

Seminar on Earthquake Analysis & Design of **RC Structure**



Session 1 by Asst. Prof. Dr. Arthit Petchsasithon

Earthquakes are natural hazards which cause damage or collapse of buildings and infrastructures. Damage depends on various parameters, for example, intensity, frequency of ground motion, vibration period, soil conditions and construction quality. Therefore, it is essential to include earthquake resistance in our design.

Nowadays, earthquake has become a common word and lots of research are going on for decades to reduce the risk of the earthquakes towards the structures. Due to the fact that more people inhabit this planet, people are forced to live in more dense cities, in high-rise buildings and therefore these buildings need to be the safest places to be during earthquake. Understanding the impact of earthquake on the buildings is needed to efficiently analyze and design the buildings.

This seminar focuses on the basic concepts of earthquake resistance design and building design codes for earthquake resistance. To make the participants understand more on earthquake design, examples of seismic load analysis and basic design of seismic resistant reinforced concrete structures will be presented.

Session 2 by Mr. Gary Connah

Leviat has a long-standing experience in the field of fixing systems between precast concrete elements all over the world including the connection details between precast columns and in-situ poured foundations. The European funded project "SAFECAST" was established to further investigate and qualify these new systems in seismic regions.

Project partners including Leviat, conducted a unique set of experiments to study the seismic effectiveness of existing, new and improved connections. Tests were carried out on single units, connections and sub-assemblies in order to determine their mechanical behaviour. Guidelines have been produced, called "Design Guidelines for Connections of Precast Structures under Seismic Actions", with ISO 20987:2019.

In this session, Gary Connah will share his insights and experiences gained from Leviat's participation in the SAFECAST project. Attendees will gain valuable knowledge about the innovative research conducted to enhance the seismic performance of precast concrete connections. Join us to learn how these findings can inform and improve the design and construction practices in seismic regions, ensuring the safety and resilience of future prefabricated structures.



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The Speakers



Speaker 1: Associate Prof. Dr. Arthit Petchsasithon

Asst. Prof. Dr. Arthit Petchsasithon graduated with a Doctor of Philosophy in Structural Engineering, Master of Science (Structural Engineering) from the University of Newcastle upon Tyne, United Kingdom in 2006.

Asst. Prof. Dr. Arthit Petchsasithon has started his career as structural designer at Meinhardt (Thailand), Co. Ltd. in 2006. During his time at Meinhardt, he has done several earthquake resistance high-rise building designs. Then, he became an assistant professor at Department of Civil Engineering, Faculty of Engineering, King Mongkut's Institute of Technology Ladkrabang (KMITL), Ladkrabang, Bangkok since 2009. He has done several research on earthquake analysis and design. He is also Vice President for Environment and Property Management in KMITL and a Senior Professional engineer under the Council of Engineer in Thailand.

His research interests are finite element analysis of shell structures, optimization, structural analysis, and non-linear shell structure. He has published more than 18 numbers of research paper and attended several international conference proceedings. He became a keynote speaker for the Penang International Invention, Innovation and Design in 2023.



Speaker 2: Mr. Gary Connah

Gary Connah is a highly accomplished Chartered Professional Engineer and currently serves as the Product Manager at Leviat based in Singapore. He earned his degree from Loughborough University in the UK in 1996 and has since gained extensive expertise in mechanical splices, post-installed and cast-in anchor solutions in Europe, Asia, and Australia.

With a proven track record in the industry, Gary has contributed significantly to the development of current anchor Approval guidelines in Europe as the ex-chair of the Construction Fixings Association in the UK. He also served as the Chair of the AEFAC technical committee, an industry initiative aimed at enhancing the specification, selection, design, and installation of structural anchors and fasteners in the Australian construction industry until recently.

The Moderators



Moderator 1: Ir. Chan York Lin

Moderator 2: Ir. Dr. Goh Lyn Dee

Agenda

Time	Program
08.30am-09.00am	Registration
09.00am-10.30am	Background and Basic concepts of Earthquake resistance Design
10.30am-10.45am	Break
10.45am-12.15pm	ASCE7 Procedures for seismic load analysis of buildings. The difference between ASCE7 and Eurocode 8
12.15pm- 12.30pm	Session 1 Q&A
12.30pm- 01.30pm	Lunch break
01.30pm-02.30pm	Seismic load analysis and seismic resistant RC structural design using commercial finite element software
02.30pm-04.30pm	Seismic-Resistant Precast Concrete Structures: An overview of Precast Building Connection in Seismic Region
04.30pm-04.45pm	Session 2 Q&A
04.45pm-05.00pm	Certificate presentation & Closing remarks