



THE JOURNAL OF THE CONCRETE REPAIR ASSOCIATION

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BEWARE THE PRETENDERS!

Those of us that have been around long enough will be aware of one irrefutable reality about recessions; almost without fail, they generate pretenders.

And, even though an economic downturn of the kind we are currently suffering hasn't occurred for a few years now, the fact is that the 'rule' shows little sign of changing.

It occurs, of course, when a business begins to experience a decline in its traditional market sectors and starts to ponder new areas in which it can direct its efforts in order to fulfil the company's capacity, to maintain its turnover and (hopefully) contribute to its margins.

Usually, as soon as the recession begins to bottom out, it drops the new sector like a hot brick and returns to concentrating its efforts on the activity it understands best.

It can't be particularly blamed for this. After all, the company has shareholders,

employees and its own income to protect. The problem comes, of course, when it is technically incapable of undertaking and effectively resourcing (with trained labour) the specialist nature of the work in the newly chosen activity.

The concrete repair sector (and its allied disciplines) is not immune to the predicament. It has happened previously

'..... inadequacies could leave a main/principal contractor vulnerable should things go wrong'

and it is transpiring again now. Unfortunately, in the end, it is usually the client, structure owner and/or the specifier who is left holding the can.

It's not just the one-off pure concrete repair project that is affected. In the current tough economic environment, many main/principal contractors are seeking ways of increasing the value of their package by taking on additional, related works that they might have

previously sub-contracted. Quantity Surveyors are always on the lookout for ways to combine works and minimise the number of sub-contractors.

They need to understand, however, that as with a number of specialist activities in the construction industry, techniques used for concrete repair work demand specialist know-how and technical capability.

If not correctly carried out, any work inadequacies could leave a main/principal contractor vulnerable should things go wrong.

So what are the pitfalls and how can they be avoided?

Well, a number of details concerning the 'pretender' should be checked. Does the organisation have quality assurance accreditation (ISO 9001), CHAS



accreditation and/or industry accreditation? (is it, for example, a members of a recognised Trade Association?). Does the company have a trained and qualified workforce (CSCS)? Is it manufacturer recommended? Is it financially sound? Is it able to table independent technical references and project referees? Does it have proven experience and an established track record? Is it able to organise insurance backed guarantees (IBGs) if required?

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HOW USEFUL IS THIS?

A handy pocket-sized, 52-page booklet, giving information on the UK's recognised concrete repair specialists, has been published by the Concrete Repair Association (CRA).

The popular one-third A/4 sized CRA Members Directory for 2009 includes updated information on each of the CRA's nineteen contractor, seven product manufacturer, four distributor and three Associate members.

The booklet has been specifically designed to be of practical, every-day use to Clients, Specifiers, Consultants, Surveyors and Local Authorities seeking established companies

involved in the practice of concrete repair and allied activities.

Each CRA member's page lists the company's head and regional office locations, web site, email details and the names of primary contacts. It also includes a description of the company's specialist concrete repair capabilities (or products, in the case of manufacturers and distributors), as well as third party accreditations.

To facilitate company selection, when compiling tender lists for concrete repair work, each contractor's entry includes details of contract values catered for, the company's largest contract to date, its

total turnover, the value of its concrete repair related business and its geographical area of operation.

The booklet also contains details of the Association's technical helpline; its NVQ/CSCS related training scheme and the Codes of Practice to which each member has committed. It also provides information regarding the Association's free CD-ROM, which contains audio-visual programmes on 'The route to a successful concrete repair' and 'Structural strengthening with composites', other useful Advice Notes, as well as a bibliography of allied documents and a list of closely related organisations.



Copies of the 2009 edition are available free of charge by logging on to www.cra.org.uk/info and entering enquiry number 1028

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Last, but not least, does the company comply with the exacting membership criteria of the Concrete Repair Association?

It is the responsibility of the client to assess these criteria and for the contractor to verify each facet.

If this all sounds too complicated and risk laden, then the CRA would strongly recommend that in the concrete repair and protection sector, such specialist work should always be sub-contracted to qualified installers who can not only

demonstrate expertise in the installation of the products, but can also submit evidence of providing long-term durability in concrete refurbishment. Details of such suitably qualified installers can be obtained from the CRA.

No doubt your immediate reaction is 'Well they would say that, wouldn't they?' Well yes, we would, because the fact remains that unless the work is completed correctly, the subsequent penalties will be considerable and very expensive – even if, by then, we have come out the other side of the recession!

Raising the Bar

By: Roy Emerson, Equas Smartpro

Always keen to raise the bar and differentiate its members, the Concrete Repair Association (CRA) has stipulated that its members must be accredited to the internationally recognised Environmental Standard, ISO14001:2004, by June 2010.

ISO14001 is now the most widely used Environmental Management System (EMS) in the world. In the UK around 6,000 organisations are certified, which means that the vast majority of businesses haven't yet attained it. Since accreditation carries kudos and credibility for suppliers, this will give CRA members a tangible competitive edge when tendering for contracts.

To help facilitate accreditation, the CRA has developed a partnership with EMS and QMS specialist, Equas SmartPro, who has already helped a number of CRA members gain both ISO 9001 and ISO 14001 certification (see APA example below). In addition, Equas is now working with Association Group Management (AGM), the body that provides

professional secretarial services to the CRA, to attain both these Standards.

By attaining ISO14001 certification, manufacturer and contractor members are demonstrating that they fully comply with relevant legislation and are keeping abreast of new regulations being introduced. They will have a policy of continuous improvement, working toward reducing their energy consumption and waste and driving through greater efficiencies. They will operate in a more efficient and responsible manner by measuring and managing their environmental impact.

For clients, it is important that they can demonstrate standards and best practice to their shareholders, customers and stakeholders. ISO14001 provides a visible audit trail and demonstrates that CRA members actually are all they're cracked up to be.

For further information on Equas SmartPro and attaining ISO14001, contact Roy Emerson 07904 365290, E-mail r.emerson@equas.co.uk or visit www.isoinbox.co.uk

Even though CRA members now have until June next year to gain ISO14001 certification, the clock is ticking. There's a plethora of consultants out there who claim to be able to get you that all important tick in the box with the minimum amount of effort but it makes good sense to ensure you really know what you're buying.

One CRA member that has already successfully received its ISO 14001 certification is APA Concrete Repairs Limited.

"I think it's an excellent move for the CRA to make ISO 14001 mandatory" said Rachael Oddy, Quality and Environmental Manager of APA. "We're seeing more and more of our clients, especially those in the public sector, stipulating the Standard as part of the criteria for preferred supplier status. "The focus has been on Health and Safety and Quality, both important in their own right, but the shift is now going to be on the Environment and our industry will be driven by increasing rafts of legislation."

So, if your organisation is gearing itself up for ISO 14001 and intending using external expertise to obtain certification, what are some of the key considerations? Having already gone through the journey, we asked Rachael for some top tips. Here's her response:

1. Shop Around. Quotes varied hugely with some as high as £14k
2. Check the timescale – make sure your consultants can deliver to meet your schedule, not theirs
3. It's an advantage if the consultant has prior industry experience
4. Decide on your delivery route. You can elect for a consultant to build the entire system for you but the cost will be higher. Our consultants gave us the option of an Assisted Build, which meant I did a lot of the work but with continuous support. The big advantage, apart from the cost, is that I know the system inside out, which is vital since it's my job to maintain it
5. Ensure your certification is backed by UKAS.

ACCREDITATIONS - what do they say

Allen's observations ...

Are you a BUM? Probably not, as the British Union of Milliners was a short-lived organisation that got absorbed into the Shop Workers' Union in the 1940s.

In the same way you are unlikely to have given allegiance to the campaign group 'BANANA' (Build Absolutely Nothing Anywhere Near Anyone) or indeed, subscribed to the doctrine espoused by 'BANJO' (Bang Another Nuisance Job Out).

In these days of blogs, internet groups, junk mail and spam it is only too easy to join, or indeed to form, an Association or pressure group that comes nearest to meeting your dearest aspirations. In fact, such is the unceasing hunger of our media for third party verification that it is quite possible to become quoted as an expert simply on the basis of a catchy strap line and a memorable acronym! This

can be quite serious when even such august bodies as the BBC give prominence to organisations that base their campaigns on scientific ignorance and a desire to blame someone for something.

The construction industry is not immune to this. I don't know about you, but I get something every week suggesting that membership of another group or organisation will make my life so much better. So far, I have been invited to join consultation groups, professional organisations, think tanks and supposedly, key influencer gatherings. Each wants money and each suggests that the inclusion of their logo will add esteem to our organisation.

Now, quite apart from the fact that if we joined all the available groups we would need a new A3 letterhead to get them all in, what would it mean to our customers?

'..... the CRA by anyone who it's a go

STRUCTURAL STRENGTHENING



The first reaction of most people when asked about structural strengthening with fibre reinforced polymers (FRP) is 'what are they and what are they used for?'

This is exactly why the CRA originally produced its Advice Note No. 3 and also why it has just completed a review and updated its content.

Fibre reinforced polymers are typically organised in a laminate structure, such that each lamina (or flat layer) contains an arrangement of unidirectional fibres or woven fibre fabrics embedded within a thin layer of light polymer matrix material. The fibres are normally composed of carbon, aramid (Kevlar) or glass, to provide both strength and stiffness. The matrix, commonly made of polyester, epoxy or nylon, binds and protects the fibres from damage and transfers the stresses between them.

Thanks to FRP composites, rapid, cost effective and relatively simple structural strengthening

TACKLING THE PRIMA OF CONCRETE DETERIORATION

The environment provided by good quality concrete in which steel reinforcement exists, is said to be passive, i.e. a highly dense and protective oxide film forms on the steel's surface and acts as a physical barrier to aggressive agents. If, however, atmospheric 'nasty's are able to reach the steel, corrosion of the reinforcement can occur.

Corrosion of steel reinforcement in concrete is the single biggest cause of deterioration of our infrastructure. The two primary reasons; carbonation (which leads to the loss of concrete alkalinity) and chloride attack (primarily from de-icing agents or seawater) break down the protective oxide film of the steel reinforcement. The presence of moisture and oxygen causes expansive corrosion (which can be up to eight times greater than the original steel) and is

sufficient to cause concrete cracking, delamination and eventually spalling.

Fortunately, a number of remedial options are detailed in a new 8-page document, entitled 'Electrochemical Rehabilitation of Steel Reinforced Structures - Advice Note No. 4', which has just been published by the CRA.

The publication describes the problem in detail, as well as the various electrochemically based methods of remediation and where these are applicable. It also gives advice on designing against deterioration, provides information on new developments and gives an extensive list of references and further reading suggestions.

Even though standards, papers and advice notes laying down the minimum requirements for durable steel reinforced concrete exist, it is always likely that poor detailing, inadequate consideration

ay to you?



Well, in my view nothing, because unless an organisation is a known and respected entity, who cares that you are a member?

of work to demonstrate their abilities and they have undertaken to promote and support standards of excellence in the industry.

So, my company looked at a short list of who we wanted to be endorsed by and came up with ISO 9000 and ISO 14000, CHAS, IIP and finally the CRA.

Well I would say that, wouldn't I? But look at the facts. The ISO qualifications tell you that we are serious about quality and sustainability,

What this means is that CRA membership actually counts for something. It says that a member company is a stable and competent practitioner of concrete repair. It says that among the spurious and dubious accreditations that exist, here is one that carries weight. The Association does this by stipulating what is required to be a member, it does this by investing time and expertise in the development of standards and best practise. It is a serious organisation, worth listening to.

If I may be permitted to sign off by addressing CRA members, I would suggest that whatever other bodies you belong to, CRA accreditation will say more about you than just about any other.

CHAS tells you we have high standards of health & safety and IIP says we are serious about our people.

But why the CRA? Well, the CRA cannot be joined by anyone who simply thinks 'it's a good idea'. Members have earned their place in the organisation. They have attained quality standards, they have a body

cannot be joined who simply thinks a good idea

INDUSTRY *Developments*

Cemplas celebrates 40 years of success

From its early days of working out of a garden shed in Carshalton, **Cemplas Waterproofing & Concrete Repairs Ltd** has grown steadily over the past 40 years and now occupies three floors of offices in central Croydon.



Turnover has grown from a modest £3,000 p.a. to nearly £4 million and increasingly prestigious projects have earned Cemplas an enviable reputation in the construction industry. Much of the credit for this is due to the current owner and MD, Tony Blencowe.

Cemplas celebrates its 40th anniversary this year and is drawing on its decades of experience and knowledge to plan the next step of its business life by building on the high quality service for which it has become renowned.

Lying at the heart of the success of Cemplas and ensuring demand is met and relations maintained, is a strong team of Contract Managers, Site Operatives and Administration Staff, many of whom have at least 15 years service with the Company.

With a view to driving the business forward, 2006 saw the appointment of Paul Stacey as Business Development Manager to develop and maximise future opportunities. In 2007 the Company launched a new brochure to coincide with the launch of its new website (www.cemplas.co.uk).

We are all delighted to mark this landmark year for Cemplas and are thankful to all our suppliers and customers with whom we hope to celebrate many more years to come.

STRENGTHENING ADVICE

techniques are now available to the specifier and given the high capital costs of demolition and reconstruction, it makes sound economic sense to upgrade a building or structure, rather than to knock it down.

FRP technology has been in use for a number of decades in the aerospace and motor industry and over the past few years its unique qualities have been utilised in the field of civil engineering and building, for the structural strengthening of concrete, masonry, metallic and timber structures.

The deployment of FRPs has been driven due to the upgrading of vehicle weights and/or changes in the design codes, which have resulted in the need to strengthen bridge structures. In addition, changes-of-use in buildings have led to the need to upgrade or strengthen structural components.

The updated CRA Advice Note No. 3 is designed to give the reader an overview of structural strengthening. The information contained will not

make the reader an expert in structural diagnosis, design and installation, but it will enable him/her to avoid basic errors when employing, specifying and/or applying FRP composites for strengthening.

It includes information on design, preparation of substrates and testing. It also enlightens the reader with regard to the installation of both composite plate and fibre wrapping systems and their protection. Crucially, it also confirms the important aspect of contractor choice.

Copies can be obtained free of charge by logging on to www.cra.org.uk/info and entering Enquiry No: 1029

RY CAUSE ORATION

of local weathering, micro-climatic conditions and poor workmanship will lead to corrosion of the reinforcement, states the document. It is essential, therefore, that a thorough assessment of the condition of a structure is performed at regular intervals and the most suitable remediation procedure is applied when required.

The document also points out that electrochemical processes require specialist skills and stresses that they should only be carried out by a qualified contractor, experienced in the design and application of the techniques, such as members of the CRA.

The electrochemical remediation techniques detailed in the CRA Advice Note No. 4 form only part of the range of steel reinforced concrete rehabilitation methods, but are recognised as the most successful in controlling or arresting steel corrosion.

Copies can be obtained, free of charge, by logging on to www.cra.org.uk/info and entering Enquiry No: 1030.

CURRENT CRA MEMBERS

Contractors:	Telephone:
APA CONCRETE REPAIRS LIMITED	01422 379640
ALFRED BAGNALL & SONS (RESTORATION) LTD	020 8311 3910
BALVAC LTD	0151 650 0184
CEMPHAS WATERPROOFING & CONCRETE REPAIRS LTD	020 8654 3149
CONCRETE REPAIRS LIMITED	020 8288 4848
CONCRETE RESTORATION LTD	020 8994 8860
CONNAUGHT PARTNERSHIPS LTD	01293 572200
FREYSSINET LTD	01952 201901
GUNITE (EASTERN) LTD	01480 466880
MACKENZIE CONSTRUCTION LTD	0141 633 5555
MAKERS PARKING LTD	0845 899 4444
ORBUS BUILDING SERVICES LTD	0141 647 7677
QUADRIGA CONCEPTS LTD	01606 330888
QUICKSEAL SPECIALIST CONTRACTORS	01234 354198
RENOCON LTD	020 7538 5492
REPEX LTD	01435 866666
ROK STONECARE	01709 720602
STRUCTURAL RENOVATIONS LTD	01753 825511
TOPBOND PLC GROUP	01795 414050
VOLKERLASER LTD	01905 742750
Manufacturers:	Telephone:
BASF CONSTRUCTION CHEMICALS	0161 794 7411
FOSROC LTD	01827 262222
REMMERS (UK) LTD	0845 373 0103
RONACRETE LTD	01279 638700
SIKA LTD	01707 394444
TECROC PRODUCTS LTD	01827 711755
WEBER	01525 718877
Distributors:	Telephone:
W.T BURDEN LTD	0117 941 5495
EPMS SUPPLIES	01132 760037
RESAPOL LTD	01942 609001
SIG CONSTRUCTION ACCESSORIES	0845 863 0819
Associates:	Telephone:
BIRMINGHAM CITY LABORATORY	0121 303 9300
THE CONCRETE CONSULTANCY 2000 LTD	01707 647266
MARTECH TECHNICAL SERVICES LTD	01487 832288

Not strictly concrete repair, but...



STRUCTURAL RENOVATIONS LTD – A REALLY USEFUL COMPANY!



Working in the 'dark' periods between performances and productions, CRA member **Structural Renovations Ltd** has been working in a number of London theatres on behalf of Sir Andrew Lloyd Weber's Really Useful Group, employing a variety of repair techniques.

At the London Palladium, external cleaning was carried out to the building's façade, prior to the application of a protective coating, whilst liquid applied membranes were applied to waterproof the theatre's roof.

At the Palace Theatre, the problem of water ingress in the basement areas has been solved by the application of a waterproof render and resin injection techniques have been used to repair brickwork to the proscenium arch. Whilst at the Theatre Royal in Drury Lane, cementitious and polyurethane grouts have been injected to stabilise the rubble fill to the theatre's brick arches.

STRUCTURAL RENOVATIONS
- TEL: 01753 825511

FOSROC REPAIR SOLUTION BEATS THE TIDE



The South Hook LNG development in South Wales; the biggest natural gas terminal in Europe, has undergone a massive refurbishment and refit. A key element was substantial repairs to the 40-year old jetty, including strengthening of existing piles and large amounts of concrete reinstatement.

Due to the harsh marine environment, application windows were subject to weather and tidal conditions. A concrete repair solution that could be applied quickly and easily, with rapid strength gain and low water absorption, was required.

CRA members **Fosroc Ltd** and **Freyssinet Ltd** provided a bespoke dry-spray system specifically designed for large area repairs. The technology was based on a well established product, **Renderoc DS**, which was developed for large structures such as bridges, tunnels, retaining walls and dams. More than 1600 tonnes of material were used to complete the project.

FOSROC - TEL: 01827 262222

MAJOR AWARD FOR VOLKERLASER



After being highly commended at the 2008 British Parking Awards, CRA member **VolkerLaser** (previously known as Laser Special Projects Ltd) has gone one better this year, scooping the 'Q-Park Best Refurbishment Award', for the refurbishment of Luton's Market multi-storey car park.

Refurbishment works including new lighting, concrete and steelwork repairs, decoration, new signage and accessibility improvements has enabled the MSCP to shake off its 1970s drabness.

The award was presented to VolkerLaser Managing Director Mike Weaver by Strictly Come Dancing celebrity John Sergeant, during a Gala lunch held at in London. Mike commented, "This award is as not only the result of the hard work and effort of our staff and contractors, but also testament to the outstanding working relationship with our client and in particular the Centre Management Team at The Mall."

VOLKERLASER - Tel: 01905 742750

MAJOR RESIDENTIAL PROJECT COMPLETED



CRA member **Concrete Repairs Ltd (CRL)** has completed an extensive £1.6m external upgrade of 90 apartments at the 15-storey **Dalmuir Court**, in Clydebank, despite some challenging problems that demanded innovative thinking and several unique solutions.

The project, carried out for West Dunbartonshire County Council, proceeded whilst each apartment remained fully occupied, even though it involved each apartment's 1.2m deep external balcony being incorporated as part of the internal living areas.

Work, involving the installation of 3,300 square metres of external wall insulation (EWI), a new insulated roof, a new stainless steel glazed roof balustrade, new glazed balcony balustrades, the replacement of 60 balcony window sets, new common entrance doors and the upgrade of the external fabric on the ground floor, is being carried out from mast climbing platforms.

CRL - Tel: 020 8288 4848

NEW RIBA APPROVED BS EN1504 CONCRETE REPAIR CPD FROM WEBER



Tough new regulations governing the repair of reinforced concrete are now in force in the UK. The BS EN1504 standard has been adopted throughout Europe and this is the first time that a British Standard, detailing not only the performance criteria for the protection and repair of concrete structures, but also guidelines to repair methodology, has been available for concrete refurbishment in this country.

The **Weber** range of proven specialist mortars for civil engineering, concrete and crack repair in buildings meet the new Standard and the CRA member company is providing technically compliant data. Weber also provides a comprehensive advisory service to assist surveyors, structural engineers and architects to work within the new regulation and a new RIBA approved CPD training module is also now available to enhance the understanding of this complex set of regulations.

WEBER - Tel: 01525 722169

QUADRIGA COMPLETES EXTENSIVE CONCRETE REPAIR PROJECT



Extensive concrete repairs, as well as the design and installation of electro-chemical works (permanent monitoring and cathodic protection trials) have been carried out at **Cliff Gardens Bridge**, in Old Colwyn, by CRA member **Quadriga Concepts Ltd**.

Corrosion of the embedded steel reinforcement had been recorded and the suspicion that the airborne marine salts had played a major role was confirmed following the completion of an in-depth condition survey.

Cathodic protection was achieved using a ribbon anode system embedded in either the repaired areas or chases cut into the wall itself.

To examine the state of corrosion, a permanent monitoring system employing linear polarisation resistance probes, embedded half cells and a permanent low voltage power supply, was designed and installed for information to be gathered and valued engineering judgements to be made.

QUADRIGA - Tel: 01606 330888

TIPNER BRIDGES REFURBISHED BY APA



Principal Inspection reports on the two bridges at **Tipner Interchange** in Portsmouth revealed leaking joints above the two intermediate piers on each structure. Subsequent testing work confirmed the presence of very high chloride concentrations in the piers.

Portsmouth City Council decided to repair the affected piers and CRA member, **APA Concrete Repairs Ltd**, was chosen as one of the preferred partners.

A 'mesh and overlay' type, impressed current Cathodic Protection (CP) system, involving the installation of an expanded titanium mesh anode, overlaid with a 25-30mm thick layer of dry-sprayed concrete, was chosen. The CP System was commissioned in December 2008 and in just the short 4-hour period, following initial energisation, 91% of the installed reference cells achieved protection criteria. The Tipner installation can, however, be considered a model CP system.

APA - Tel: 01422 379640

MARITIME REFURBISHMENT



CRA member, **Quickseal Specialist Contractors**, has completed extensive concrete repairs to a section of the quay at the **ExCel Exhibition Centre** in London Docklands. The impressive facility recently played host to leading world figures, including **Gordon Brown** and the USA's President **Obama**, when the G20 Summit conference was held there.

Following a full survey, all defective concrete was removed from the beams by hydro-demolition. The exposed reinforcing steel was coated with a zinc primer before being repaired with **Sikacem 133** dry spray material. Due to extensive corrosion some reinforcement, particularly the links, had to be replaced.

Steel corrosion of the lower fender concrete beams was found to be so extensive that they had to be re-cast using **Fosroc's Renderoc LA55** free flowing micro-concrete and new reinforcing steel introduced.

QUICKSEAL - Tel: 020 8530 6808

HUGE SCOTTISH CP PROJECT



CRA member, **Freyssinet Limited**, is currently working on a £1.5m contract for repairs to the **A92 Jubilee Bervie Bridge** near Montrose, Scotland. This 1930s reinforced concrete structure has suffered the ravages of the marine environment and extensive repairs were required.

Aberdeenshire Council opted for an impressed current cathodic protection system with sprayed concrete repairs. With 8,500 discrete anodes, 3,500 metres of cabling, 40m³ of hydro-demolition, sprayed concrete repairs, extensive scaffolding and propping, this is one of Scotland's largest cathodic protection contracts in recent years.

Freyssinet is acting as Principal Contractor reinforcing its position as one of the UK's leading electrochemical repair companies.

FREYSSINET - Tel: 01952 201901

NEW BUSINESS COURT REFURBISHED BY CEMPLAS



May 2008 witnessed the commencement of a £70m, two-and-a-half year construction scheme, to redevelop **Rolls House** as London's new Business Court. The new Court is set to replace the existing Commercial Court and Technology Courts.

The construction scheme involved the demolition of No. 8 Breems Building in Fetter Lane (whilst retaining the building's façade) and the construction of a new high spec eight-storey building over twin level basements.

CRA member **Cemplas Waterproofing and Concrete Repairs Ltd** was awarded the contract to undertake remedial repairs within the basement and the lower floors of the building. Works included resin injection into cracks in the concrete structure, concrete repairs, the installation of more than 2,300m² of waterproof slurry to the pits, trenches and pile caps and over 6,300m² of cavity drain membrane.

CEMPLAS - Tel: 020 8654 3149

REMMERS GO WITH THE GRAIN!



Due particularly to the chloride containing marine atmosphere, the 75 metre high, 13,500 tonne capacity, monolithic concrete grain silo at **Lowestoft Docks** had been suffering from cracking and spalling, with the consequent water ingress accelerating the deterioration.

Using its in-house powered cradle access equipment, **Folcrete Restoration Services Limited** surveyed, repaired and protected the structure using the concrete repair and protection system manufactured by CRA member **Remmers (UK) Ltd**; exactly as they had done on numerous other grain and powder silos around the UK.

Damaged concrete was removed, corroding steel reinforcement exposed and treated and all surface defects repaired with **Remmers' repair and fairing mortars**. Finally, the entire structure was protected with **Remmers concrete acrylic and Elastoflex anti carbonation coatings**.

REMMERS - Tel: 0845 373 0103

CRA CD-ROM & ROAD SHOWS

Two audio-visual programmes entitled 'The route to a successful concrete repair' and 'Structural strengthening with composites', are included on a CRA CD-ROM. The FREE OF CHARGE disk also includes a 'Word' version of the 'CRA Method of Measurement for concrete repair' document.

The CRA can also arrange personalised FREE OF CHARGE CPD Road Shows (covering the two audio-visual programmes listed above) in your office and at a time convenient to you, provided a minimum of 4 delegates are able to attend. Each programme is about one hour in duration.

For copies of the CD, call: 01252 357835.

To organise a Road Show contact **Laurie Perkis** on 023 8073 8953

