



# HEALTH & SAFETY COSTS MONEY ...or does it?

If you ask companies if health and safety costs them money, in many cases the answer will be YES. It is not, however, actually true. What is nearer the truth is that accidents cost them money but they don't realise it. Effective management of health and safety can be cost-effective and this fact is something that more companies are becoming increasingly aware of.

## What is an accident?

Before going any further, it is necessary to define what an 'accident' is. There are numerous definitions, but for the purposes of this article an accident is defined as:

"An unplanned event that causes, or has the potential to cause, injury or ill health in people, or damage, or loss to property, plant, materials, or the environment"

It is important to note that the definition includes events that not only actually cause loss or injury, but also those that have the potential to do so.

Photo 1 shows workers surveying a building. Note that the hammer is secured on a safety line. However, if the hammer was carried in the hand and the operative dropped it several

possible outcomes could occur:

1. The hammer could hit the ground causing no injury or damage – 'near miss'
2. The hammer could hit a parked car causing some damage – 'damage only'
3. The hammer could hit a person causing a minor injury – 'minor injury/first aid'
4. The hammer could hit a person seriously or fatally injuring them – 'serious/fatal'

In each scenario the accident is the same – a falling hammer. But the consequence of the accident is different.

## How many accidents do you have?

Now that the definition of an accident has been expanded to include near misses and damage-only accidents, most companies will not be able to give an honest answer to the question 'How many accidents do you have?' This is primarily because near misses and damage only accidents are not reported or recorded. It is also common for minor injury accidents to go unreported.

So, when asked 'How many accidents do you have?' many would be unable to give a

*'How many accidents do you have?'*



Photo 1

true answer. However, many will be aware of at least some of the minor accidents and hopefully all of the serious accidents.

In the 1960s Frank Bird, the American health and safety Guru, carried out an extensive study into accident statistics and in particular, the ratio between the various types of accidents as detailed above.

(Continued on Page 2)



Photo 2

## New 'Strengthening' CD-ROM

Following the phenomenal success of CRA's 'The route to a successful concrete repair', CD-ROM and Road Show presentation, the Association has just completed the production of a similar programme entitled 'Structural strengthening with composites'.

Since the early 90s the UK has witnessed an increasing requirement for the strengthening and upgrading of many structures and commercial buildings. The escalation in demand has been due in some respect to concrete failure. Inadequate design, poor quality construction, structural and fire damage etc have all influenced the increase, but in the main it has been brought about through the need to accommodate increased loading.

In the Civils Bridge market the introduction of heavier vehicles has meant that the entire UK bridge stock has, or is being, structurally reassessed for the new 40 tonne loading.

This on-going exercise, which includes impact loadings on the bridge piers, has either established the need for strengthening, or confirmed the need for load restrictions. In addition, growing demand has also been experienced in the building market, which is often driven as a result of the need to increase floor loading capacity; for example when a 'change of use' for a building is intended.

Not surprisingly, the significant interest in the new technology spawned the development of a number of new strengthening systems. Traditional methods, utilising additional reinforced concrete or heavy steel plates, are quickly being supplemented by fibre reinforced polymers, or FRPs as they are now referred to. In addition to increasing the load carrying capacity of the structure, FRPs are demonstrating significant advantages in increasing flexural strength, redistributing loads around openings, improving shear and impact resistance.

The new CD-ROM, which explains how the new technology evolved, the types of composites available, quality control testing and how they are installed etc., is available **free of charge**, by completing and returning the enclosed Reader Enquiry Fax-Back form.

It also includes the hugely successful 'Route to a successful concrete repair' programme, which over the past three years has been requested and supplied to more than 3,000 individuals. The two programmes, together with a CRA Members Directory, other useful CRA guidance notes, a bibliography of allied publications and a list of useful addresses, is a must for those involved in these activities.

Via the enclosed Reader Enquiry Fax-Back form, readers can also request details of the CRA's CPD Road Show presentation of 'Structural strengthening with composites'.



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# Health & Safety costs money... Or does it?

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The results of his study are shown in diagram 1. The triangle represents the relative ratios between the four categories of accidents. It is clear that if you experience a 'minor' or 'serious injury' accident, then you are most likely having a considerable number of 'damage only' or 'near misses.' So you are undergoing more accidents than you think!

## How much do these accidents cost?

Firstly, if the accidents at the lower end of Bird's Triangle are not being recorded, then all of the costs associated with the accidents are similarly not measured.

Secondly, of the accidents that are recorded, it is not unusual for the costs to be calculated based on the insurance costs. There are, however, costs associated with accidents that are not recovered. Most companies are aware of insurance excesses, but these make up only a small portion of the potential uninsured costs associated with an accident. Many of these uninsured costs are hidden within the normal operating costs of a business and are included in overhead, wastage, maintenance etc.

The UK Health and Safety Executive carried out a study into the cost of accidents. The findings have been published in a document entitled 'The Costs of Accidents at Work'. (1)

The study revealed that the cost of accidents resembles an iceberg (diagram 2). The typical ratio of insured costs to uninsured costs indicates that for every £1 recovered in respect of accidents, £11 is hidden and not recovered. The study found that the ratio varies between 1:8 and 1:36, although 1:11 is the most quoted figure. The quoted ratios are based upon average costs. However, the following example will highlight hidden costs.

Photo 2 (front page) shows the result of a 'damage only' accident, which involved a company vehicle. A manager was asked to put a figure on what the accident actually

cost his company. The figure given was quite low and was qualified with the statement that the company is covered by its insurance.



Diagram 1

The easily quantifiable costs are the repair costs of approximately £800. However, the many hidden costs may include (assumed costs):

- Lost production due to late arrival at site - £50
- Driver completing accident form - £30
- Providing witness statements, etc. - £100
- Administration (head office) dealing with insurers - £100
- Replacement vehicle rental - £90
- Lost time switching vehicles - £100

The probable final cost of this accident could therefore be in the region of £1,270. There is also the possibility of increased insurance premiums.

Of this possible £1,270 the company may well only recover about £300 - the difference between the repair cost and the insurance excess. It is therefore conceivable, that a relatively minor damage-only accident has the potential to cost the company £970.



Diagram 2

To put this into perspective, if operating on an 8% profit margin, the amount of turnover required to recover the lost £970 would be £12,125. At a profit margin of 3%, the figure would increase to £32,333. If the 8% profit margin is used as an example, on a project with a contract value of £250,000 the £12,125 would represent approximately 4.8% of the contract value! Therefore, it is easy to see that the cost of an accident is considerably higher

than most companies are aware of and for companies on low profit margins they pose a serious risk to long term stability.

## What can be done?

The answer is quite simple - invest in health and safety. Many companies have already realised that investing in health and safety has significant benefits to their overall

success. Apart from the obvious financial savings already highlighted, successful management of health and safety policies also pays dividends in protecting some of their greatest assets - their employees!

All specialist companies are reliant on the special skills and experience of their employees. Skilled operatives cannot be readily replaced at short notice and it is therefore essential that such key employees are protected from the daily risks associated with construction work.

There are many tools that a safety professional can use to assist in the management of health and safety, but a useful first step is to actually identify the number and type of accidents that are occurring. This will help in enabling resources to be effectively channelled into areas that pose the greatest risks to the company, as well as identifying legal non-compliance and accident trends.

## Is detailed accident reporting easy?

Although the process can be problematic and it is difficult to achieve 100% reporting, many companies are attempting to gather information on all accidents, including 'near misses'. Many, however, go unreported for several reasons. The main ones being the

traditional blame culture that is so often associated with reporting accidents and most 'near misses' are simply ignored.

Additional on-site training is recommended. The training should cover the concepts of Bird's Triangle and the Iceberg Theory, as well as the long-term benefits to the company of effective accident reporting. Emphasis should also be placed on the need for open, no blame culture.

## Conclusion

So, back to the original question: Does health and safety cost money?

*The answer is quite simple - invest in health & safety*

As has been explained, the effective management of health and safety actually has some quantifiable cost implications. But these costs should actually be viewed as an investment and not a burden. It can be seen that the costs associated with the management of health and

safety can easily be recouped from the potential savings offered by accident reduction. It is, therefore, fair to say that health and safety does not ultimately cost money, but does in fact save money and reduce wastage.

(1) 'The Costs of Accidents at Work' published by the Health & Safety Executive ISBN 0 7176 13437

# NEWS from CRA Members

Use the enclosed Fax-Back to obtain more information

## LONGEST EVER STRENGTHENING PLATES FITTED AT SEA TERMINAL

To strengthen the new spur approach road to the deep water jetty at the Humber Sea Terminal in Killingholme, specialist main contractor **Concrete Repairs Ltd (CRL)** has just completed the fitment of the longest Sika Carbodur carbon fibre plates ever to be installed in the UK. The 35 metre long plates were fitted to the edge cantilever section of the existing approach ramp slab in order to accommodate 125 tonne MAFI trailers accessing the roll-on, roll-off berths. The contract forms part of the £9.6m, forty-week design and build project to construct additional berthing amenities to satiate the ever-increasing demand at this very successful facility. For further details call John Drewett on 020 8288 4848.



ENQUIRY NO: 1204

## THE CONCRETE CONSULTANCY 2000 LTD



As an ISO 9001:2000 accredited firm, a member of the CRA and with a wealth of experience both at home and overseas, the **Concrete Consultancy 2000 Ltd** offers a truly independent service for the assessment and testing of reinforced concrete structures, upon which Engineers, Consultants and Surveyors can rely. Employing the latest and most cost-effective access and analytical techniques, our clients are assured of both a professional and practical service from initial enquiry, through site and analytical works, to the final reports, recommendations and assistance with specifications. Tel: 01707 647266, or Mobile: 07775 940896

ENQUIRY NO: 1201

## HUGE REPAIR PROGRAMME AT TYBALDS

Approximately 500 concrete balcony soffits and faces, together with long runs of concrete wing walls, ring beams, columns and granite walkway decks are currently being restored at Tybalds Estate, Holborn, London, using a number of products from the **Instarmac Group's** comprehensive concrete repair system.

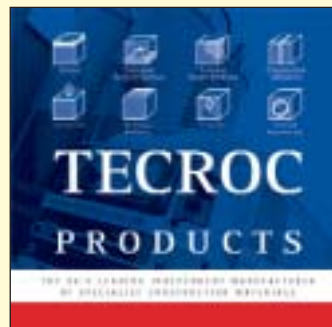
The extensive nine-month project, which involves the refurbishment of six residential blocks ranging in heights of between eight and eleven storeys, began in April. Work is continuing without the need to evacuate residents. Instarmac's 'Cemprime ZN', 'Cemprime SP', 'Cembuild LW25' lightweight mortar, 'Cembuild FC' cementitious fairing coat and 'Cemcure AR' are all being used on the project. For further information telephone 01827 872244, or fax: 01827 874466.

ENQUIRY NO: 1202



## TECROC PRODUCTS RANGE NOW AVAILABLE ON CD

**Tecroc Products**, comprehensive range of specialist construction materials is now featured on a CD ROM, providing access to full product information and technical data sheets at the click of a mouse. The company manufactures a broad range of concrete repair materials, anchors, grouts, structural support mortars and ground engineering materials to the latest ISO9001:2000 quality standard and supplies direct-to-site nationwide. The CD supplements the popular Tecroc Pocket Guide, which has also been updated for 2003/4 to provide a handy on-site reference guide for product selection. Both are freely available on request by phoning Tecroc's technical sales team on 01827 711755 or via the Tecroc website at [www.tecroc.co.uk](http://www.tecroc.co.uk)



ENQUIRY NO: 1203

## PARTY IN THE PARK



**Yoldings** are celebrating the completion of a £500,000 contract to repair and refurbish the grade I listed buildings at Eaton Park in Norwich. This high profile lottery funded project was carried out for Norwich City Council and Citycare, under the scrutiny of English Heritage.

The work involved low-pressure blast-cleaning utilising Calcium Carbonate media and traditional breaking out and repair of the concrete using materials developed for this project by Flexcrete Ltd. In addition, many new pre-cast elements - balustrades and rails, coping stones etc., designed to match the sandy texture of the existing concrete, were replaced. To add the finishing touches, Keim Concretal Lasur coating system was applied.

ENQUIRY NO: 1205



# Partnering

*Great - provided you know where you're coming from!*

Emperor Nero was none too happy. To cheer him up the Senate decide to throw a few people to the lions.

First is the Concrete Repair Contractor. "Any last words?" says Nero. "I'm in the hands of the gods!" says the contractor. The trumpets blare, but try as they might the arena staff simply can't bring themselves to open the gates to the lions cage. Nero says, "The gods have decided!" He gives the thumbs up and frees the contractor, awarding him a purse of gold and a vestal virgin for his trouble.

Next up is the material manufacturer, he too commits himself into the hands of the gods and once again the gates refuse to open and he too departs richer and on the arm of a vestal.

Finally they bring out the Engineer. "Any last words?" asks Nero. "Yes, I can see why the gate is sticking..."

Even though cages of hungry lions are unlikely in modern construction, not realising quite what is going on can have serious consequences for everyone concerned. Under the guidelines of the Deputy Prime Minister's Office, public bodies are being urged down the route of a partnered approach to their construction requirements. While this is a vast improvement on the traditional adversarial culture that most of us grew up with, it works better when everybody understands where all concerned are coming from.

Within the partnered structure, everyone from the commissioning client to the final end user, be they a resident or a commercial customer, should have input into the process. To do this successfully, those members of the partnering chain outside of the construction process need to understand what is happening in their lives. If residents know what is going on then they can participate, even basic things like arranging for access when they are out, can prevent a job being held up. But this will only happen if the resident understands what is happening and trusts the construction team.

The usual practice is to employ a dedicated (in both senses of the word) Liaison Officer. Usually this has been a local person and quite often they have been seen as a little more than window dressing.

This can no longer be the case. Liaison work requires skill, training and understanding and is an integral part of the main construction process. The difference that good liaison can make is significant and Planning Supervisors and Clients alike have a responsibility to ensure that trained, recognisable liaison staff are provided by the contractors undertaking a project on their behalf, because ... in the long run it pays dividends.

And finally... a story provided by an Engineer.

God and the Devil decided to let bygones be bygones. "I tell you what" said God, "we'll build a bridge between Heaven and Hell"

"Brilliant plan" the Devil replies, "I've got plenty Contractors and Engineers down in my place".

"Well I've got all the Architects" said God and they shook hands on the deal.

The Devil went back to Hell, got all the Contractors and Engineers together and explained the plan.

"Boys", he said, "we start tomorrow and with any luck should meet the others at the half way point".

So the next day they started work. For twenty long years they worked until finally they reached the mid point, where there is no sign of the other half of the bridge. The Devil gets on the telephone.

"We've been working for twenty years, night and day and here we are at the mid point - where are you?" "Actually", said the Great Architect, "we're still visualising the concept".



# NECESSITY - the mother of invention?

By now the construction industry is well aware of rocketing insurance premiums - up in some instances up by an incredible 1,000%. For some reason insurance companies appear to have it in for the industry and the concrete repair sector appears to be no exception.

The problem is that increased costs such as insurance are not easily passed on. They hit right at the 'bottom line' and can, in some instances, force companies into liquidation. Mind-boggling increases of 1,000% can only be described as farcical. Any other industry planning its pricing strategy in such a manner would be out of business before you could say 'Jack Robinson'.

Perhaps more worrying is that sometimes such desperate circumstances can be the catalyst for some organisations to adopt reckless solutions.

As most people are aware, today's computerised technology makes it a simple task to scan documentation and doctor it. Given the current difficulties with insurance, it would be quite easy to take last year's insurance cover note, scan it, change the dates and eliminate the problems of increasing premiums in one fell swoop. Such documentation could be presented to clients who, unless they had the time and inclination to check it out with each and every insurance company, would probably accept it as bona fide. Should the paperwork be worthless, it would prove extremely tricky if site problems developed once a project was underway.

Whilst the CRA has no evidence that this is indeed what is happening in the market place, it has decided to keep its own house in order by assuring client and specifiers alike that all its members are suitably covered. It is therefore carrying out the checking procedure on behalf of the client.

Currently, the CRA Secretariat is requesting insurance certification from each CRA member and double-checking its authenticity with the denoted insurance companies.

The initiative is directly in line with the reasons for the original formation of the Association - to provide the construction industry with access to companies operating to the highest standards of quality, safety and reliability, with a proven track record and overall capability in this specialist construction sector. Each full member is also obliged to be Q.A. accredited to ISO 9000, to comply with the Association's stringent Codes of Practice and its training requirements.

The CRA hopes that given the current insurance predicament, this initiative will be taken on board by other trade Associations within the industry.

## FLEXCRETE PRODUCT IS A BIG DEAL IN KENT



Cemprotec E942 - a state-of-the-art cement and epoxy modified polymer coating manufactured by **Flexcrete Limited** - has been used to protect steel beams on Deal Pier in Kent. The product was specified on the basis of its ability to withstand early immersion, changes in water level and attack by sea spray. E942 can be applied to damp surfaces with much lower levels of preparation than conventional coatings and rapidly cures to form a hard, durable coating with excellent protection against corrosion. E942 is featured in Flexcrete's new brochure, entitled 'Repair and Protection Systems for Marine Structures.' To request a copy, call 01772 255074 or e-mail [info@flexcrete.co.uk](mailto:info@flexcrete.co.uk)

ENQUIRY NO: 126

## COLUMN REINFORCEMENT AT HALLING CLOSE, WALKER

The columns supporting the bedroom structure of a residential property in Walker, Tyne & Wear, were recently strengthened by **Quadriga Specialist Contractors**, using a carbon fibre reinforcement system. The work was instructed by engineers at Newcastle City Council after evidence of structural weakening was found in the columns, caused by the effects of spalling concrete.

The columns were exposed at their base after a temporary support system had been introduced and were then repaired with Fosroc HB40 concrete repair mortar. The SBD En-Force carbon fibre reinforcement system was then applied to the columns to provide additional strength before redecoration was carried out. For more information telephone 01606 330888.

ENQUIRY NO: 127



## Announcing - Makers Refocused on Concrete Repair

Makers now have dedicated teams using safer, less invasive methods for repairing concrete, based on our proven record of technical capability and reputation for innovative solutions.

**MAKERS**  
concrete repair

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Walsworth Road, Hitchin, Herts SG4 9SX  
Tel: 01462 477333 Fax: 01462 477339  
Email: [marketing@makers.co.uk](mailto:marketing@makers.co.uk)  
[www.makers.co.uk](http://www.makers.co.uk)

Call us now for more information on:

- Concrete Testing
- Concrete Repair
- Technical Advice

ENQUIRY NO: 128

## CRA web site developments

In order to augment journal advertisements, the CRA has agreed to allow clients to post details of their tender notices for concrete repair and associated work within a special section of the CRA's web site, thus enabling their messages to be directly targeted at specialist repair contractors and material manufacturers.

The facility will be completely free of charge and is expected to be up and running in the very near future.

As soon as it is, the CRA will publicise the means by which information can be supplied.

Watch this space ...



# 7% INCREASE in concrete repair market

Survey findings, produced by the CRA and relating to the concrete repair market for 2002, indicate that the market increased by approximately 7% on the previous year. During 2002 the contract sales value of this specialist construction sector is estimated to have been worth £193m, compared to £181m in 2001

CRA contractor members advised that 1,305 new orders for concrete repair work, worth approximately £87m, had been won during the twelve months. In addition, 50% of CRA contractor members reported that they had experienced an increase in the number of work enquiries being received, with a further 38% reporting no change.

The survey also showed that almost 40% of contractor members anticipated the number of concrete repair contracts to be completed in 2003 would be more than 2002, with two-thirds expecting a rise in the value of work. Most, however, foresaw little change in margins.



Figures provided by the CRA's product manufacturer members, indicated increases in volume sales of hand-placed mortars, flowable repair mortars, sprayed mortars and fairing coats, but a decrease in anti-carbonation coatings in comparison to the previous twelve months.

Returns also showed that almost 70% of manufacturer members anticipated an increase in sales volume (of approximately 8%) during 2003, whilst the vast majority expected prices and business margins to remain unchanged, or to decrease.

# Like to win a brand new digital camera?

The Association would really appreciate your assistance ...



Enclosed with this edition of 'Cracking Matters' you will find a two-page Reader Questionnaire that we would ask you to complete (it shouldn't take any longer than about 5 minutes) and fax back to us.

By doing so, it will provide the CRA with a better understanding of your needs and opinions. This, in turn, will enable the Association to provide a more meaningful service to this specialist construction sector and to be able to communicate relevant information in a more cost-effective manner.

To encourage your participation, the CRA will enter all responses containing name and address details, into a prize draw for a brand new digital camera – perfect for taking pictures on site, or in assisting with your company's general business activities.

We appreciate that some readers are precluded from participating in prize raffles and therefore, should you wish to complete the questionnaire but not be included in the prize draw, simply leave the name and address area blank.

The stylish FinePix S3000 Zoom digital camera, worth approximately £250, combines simplicity and optical power in an SLR-style silver package. The six times optical zoom lens (38 – 228 mm, 35mm equivalent) gets you closer to the action, whilst the five flash modes and flexibility to move swiftly from automatic to manual control provides greater creativity. The camera also provides a video-out connection for immediate playback of images via your TV screen.

Other Key features include 3.25 million effective pixel CCD, programmed auto exposure, auto, red eye, forced, suppressed and slow sync flash modes, movie capture (320 x 240 pixel) movie mode and a high quality 1.8 inch TFT 62,000 pixel LCD screen.

The winning questionnaire will be drawn and the lucky winner presented with the camera in January. Full details will be announced in the next edition of Cracking Matters ... GOOD LUCK!

# CRISIS CONCRETE!



“Romeo, Romeo, where for art thou .....”

Thankfully, this shot was not taken in the UK! The incredible 'tied-up concrete' featured in the last edition of 'Cracking Matters' prompted one reader to submit this image (shot whilst on holiday in Europe) of a balcony in dire need of attention. We wonder, should the contributor return again next year, if the structure will still be standing!

We don't believe (and hope) that there can be too many other such examples, but should any of our readers have shots showing similar instances, we would like to consider publishing them in this Crisis Concrete! section .... simply out of interest of course!

If you would like to contribute, send your print (with a short caption) to The Editor, Cracking Matters, Association House, 99 West Street, Farnham, Hants GU9 7EN, or email as a high resolution JPEG file to [initialcontacts@ntlworld.com](mailto:initialcontacts@ntlworld.com)

## CRACKING MATTERS BACK COPIES

Believe it or not, but this is the twelfth edition of Cracking Matters. The journal of the Concrete Repair Association was originally launched way back in December 1997 and the previous eleven editions have generated a huge reaction from its 6,500 readers.

Intriguingly, records of visits to the CRA web site also show that the interest in back numbers shows no signs of waning, with previously published edition being downloaded, on average, fifty times per month. It would appear that the content is generating just as much interest now, as when it was first published.

The web site at [www.concretereport.org.uk](http://www.concretereport.org.uk) contains all back numbers from Edition 6 onward. The edition you are reading right now will be posted on to the site in the next few days. So, if any of your colleagues do not receive a regular copy and would like to access the journal, pass the web site address to them.



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