

PRESTRESSED CONCRETE DESIGN WORKSHOP

PROGRAMME

DAY 1

9.00 - 10.30 Session 1 - Introduction

Introduction to Workshop. Reasons for and effect of prestressing concrete beams. Properties of concrete and prestressing steel and their effect on prestress losses. Pre-tensioning and post-tensioning. Full and partial prestressing. Calculation of stresses in uncracked sections.

10.30 - 11.00 *Morning Tea*

11.00 - 12.30 Session 2 - Load Balancing, Losses and Uncracked Sections

Equivalent load concept, Examples with straight, kinked and parabolic cables. The concept of load balancing and its applications in analysis and design. This session then addresses in detail, the losses that occur in both pre-tensioned and post-tensioned concrete.

12.30 - 1.30 *Lunch (Provided at venue)*

1.30 - 3.00 Session 3 - Flexural Strength

Calculating ultimate moment for sections with prestressing and reinforcing steel. Designing and checking for ductility; calculation of total strain in prestressing steel. Calculating additional reinforcement for the required moment capacity.

3.00 - 3.30 *Afternoon Tea*

3.30 - 5.00 Session 4 - Strength at Transfer & Elastic Cracked Section Analysis

Possibility of failure during prestressing. Calculating the strength at transfer; conditions when it may be important in design.

Elastic analysis of cracked prestressed concrete sections. Checking for serviceability. Software solutions and how to check them.

DAY 2

9.00 - 10.30 Session 5 - Shear Strength

Formation of web shear and flexure shear cracking. Effect of prestress. Determination of ultimate strength in shear. Web crushing failure. Design of shear reinforcement.

10.30 - 11.00 *Morning Tea*

11.00 - 12.30 Session 6 - Anchorage of Post-tensioned Cables

Conditions in end blocks of prestressed beams. Analysis for simple cases. Importance of end block design. Spalling and Bursting Moments. These parameters will all be addressed with respect to AS3600-2009.

12.30 - 1.30 *Lunch (Provided at venue)*

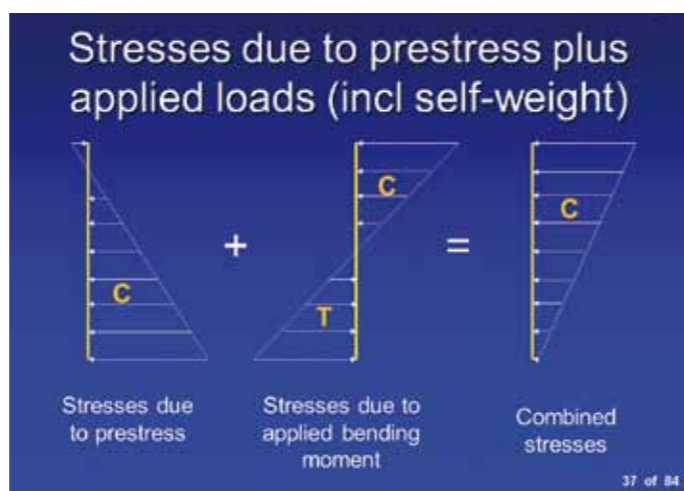
1.30 - 3.00 Session 7 - Deflections and Introduction to Design

Calculating elastic and long-term deflections for cracked and uncracked prestressed beams. Use of prestress to control deflection. Design preliminaries - choice of section - trial section dimensions. Choosing the appropriate level of prestress.

3.00 - 3.30 *Afternoon Tea*

3.30 - 5.00 Session 8 - Design Construction examples

Examples of the design of prestressed beams with different levels of prestress. Comparisons of the designs for economy, strength and serviceability. A representative from one of the largest post tensioning companies in Australia will provide a practical presentation on the design & construction of Australian post tensioned structures.



THE WORKSHOP

This course concentrates on the basic understanding of the fundamentals of prestressed concrete. It aims to demystify the subject for any who may feel daunted by it, by explaining the essential simplicity of prestressed concrete flexural theory.

Each 90 minute session will consist of two parts: (a) presentation by one of the course leaders on the material to be covered in the session, followed by (b) workshop segment. The participants will work, with assistance, on a structured series of exercises aimed at reinforcing and understanding the essential principles and procedures. Class sizes will be limited so register early.

For further information contact Joanne phone 02 9899 7447 or Mobile 0413 998 031.

CALCULATORS REQUIRED



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, Spancrete, Dept. of Housing, Australian Institute of Steel Construction, HH Robertson and the Cement And Concrete Association of Australia.



He presented precast concrete courses nationally for the NPCAA in 2005 and 2006 and was also acknowledged as a key contributor to the NPCAA/CIA publication "Precast Concrete Handbook". He has also co-presented many prestressed courses throughout Australia over the past 10 years with Prof Ken Faulkes, author of the text book "Prestressed Concrete". He gained valuable prestress experience in the late 1970's when he worked for Boral Spancrete, a prestressing precast hollowcore supplier.

He has been a member of the American Concrete Institute since 1992 and a member of the Concrete Institute of Australia since 1982. At present he is a consultant, a presenter for Cement and Concrete Services as well as a University lecturer.

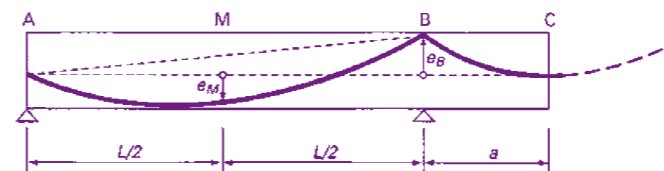
He currently lectures in Properties of Materials (Concrete) at Civil Engineering, Sydney University as well as lecturing at UNSW in the faculty of Built Environment in both in Construction Science (Materials) and in Building Structures (Reinforced Concrete Design, Structural Steel Design and Prestressed Concrete Design).

Ed Cross BE GradDip(TechMgt) MIEAust CPEng

Ed has been associated with the post-tensioned industry for over 20 years. He was the technical director for Austress Freyssinet for many years carrying out many detailed and complex designs of prestressed concrete structures. He is now the NSW Manager for Building.



He presents the final session of the two-day Prestressed Concrete Design Workshop currently being conducted throughout the Eastern States of Australia. In this 90 minute session he addresses all the practical aspects of post tensioned design including economical spans, flat plate vs flat slab vs band beam, appropriate prestress levels to be used on site, practical anchorage systems used in the marketplace. He concludes the presentation by looking at current projects and the systems adopted to provide a practical and cost effective solution.



VENUE

- * Sydney Stamford Grand Hotel cnr Herring & Epping Rd, North Ryde NSW (02) 9888-1077
- * Melbourne Hotel Grand Chancellor, 131 Lonsdale Street, Melbourne VIC (03) 9656-4000
- * Brisbane Holiday Inn, 159 Roma St, Brisbane QLD (07) 3238-2222
- * Perth Comfort Inn Wenthworth Plaza, 300 Murray Street, Perth WA (08) 9338-5000

REGISTRATION FORM

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 **Prestressed Concrete Design Workshop** at tick

- Brisbane (QLD) Mon 30 April + Tue 1 May 2012
- Sydney (NSW) Mon 30 + Tue 31 July 2012
- Melbourne (VIC) Tue 23 + Wed 24 October 2012
- Perth (WA) Wed 14 + Thu 15 November 2012

Day 1 & 2 Number @ \$970 Total

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.