Program Details

MATERIAL SELECTION AND COMPLIANCE WITH STRUCTURAL EUROCODES
By keynote Speaker: Professor Chiew Sing Ping,

THE QP – AC SYSTEM TO ACHIEVE SAFETY AND QUALITY
By: Er. Lim Peng Hong

THE DESIGN & CONSTRUCTION OF TALL BUILDINGS WITH REFERENCE TO CASE STUDIES
By: Er. Dr. Shahzad Nasim

EXPLOSION AND PROTECTION - PHYSICAL MITIGATION MEASURES AGAINST BLAST
By: Er. Dr. Ang Choon Keat

ENGINEERING GLASS STRUCTURES
By: Mr. Mathieu Meur

CASE STUDY ON INDOOR SPORTS HALL USING MET
By: Er. Ms Sharron Ng

BIM, ROBOTICS AND IDD FOR PREFABRICATION
By Professor Robert Tiong

CASE STUDIES ON STRUCTURAL DESIGN AND CONSTRUCTION OF PORT AND MARITIME STRUCTURES
By: Er. Dr. Ho Kwong Meng
Material Selection and Compliance with Structural Eurocodes

The Structural Eurocodes are already fully implemented in Singapore with effect from April 2015. While it is useful to implement a set of technically advanced structural design codes from Western Europe, it is important to take cognizance of the fact that Singapore is not part of the European Union. We are a small island city state with an open market economy and most of our structural materials for construction are coming out from the Asia-Pacific region, and they are manufactured to a variety of international product standards. It is untenable to insist that only construction materials manufactured to European standards can be used in Singapore because of our geophysical and geo-economical position within the Asia-Pacific region. This presentation will provide the background and trace our journey to develop a design guide on selection of alternative structural materials manufactured to various international product standards for design to the Structural Eurocodes. The key issues and how to ensure quality in the material selection process will be presented.

Professor CHIEW Sing Ping is Professor and Programme Director of Civil Engineering at Singapore Institute of Technology, Singapore’s fifth autonomous university funded by MOE Singapore to provide an alternative applied learning pathway for polytechnic students. He was previously Head of the Division of Structural Engineering and Mechanics at Nanyang Technological University, Singapore from 2008 to 2014. He is a Member of the Panel of Expert Advisors of the Land Transport Authority, Board Member of the Professional Engineers Board, Member of the Technical Advisory Panel of the Inland Revenue Authority and Member of the Inquiry Panel of the Law Society of Singapore. He is the author of the Design Guide BC1: 2008 and 2012 on selection of alternative structural steel published by the Building and Construction Authority of Singapore. He is also the co-author of the Professional Guide P001: 2015 on selection of equivalent steel materials published by the Hong Kong and Macau’s steel construction industries.

CASE STUDIES ON DESIGN AND CONSTRUCTION OF TALL BUILDINGS

The design and construction of tall buildings present many challenges for structural engineers. These include safety amongst others, the cost optimisation, constructability and structural response to wind and seismic forces in the context of serviceability and occupants’ comfort.

Structural engineers are required to devise innovative solutions that meet these multiple and sometimes conflicting requirements to deliver projects in a cost-effective, easy to build and timely manner.

This presentation attempts to address key considerations in the design and construction of tall buildings that meet these challenges with reference to a few projects engineered by Meinhardt.

Dr S. Nasim is the Executive Chairman of Meinhardt Group which employs some 4,500 staff in its 47 offices around the world. A regular speaker at various local and regional conferences, he is actively involved in educational, professional and statutory boards related to the construction industry. His entrepreneurship and numerous contributions to Meinhardt’s rapid expansion internationally have earned him the prestigious E&Y Entrepreneur of the Year Award (Engineering) in 2012, the inaugural Distinguished Professional Engineer Award in 2014 (Professional Engineers Board) and the Distinguished Engineering Alumni Award in 2015 (NUS). In March 2017, he was presented with the ACES Lifetime Achievement Award.
THE QP – AC SYSTEM TO ACHIEVE SAFETY AND QUALITY

The present system has matured since it was implemented in 1989. However, there is a need to review what the system can achieve and how to ensure that the primary intent for the design review is not lost in checking drafting and spelling errors. In order to ensure safety and quality, the system must respect the different responsibilities of each party.

Er. LIM Peng Hong, a Professional Civil Engineer with 35 years of experience in structural, transportation, civil and geotechnical engineering graduated from Imperial College, London University for a Master programme in Concrete Structures under the Commonwealth scholarship in 1992. He is currently the Managing Director of PH Consulting Pte Ltd, a licensed corporation under the Professional Engineers Act. Er. Lim has managed infrastructure and building projects in Singapore, and has also been involved in many overseas projects, covering countries in both Asia and Europe.

Er. Lim was a member of the Singapore Professional Engineers Board (PEB) from 2008 to 2017 and is a Past President of the Association of Consulting Engineers Singapore. He chairs the Engineering Academic Advisory Committee for ITE, and the Technical Committee for Structures and Sub-structures in SPRING, besides being a member of the Building and Construction Standards Committee in SPRING.

EXPLOSION AND PROTECTION - PHYSICAL MITIGATION MEASURES AGAINST BLAST

The threat of terrorism in Singapore is at its highest level in recent years. The Infrastructure Protection Act was passed in Oct 2017 to beef up protection of buildings which are iconic, highly frequented or house essential services. The speaker would present threats from Improvised Explosive Devices and blast mitigation measures.

Er. Dr. Ang Choon Keat is the Principal of Prostruct Consulting Pte Ltd, a professional engineering consultancy and specialist in infrastructure protection. Choon Keat is a registered Professional Engineer (Civil) and has about two decades of experience in civil engineering and protective security engineering. He has a strong track record in planning, design and project management, including infrastructure protection, for building and infrastructure projects in the public and private sectors.

ENGINEERING GLASS STRUCTURES

Glass is a fascinating material to work with, given its unique properties. Although glass has been used in construction for many centuries, it has only started to be used as a structural component only 50 or so years ago. In this presentation, we will discuss the properties of glass as a material, available codes for the structural design of glass, and selected case studies demonstrating computation techniques.

Mr. Mathieu MEUR provides strategic and technical leadership for DP Façade, the specialist façade engineering arm within the DP Architects group of companies. He was heavily involved in the construction of the Changi Airport Terminal 1 Upgrading, Republic Polytechnic, Resorts World Sentosa and The Dubai Mall, amongst many others. Through his training as a multi-disciplinary engineer and subsequent years of experience, Mr. Meur has developed extensive knowledge of all types of building envelope systems in terms of design, engineering and related codes of practice.
Passionate about sharing his knowledge and skills with others, he is a frequent speaker at conferences, writes for technical publications, and has been a Lecturer at the Building and Construction Authority, and at the Real Estate & Construction Centre for several years. Mr. Meur is also a Senior Member of the Institution of Engineers of Singapore and a fellow of the Society of Façade Engineering (UK). Mr. Meur joined DP Architects Group in 2016 to work on mega-projects and spearhead technical innovation.

**CASE STUDY ON INDOOR SPORTS HALL USING MET**

To improve productivity and achieve sustainable construction with environmental-friendly material in the built industry, there is a need to explore new construction materials and technologies. One such technology is mass engineered timber (MET) which can achieve higher productivity and reduces carbon footprint compared to traditional construction material such as concrete and steel. The speaker would present case study of indoor sports hall using hybrid MET structures.

**Er. Ms. Sharron NG** has been a Director of ECAS Consultants Pte Ltd since 2012. She is a Professional Engineer with more than 17 years of experience in the design and construction of new developments as well as additions and alterations works in infrastructure, industrial, commercial, residential buildings and education / institution projects. She has been actively involved in exploring and adopting new technologies with the industry that promotes productivity. One such technology is Mass Engineered Timber (MET) and she was appointed as the Qualified Person for three (3) schools that adopted MET.

**BIM, ROBOTICS AND IDD FOR PREFABRICATION**

This presentation will cover the development of a BIM-based Smart and Semi-Automated Precast Elements Logistics Management and Installation System, and current/future research works on Integrated Digital Delivery, automation and robotics for construction. The project objectives are enhancing the productivity, efficiency and safety of the Precast Elements Logistics Management, Hoisting and Installation process of housing projects through integrated BIM-Positioning System and sensor-based semi-automated navigation system.

This presentation will also cover the implementation of robotics in precast modular manufacturing plant. The construction industry is experiencing a wave of transformation from traditional on-site construction to off-site construction. Inspired by manufacturing in other industries such as motor car industry, AGV-based flow production method is proposed by the NTU team and its industry partner in order to improve productivity especially for the case of mass production.

**Professor. Robert TIONG** is an Associate Professor in School of Civil & Environmental Engineering, as well as Deputy Director of Centre for Infrastructure Systems, and Centre for Robotics Research Centre at Nanyang Technological University, Singapore. He is the Program Director of the MSc Programme in International Construction Management. He is a Professional Engineer in Singapore since 1990 and a member of the BCA Second BIM IPE (2015-2017).

Prof. Tiong has extensively published journal papers, including being the co-author of book chapter “Productivity through Management Control – Case: The UOB Plaza” in the Singapore Productivity Case Book, a joint publication between NTU and the former National Productivity Board, Singapore. Recently, he has been involved in the study of Smart Crane for Precast projects in Singapore.
His research has been working on BIM based IDD for Lean Construction, Precast, Prefabrication, DFMA, PPVC, PBU, Productivity Evaluation and Improvement, BIM/VDC for Precast/PPVC and Automation and Robotics in Construction, Decision Aids for Tunneling (DAT).

CASE STUDIES ON STRUCTURAL DESIGN AND CONSTRUCTION OF PORT AND MARITIME STRUCTURES

In this lecture, the following items on wharf and other maritime structures will be presented and discussed: design codes, design lives, concrete grades, concrete covers, steel sheet pile walls, foundations, precast prestressed concrete deck slabs, beams and piles, checking for crack width for cast-in-situ concrete wharf members, corrosion protections, design for rip-rap seawall etc.

Er. Dr. HO Kwong Meng graduated with PhD, MSc, BSc(Hons), FIES, PEng(S), FIStructE, MICE, CEng, CMILT, DipBA is a IES Council Member, Vice-Chairman, IES/IStructE Joint Committee and also Chairman of Structural Division of Civil & Structural TC has involved in planning, design & supervision of construction of several container wharves, a cruise terminal and a shipyard project in Singapore and a hydraulic lock for yachts in Malaysia during the last 40 years. He had involved in due diligence for about 12 overseas port investment projects. His research interests are: (1) Evaluation of Global Container Port Investment Projects, (2) Port Planning, (3) Design and Supervision of Construction of Wharf Structures. He has published over 20 journal, conference and seminar papers on the above subjects.
TERMS & CONDITIONS

Registration
1. Registration is based on first come first served. Please click HERE to register

2. For Group registration or CIJC Members, please click HERE

3. Booking through phone will not be entertained.

Payment Mode
1. Payment via VISA/Master online
2. Payment via AXS Machine (Please click HERE for procedure). Remember to retain your receipt for verification.
3. Payment by Crossed Cheque payable to “IES”
   *For cheque payment, please indicate Participate name & Event name at the back of the cheque and send to:

   The Institution of Engineers, Singapore
   70 Bukit Tinggi Road
   Singapore 289758
   Attn: Shelly Ng

Confirmation of Course
Confirmation of registration will be given 5 days prior to the commencement date of event via email.
Otherwise, please call Ms Shelly Ng @ 6461 1222 to check on your confirmation.
(Please remember to check your Junk/Spam folder if you did not receive the confirmation)

Cancellation
In the event that participants are not able to attend, please inform us in writing at least 3 working days before the event date. Otherwise full payment is still applicable even if you did not turn up for the talk.

(Please be informed that there will be a cancellation charge of 4.5% if cancelled by participant)