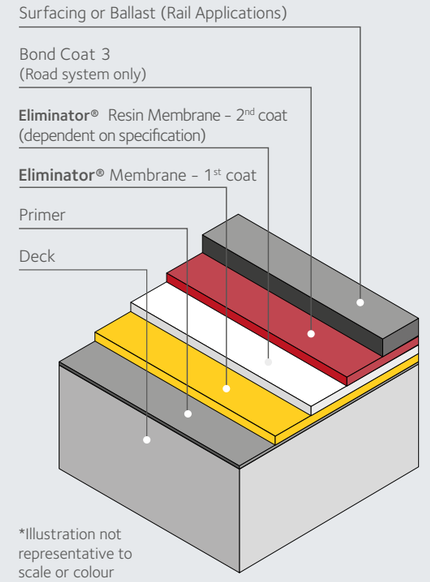
Four decades on, the ELIMINATOR® system continues to lead the way as the world's most advanced, effective and durable waterproofing membrane.

A fully reactive elastomeric system, the ELIMINATOR® membrane is based on GCP's unique advanced ESSELAC® acrylic resin technology combined with methyl methacrylates and other components.

Some resins will not bond to themselves after a delay in the works. The surface chemistry of the ELIMINATOR® system is such that the inter-coat adhesion is unaffected by time and any breaks in the works as a result of bad weather, for example, have no effect.

SYSTEM COMPONENTS

A rapid-cure, cold-applied system forming a flexible, chemical resistant and seamless waterproof membrane with no vulnerable joints.



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ELIMINATOR® SYSTEM

- Industry proven, protecting structures around the world in the most extreme climates
- Cold, spray-applied for fast and effective application with no need for hot trades
- Simple and effective sealing of complex, critical details and penetrations
- Applied in two separate colour-coded coats, aiding on-site quality assurance and integrity of the membrane prior to surfacing
- Highly durable, it will protect the life of road and rail bridges for the long term, resulting in reduced maintenance costs

TURKEY

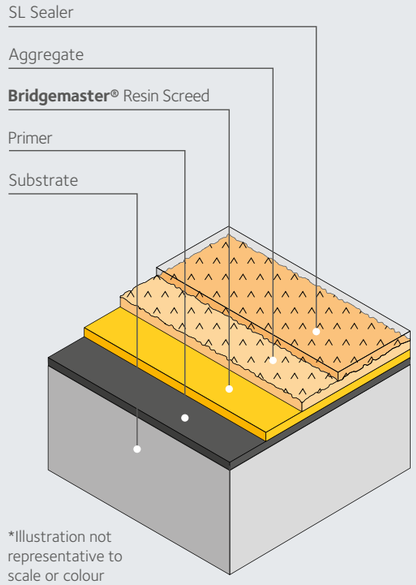
The BRIDGEMASTER® waterproofing, wearing and anti-skid solution.

Up to 80% lighter than mastic asphalt use our BRIDGEMASTER® waterproofing, wearing and anti-skid solution to allow increased traffic loads on your structure.

Ease and speed of application to concrete, steel or aluminium substrates results in minimum disruption and a faster return to service. BRIDGEMASTER® is applied at thicknesses to suit the differing vehicle or pedestrian traffic loads, enabling weight saving.

SYSTEM COMPONENTS

BRIDGEMASTER® is a fast-curing, cold-applied, resin-based screed combined with an aggregate overscatter and sealer.



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BRIDGEMASTER® SYSTEM

- Up to 80% reduction in weight over mastic asphalt, enabling increased traffic loads on structure
- Provides a waterproof finish with high wear resistance
- System can be tailored to individual project requirements
- Does not slump or run. Ideal for ramps and gradients as well as decks
- Long service can be further extended by reapplication of skid/slip finish
- Rapid cure, even at 0ºC, ensuring a rapid return to service
- Rut resistant, even at elevated temperatures
- Sealed surface provides low maintenance finish and superior aggregate retention
- Any damage to overlay can be easily repaired throughout the life of the structure

TURKMENISTAN

Primers and bond coats to complete the package:

Our depth of experience has led to the development of a range of fully compatible primers and bond coats which ensure strong bonds are achieved to a variety of substrates and surfacing specifications.

Using the appropriate bond coat has helped ensure that the ELIMINATOR® system has an unparalleled track record of success on bridges of every design, type and size in every kind of climate with all surfacing types.

SOUTH WALES - BOND COAT 3

SOUTH WALES - BOND COAT 3

HYTEC™ loose laid, flexible sheet waterproofing system.

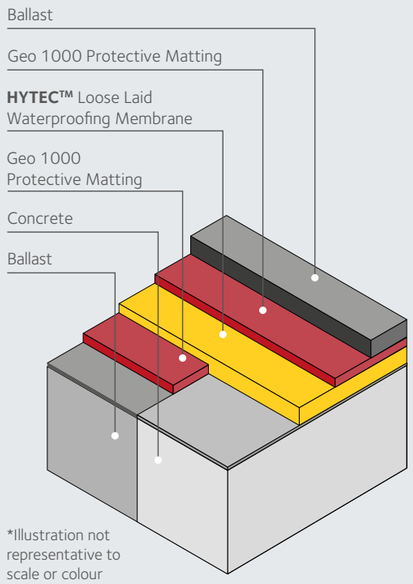
Whilst cold sprayed membranes are usually the most effective choice, there may be areas where a sheet membrane is required.

Developed specifically for fast track, limited possessions when deck and climate conditions are uncertain, and on masonry arch bridges where no continuous deck exists, HYTEC™ is a loose laid, flexible sheet waterproofing membrane offering exceptional physical performance properties. Joints are completed by heat-welding.

HYTEC™ is approved for use in accordance with Network Rail Specification and is SERCO PADS registered.

SYSTEM COMPONENTS

A rapid-cure, cold-applied system forming a flexible, chemical resistant and seamless waterproof membrane with no vulnerable joints.



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HYTEC™ SYSTEM

- Suited to concrete, steel, iron and masonry rail structures, with loose-filled, ageing or friable substrates
- Approved for use in accordance with Network Rail Specification
- Naturally flexible material; no plasticisers to leach out
- Sheet membrane can be seamed on site or preformed into large sheets off-site
- Speed of application and weather tolerance vital for overnight and winter possessions
- Effective across a wide range of temperatures
- Extremely high tear and puncture resistance

UNITED KINGDOM

A complete bridge deck waterproofing solution.

Our range of ancillary surfacing products are fully compatible with our waterproofing system.

SENTINEL® expansion joints, the complete waterproofing solution.

When used in conjunction with the ELIMINATOR® system, the SENTINEL® range provides a complete waterproofing and expansion joint solution for bridge decks and are fast and effective to install.

Our technical experts are on hand to develop the optimum waterproofing and joint scheme for your project.

UNITED KINGDOM

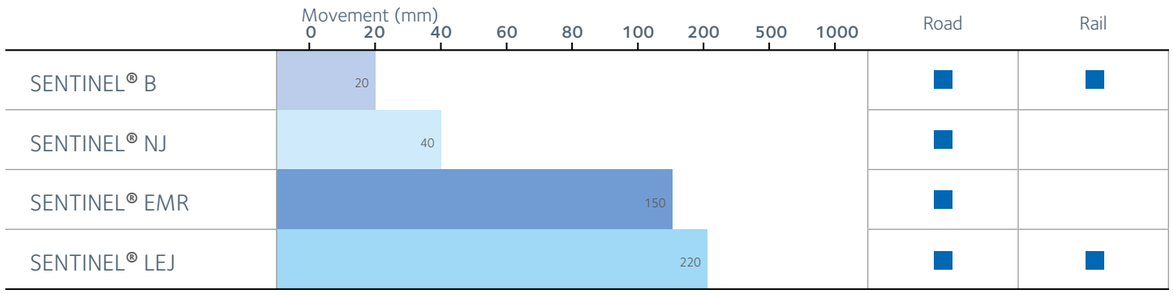
SENTINEL® EXPANSION JOINTS

- A range of buried and surface-mounted, horizontal and vertical bridge deck expansion joints to meet the requirements of the project
- Resistant to a wide range of chemicals and oils
- Fast and effective installation
- Highways England registered

UNITED KINGDOM

SENTINEL® SELECTOR TABLE

AREAS OF USE



SENTINEL® joints work together with GCP waterproofing systems.

SENTINEL® JOINTS

SENTINEL® B (Buried Expansion Joint)

Incorporates a proprietary PVC flashing strip designed for various movement ranges, bonded across the expansion gap and incorporates into the Eliminator waterproofing system. Forms a continuous waterproofing detail below the asphalt surfacing.

SENTINEL® NJ (Nosing Expansion Joint)

Expansion joint formed between two nosings, with the gap infilled with a pre-formed compression seal.

SENTINEL® Reinforced Elastomeric Joint

A Type 5 reinforced elastomeric bridge joint system.

A pre-fabricated joint comprising a mat spanning the joint gap formed from an elastomer with bonded metal plates.

- Suitable for large gap widths
- Accommodates skew angles
- Secondary gutter to ensure waterproof joint
- Absorbs vertical as well as horizontal movement
- Factory formed kerb details available

SENTINEL® EMR (Modular Expansion Joint)

A surface mounted pre-fabricated joint comprising an elastomeric seal fixed between metal runners as a single-element (EMR).

- Rapid installation and return to service
- Cost effective and low maintenance
- Range of load bearing seals to accommodate differing movements and gap widths
- Rapid installation
- High strength elastomeric mortar
- For highway bridges, footbridges, car parks and building

SENTINEL® SABA

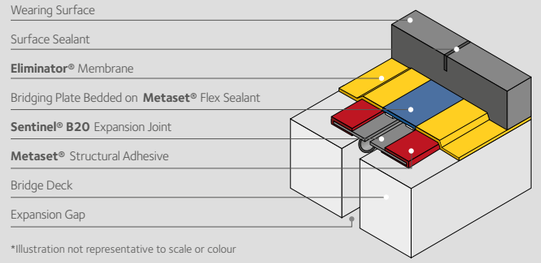
Sentinel SABA is a liquid applied two component, solvent free bandage based on high performance flexible resins. It is formed in-situ to create a highly resilient expansion joint.

A versatile solution which accommodates movements in all three directions, Longitudinal, Transverse and Vertical.

- Provides a waterproof joint that's long lasting and suitable for complex geometry and directional changes.
- Joint remains permanently elastic and resistant to motor fuels such as petrol, diesel, kerosene and LPG
- Suitable for car parking facilities, airports, civil structures, fuel stations, chemical plants, industrial floors and stadiums.

SENTINEL® B

BD33/94 Type 1 buried joint for use under continuous surfacing.



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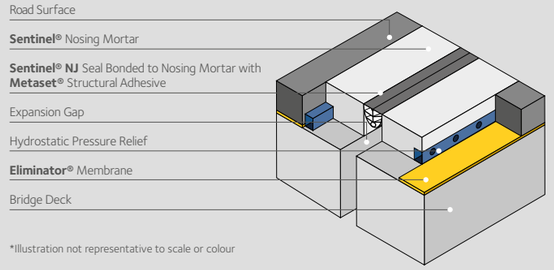
SENTINEL® NJ

BD33/94 Type 4 Nosing Joint



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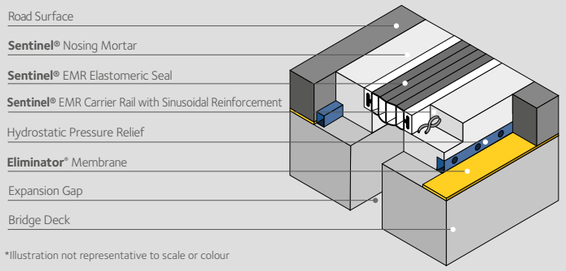
SENTINEL® EMR

BD33/94 Type 6 Elastomeric in metal rails



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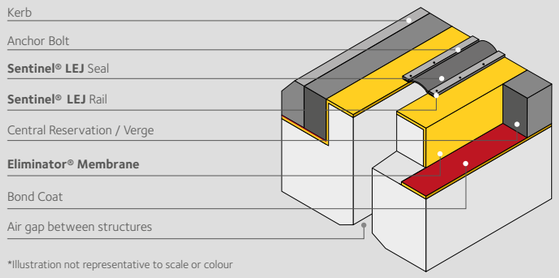
SENTINEL® LEJ

Longitudinal Joint



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Surfacing and ancillary products for the end-to-end solution.

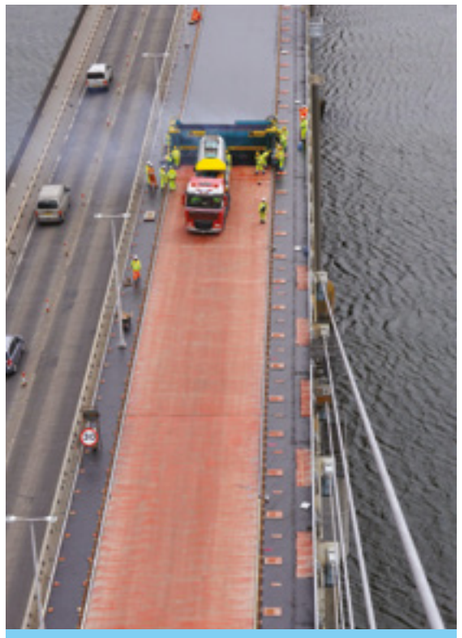
Waterproofing and surfacing have often been specified and procured in isolation and whilst both will satisfy their individual specification and performance requirements, the success of their performance together is assumed.

Experience tells us this assumption has led to premature failure.

Waterproofing and surfacing considered together offers one stop solution to the often complex problem of waterproofing and resurfacing a bridge deck and protecting them from the effects of premature failure but also provides: access to the skills and experience of the technical experts in their field.

UNITED KINGDOM

CZECH REPUBLIC



UNITED KINGDOM

METASET® CONCRETE REPAIR SYSTEM

The concrete repair system that cures within an hour and won't hold up the project.

To make repairs to the bridge deck, choose from our range of high performance rapid-hardening repair mortars for defective concrete and stone.

METASET® Mortar and METASET® Concrete

For repair of damaged or deeply textured horizontal surfaces

METASET® Concrete can be extended with coarse aggregates for depth repairs over 10mm

METASET® Vertical Mortar

Suitable for use on vertical/ steeply inclined surfaces

UNITED KINGDOM

SAFETRACK® ROAD SURFACING AND MAINTENANCE PRODUCTS

To complete the road, foot or cycle bridge, GCP has developed a range of high performance road maintenance products that offer superior in-situ performance with a longer service life.

The SAFETRACK® range is highly durable and outperform traditional systems. With a range of High friction and coloured surfacing along with crack and joint sealing products.

For our full SAFETRACK® SC colour range please visit gcpat.com.

Buff
Road Red
Asphalt Grey
Chrome Green
Mid Grey
Capri Blue

Please note these are for display purposes only and are not an exact representation.

UNITED KINGDOM

How we help you keep traffic moving.

Our long and successful track record in global bridge deck waterproofing projects and Blue 360[SM] Advantage enables us to add value at all stages of the project.

Each project has its own particular requirements and our Blue 360[SM] Advantage is an integrated offering of products, technologies and expertise to give our customers a unique business advantage.

Our **Blue 360[SM] Advantage**, tailored to your needs:

1. TAILORED SEMINARS

2. SITE SURVEYS

3. DESIGN & SPECIFICATION SUPPORT

Each project is different and our experienced team works with you to develop project specific drawings.

Our Technical Services team are highly experienced and available throughout the project to provide support and advice as required, covering for example::

- Understanding the consequences of specification decisions
- Detailing requirements
- Site programme

4. IN HOUSE R&D FACILITIES

5. APPLICATION AND TESTING

Site testing is essential in order to manage the quality of the installation, including monitoring adhesion, application thickness and weather conditions throughout the works.

100% of the surface can be tested electronically, avoiding additional treatments and associated delays and costs.

Our Authorised Contractors carry out all site testing in accordance with our written procedure which is documented and shared with the client.

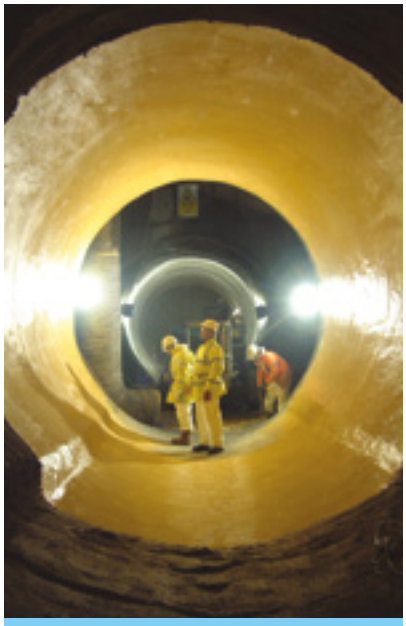
We are inspired to influence how the world is built.

Innovation Driven.
From the first products we developed that revolutionised waterproofing, we pride ourselves on our ability to adapt to new conditions, developing and enabling emerging technologies.

Service Led.
We understand the pressures faced throughout each stage of complex projects and are committed to providing support.

Solutions Based.
We offer proven products and solutions to meet the needs of bridge designers, engineers and contractors globally.

HIGHWAY MAINTENANCE SOLUTIONS



TUNNEL WATERPROOFING SOLUTIONS

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