

# CONCET2020

15<sup>TH</sup> INTERNATIONAL CONFERENCE ON CONCRETE  
ENGINEERING AND TECHNOLOGY



## Innovation and Resilience in Concrete Construction

20 – 23 July 2020 | Kuala Lumpur, Malaysia

Pre-conference workshop | 20 July  
Durability of concrete structures – mechanisms,  
assessment methods and ensuring durable  
structures

Post-conference workshop | 23 July  
Earthquake engineering and floor vibrations

CONFERENCE  
POSTPONED

BEM Approved  
CPD Hours



Can be booked independent  
of the  
main conference

# Pre-conference workshop

MONDAY 20 JULY

## DURABILITY OF CONCRETE STRUCTURES – MECHANISMS, ASSESSMENT METHODS AND ENSURING DURABLE STRUCTURES

Despite numerous reported cases of failure of concrete structures, the durability of concrete is still compromised due to lack of clarity on: the causes of deterioration, interactions between different factors causing the deterioration and the mechanisms themselves, methods of assessing the susceptibility of deterioration as well as the causes and extent of deterioration; and ensuring its performance in the exposure environment. As a consequence, the current situation in most developed countries is that repair and rehabilitation costs of structures far exceed the total budget for capital development programmes. Therefore, an important consideration for the design and construction of durable concrete structures should be to ensure that exposure classes are appropriately identified/specified, concrete is specified and designed for the intended exposure regime, design and construction techniques are suitable for the expected performance, and measures are introduced for monitoring their performance in the service environment during their life so that any deviation from the anticipated performance could be identified in a timely manner and appropriate repair and rehabilitation measures are taken. In addition to dealing with most of the above topics, this workshop will introduce the concept of performance-based specifications for ensuring the durability of concrete structures and a strategy for performance testing using both in-situ test techniques and sensors embedded in concrete

### SESSIONS

Mechanisms of deterioration of concrete

Methods of identifying and quantifying the deterioration

Durability designs

Methods of improving the durability



**Professor P. A. Muhammed Basheer**

PhD DSc FREng FIAE FICE FACI FICT FIStructE MIE(I) CEng  
Chair in Structural Engineering and Head of School of Civil Engineering  
University of Leeds, UK

# Post-conference workshop

THURSDAY 23 JULY

## EARTHQUAKE ENGINEERING AND FLOOR VIBRATIONS

This workshop aims to cover fundamentals of structural dynamics and applications in design for earthquakes and floor vibrations. It introduces the principles of dynamics and simplification of structures into single and multi-degree of freedom systems and their response to excitation which form the basis of many design codes

The section on earthquake engineering provides an introduction to plate tectonics, earthquake design philosophy and typical damage types from past earthquakes. The different methods for calculating earthquake actions will be discussed with specific focus on the force based approach which is used in various design standards around the world. Key design factors such as soil amplification, structural ductility and detailing will be covered with a specific focus on concrete structures. Finally, the displacement based method as an alternative to the force based approach for earthquake design and analysis will be introduced

The section on floor vibrations focuses on human induced vibrations especially walking. Explanations of design assumptions and acceptance criteria will be provided. Considerations for prediction of maximum floor vibration will be highlighted to show the limitations and features of various tools. Rectification measures for in-service problematic floors will be covered including the use of passive floor dampers. Specific requirements for sensitive floors such as for hospitals and labs will be highlighted

### SESSIONS

**Structural dynamics** Single degree and multi degree of freedom systems; Earthquake excitation and response including response spectra; Periodic and impulsive dynamic excitation and response

**Introduction to earthquakes** Inter-plate and intra-plate earthquakes; Earthquake scales, hazard maps, soil effects; Building response and damage from past earthquakes

**Earthquake design** Earthquake Loading Standards and Force based design; Static force method including hazard, site, building type and ductility; Displacement based design including capacity design method

**Floor vibrations** Footfall excitation; Design guidelines and acceptance criteria; Analysis considerations; Rectification methods; Sensitive floors



**Professor John Wilson**

PhD

Deputy Vice-Chancellor and Chief Executive Officer  
Swinburne University of Technology, Sarawak Campus, Malaysia



**Professor Emad Gad**

PhD

Professor and Dean, School of Engineering  
Swinburne University of Technology, Australia

# PRE-CONFERENCE WORKSHOP | MON 20 JULY

## DURABILITY OF CONCRETE STRUCTURES – MECHANISMS, ASSESSMENT METHODS AND ENSURING DURABLE STRUCTURES

REGISTRATION   REFRESHMENTS, NETWORKING AND EXHIBITION	0800 - 0900
Opening address	0855 - 0900
Session 1 Mechanisms of deterioration of concrete	0900 - 1030
REFRESHMENTS, NETWORKING AND EXHIBITION	1030 - 1100
Session 2 Methods of identifying and quantifying the deterioration	1100 - 1230
LUNCH, NETWORKING AND EXHIBITION	1230 - 1400
Session 3 Durability designs	1400 - 1530
REFRESHMENTS, NETWORKING AND EXHIBITION	1530 - 1600
Session 4 Methods of improving the durability	1600 - 1730
Q&A	1730 - 1830
Close of pre-conference workshop	1830

# POST-CONFERENCE WORKSHOP | THU 23 JULY

## EARTHQUAKE ENGINEERING AND FLOOR VIBRATIONS

REGISTRATION   REFRESHMENTS, NETWORKING AND EXHIBITION	0800 - 0855
Opening address	0855 - 0900
Session 1 Structural dynamics	0900 - 1030
REFRESHMENTS, NETWORKING AND EXHIBITION	1030 - 1100
Session 2 Introduction to earthquakes	1100 - 1230
LUNCH, NETWORKING AND EXHIBITION	1230 - 1400
Session 3 Earthquake design	1400 - 1530
REFRESHMENTS, NETWORKING AND EXHIBITION	1530 - 1600
Session 4 Floor vibrations	1600 - 1730
Q&A	1730 - 1830
Close of post-conference workshop	1830

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POSTPONED**

# Register

Book online at [www.concet2020.com](http://www.concet2020.com)

## Registration fees

	Pre-conference workshop Post-conference workshop <i>Per workshop</i>		
	Early Registration <sup>1</sup>	Standard registration	Registration via email or walk-ins
Member of organising institutions <sup>2</sup>	RM450	RM500	RM550
Student member of organising institutions <sup>2</sup>	RM400	RM450	RM500
Non-member	RM550	RM600	RM650
Non-member (student) <sup>3</sup>	RM450	RM500	RM550

1 Early bird registration open until 30 April 2020

2 Members of UM and UiTM to submit proof document to obtain the rate

3 Submit proof document for discounted rate

Proof document to be submitted to [concet2020@iem.org.my](mailto:concet2020@iem.org.my)

Stay up to date at [www.concet2020.com](http://www.concet2020.com)

# CONFERENCE POSTPONED



Conference partners

