

CEMENT & CONCRETE TECHNOLOGY & PRACTICE COURSE

SPEAKER: PAUL UNO PREVIOUSLY NSW TECHNICAL MANAGER - (CSR READYMIX) AND MATERIALS ENGINEER - (BORAL)



DAY 1

Venue: Stamford, North Ryde

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, superplastisers, air entrainers, waterproofers, 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

Venue: Boral Laboratory 3 Gibbon Rd, Baulkham Hills

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.



COURSE SPONSORS



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

VENUES

- * 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 TBA

REGISTRATION FORM

Please return to:

Cement & Concrete Services (Attn: Joanne)

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Email: info@cementandconcrete.com

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

- **Sydney (NSW)** Wed 10th -Thu 11th March 2010 tick
- **Brisbane (QLD)** Thurs 8th - Fri 9th July 2010
- **Melbourne (VIC)** Wed 28th -Thu 29th July 2010
- **Perth (WA)** TBA

Two Day Workshop Number @ \$ 820 Total
(Includes Handouts & Meals)

Total Payment Cheque \$

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

Name

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Company

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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.