

# Cement & Concrete Technology & Practice Course

## DAY 1

8.30 - 9.00 am Registration

### 9.00 - 10.30 CEMENT AND CONCRETE - THE MATERIALS

Introduction to cement types (portland, blended, low heat, high early strength, low shrinkage, sulfate resistant, off-white, white, high alumina cements etc), aggregates (fine/coarse), manufactured sands, water, supplementary cementitious materials (slag, flyash, silica fume), pozzolanic reactions etc.

10.30 - 11.00 Morning Tea

### 11.00 - 12.30 ADMIXTURES & MIX DESIGN

The first session deals with the basic introduction to standard admixtures such as accelerators, retarders, water-reducers, superplasticisers, air entrainers, waterproofer, colour oxides.

The second session addresses the basic introduction to mix design addressing aspects such as strength vs durability, w/c ratio, aggregate grading, ACI vs British Method, concrete maturity.

12.30 - 1.30 LUNCH ~ Sit down - Hot and Cold Buffet

### 1.30 - 3.00 CONCRETE & REINFORCEMENT PROPERTIES

The first session deals with the basic introduction to concrete properties. Aspects such as water to cement ratio effects, workability and stiffness, air content, heat of hydration, setting time, shrinkage, strength development as a function of time and temperature, bleeding, permeability and porosity.

The second session addresses the basic introduction to steel reinforcement properties e.g. yield, ultimate tensile and shear strength in reinforced concrete members, bond and anchorage, bars vs mesh, metal vs plastic bar chairs, detailing, prestressing. New 500 MPa steels addressed.

3.00 - 3.30 Afternoon Tea

### 3.30 - 5.00 CONCRETING ON SITE

Transporting, placing, compacting, finishing and curing concrete on site. Aspects addressed include truck sizes, time limits for delivery, site access, delivery rate, pumping, avoidance of segregation, vibration, screeding, floating by hand and by machine, curing methods and curing agents.

## DAY 2

9.00 - 10.30 QUALITY & TESTING

The first session addresses Quality Assurance, Quality Control, TQM, Australian Standards relevant to cement and concrete materials, products, design and manufacture as well as related areas including masonry, precast, reinforcement, pipes etc. Basic aspects of AS1379 will also be addressed.

The second session will deal with the testing of fresh and hardened concrete. Tests include consistency of fresh concrete e.g. slump, V-B, compacting factor, as well as air content and bleeding rate. Tests on hardened concrete include compression, indirect tension, flexural, shrinkage and creep. Volume of Permeable voids (VPV) test discussed.

10.30 - 11.00 Morning Tea

### 11.00 - 12.30 DURABILITY & CRACKS IN CONCRETE

The first session deals with durability aspects of concrete including abrasion, cover to reinforcement, concrete strength, carbonation, chloride penetration, concrete cancer, exposure environment, freeze-thaw conditions, salt attack.

The second session addresses cracks in concrete. Aspects such as hot weather concreting, plastic shrinkage, plastic settlement, poor joint design, building restraint, inadequate reinforcement are covered. Methods of crack identification and minimisation of cracking such as curing compounds, use of fibres (polypropylene and steel) and calculation of bleed water evaporation rates from concrete surfaces are all addressed.

12.30 - 1.30 LUNCH ~ Sit down - Hot and Cold Buffet

### 1.30 - 3.00 CONCRETE IN COMMERCIAL / INDUSTRIAL CONSTRUCTION

This session deals with topics such as high strength and high performance concrete, formwork finishes (class 1 to 5) and colour control to AS3610, formwork systems in high rise construction, rendering high strength concrete, precast concrete and tilt up construction, concrete industrial floors and pavements.

3.00 - 3.30 Afternoon Tea

### 3.30 - 5.00 CONCRETE IN RESIDENTIAL CONSTRUCTION

This session deals with topics such as residential slabs and footings to AS 2870, crack width and termite ingress, waffle pod slabs, cement rendering, brick mortars and the effect of air entrainers, shotcreting, steel bar vs fibre sprayed concrete pools, stencilled and stamped concrete, artificial rock making, colouring concrete using oxides.

5.00 - 5.15 CERTIFICATE OF ATTENDANCE AND FEEDBACK SHEETS HANDOUT

## FEEDBACK SHEET COMMENTS

"Very educational and very well presented" - Tony Dawson, Concrete, NSW

"Good coverage of general aspects – valuable background material" - Scott O'Connor, Botany Bay City Council, NSW

"Covered many practical aspects of cement and concrete" - Craig Mackay, Ove Arup, NSW

"Liked course and presentation – make builders aware of this course" - Stuart Whibley, Robert Bird & Ptns, QLD

"Very good presentation - easy to understand" - Ken Chivers, Queensland Rail, QLD

"Very good course!" - Michael Dale, Mackay Port Authority, QLD

"Whole course is excellent - all managers should attend" - Paul Gower Readymix, NT

"Very informative, well presented" - Jim Keogh, Tropicast, NT

"Liked the presentation and course contents; good presenter: excellent course" - Firoz Chowdbury, Main Roads, WA

"Photographs very informative, learnt a lot, thanks very much" - Derek Whyte, Water Corporation, WA

"Good overview of concrete technology covering theory and practical" - Sam Lewin, Hanson Concrete, VIC

"Clear, concise presentation covering many topics" - Michael Renfree, Boral Concrete, VIC

"Well presented, good refresher" - Craig Franklin, Connell Wagner, VIC

"Excellent coverage of basics to cement & concrete technology" - Tim Radimissis, Adelaide Brighton Cement, SA

"Good general coverage and actual experiences" - Andrew McDonald, Badge Constructions, SA

## Website

Visit our website at [www.cementandconcrete.com](http://www.cementandconcrete.com)

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# CEMENT & CONCRETE

## Technology and Practice Course

- A Full 2 day course.

• Melbourne VIC - 29th & 30th November 2011

## Annual Sponsors

- Ability Building Chemicals
- ARC - The Australian Reinforcing Company
- BASF – The Chemical Company
- Bostik Australia
- CSR Hebel
- Danley Construction Products
- Dry-Treat Pty Ltd
- Engineered Wood Products Assoc of Australasia
- Fielders Australia
- Grace Australia
- Hitech Industrial Services
- Humes
- Parchem Construction Supplies
- PERI formwork
- Prestressed Concrete Design Consultants (RAPT)
- Reid
- Sika Australia Pty Ltd
- Xypex Australia

## Course Sponsors

Boral Cement



Independent Cement

Independent Cement Limited ICL

Presented by  
Cement and Concrete Services

ABN 27 830 322 080



# Nature of the course

## Nature of the Course

This course is a series of lectures, workshop sessions and general interaction over a period of two days.

Information is provided in Powerpoint Presentation. Discussion in the sessions between the participants and presenter provides an excellent opportunity to exchange information and experiences gained on site. This course will suit building and construction supervisors, plant managers, State and Local Government technical staff, builders, developers as well as architects and engineers who wish to refresh their basic knowledge in this area.

## Course Objectives

The main objectives of the course are to provide a basic knowledge and understanding of :

- Manufacture, properties and technology of cement and concrete
- Construction practices of transport and placement
- Mix design procedures for different mixes and applications
- Performance requirements of concrete under relevant Australian Standards
- Preventing and resolving problems with concrete which can occur in construction projects
- Identifying the various types of cracks in concrete and minimizing future cracking problem.

Generally the course begins at a basic level and by the end of the two days provides the participants with the necessary knowledge and skills to supervise concrete construction projects.

## Printed Material

Each participant receives a copy of the notes for this course. A Certificate of Attendance will be issued to all participants at the end of the two day period.

## Further Information

For further information on this course please contact JOANNE or PAUL at Cement and Concrete Services Phone (02) 9899 7447  
 Fax (02) 9899 5995 or Mobile 0413-998-031 / 0413-998-331  
 Email: info@cementandconcrete.com  
 Website: www.cementandconcrete.com

## Annual Sponsors



# Speakers

## Paul J. Uno BE MBdgSc MIE(Aust) CPEng

Director - Cement and Concrete Services  
 Paul Uno has over 30 years experience in the design and construction industry. He has worked for companies such as CSR Readymix, Transfield, Boral, Dept. of Housing, Australian Institute of Steel Construction, HH Robertson and the Cement and Concrete Association of Australia. He has presented many seminars on behalf of the Cement and Concrete Association as well as answering structural technical enquiries from engineers, architects, builders and developers from all around Australia between 1990-98.

He was a part time lecturer at UTS (on Broadway) for senior civil/structural students doing the Concrete Design III course from 1996-98. During his period with AISC and CCAA he has given guest lectures at RMIT, QUT, Curtin University, SAIT, University of WA, University of Adelaide, Ballarat CAE, UNE (Armidale), Sydney University, UNSW, Wollongong University, Newcastle University and UWS (Nepean and Hawkesbury).

He is a member of the American Concrete Institute and Concrete Institute of Australia. At present he is a part time lecturer in Properties of Materials (Concrete) at UNSW for building students and for engineering students at the University of Sydney.

**A speaker from one or more of the sponsor companies in each state may present a specialised segment.**

## Professional Development

Attendees may be credited towards IE Aust Continuing Professional Development (CPD) requirements. Members of IE Aust are required to undertake a minimum of 150 hours of equivalent CPD every 3 years.

## Venue

Hotel Grand Chancellor - 131 Lonsdale St Melbourne VIC (03) 9656-4000

## Course Sponsors



# Registration

Please return to:

Cement & Concrete Services (Attn: Joanne)  
 PO Box 913 Baulkham Hills NSW 1755  
 Phone (02) 9899 7447 Fax (02) 9899 5995 Mobile 0413 998 031  
 Email: info@cementandconcrete.com

I / We wish to attend the CEMENT & CONCRETE TECHNOLOGY AND PRACTICE COURSE at:

• Melbourne (VIC) 29th - 30th November 2011  tick

	Number	Total
Two Day Workshop (Includes Handouts & Meals)	<input type="text"/>	@ \$ 830 <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: Cancellations made more than 5 working days prior to a course will incur a 20% processing fee of the full registration amount. Cancellations made 5 working days or less will incur forfeiture of the full registration fee.