Introduction

The Eurocodes are a new set of European structural design codes for building and civil engineering works. The Eurocodes are mandatory for public works in the European Union and likely to become the de-facto standard for the private sector – both in Europe and world-wide. In UK, after a period of co-existence with British Standards (BS), the BS design standards were withdrawn in March 2010 and the Eurocodes (BS EN version) have already been implemented.

On 20 October 2006, Building and Construction Authority (BCA) issued an advisory note to our industry stating that BCA would be adopting BS EN version of the Eurocodes and is planning to specify them in the Approved Documents of the Building Control Regulations after the corresponding British Standards are withdrawn. To prepare local structural engineering practitioners for the adoption of the Eurocodes in the design of reinforced concrete building structures, this 3-day workshop will focus on the design of concrete building structures using EC2. To provide participants with fundamentals of general design concepts of Eurocodes, the basis of structural design using EN 1990 and actions on structures as described in EC1 will also be covered.

Objectives

After attending the workshop, the participants will be able to:

• appreciate the design approach based on the Eurocodes
• determine combinations of actions (loads) and their applications in the design
• design structures to resist accidental actions
• appreciate the differences between BS 8110 and Eurocode-2
• apply Eurocode-2 in the design of various components of a concrete structure
• design concrete structures for flexure, shear, strut-and-tie, axial loading, deflection and torsion
• appreciate the provisions related to precast, plain and lightweight concrete structures

Workshop Outline

DAY 1 – 3 AUGUST 2011
a) Introduction to Eurocodes
b) Eurocode – Basis of design (EN 1990) & design exercises.
c) Densities, self-weight and imposed loads (EN 1991-1-1) & design exercises.
d) Wind loading (EN 1991-1-4) & design exercises
e) Thermal actions (EN 1991-1-5) & design exercises
f) Actions during execution (EN 1991-1-6) & design exercises
g) Accidental actions (EN 1991-1-7)

DAYS 2 & 3 – 4 & 5 AUGUST 2011
a) Introduction to Eurocode 2 and relationship to other Eurocodes and European Standards
b) Basis of design, combinations of actions with design exercise
c) Materials, durability, structural analysis
d) Ultimate limit state
   • Flexural design with design exercises
   • Punching shear with design exercises
   • Strut-and-tie
   • Shear design with design exercises
   • Axial resistance with design exercises
e) Serviceability limit state
   • Deflection with design exercises
   • Crack control
f) Design of foundations
g) Detailing of structural elements with design exercises
h) Overview on the design of precast, plain and lightweight concrete structures
i) Review of design aids and guidance
Workshop Leaders

MR OWEN BROOKER  BEng CEng MICE MStructE
Mr Owen is a chartered civil and structural engineer. He is the author of numerous guides on Eurocode 2, including “How to design concrete structures using Eurocode 2” and “Concise Eurocode 2 for Bridges”. He currently runs his own consultancy which offers training, authoring of publications and specialist concrete expertise. Previously he worked at The Concrete Centre in the UK where he delivered training on all aspects of concrete design, technical advice through their helpline and publications. Mr Owen has also served on a number of committees, including the BSI committee: B/204 Structural design of low-rise buildings, IStructE Technical Publications Panel, Highways Agency Technical Project Board for Eurocode Implementation and EuroCodes Expert Advisory Group. His early career was in general practice where he designed all types of buildings from domestic to multi-storey office buildings.

MR RAY HULSE  BSc MSc CEng FICE
Mr Ray is a chartered civil Engineer and a fellow of the Institution of Civil Engineers (ICE). He was, until retirement, the Associate Dean in the Faculty of Engineering and Computing at Coventry University. He has over 35 years experience in teaching, research and consultancy including a period spent at Nanyang Technological University in Singapore. He currently works for the ICE as a Regional Membership Development Officer and is the Director of his own educational consultancy company. His publications include 9 co-authored textbooks including “Reinforced Concrete Design to Eurocode 2”. He has, in the past two years, presented many public and in-company courses on Eurocode 2.

Registration Form - 3-Day workshop on Design of Concrete Building Structures using Eurocodes 0, 1 & 2
Based on:  
EN 1990 Eurocode 0: Basis of structural design  
EN 1991 Eurocode 1: Actions on structures  
EN 1992 Eurocode 2: Design of concrete structures

Date: 3, 4 & 5 August 2011  
Time: 9.00am to 5.00pm  
(Registration starts at 8.30am)  
Venue: BCA Academy

Name of Participant: ____________________________  
NRIC/Passport No: ____________________________  
Designation: ____________________________  
HP no.: ____________________________  
Email: ____________________________

Company Name: ____________________________  
Company UEN No.: ____________________________

Mailing Address: ____________________________

Contact Person Particulars

Name: (Dr/Mr/Mrs/Ms): ____________________________  
Designation: ____________________________  
Telephone No.: ____________________________  
Email: ____________________________  
Hp no.: ____________________________  
Fax no.: ____________________________

Payment

Enclosed is a cheque no.___________________________ (Cheque should be crossed, marked “account payee only” and payable to ‘BCA Academy’) for S$_________________

OR  
Deduct from GIRO acc. No ________________________________________________________________  
(should be the same bank account number as indicated in the Direct Debit Authorisation form submitted to BCA)

Name/Signature: ____________________________ ("Company / individual applicant")  
Company Stamp: ____________________________ (For company application)

We agree to allow BCA to disclose to other government agencies and / or the Government any information relating to me/us in connection with, arising from or relating to this application, including but not limited to my/our personal particulars and my/our test results.

Reservation may be made by fax, e-mail, post or by hand. To confirm the reservation, payment will have to be made before the seminar date via cheque, VISA or Nets/cash. No invoice will be issued. Walk-in applicants will only be admitted on the basis of seat availability and full payment. Please inform us in writing of any change in your registration, which is subject to administrative charges as shown below:

Request for Replacement and/or Withdrawal

- Request for replacement in writing, must reach BCA Academy before the commencement date of the seminar: No administrative charge
- Request for withdrawal in writing, that reaches BCA Academy at least 2 weeks before the seminar date: 90% refund of seminar fee.
- Request for withdrawal in writing, that reaches BCA Academy less than 2 weeks but more than 3 working days before the seminar date: 75% refund of seminar fee.
- Request for withdrawal in writing, that reaches BCA Academy 3 working days or less before the seminar date: No refund of seminar fee.

BCA Academy reserves the right to amend the seminar details or cancel the seminar and fully refund the participants should unforeseen circumstances warrant it.

Enquiries
For enquiries, please call  6248-9999 / 6248-9843  or email us at bca_academy@bca.gov.sg
For details of other seminars and courses, please visit our website @ www.bcaa.edu.sg

Registration
Seats are limited, registration is on a first-come, first served basis. Training places will be confirmed upon the payment of the seminar fees before the commencement date. Please fax application form to 6258-0558. Cheques with original application and supporting documents should be mailed to BCA Academy, 200 Braddell Road, Singapore 579700