CONCRETE REPAIR ASSOCIATION

www.cra.org.uk

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E-Bulletin

This news bulletin is brought to your desktop by the UK Concrete Repair Association (CRA). It provides brief and easy-to-digest updates supplied by the CRA and its Members on recent concrete repair developments, new advances and other initiatives occurring in the industry.

To obtain further information on any of the stories, click the email links below.

TRADE ASSOCIATIONS JOIN FORCES AT THE CONCRETE SHOW 2012

The Concrete Repair Association (CRA), Sprayed Concrete Association (SCA) and Corrosion Prevention Association (CPA) joined forces at the UK Concrete Show 2012, at the Rioch Arena in Coventry from 22-23 February to create a Concrete Renovation Centre.

The three associations provided a comprehensive seminar programme to educate visitors about concrete renovation methods. Members of each association also exhibited in this area. This made it simple for visitors to get all the information they needed about concrete repair and renovation methods, techniques and products.

The seminars included two of the CRA's popular CPD presentations. Each presentation is about 45 minutes in duration and is specifically designed to give an insight into concrete repair techniques and allied refurbishment procedures:

- **'The route to a successful concrete repair'**
  An overview of issues to consider in the repair of reinforced concrete. It deals with the essential steps that need to be followed and the best approach to be adopted.

- **'Structural strengthening with fibre reinforced polymers'**
  Considers the different types of fibre reinforced polymer (FRP) composite materials and the types of structure they are used to strengthen, to enable the viewer to avoid basic errors when employing, specifying and/or applying such systems.

The CRA offers its CPD presentations free of charge, at mutually convenient dates and times to consultants, engineers, authorities and other interested groups. The programmes, which are certified by the Construction CPD Certification Service, are also available free of charge on CD-Rom.

SEND AN E-MAIL: **admin@cra.org.uk**

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REMMERS PROTECT EASTGATE CAR PARK

Eastgate Shopping Centre in Inverness serves as the largest shopping area for the highlands of Scotland. Built in 1983 and extended in 1993 and 2003, the shopping centre now houses a car park with 1,350 spaces.

CCCP were the on-site consultant engineers who tested the car park structure for levels of chlorides in the concrete. From their findings, they created the specification which recommended the use of Remmers MCI and Remmers Betofix concrete repair systems. Essential works were then carried out to protect the embedded steel reinforcement. Finally a bonding bridge was applied and a new fibre reinforced slab was laid to protect the concrete from any further damage.

Other concrete repairs were also carried out to the base slab, soffits and columns. All works were successfully completed with minimum disruption to normal retail operations.

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APA APPLIES ARC SPRAY ON M1 BRIDGE

CRA contractor member **APA Concrete Repairs Ltd** was recently selected to undertake the installation of the Prosion surface-mounted anode system to Knowsthorpe Lane Bridge. The structure carries a section of the busy M1 motorway past Leeds and forms part of the M1-A1 Link Road (Lofthouse to Bramham) DBFO scheme, operated and managed by Connect Roads.

When first constructed in 1998, a small section of the northbound carriageway wall was found to have been constructed using water from a borehole with raised chloride ion concentration levels. It was originally decided that a targeted Impressed Current Cathodic Protection (ICCP) system, based on proprietary impressed current discrete anodes would be the most appropriate solution to the issue.

The original CP system operated successfully for nearly ten years, however, in recent times it has been repeatedly vandalised and the cabling stolen. The decision was therefore made to remove the ICCP system and replace it with a vandal-resistant galvanic anode CP system.

The Prosion system, developed and supplied by BAC Corrosion Control Ltd, was selected as the replacement due to its ability to provide corrosion protection without the need for electrical wiring and other externally-mounted components prone to vandalism.

APA Concrete Repairs Ltd prepared the substrate and applied the anode to the bridge using the Thermal Arc Spray method, a process that involves spraying a mist of liquid metal onto the concrete. The anode is applied as a continuous layer that acts 'sacrificially', corroding in preference to the reinforcement that may otherwise deteriorate.

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EARLY COMPLETION FOR CRL BRIDGE REFURBISHMENT

CRA member, **Concrete Repairs Ltd (CRL)** has completed major refurbishment of the Kyle of Tongue Bridge in Scotland six weeks ahead of schedule.

The 184m long, 18 span bridge carries the A838 over the Tongue estuary. The Highland Council awarded CRL a £1.2 million contract to repair the substructure, re-waterproof the deck and install new vehicular barriers. AECOM provided the engineering services.

CRL repaired the pre-stressed concrete longitudinal beams and in situ concrete crossheads, where there was corrosion to the steel reinforcement due to high chloride levels. To enhance the durability of the concrete a hybrid cathodic protection system was installed in the pre-stressed longitudinal beams and a galvanic system in the cross head beams. This is the first time that a hybrid CP system has been used in pre-stressed concrete beams.

The supporting steel piles were cleaned, repainted and an Impressed Current Cathodic Protection system installed to protect the steel below the waterline.

This was a very challenging contract in a remote and environmentally-sensitive region, involving three distinct corrosion management systems developed by AECOM and a unique suspended access system.

Working in partnership with Highland Council and AECOM, CRL were able to deliver the project six weeks early and on budget.

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USL ENDS DETERIORATION AT HALTON

Halton Lea Multi Storey Car Park near Runcorn has undergone extensive refurbishment works to provide a more-user friendly parking experience and to improve the structural serviceability of the car park as part of its long term maintenance strategy.

Many of the materials used were manufactured and supplied in house by USL StructureCare's sister company Nufins. Structural repairs were carried out using Deck Repair Rapid and Nucem HB Mortar, both rapid setting materials which are designed for the repair and restoration of spalled or damaged concrete.

The concrete throughout the car park was coated with Covercrete – a high quality, environmentally friendly, light-reflective coating that protects against carbonation and chloride attack. The coating was applied in white, to significantly enhance the level of light in the car park and provide an aesthetic upgrade.

To arrest deterioration of the reinforcing bar and provide future protection, a Migrating Corrosion Inhibitor was applied to the whole deck area. Protectosil CIT by BASF was chosen due to its ease of application and compatibility with the deck coatings.

All decks and ramps were prepared, made good and coated with products from BASF's Conideck Range to provide protection against chloride and water ingress. The fully elastomeric Conideck 2205 was used on the exposed roof decks and the Conideck 2257 fast curing system was used as an intermediate deck coating on covered levels.

The refurbishment project has made a radical difference to the visual appeal, efficiency and safety of the car park, leaving a bright, clean and inviting place to park.

SEND AN E-MAIL: **info@usluk.com** **LINK TO WEBSITE:** **www.usluk.com**

CEMPLAS REPAIRS NORTHMINSTER MULTI-STOREY CAR PARK

Working as the main contractor for Peterborough Council, CRA member **Cemplas Waterproofing and Concrete Repairs Ltd** has undertaken a range of remedial work at Northminster Multi-storey Car Park. Works included concrete repairs, brick wall ties, and car park surface repair and coating.

Scaffolding was erected to all elevations and concrete repairs were carried out using Sika Monotop 610. The external concrete beam face and concrete soffits were repaired with Sika Monotop 615, while Sika Set 45 Rapid Concrete Repair Mortar was used on the concrete floor slabs. Certain isolated areas of the existing top deck coating were removed, and Sika Proto surface coating applied.

Following a survey to test the structural integrity of the parapet walls, Cemplas operatives were tasked with installing in excess of 10,000 new Helifix Retrotie brick ties to the parapet walls on all the car park levels.

Dust extraction units were fitted and clearance holes drilled through the outer skin of brickwork, ensuring the hole was in the solid part of the brick. This was followed by pilot holes drilled into the inner leaf, a Retrotie was then placed into the support tool, positioned and filled with resin.

Following the installation, all ties were tested to establish that the required pull out strength was achieved and, once passed by the Council, the drill holes were filled using Easipoint plug, which was colour-matched to the existing bricks, and finished flush to the brick face.

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PRESTEC UK UNVEILS NICHOLSON WAR MEMORIAL

Unveiled in 1925, the Nicholson War Memorial in Leek, Staffordshire, was built by Sir Arthur Nicholson to commemorate the death of his son and the fallen from the First World War.

A Heritage Lottery grant provided funding to renovate the memorial and undertake structural restoration of the metal work inside.

Prestec UK Ltd were appointed to carry out a major refurbishment and restoration of the internal and external elevations, following a successful tender via Christopher Taylor Design Ltd, and partner in charge Chris Hesketh.

The works included structural repair of the internal filler joist and all the intermediate floor slabs, as well as masonry repairs and re-building and re-pointing to the Portland stone of the main monument and the perimeter walls.

Prestec UK also overhauled the existing rainwater goods and decorative gates, repaired lead flashing and joinery and replaced and relayed the sandstone paving and natural cobble stone sets. The company also provided specialist cleaning of the monument's sandstone external elevations.

Finishing touches included the restoration of all bronze wear on the main gates and feature lamp posts and the memorial plaques; the installation of new benches and bollards to the public areas surrounding the monument; painting and decorating of all internal and external metal railings; replacing of all internal oak hand rails; and applying new gold leaf to all four clock faces and the weather vane.

Prestec UK Ltd was invited to a ceremony on Remembrance Sunday, 13 November 2011, to unveil the restored monument alongside the Nicholson family and an audience of the people of Leek. A commemorative plaque was placed inside the building which records Prestec UK's work on the restoration project.

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