STRENGTHENING OF CONCRETE STRUCTURES: ISSUES AND SOLUTIONS

Testing of a Strengthened RC beam

Date: 25 July 2007 (Wednesday)
Time: 0830 hrs to 1600 hrs

Venue: Informatics Campus
Block A, #03-09
12 Science Centre Road
Singapore 609079

Fees per person: S$140 + GST
(Fee is inclusive of tea / coffee, snacks, lunch & course material)

Accredited by Professional Engineers Board (PEB) – 5 PDUs
Accredited by SIA under SIA-BOA program – 2 CPD Points

ABOUT THE ORGANISER
SETSCO is one of Singapore’s largest testing & inspection companies accredited by the Singapore Accreditation Council (SAC). It offers a comprehensive range of testing, calibration, inspection, consultancy & training services to a wide spectrum of industries.

SUITABLE FOR
The course is suitable for all those personnel who deal with strengthening of old buildings and structures. In particular, this short course is of interest to Consultants, Design Engineers, Professional Engineers, Resident Engineers, & Project Engineers, Maintenance & Repair Professionals, and Facility Management Professionals.

This Workshop is also useful for beginners who require knowledge on strengthening of concrete structures. Most of the participants will find the workshop to be a time saving means to broaden & update their knowledge on strengthening of concrete structures.

COURSE BACKGROUND

The strengthening of existing reinforced concrete (RC) structures is a common requirement. Strengthening may be required because of a change of use, resulting in an increased loading, or perhaps as the result of design or construction error.

The first part of the Workshop discusses some of the most popular means strengthening RC beams, slabs, and columns, namely by the addition of new concrete and/or steel reinforcement (“Jacketing” and “Overlays”), by using fibre reinforced plastic (FRP) plates, structural steel or external prestressing steel. In addition, the strengthening of columns by jacketing with new concrete or wrapping with FRP will also be covered.

In this part of the Workshop it is assumed the assessment and any repair has been completed before the strengthening is recommended, so the Workshop focus is on the strengthening of undamaged elements.

The second part of the Workshop covers examples on strengthening of concrete structures with various techniques and a detailed case study on strengthening of an industrial concrete structure involving conventional as well as FRP retrofit methods.
How You Will Benefit?
- Acquire skills from experts in the field
- Discover practical solutions to strengthen concrete structures
- Take home course material full of useful information

What You Will Cover?
- Different techniques of strengthening concrete structures
- Background theory
- Case studies on strengthening of concrete structures

**SPEAKERS PROFILE**

**Er. Dr. Niall MacAlevey** is currently an independent consultant specialising in the analysis and design of reinforced and prestressed concrete structures, forensic engineering and the strengthening of concrete structures. He is the founder of the firm “Shamrock Consultants”, is a member of the Institution of Engineers of Ireland and is a registered Professional Engineer in Singapore. He graduated from University College Dublin, Ireland in 1987 and completed his M.Sc. degree in “Concrete Structures” at Imperial College, London. He completed his PhD degree at the Nanyang Technological University in 1997 on “The Strengthening of Concrete Structures” and later joined the academic staff there. His main research interest was in the strengthening of concrete structures using carbon fibre. He obtained a PGDipTHE (Post-Graduate Diploma in Teaching in Higher Education) from the National Institute of Education in 2001. He has worked for a number of consulting engineering firms and specialist prestressing subcontractors in London, Cambridge, Hong Kong and Singapore.

**Mr Yogesh Chhabra** is the Managing Director of Novaars International Pte Ltd that is involved in providing consultancy services and specialist products for repair, rehabilitation and inspection of infrastructure & buildings. His fields of expertise include Fibre Reinforced Polymers (FRP) Strengthening; Inspection, Investigation, Repair / Retrofit of Structures, Bridge Inspection; Inspection & Rehabilitation of Bridge Bearings & Expansion joints systems. He graduated from University of Delhi in 1983 and subsequently obtained MSc (Civil Engg.) and MBA qualifications from National University of Singapore. He has more than twenty years of diverse experience in the construction industry throughout Asia pacific involving structural retrofit, specialist civil engineering products, structural design, marketing, business development, project & general management. He has worked for consulting, Govt. & specialist engineering firms in Singapore and India covering projects all over Asia Pacific. He is the member of SCI, FRPSS & Institution of Engineers (I) and the Fellow of IStructE.

**WORKSHOP PROGRAMME**

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<tr>
<th>Time</th>
<th>Activity</th>
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<tr>
<td>0830 - 0930 hrs</td>
<td>Registration &amp; Collection of Course Material.</td>
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<tr>
<td>0930 - 1030 hrs</td>
<td>Presentation 1</td>
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<tr>
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<td>By Dr Niall MacAlevey, Shamrock Consultants.</td>
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<td>1030 - 1100 hrs</td>
<td>Tea/Coffee Break</td>
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<tr>
<td>1100 - 1200 hrs</td>
<td>Presentation 2</td>
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<tr>
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<td>By Dr Niall MacAlevey, Shamrock Consultants.</td>
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<tr>
<td>1200 - 1215 hrs</td>
<td>Q &amp; A</td>
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<td>1215 - 1315 hrs</td>
<td>Lunch Break</td>
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<tr>
<td>1315 - 1415 hrs</td>
<td>Presentation 3</td>
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<tr>
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<td>Case Studies/Examples Of Strengthening Of Concrete Structures.</td>
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<td>By Mr Yogesh Chhabra, NOVAARS International Pte Ltd.</td>
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<tr>
<td>1415 - 1445 hrs</td>
<td>Tea/Coffee Break</td>
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<td>1445 - 1545 hrs</td>
<td>Presentation 4</td>
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<td>A Detailed Case Study On Strengthening Of An Industrial Concrete Structure.</td>
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<td></td>
<td>By Mr Yogesh Chhabra, NOVAARS International Pte Ltd.</td>
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<tr>
<td>1545 - 1600 hrs</td>
<td>Q &amp; A</td>
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**Note:** SETSCO Services Pte Ltd reserves the right to cancel the workshop or amend the schedule, venue & speaker due to circumstances beyond its control. Registration is on first-come-first-serve basis. We regret that we cannot refund the registration fees, however replacement is accepted.

Please fill-in the registration form & fax to 6566 7718 or e-mail to wonglk@setsco.com before 25 July 2007. Cheques should be made payable to “SETSCO Services Pte Ltd”. Please forward the cheque along with a copy of the filled-in registration form to SETSCO Services Pte Ltd, 18 Teban Gardens Crescent, Singapore 608925 (Attention to Miss Wong Li Kien).

Name 1 (Dr/Mr/Ms) : ___________________________ SIA*/PEB reg. no* : ___________________________

Name 2 (Dr/Mr/Ms) : ___________________________ SIA*/PEB reg. no* : ___________________________

Name 3 (Dr/Mr/Ms) : ___________________________ SIA*/PEB reg. no* : ___________________________

Company Name : _____________________________ Contact person : _____________________________

Company Address : ___________________________ Tel/ Fax : _________________________________

E-mail : _____________________________

For more information, please contact:
Wong Li Kien @ 6895 0626, e-mail: wonglk@setsco.com or Dr. Arvind @ 6895 0633, e-mail: arvind@setsco.com

In-house training: SETSCO is able to customise similar course (s) to fit to your needs. For more details, please contact the above.

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SETSCO Training Centre 2
C/o Informatics Campus
12 Science Centre Road
Singapore 609079

Bus Service Numbers : 51, 78, 79, 97,197,198
Nearest MRT Station : Jurong East