



The Institution of Engineers, Malaysia

Bangunan Injenieur, Lots 60/62, Jalan 52/4, Peti Surat 223, 46720 Petaling Jaya, Selangor Darul Ehsan
Tel: 03-79684001/2 Fax: 03-79577678 E-mail: sec@iem.org.my IEM Homepage: <http://www.myiem.org.my>

TALK ON CONTROL OF CRACKING: REINFORCED CONCRETE DESIGN TO EUROCODE 2

(Organised by Civil & Structural Engineering Technical Division)

BEM Approved CPD/PDP: 2 Hours

Ref: IEM15/HQ/277/T

Date : **11 August 2015 (Tuesday)**
Time : **5.30 pm – 7.30 pm (Refreshment served at 5.00pm)**
Venue : **TUS and C&S Lecture Room, 2nd Floor Wisma IEM**
Speaker : **Professor Steve Garrity**

SYNOPSIS

EN 1992 (Eurocode 2) states that “cracking is normal in reinforced concrete structures subject to bending, shear, torsion or tension resulting from either direct loading or restraint or imposed deformations”. Although cracking of concrete is “normal” (and very common) no one wants it! Excessive cracking can impair the short-term and, in some cases, the long-term performance of a reinforced concrete structure as well as being undesirable aesthetically. One of the challenges facing engineers responsible for the design and construction of reinforced concrete structures is therefore crack CONTROL – taking measures to limit the size and extent of cracks to an acceptable level.

This presentation very briefly reviews the common sources of tensile stress (or strain) that can cause cracking in reinforced concrete. The control of cracking resulting from applied external loading is dealt with explicitly by the Eurocode and such guidance is described in the presentation. Non-structural cracking caused by externally restrained shrinkage is very common in walls and thin floor slabs in buildings or in large volume pours (internal restraint) such as foundations. Again, the explicit crack control guidance provided by the Eurocode is summarised in the presentation along with other forms of non-structural cracking that are referred to but not explicitly addressed in the Eurocode such as plastic cracking (very common with pumped concrete used in hot, humid climates) and cracking caused by chemical action.

BIODATA OF SPEAKER

Professor Steve Garrity, CEng, MICE, FStructE, FCIHT, FIMS is a chartered engineer with over 35 years experience in the planning, design, supervision of construction and repair or strengthening of a variety of civil and structural engineering works. He gained much of this experience with consulting engineers and the bridge engineering department of a major UK public highway authority. Steve has also spent part of his career as an academic. He was the Head of the Department of Civil and Environmental Engineering at the University of Bradford, UK (1997 - 2002) where he later served as a Civil Engineering Consultant and Visiting Professor in Civil Engineering Design. He is currently the Hoffman Wood Professor of Architectural Engineering at the University of Leeds, UK. His current academic work includes teaching at undergraduate and postgraduate levels and research into the performance of concrete and masonry structures. Since 2002 he has also been the principal of Garrity Associates, an independent firm of consulting civil and structural engineers and educational consultants. He has provided training and CPD courses for a wide range of construction professionals and has designed various new structures and repair or strengthening works for a variety of clients including government departments, local authorities, consulting engineers and design and build contractors. Most of his recent work has been associated with the repair or strengthening of concrete and masonry structures.

Steve is the recipient of the Chartered Institution of Highways and Transportation Babbie Premium Award (1992) and the Institution of Structural Engineers Cass Hayward Prize (1993), Sir Arnold Waters Medal (1995) and the Lewis Kent Award (2004). He was the co-recipient of the Institution of Civil Engineers Historic Bridge and Infrastructure Awards in 2004 (winner) and 2009 (commendation). He also serves on various learned society and professional body committees. He is currently chair of the UK Joint Board of Moderators (ICE, CIHT, IHE, IStructE) and he is currently President of the International Masonry Society.

Ir. Hooi Wing Chuen
Chairman
Civil & Structural Engineering Technical Division

ANNOUNCEMENTS TO NOTE

- Preferential admission to talk shall be accorded to IEM & IStructE members (pre-registration and online registration are NOT required). Telephone and/or fax reservation will NOT be entertained.
- **Non members** may also attend the talk but will need to pay a registration fee of **RM50** and an administrative fee of **RM15**. GST is inclusive.
- For members of affiliated organisations, there will be no registration fee payable. However, they are requested to produce their membership card as proof of membership. For the list of affiliated organisations, please refer to IEM website at www.myiem.org.my under International/MoU.
- Limited seats are available on a "first come first served" basis (maximum 100 participants).
- IEM members are required to produce membership cards for confirmation of attendance (CPD purpose).
- Latecomers will not be allowed to enter if the lecture hall is full nor be entitled to CPD.
- **IEM members who fail to produce their membership cards will be charged a fee of RM25.00. GST is inclusive.**

ADMINISTRATIVE FEE

- Kindly be informed that an administrative fee of **RM15** is payable for talks organized by IEM. GST is inclusive.
- The fee would be used to cover overhead costs, building maintenance expenses as well as contribute to Wisma IEM Building Fund.
- All contributions will be deeply appreciated by IEM.
- Student Members are however exempted.

CPD HOURS CONFIRMATION

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