

TALK ON “SEISMIC BEHAVIOUR OF ENGINEERED CEMENTITIOUS COMPOSITES BEAM-COLUMN JOINTS”

Organised by the Civil and Structural Engineering Technical Division (CSETD)

BEM Approved CPD/PDP: 2 Hours

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Date : **02 AUGUST 2018 (THURSDAY)**
Time : **5.30 p.m. – 7.30 p.m.**
Venue : **Auditorium Tan Sri Prof. Chin Fung Kee, 3rd Floor, Wisma IEM, Petaling Jaya, Selangor**
Speaker : **DR. LEE SIONG WEE**

SYNOPSIS

Reinforced concrete (RC) beam-column joints are one of the most important components that may lead to collapse or major damage of a RC frame structure when subject to earthquake loading. Structural engineers tend to pay attention to the detailing of the joints, which may lead to reinforcement congestion and thus making it difficult to be constructed. The emergence of engineered cementitious composites (ECC), which features ultra-ductility and damage-tolerance, offers a potential solution to the abovementioned problem. Therefore this research evaluates the feasibility of using ECC in the joint cores as a means to enhance the seismic behaviour of the RC beam-column sub-assemblages.

A series of experimental test was conducted on interior RC beam-column sub-assemblages under lateral cyclic loading. Two RC interior beam-column sub-assemblages were detailed to seismic design while another two were detailed to non-seismic design. The control specimens had normal concrete in the joint core while ECC was incorporated into the joint core of the seismic and non-seismic designed sub-assemblages. Joint stirrups were totally eliminated from the joint core when ECC was used in the beam-column sub-assemblages, to study the performance of ECC joints without joint stirrups. In order to study the bond-slip behaviour of steel reinforcement embedded in ECC, pull-out tests were conducted on short and long reinforcement. An analytical model for bond-slip was proposed based on experimental results to predict the force-slip relationship of long reinforcement either anchored in concrete or in ECC. Moreover, a series of parametric study was conducted to estimate required embedment length of reinforcement in concrete and ECC according to four types of failures.

SPEAKER BIODATA



Dr. Lee Siong Wee, graduated from Nanyang Technological University, Singapore in 2017 with a PhD in Structural Engineering and Materials. She obtained her Master of Engineering (Civil & Structure) and Bachelor of Civil Engineering at the Universiti Teknologi Malaysia (UTM), Johor.

Before joining Faculty of Civil Engineering, Universiti Teknologi MARA (UiTM) in 2006, she worked in civil and structural consultancy firm for several years. Currently she is a Senior Lecturer in the Faculty of Civil Engineering, UiTM lecturing mechanics of Solids, structural analysis, design of reinforced concrete and steel structures and seismic design of reinforced concrete buildings. Dr. Lee is actively participated in research works, writing and reviewing journal papers and books. Her research is on seismic behaviour of reinforced concrete structures and engineered cementitious composites.

Ir. DR. NG SOON CHING
Chairman
Civil and Structural Engineering Technical Division

ANNOUNCEMENT TO NOTE

FEES

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