



PRA - PORE REDUCING ADMIXTURES

CONCRETE REPAIR & PROTECTION COURSE



PROGRAMME

8.30 – 9.00 Registration

9.00 – 9.30 **SESSION 1 Introduction + Repair Materials**
[Paul Uno BE MBdgSc MIE(Aust) CPEng] - CCS

This session looks at the materials that constitute concrete and how they help or hinder the durability of concrete. Topics covered include flyash, slag, silica fume, blended cements (as well as market branding eg builders cement). Other topics to be addressed include shotcrete, chlorides, admixtures, evaporative retarders, curing compounds, identification of various types of cracks, their causes and prevention, the crack control provisions of AS3600-2001, autogeneous healing, carbonation testing, magnesite floor damage, galvanized steel bars and steel fibres.

9.30 – 10.00 **SESSION 2 Carbonation of Concrete Surfaces**
[Matthew Sipek - Regional Manager] - Sika

This session will explain the process of Carbonation and its effects on concrete both reinforced and unreinforced. The session will address topics such as dry film thickness, water vapour diffusion resistance re equivalent air layer thickness (Sd), diffusion resistance factor μ and then CO2 diffusion resistance re equivalent air layer thickness (R) and diffusion resistance factor μ_{CO2} . The practical applications of products in combating carbonation and where such products have been used will finish off this segment.

10.00 – 10.30 **SESSION 3 Cutting Concrete: challenging traditional methods**
[Mark Turner - Managing Director] - Hi Tech Industrial Services

As one of the pioneers of ultra high water jetting, Mark Turner will explain how this method is more sustainable, fast, clean and delivers low impact damage to concrete rather than the more traditional form of jack hammering. Water jetting leaves the surface free of contaminants such as soluble salts.

10.30 – 10.50 Morning Tea

10.50 – 11.30 **SESSION 4 Silanes for Concrete Protection**
[Justin Duong BE (Chem) MIEAust] - Dry Treat

This session looks at silanes, the silicon based products that are used by industry to waterproof concrete and keep out other damaging products. This session will discuss the chemistry and the principles behind sealers such as silanes, how they work, results from testing these materials, practical examples of treatments. The differences between silanes, oligomeric siloxanes and other silicone resins will be discussed. Silane models showing the chemical bonding arrangement will be brought into the room and used to explain how silanes are so effective in waterproofing concrete.

11.30 – 12.00 **SESSION 5 Pore Blocking Agents**
[Mark Hanlon] - Xypex

This session looks at an alternative solution for concrete protection and repair using pore blocking crystalline technology. It is a well known fact that if one can effectively block the pores in concrete then this waterproofing effect will stop aggressive ions such as chlorides, sulfates from entering the concrete and breaking it down or attacking the steel reinforcement. The presentation will highlight the use of crystalline technology to assist in the repair of typical concrete deterioration scenarios including concrete spalling, cracking and surface repairs.

DEMONSTRATIONS

- (1) Epoxy Crack Injection – including Polyurethanes
- (2) Epoxy Binder –unfilled, exothermic measures, various fill levels, pastes and adhesives, trowelled and screeded
- (3) Fast set Concrete repair (for roads and kerbs)
- (4) Slower curing, high builds for overhead concrete repair
- (5) Pourable Self-Leveling compound over rough surface - Underlay & Overlay condition
- (6) Trowelable surface repairs over rough surface
- (7) Gravity feed Class C structural grout application
- (8) Pump assisted Class A grout applications under water

12.00 – 12.30 **SESSION 6 Waterproofing Membranes for Concrete**
[Bruce Perry] - GRACE

This session looks at waterproofing from the perspective of applied membranes in waterproofing concrete. Aspects such as surface preparation, treating imperfections in the substrate before membrane application will be explained. This will be followed by a review of the different membranes and which type offers the best performance. Other criteria such as torch-on vs non-torch applications will also be discussed. Actual job cases will be highlighted.

12.30 – 1.30 LUNCH - (Hot & Cold Buffet – Seated in Restaurant)

1.30 – 3.00 **SESSION 7 Full Demo - epoxies, grouts, self levellers**
[Mike Anderson & Andrew Constantinou B.App.Sc ARACI] - BOSTIK

This session looks at the most commonly used materials for repairing damaged concrete namely epoxies and polymer modified cement based materials. This session will discuss the principles behind how these products work, including correct mixing of product and hardener (in the case of epoxies), crack injection, low viscosity vs high viscosity products, self-levelling compounds etc. The session will be capped off by a practical demonstration of their usage in the seminar room.

3.00 – 3.30 Afternoon Tea

3.30 – 4.00 **SESSION 8 Repair Case Studies & Cathodic protection**
[Grahame Vile BE ME] - BCRC

This session looks at the critical parameters in a repair specification. What makes a good specification (and what doesn't). When does a repair specification relate the most important elements to a contractor? When is a specification too theoretical? What's important and what's not? What do some of the repair terms mean? What key tests should be specified in a practical repair specification? Real cases will be addressed. Cathodic Protection and other electrochemical methods will be discussed.

4.00 – 4.30 **SESSION 9 Carbon Fibre Strips - Strengthening and Repairing Structures**
[Andrew Sarkady -BE Civil (Hons)] - BASF

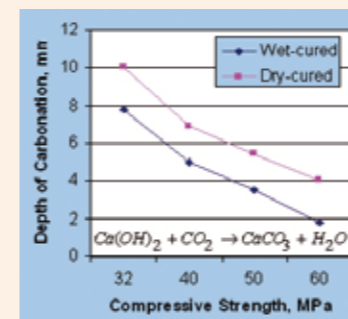
This session looks strengthening beams and slabs without the need for heavy and bulky steel elements as was done in the past. Beams and slabs can now be externally reinforced by propping the structural element, coating the cleaned surface with an epoxy resin and then applying carbon fibre strips. When hardened the props are removed and the beam or slab is now structurally reinforced thereby minimising excessive deflections or distress. Structural engineering design manuals & guidelines will be available. A carbon fibre laminated beam will be on display.

4.30 – 5.00 **SESSION 10 Galvanic Steel Protection Systems**
[Peter Battista B.Sc (Hons)] - Parchem

This session looks at specialised products used by industry to minimise the likelihood of steel corrosion by means of zinc based electro chemical means. This session will discuss the principles behind how they work, results from testing these materials, practical examples of where they have been used. This system was developed in conjunction with Aston University in the UK and provides a cost effective alternative to cathodic protection systems and migrating corrosion inhibitors.

5.00 – 5.20 Q & A

5.20 – 5.30 Certificate of Attendance and Feedback sheets.



VENUE

- * Sydney Stamford Grand cnr Herring & Epping Rd, North Ryde NSW (02) 9888-1077
- * Brisbane Mercure Hotel, cnr Ann & Nth Quay, Brisbane QLD (07) 3237-2300
- * Melbourne Hotel Grand Chancellor, 131 Lonsdale Street, Melbourne VIC (03) 9656-4000
- * Perth Comfort Inn Wentworth Plaza, 300 Murray St, Perth WA (08) 9338 5000

REGISTRATION

Please return to:
Cement & Concrete Services (Attn : Joanne)
Concrete Repair & Protection Course
PO Box 913 Baulkham Hills NSW 1755
Ph 02 9899 7447 Fax 02-9899 5995 Mobile 0413 998 031
Email info@cementandconcrete.com

I/We wish to attend the **Concrete Repair & Protection Course** at

- Brisbane (QLD) 14 April 2011
- Sydney (NSW) 15 June 2011
- Melbourne (VIC) 18 August 2011
- Perth (WA) 9 September 2011

	Number		Total
One Day Course	<input type="text"/>	@ \$410	<input type="text"/>
Guide to Concrete Repair & Protection Book	<input type="text"/>	@ \$85	<input type="text"/>

Total Payment Cheque \$

[Cheques payable to 'Cement & Concrete Services' note GST already included]

Name

Name

Company

Street / PO Box

Suburb Postcode

Ph () Fax ()

Email

Person Handling Payment (please print)

VISA M.CARD AMEX 4 DIGIT ID#

Cardholders Name

Expiry Date / Signature

NB A 20% processing fee applies to registration cancellations made earlier than 5 working days before the course date. Cancellations made 5 working days or less incur forfeiture of the entire registration fee. No discounts apply.