

Cracking Matters



THE JOURNAL OF THE CONCRETE REPAIR ASSOCIATION

ISSUE NO. 32

CRA responds to changes to CSCS card scheme

The Concrete Repair Association plans to undertake a survey to investigate the number of UK assessment organisations able to conduct assessments to NVQ level 2 (Concrete Repair), amid concerns that changes to the CSCS card scheme will result in increased demand which cannot be met.

On 1 July 2014, CSCS withdrew the Green Construction Site Operative (CSO) card, introducing a new green CSCS card for people working in labouring occupations, as well as a range of other cards for apprentices, skilled workers, etc.

The move came as a result of concerns that many site workers carrying out skilled occupations had been applying for the green CSO card as the easiest route to gain access to construction sites. This made it difficult for

contractors to use CSCS cards as a reliable method of checking that site workers had the appropriate skills to work on construction sites safely and effectively.

According to the CRA, the changes to the CSCS card scheme could have a potential impact on those currently holding Concrete Repair CSCS cards achieved through Grandfather Rights and those currently holding General Operative Green Cards.



Holders of the General Operative Green Card will no longer be able to renew their cards on expiry since this card has been withdrawn. Those with a General Operative Green Card will now need to reclassify as a Labourer and attend a one-day Health and Safety course. To obtain the new Green Card the individual may also need to commit to a skill they are working towards and will have a limited time to achieve an NVQ in the chosen skill.

The CRA is concerned that the changes will result in a reclassification of the trade of Concrete Repair to labourer, while also increasing demand for gaining an NVQ in concrete repair.

While the Association is committed to encouraging concrete repair operatives to gain NVQ level 2 qualifications in Concrete Repair, it is concerned that current UK assessment capacity may not meet the growing levels of demand, particularly if the time available to obtain qualifications is limited.

The NVQ module consists of six mandatory units against which each candidate must be assessed. Typically this will require 2-3 site visits from a suitably qualified Assessor over 2-3 months.

The CRA aims to conduct a survey of assessment centres to establish a verified list of organisations who can undertake assessments against the Concrete Repair Module.

Keith Barrow CRA Vice Chairman explains: "The CRA recognises the important role of NVQ level 2

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Structural Concrete Alliance announces 2015 seminar dates

The Structural Concrete Alliance has announced the 2015 dates for its free to attend regional Continuing Professional Development (CPD) seminars.

Designed to provide delegates with an introduction to *Structural Asset Protection and Repair*, these half-day events offer an introduction to corrosion as well as techniques for repair, protection and strengthening.

Presentations are varied to reflect the region in which the seminar takes place but include: An introduction to corrosion; An overview of electrochemical systems; Concrete repairs and coatings; Carbon fibre strengthening; Introduction to sprayed concrete; and Inspection of reinforced buildings & structures.



Four CPD seminars are scheduled for the remainder of 2015:

- 19 May, Portsmouth
- 15 September, Coventry
- 20 October, Liverpool
- 24 November, Swansea

For those unable to make the seminars, the Alliance also offers CPD presentations which can be delivered on-site to interested parties.

For further information or to download a booking form, visit www.structuralconcretealliance.org.uk

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www.cra.org.uk

STRUCTURAL CONCRETE ALLIANCE SPONSORS AWARD

The Structural Concrete Alliance sponsored a new Concrete Society award to find the structural concrete project of the year in 2014.

Entries were received from members of the three trade associations which make up the Structural Concrete Alliance, with the winner announced by Janet Street-Porter at the Concrete Society Awards Dinner held at the Grosvenor Hotel, Park Lane, London on 29th October, 2014.

Members of the Concrete Repair Association (CRA), Corrosion Prevention Association (CPA) and the Sprayed Concrete Association (SCA) supplied details of the solutions they had delivered to overcome difficulties encountered in a range of demanding projects.

The Award was presented to Mott Macdonald for its refurbishment of Ryde Pier on the Isle of Wight, completed in April 2013. The judging panel felt that the innovative approach implemented best represented the expertise of the asset protection and repair industry.

Other highly commended projects were Balvac's repair and refurbishment of the Silver Jubilee Bridge complex in Widnes, Cheshire; and BAM Ritchies' stabilisation of the Hooley Cutting in Surrey.

Ken Dykes, spokesman for the Structural Concrete Alliance declared: "The judging panel was impressed by the high standards of the entries, which served to highlight the professionalism of CRA, CPA and SCA members. Each entry demonstrated the depth of knowledge and skills our members possess and their ability to provide innovative solutions to even the most demanding of engineering challenges."

The Alliance is once again sponsoring the award in 2015 and is inviting entries from CRA, CPA and SCA member companies. For further information, contact admin@structuralconcretealliance.org.uk



Professor Paul Lambert, Technical Director of Mott Macdonald accepts the award from Janet Street-Porter and Ken Dykes of the Structural Concrete Alliance

Winner: Mott Macdonald, Ryde Pier Refurbishment



The Award was presented to Mott Macdonald for its refurbishment of Ryde Pier on the Isle of Wight, completed in April 2013. The contractors overcame access challenges related to working in a tidal environment, within a site of special scientific interest, while keeping the pier and its railway line open to the public throughout the works.

By introducing the use of marine anodes fixed to the sea bed to protect both the steel structure of the pier and the concrete, Mott Macdonald demonstrated an innovative use of technology, resulting in substantial savings in time, materials, disruption and costs.

Ryde Pier was built in 1877, to serve ferries to the mainland. A railway line runs along the pier to a ferry passenger terminal. In 2009, Mott MacDonald produced an outline repair specification for the pier which involved two cathodic protection (CP) systems. One was to protect the concrete elements, installed in the concrete surface, while the other protected the submerged iron and steelwork, using anodes submerged in the sea.

In 2012, the project went out to tender and Mott MacDonald were approached by specialist repair contractors Volkerlaser to undertake the detailed design.

For the concrete system, the design required work down to 1m below mean tide level. This would have involved cutting chases into the concrete, installing anodes and grouting them in place, which would have been difficult due to the tide.

For protection of steelwork in a marine environment, submerged anodes fixed to the sea bed use the sea to protect submerged steel up to mid tide level. Mott Macdonald and Volkerlaser proposed using the same technique to protect the concrete, an approach that had never been taken before.

After undertaking thorough testing and analysis Mott Macdonald confirmed that the plan would not only provide protection for the steel in concrete but also extend this protection to 1m above sea level. As a result, anodes in the concrete could be installed at 1.5m above mid tide level,

rather than at 0.5m below the mid tide level as originally proposed.

This removed the requirement to install anodes into and below the horizontal bracing on the pier and the need for significant work below mid tide, simplifying access. By employing this approach Mott Macdonald achieved a 20% reduction in the amount of work and a 55% increase in the amount of productive time as well as realising significant material savings and reducing the level of dust and debris produced.

BAM Ritchies, Hooley Cutting, Surrey; 2nd place



This project involved the innovative use of sprayed concrete technology to create an intricate concrete grillage stabilisation structure. As a direct result of these innovative methods, the vast majority of the work was undertaken without disruption to the busy London/Brighton commuter route. It advanced the technology for steep infrastructure slope stabilisation, and pushed the boundaries of what can be achieved above a live railway.

Balvac, Silver Jubilee Bridge, Widnes, Cheshire, 3rd place



A lightweight pre-fabricated bolt-on 'cassette' cathodic protection (CP) system was used to extend the life of the main suspended deck of the bridge. The delaminated concrete was removed using hand breakout and the concrete replaced using dry spray concrete or hand placed mortar, prior to installation of the cassette CP system. In total 8,640m² of CP cassette were installed to protect 4,300m² of concrete deck. The successful application of a CP Cassette Anode system has led to its use on other repair projects in the UK.

CURRENT CRA MEMBERS

Contractors:	Telephone:
Alfred Bagnall & Sons (Restoration) Ltd	020 8311 3910
Amber Construction Services Limited	0208 592 5699
APA Concrete Repairs Limited	01422 379640
Balfour Beatty Concrete Repairs	0113 8213400
Balvac Ltd.....	01928 719875
Bersche-Rolt Ltd.....	01825 713000
CCL (GB) Ltd	0113 2701221
Cemplas Waterproofing & Concrete Repairs Ltd	020 8654 3149
Concrete Repairs Ltd	020 8288 4848
Concrete Restoration Ltd	020 8994 8860
Currall Lewis and Martin (Construction) Limited	0121 5529292
Freyssinet Ltd.....	01952 201901
Gunite (Eastern) Ltd.....	01480 466880
JB Specialist Refurbishments Ltd.....	01487 834017
Mackenzie Construction Ltd	0141 6335555
Makers Construction Ltd	0845 8994444
Oxford Hydrotechnics	01869 346001
P J Mear Ltd	01480 431117
Prestec UK Ltd	0121 3088001
Primars Coatings Services Ltd	0208 9523330
Renocon Limited Mulalley Planned Maintenance	020 85519999
RSS Construction Projects Limited.....	08456 123293
Sealability Limited	0870 4050001
Skyform Specialist Contracts	0141 8105722
Sonny Maintenance Ltd - SMG	01323 411298
South West Concrete Repairs Limited	01752 561300
Structural Renovations Ltd	01753 825511
Topbond Plc	01795 414050
Universal Sealants (UK) Limited.....	0191 4161530
VolkerLaser Limited	0844 8004560
Manufacturers:	Telephone:
Fosroc Ltd.....	01827 262222
Mapei UK Ltd	0121 5086970
Remmers (UK) Ltd	0845 373013
Sika Limited	01707 394444
StoCretec GmbH.....	00 49 6192 401152
Weber	01525 718877
Distributors:	Telephone:
EPMS Supplies Limited	0113 2760037
Resapol Ltd	01942 609001
SIG Insulation.....	07809 510583
Associates:	Telephone:
Birmingham City Laboratory	0121 3039300
Martech Technical Services Ltd	01487 832288
The Concrete Consultancy 2000 Ltd	01707 268034

Structural Concrete Alliance issues new guidance on concrete repair and protection

The Structural Concrete Alliance has released several new guidance documents on the repair, maintenance and protection of concrete structures.

The Alliance, which brings together the Concrete Repair Association (CRA), Corrosion Prevention Association (CPA) and Sprayed Concrete Association (SCA), has recently added to its library of guidance documents with the publication of three new Technical Notes.

A new CRA document offers advice on *Coating and protecting concrete in accordance with BS EN 1504*; while the CPA has issued guidance on the use of cathodic protection systems in the form of Technical Note 22: *Cathodic protection for buried & immersed structures* and Technical Note 23: *Cathodic protection for new structures*.

Coating and protecting concrete in accordance with BS EN 1504 offers the latest advice on available materials and coating application methods.

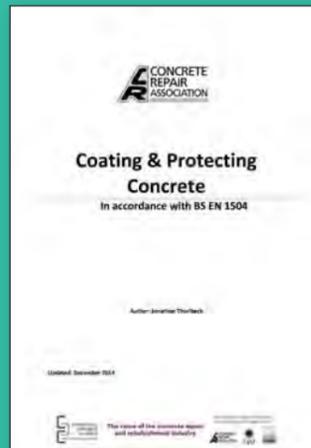
Available for free download from the CRA website, www.cra.org.uk, the document explains that concrete can deteriorate due to

mechanical, chemical and physical means, as well as a result of fire; while corrosion of reinforcement can be caused by carbonation, corrosive contaminants and stray currents.

It describes in detail the use of anti-carbonation and barrier coatings, as well as hydrophobic impregnations to address these issues.

The CPA's Technical Note 22 offers advice on *Cathodic protection for buried & immersed structures*. Although such structures can be protected using anode systems, the document states that protection can often be more economically provided using the cathodic methods regularly used to protect buried or immersed steel structures. The document lists the standards that apply and describes design considerations and typical applications.

Meanwhile, Technical Note 23 *Cathodic protection for new structures* highlights the increasing use of such systems for new structures in particularly corrosive environments, or where longevity and guaranteed durability are of particular importance.



The document offers guidance on installation and maintenance of these 'cathodic prevention' systems. Although noting that their use requires a commitment to monitoring, control and maintenance, the document explains that such systems have already been proven to be a cost effective method of providing corrosion control to reinforcement in many large scale

applications where a long operational life is required. Both CPA documents are available for free download from the CPA website, www.corrosionprevention.org.uk

For further information on Structural Concrete Alliance guidance, visit www.structuralconcretealliance.org.uk

CRA responds to changes to CSCS card scheme

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as an appropriate means of raising standards of concrete repair and demonstrating competency. However, we are concerned that short term capacity in verified assessment centres may not be able to keep up with demand and changes to the CSCS card scheme has caused this to be very much in our focus.

"By conducting a survey of assessors we will be able to put in place measures to ensure that the necessary skills are developed, enabling CRA members to demonstrate their competency in future.

"The CRA has for some time been discussing the potential to make it a condition of membership that companies have a prescribed number of employees qualified to NVQ level 2. And an outline proposal to this effect is likely to be put to the membership by the Executive Board in the near future."

ALLIANCE LAUNCHES NEW WEBSITE

The Structural Concrete Alliance has launched a new website which provides visitors with easy access to Alliance news and e-bulletins. The site also directs visitors to publications and training available from the individual associations which make up the Alliance.

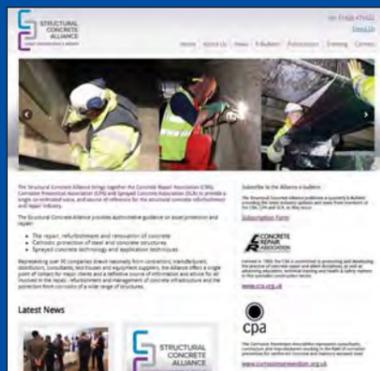
The new website offers an introduction to the aims of the Alliance and provides details of its organisation and management. It offers all of the latest news from the individual associations that make up the Alliance, and an e-bulletin archive.

The new site provides direct links to the technical guidance documents produced by each association, helping visitors to navigate directly to the advice they require.

It also provides details of upcoming events and training courses, including the dates of its free regional seminar programme.

The Structural Concrete Alliance brings together over 70 companies drawn from contractors, manufacturers, distributors, consultants, test houses and equipment suppliers and offers a single point of contact for major clients and a definitive source of information and advice for all involved in the repair, refurbishment and management of concrete infrastructure and the protection from corrosion of a wide range of structures.

Visit www.structuralconcretealliance.org.uk

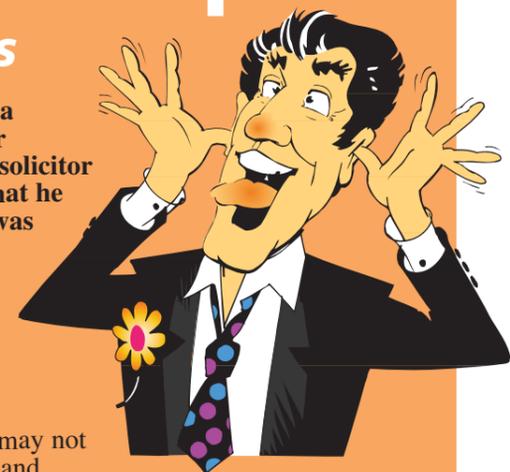


Professional ethics, a thing of the past?

Allen's observations

My villainous old Uncle George was a man who was rarely if ever lost for words. On one occasion when told by a solicitor during a rather protracted house sale that he should have no worries as the solicitor was bound by a code of professional ethics, George gave him an old fashioned look and responded:

"Professional ethics eh? I suppose common decency is too much for you!"



Now I accept that George's point of view may not be everyone's, but the idea that undefined and unspoken standards will be sufficient unfortunately has no place in the modern world. Clients in both the public and private sector require a more tangible proof of our bona fides. In fact, the whole drive of regulation is away from Client responsibility and onto cascading the responsibility down the line.

On 6 April, the new CDM Regulations came into effect. These contain a number of important changes that could affect us all.

One of the main changes is the removal of the CDM Co-ordinator from the scene and the introduction of a Principal Designer. What this potentially means (and this will need to be tested) is that, in an open specification, the specialist contractor— even when working for a main contractor — may be considered as the Principal Designer for their section of the works.

From the Client's point of view, there are attractions in the open specification route as any liability is likely to fall upon the person or company writing or submitting a specification, rather than on them as the commissioner of the project. However, ultimately the Client still needs to deliver a completed project to a high standard and regardless of how much liability they can pass on to the contract team they remain responsible for the project in total.

The simplest way to control this situation is by insisting that contractors are subject to third party endorsement, not only the generic SSIP, CSCS and assorted ISOs but by accreditation to a reputable trade body that both assesses its members and provides them with technical advice and support.

Here I feel we have the opportunity to put some clear distance between CRA members and what might be termed "the others". When proposing repair materials or a contractor to a Client, it has to be better to say that we know they are of a high standard because they are CRA members, rather than "we use them because they are cheap". Price will always be a factor but, in this liability conscious environment, proven quality will become increasingly important.

Finally, I'd like to thank all the friends who sent me their best wishes while I was unwell and wish you all a very belated Happy 2015 and a slightly less belated Happy Year of the Goat.

CEMPLAS RETURNS TO THE MALL LUTON



Having refurbished the main car park decks at Luton's shopping centre several years ago, **Cemplas Waterproofing and Concrete Repairs** upgraded the protection and appearance of various concrete elements after being engaged by consultants Tuffin Ferraby and Taylor. Cemplas was asked to provide a specification and costs for repairs to the external roof car park and two main concrete spiral entry and exit ramps totalling over 3,000m².

All concrete surfaces were cleaned using a DOFF system, which cleans stonework and masonry using high temperature steam. Diamond planing and shot blasting was carried out to remove all existing heavily tamped concrete surfaces from the walls, soffits, and roadways.

Having completed all the concrete preparation, Cemplas operatives carried out repairs to the structure using Fosroc repair mortars and anti-carbonation coatings. Resurfacing of ramps and roadways were carried out using Vulchem's quick methacrylate coating system with a fully blinded finish with a colour coat, together with the replacement of expansion joints.

Work was phased over an eight-week period to allow the car park to remain open with one access ramp always in use, and was largely carried out using mobile elevating work platforms together with some fixed scaffold.

Capital & Regional, the management company and owner of The Mall Luton, gave very positive feedback. The Mall Luton's operations manager noted that the works were completed on time and on budget, declaring that the Cemplas on-site team were "a credit", working very well with the Mall's own staff.

CEMPLAS WATERPROOFING AND CONCRETE REPAIRS LTD
020 8654 3149
www.cemplas.co.uk

CPT PROTECTS SHERBORNE FOOTBRIDGE



Concrete Preservation Technologies is treating ongoing corrosion-induced concrete damage on various structural elements of the Sherborne footbridge, which spans the river Irwell in Salford.

Of particular interest were 9 post-tensioned beams which exhibited visible corrosion damage to the ducts and tendons.

Post-tensioned beams are particularly difficult to treat since standard cathodic protection methods have the potential to induce hydrogen embrittlement of the steel tendons which could lead to failure.

A corrosion survey of the structure (visual, hammer-tap, steel half-cell potential, chloride profiling and carbonation depth analysis) revealed significant corrosion-induced damage and areas at risk of future corrosion. The source of the damage was determined to be chloride salts from de-icing of the bridge, which had leaked through joints and cracks, contaminating the substructure.

A DuoGuard hybrid system designed to ISO 12696:2012 was used by CPT to halt ongoing corrosion and prevent future corrosion damage to the deck support beams, bridge piers and post-tensioned beams spanning the river.

The DuoGuard system was installed in phases to fit with the bridge refurbishment programme. The initial impressed current phase of the hybrid system applied to the post-tensioned beams was closely monitored and controlled before the system was switched to long term sacrificial mode.

The system has insufficient voltage to cause hydrogen embrittlement and offers a safe long term solution. IP66 rated termination enclosures were installed on the piers to allow ongoing steel corrosion rate monitoring.

CONCRETE PRESERVATION TECHNOLOGIES
0115 9724 238
www.cp-tech.co.uk

BALVAC REPAIRS ANLABY FLYOVER



Balvac has undertaken repairs to the Anlaby flyover, which carries the A1105 Anlaby Road, one of the main access routes into Hull City Centre and the KC Stadium.

Constructed in the early 1960s, the 376m-long reinforced concrete structure was suffering with concrete delamination from years of severe saline attack caused by road salts. In places, the condition of the concrete was so deteriorated that sections had fallen away, exposing the internal steel reinforcement.

Balvac was awarded the contract following a competitive tendering process and began the repairs in May 2014. In accordance with the client's specification, Balvac carried out 36m³ of concrete repairs utilising the **Sika** range of materials which included Sika Armorex Armocrete for the poured repairs, Sika Monotop 612 for the hand repairs and Sika Cem Gunite 133 for the spray applied concrete repairs.

Incorporated into the repairs were over 2,500 Vector Galvashield Anodes which provide cathodic protection against future reinforcement corrosion. The concrete was additionally protected with the application to over 2,500m² of Sika Ferrogard 903 corrosion inhibitor, while Sika Guard 550 W, a protective elastomeric coating, was applied to 9,000m² of concrete surfaces.

Over 1,000m of steel parapet railings were fully repainted and over 500m² of Tremco waterproofing applied to the pedestrian ramps.

Balvac worked through the winter months in difficult weather conditions, sequencing repairs to minimise temporary works. Pedestrian access was maintained, particularly during events at the KC Stadium.

Balvac maintained an excellent relationship with Hull City Council throughout the works, delivering another quality structural refurbishment and repair project.

BALVAC LTD
01928 719875
www.balvac.co.uk

SIKA LTD
0800 1123863
www.sikaconstruction.co.uk

STRUCTURAL RENOVATIONS LTD LAUNCHES A NEW RESPONSIVE WEBSITE



Structural Renovations Limited has launched a brand new responsive website at: www.structuralrenovations.co.uk.

The new site has interesting news stories and case studies and is complemented by its Twitter feed @SR_London. It also offers details of its wide range of services including survey and advice, concrete repair and protection, waterproofing, composite strengthening and masonry repairs.

Structural Renovations Ltd has extensive experience in the health, education, governmental, commercial, residential and infrastructure sectors, working closely with consulting engineers, building surveyors and architects. Its services are frequently required on structures of a listed status, where it is able to assist in replicating various details to satisfy conservation bodies, such as English Heritage.

The site is regularly updated and visitors can register for a newsletter to keep up to date with latest developments. Information is provided on projects as diverse as Admiralty Pier in Dover, Chelsea Football Club, Metropolitan Wharf & the Barbican Estate. The site's contacts page has links to all members of staff, who will be pleased to receive your enquiries.

STRUCTURAL RENOVATIONS LIMITED
01753 825511
www.structuralrenovations.co.uk

FREYSSINET PROTECTS PRICKWILLOW BRIDGE



Freyssinet Ltd has conducted concrete repairs and installed an impressed current cathodic protection (ICCP) system to protect the Prickwillow Bridge in Cambridgeshire which carries the B1382 road.

The contract, awarded by Skanska Construction UK Ltd, comprised of concrete repairs to remove the delaminated/spalled concrete and the supply, installation, and commissioning of an ICCP system developed by Atkins/Cambridgeshire Highways. The works were installed by Freyssinet and Corrosion Control Services Ltd (CCSL)

All work beneath the deck was carried out from a pontoon in the river Lark as river traffic prevented scaffolding being erected. The bridge was closed to motor traffic while work was carried out on the top deck.

Once repairs were completed an ICCP system was installed. This consisted of two anode types, Chemical Newtech discrete anodes installed into drill holes and Chemical Newtech ribbon anode mesh installed into saw cut chases.

The structures repaired and protected comprised the east and west halving joints; anodes were installed into the top of the deck, the deck soffit, and the adjacent beam ends, each joint was divided into five separate anode zones. The remote monitoring and control system was developed by Remco Systems in conjunction with CCSL.

The ICCP system was commissioned on the 10th November 2014 and will be monitored for a period of 56 weeks by CCSL.

FREYSSINET LTD
01952 201901
www.freyssinet.co.uk

CRL GIVES NEW LIFE TO DREWSTEAD BRIDGE



Concrete Repairs Ltd (CRL) have recently completed the repairs and installation of a cathodic protection system on the Drewstead Road Bridge in Streatham Hill, London. The bridge which carries the B221 across the main railway line is a significant transport route for Lambeth, with bus routes, commuting pedestrians, heavy goods and light vehicles constantly crossing the bridge. The bridge, built in 1968, comprises precast, prestressed concrete bridge beams spanning the railway lines, supported by two sets of four circular columns and a crosshead beam.

In 2012, it became evident that repairs to the superstructure and supporting columns and crosshead beams were required, and in 2014 the bridge underwent a large-scale refurbishment to address problems and extend the life of the structure.

Working with Free4M Consulting, a programme of testing by CRL Surveys determined the extent of the problem and enabled a suitable repair option to be presented to the client. The agreed solution consisted of a combination of concrete repairs, with an impressed current cathodic protection (ICCP) system to the portal crossheads. Hydrodemolition was used to first remove all loose, spalling concrete and to get behind the reinforcing, with the repairs being carried out using a combination of hand placed material, and a poured/cast micro-repair concrete. The cathodic protection system, a mesh and overlay was then installed over the entire area of the crosshead beams.

Early contractor involvement, a proactive client and a forward-thinking engineer ensured the works were completed on time, to budget and to the client's satisfaction.

CONCRETE REPAIRS LTD
020 8288 4848
www.concrete-repairs.co.uk

SAINT-GOBAIN WEBER IN BRIGHTON MARINA PILOT



Saint-Gobain Weber's high performance concrete repair products have been specified in a major pilot maintenance project at Brighton Marina - the largest manmade marina in Europe.

Substantial breakwater structures built in 1977 were formed by open bottom precast concrete caissons founded on concrete plugs. The harsh environment has prompted a continuous monitoring of the structural and material integrity of the breakwaters.

A trial was set up to determine the validity and implementation process of installing a cathodic protection (CP) system to protect, and extend, the performance duration of the steel reinforcing within the concrete structure.

The pilot scheme has been undertaken by Concrete Repairs Limited (CRL) and Saint-Gobain Weber concrete repair products were specified as an integral part of this package. Once the CP mesh was successfully connected to the reinforcing steel, weber.cem spray DS was used to form a strong, protective coat over the mesh and wiring.

Ben Lawson, Senior Contract Manager at CRL explained, "This was a complex project but a very worthwhile one. Now the initial trial is over, we will analyse the procedures and refine the methods for when the main programme commences."

"We specified Weber products from past and very satisfactory experience, as well as for exemplary technical support. The use of the weber.cem pyratop for the roadway cover screed meant that we could re-lay the surface in one day and this fast curing meant access for emergency vehicles was possible very quickly."

For more information contact Saint-Gobain Weber on 08703 330 070, email: mail@netweber.co.uk or visit our website.

SAINT-GOBAIN WEBER
08703 330 070
www.netweber.co.uk

MAKERS COMPLETES MERRION CENTRE CAR PARK PROJECT



Built in 1964, the 900-space Merrion Centre car park - owned & operated by Citipark - was the first multi-storey to be built in Leeds. With the passage of time, it had developed an extensive range of defects and has recently undergone extensive concrete repairs, corrosion management, structural strengthening and deck waterproofing. This extensive package of specialist works was carried out by **Makers Construction** as part of a 48-week, £8.4m internal and external refurbishment programme managed by GMI Construction.

In the largest carbon fibre strengthening project in Europe, 22km of Sika Carbodur plate was required to strengthen deflecting reinforced concrete beams. The project also included the drilling of 37,000 holes into which Sika's AnchorC carbon fibre ropes were inserted and chemically bonded. 28,000m² of SikaWrap carbon fibre matting was applied to the soffits of the parking decks.

"The project was logistically challenging given that we were on a very ambitious programme and were only allowed to take up 30% parking capacity at any one time with a key pre-requisite being to keep the car park operational at all times throughout the contract," comments Graeme Middleton, Business Development Manager at Makers.

"You have the dual challenge of providing a safe working environment not only for your own workforce but also members of the public who are coming and going, using the car park whilst you are working."

Makers were chosen as the most suitable contractor to carry out the works given their extensive experience in structural and car park refurbishment.

For further information, please contact Graeme Middleton g.middleton@makers.biz
MAKERS CONSTRUCTION
08458 994444
www.makers.biz

FOSROC HOLDS BACK THE OCEAN AT DAWLISH



Dawlish made the headlines in February 2014 when parts of the railway line were swept away during severe storms. Structures in or near the sea require materials that are resilient enough to withstand the impact of heavy seas, as well as the additional risk of corrosion caused by sea salts.

Fosroc offers a range of solutions that provide protection in the marine environment, including precast admixtures; concrete repair products; and the use of joint sealants and surface coatings. Some of these solutions are currently being used in repairs to the sea wall at Dawlish.

Temporary sea defences were constructed by AMCO when the wall collapsed, and Network Rail has now awarded AMCO the contract to increase the freeboard to the Dawlish lower sea wall, which protects the railway line between Exeter St David's and Newton Abbot stations.

The Dawlish sea wall scheme is using key products from Fosroc to assist in the reconstruction works including Conbextra UW - a free flow / pumped, non-shrink, cementitious grout which can be used underwater or in tidal zones where "wash out" would be a problem with conventional grouts. Fosroc's specialist sealant Nitoseal PU12, designed for use in sea defence works, is being used to seal joints as it offers excellent adhesion under immersed conditions.

Fosroc has been on site frequently to assist AMCO in understanding the products and their usage and also to ensure the contractor team are comfortable in applying the products.

For further info contact Sandra Westbrook on 01827 265150; email: enquiryuk@fosroc.com
FOSROC LIMITED 01827 265150 www.fosroc.com



Structural Concrete Alliance E-bulletin

The Structural Concrete Alliance, produces a regular e-bulletin which contains the latest news and opinion from the Alliance, and from members of the Concrete Repair Association (CRA), Corrosion Prevention Association (CPA) and Sprayed Concrete Association (SCA).

To ensure you receive your free copy visit www.structuralconcretealliance.org/e-bulletin/index.php and subscribe.