



**1-DAY WORKSHOP
ON
“ASSESSMENT OF IN-SITU COMPRESSIVE
STRENGTH OF CONCRETE IN EXISTING
STRUCTURES”**

**SPEAKER:
Prof. Dr. Tam Chat Tim
(National University of Singapore)**

Date : 28TH MARCH 2019 (Thursday)
**Venue : Ballroom, Level 3
ARMADA HOTEL, Petaling Jaya, Selangor**
Time : 9.00 a.m. – 5.30 p.m.

**BEM Approved CPD/PDP Hours: 6.5
(IEM19/HQ/022/W)**

Closing Date: 21ST MARCH 2019

NO online registration will be allowed after the Closing Date

**Organized & Hosted by:
Civil & Structural Engineering Technical Division, IEM**

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SYNOPSIS

The assessment of concrete compressive strength in the European approach is now available as EN standards. They cover the two important aspects of concrete strength, during its production and when it has been placed into structures. These two aspects have always been of interest to all sectors of the concrete industry. However, the latest EN standards provide specific guidance on assessing conformity with clearly stated principles and methods. The conformity control and conformity criteria in production of concrete are the responsibility of the concrete producer. Where required by specification or by regulation, the producer's production control is to be assessed and surveyed by an approved inspection body and then certified by an approved certification body. The system based on former BS 5328 is now replaced with a more comprehensive system based on BS EN 206. However, depending on site control during execution of concrete structures, the level of workmanship, in particular curing applied, varies and the resultant as-built quality of the concrete cannot be expected to be the same as that indicated by standard specimens. A reduced quality is accepted at a specified level by national standards.

With the quality of concrete assured by the production system, and where the need arises, assessment of concrete strength in existing structure will provide the assurance of the quality of the in-place concrete which is influenced by the workmanship and construction processes on site. Previous guidance on core testing (e.g. BS 6089 and BS 1881, Part 120) and non-destructive testing (BS 1881, Parts 201 to 203) have been replaced with BS EN 13791 and BS EN 12504-1 to BS EN 12504-4. Corresponding Malaysian standards are based on these overseas standards. The new approach provides details for assessment by the various methods and for each specific method, the procedures to determine and the interpretation of the test results. In this way, a common approach can be adopted by all parties involved in planning the investigation and in the interpretation of the test results with respect to the use of cores and/or one or more of the three non-destructive testing methods considered in BS EN 13791. These are rebound number, ultrasonic pulse velocity and the pull-out force (a test not commonly adopted in this region). Additional guidance is provided in UK with the updated BS 6089: 2010 as the complimentary standard to BS EN 13791: 2007.

The presentation structure covers two main topics as follows:

- (a) Usefulness and limitations of core testing and non-destructive testing in assessing in-situ concrete strength, and factors affecting measured values and their relationship with strength.
- (b) Procedures and examples based on EN 13791: 2007 and BS 6089: 2010 on the use of the cores and NDT methods in the assessment of in-situ compressive strength in structures including the case where conformity of concrete based on standard tests is in doubt.

In addition to the presentations, a session with hand-on exercise on the selected work examples by participants is introduced to provide application experience. A short quiz is also included to assess the knowledge gained from the Workshop.

SPEAKERS



Prof. Dr. Tam Chat Tim obtained his BE Hon. in Civil Engineering (1959) and ME (Structures) from University of Adelaide, South Australia and PhD (Materials Science – Concrete) from University of Calgary, Canada during his sabbatical leave from the University of Malaya (1968-1972). After 2 years of practice as a designer at the Hydro-Electric Commission, Hobart, Tasmania, Australia and another year with a top consultancy company in KL, he was with the Department of Civil Engineering, UM from 1963 and served as Head of Department before joining Department of Civil & Environmental Engineering at National University of Singapore in 1979. He retired in 1996 after serving as Vice-Dean of Faculty of Engineering and continues with research activities currently as Adjunct Associate Professor. He is a professional engineering in Malaysia, Singapore and UK holding memberships of FIEM, FIES, FIStructE, FACI and FCS. Currently he serves as active member of technical committees in ASTM, ACI and Enterprise Singapore and previously SIRIM. He has received several awards for his contribution in standards development and life membership of Singapore Concrete Institute and ACI Singapore Chapter.

His research interests include the adaptation of new concrete knowledge for adoption in tropical climate covering production, construction and performance of concrete due to the higher ambient temperature and relative humidity service environment of this region. Over the past decades he has served on standards committees in the development of concrete specification and standards both in Malaysia and Singapore and provided technical support to the concrete construction industry. His interest in appraisal of concrete structures started in the 1960's and further motivated after being called as the Expert Witness on concrete at the Commission of Inquiry into the collapse of Hotel New World in 1986. A series of laboratory studies were conducted at NUS on NDT methods and their relationship to in-situ concrete strength based on core tests to have a fuller understanding of their usefulness and limitations in the assessment of in-situ concrete strength in existing structures. The current approach based on BS EN 13791: 2007 and the complimentary standard of BS 6089: 2010 (and their equivalent Singapore and Malaysian standards) has firmly established the appropriate assessment approaches for in-situ concrete replacing the former less definite guidance document of BS 6089:1981. Applications of the new approach in the past decade provide some examples for presentation at the proposed Workshop.

PROGRAMME

TIME	PROGRAMME
0830 – 0900	Registration of Participants Welcome Refreshment
0900 – 0905	Welcome Address by Ir. Chong Chee Meng, Chairman, Civil and Structural Engineering Technical Division (CSETD), IEM
0905 – 1030	Session 1: Introduction & Assessment Methods
1030 – 1045	<i>Morning Tea Break</i>
1045 – 1200	Session 2: Application of NDT Methods
1200 - 1300	<i>Break for Lunch</i>
1300 – 1500	Session 3: Hands-on Session & Quiz
1500 - 1515	<i>Afternoon Tea Break</i>
1530	End of Workshop

* IEM reserves the right to postpone, reschedule, allocate or cancel the course.

REGISTRATION FORMS

1-DAY WORKSHOP ON
“ASSESSMENT OF IN-SITU COMPRESSIVE STRENGTH OF CONCRETE IN EXISTING STRUCTURES”
 Organised by : Civil & Structural Engineering Technical Division

28TH MARCH 2019 (Thursday)

Fax: 03-7957 7678

Email: shahrul@iem.org.my / aslinda@iem.org.my

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- The Organizing Committee reserves the right to cancel, alter, or change the program due to unforeseen circumstances. Every effort will be made to inform the registered participants of any changes. In view of the limited places available, intending participants are advised to send their registrations as early as possible so as to avoid disappointment.

For further details, kindly contact:

The Institution of Engineers, Malaysia
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1-DAY WORKSHOP ON “ASSESSMENT OF IN-SITU COMPRESSIVE STRENGTH OF CONCRETE IN EXISTING STRUCTURES” 28TH MARCH 2019 (Thursday)

Organised by :
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Ir. Chong Chee Meng,
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