



# IES WEBINAR ON “ADVANCES IN PRECAST CONCRETE STRUCTURES”

In this webinar, Ir. Dr. Low Hin Foo will provide an overview of the design and construction of a concrete segmental box girder (SBG) bridge. The advantages and limitations of the precast segmental box girder bridge will be discussed and compared to other types of bridge forms.

Dr Kong Kian Hau will present on the dedication and diligence of all related stakeholders in built environment industry and authorities. Singapore is renowned globally as one of the leading, reliable and reputable countries in built environment industry. It is important for C&S practitioners to keep up-to-date with the latest current developments in precast concrete and prefabrication technologies worldwide, especially with the understanding of fundamentals of mechanical precast connection system analysis and design based on the Design for Manufacturing Assembly (DfMA) approach.

Er. Dr Ho Kwong Meng will be presenting on his experience in the design and construction of Seaports and other related Maritime Structures. He will be covering on the General Requirements in Code of Practice for Maritime Structures, Design and Construction of Open-Piled Wharves supported with Spun Piles and Precast Prestressed Concrete.



## Topics include:

- Design and Construction of Segmental Box Girder Bridge
- Fundamental Analysis and Design of Current Mechanical Precast Connection Systems (DfMA approach) in Structures
- Case Studies on Design and Construction of Precast Prestressed Composite Concrete Open-Piled Wharves

Date: 4 August 2022, Thursday

Time: 2pm to 5pm

Fees: S\$ 21.40 (IES Members)  
S\$ 42.80 (Non-members)  
(Inclusive 7% GST)

CPD: STUs (Structural) /  
PDU for PEs and CEngs  
(all to be confirmed)

## SPEAKERS:



IR. DR. LOW HIN FOO

Principal Engineer  
OSD Consultants (M) Sdn Bhd  
Managing Director  
OS Alliance (Singapore) Pte Ltd  
Group Managing Director  
OSD Alliance Design Group



DR KONG KIAN HAU

Senior Lecturer  
Department of Civil Environmental  
Engineering  
National University of Singapore



ER. DR HO KWONG MENG

Managing Director  
Port and Building Consultants Pte Ltd

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# SYNOPSIS AND SPEAKERS

## DESIGN AND CONSTRUCTION OF SEGMENTAL BOX GIRDER BRIDGE

Precast concrete segmental box girder (SBG) bridges have become the preferred viaduct option for highly urbanised and congested city areas. SBG construction offers the advantages of fast and versatile construction at difficult site conditions, minimum traffic disruption and less impact on environment during construction, besides higher controlled quality and aesthetically pleasing bridge viaducts.

This topic provides an overview of the design and construction of concrete SBG bridge. During the presentation, the advantages and limitation of the precast SBG bridge will be discussed and compared to other types of bridge form. Apart from that, the fundamental design consideration of concrete SBG bridges, and the typical prestressing and steel bar reinforcement details will be explained. The short-line precasting methods at casting yard, as well as the types of SBG erection and launching methods and the type of temporary works commonly in Malaysia and Singapore will be presented.

**Ir. Low Hin Foo** graduated from University Malaya with an Honours degree in Civil Engineering. He has 20 years of design and construction experience in various types of bridges, as well as prestressed building structures both locally and abroad. He is currently the Group Managing Director of OSD Consultants Group in Malaysia.

Ir. Low has vast experience in the design and construction of long span bridges using precast and cast in-situ prestressed segmental box girder (SBG) and he is familiar with the design of integral bridge with prestressed girders made continuous. He has huge design experience in the design of prestressed structures for large commercial projects and high-rise towers, particularly in handling the design of prestressed flat slab or flat plate systems with irregular column grids, including prestressed transfer plate and raft foundation.

Ir. Low is also actively involved in the training of engineers and undergraduates by conducting courses on the design of bridge and prestressed building structures.

# SYNOPSIS AND SPEAKERS

## FUNDAMENTAL ANALYSIS & DESIGN OF CURRENT MECHANICAL PRECAST CONNECTION SYSTEMS (DfMA APPROACH) IN STRUCTURES

With rapid development of building and construction industry worldwide in developed countries, there has been a significant trend to predominantly use prefabrication technologies and precast construction methods due to economy in construction cost, manpower and time. Due to dedication and diligence of all related stakeholders in civil and structural (C&S) industry and authorities.

Singapore is also now renown globally as one of the leading, reliable and reputable countries in C&S engineering practices, standards and developments related to precast concrete. With that there is an important need for C&S practitioners to keep up-to-date to the latest current developments in precast concrete and prefabrication technologies worldwide especially with understanding of fundamentals of mechanical precast connection system analysis and design based on Design for Manufacturing Assembly (DfMA) approach.

Dr Kong Kian Hau is a Senior Lecturer in the Department of Civil and Environmental Engineering (CEE) at the National University of Singapore (NUS).

One of his current major research focus areas is on Precast Concrete Connections besides Structural Repair & Retrofitting, Sustainable Building Materials & Systems. Dr Kong graduated with a Bachelor's Degree with First Class Honours and Ph.D. in Civil Engineering from CEE, NUS. He was awarded the NUS President Graduate Fellowship in 2002. Dr Kong is a Chartered Structural Engineer (MIStructE), specialising in Buildings & Infrastructure Projects (including Bridges) since 2005. He is currently serving as IES Civil & Structural Engineering Technical Committee Member, Committee Member of the IStructE Singapore Regional Group and as Chief Editor of "THE STRUCTURALIST" Newsletter.

## CASE STUDIES ON DESIGN AND CONSTRUCTION OF PRECAST PRESTRESSED COMPOSITE CONCRETE OPEN-PILED WHARVES

Singapore has vast experience in design and construction of Seaports and other related Maritime Structures.

Main topics to be discussed in this presentation are: General Requirements in Code of Practice for Maritime Structures, Design and Construction of Open-Piled Wharves supported with Spun Piles, Precast Prestressed Concrete Composited Deck Slabs and Deck Beams, Shore-protection, Land Reclamation, Soil Improvement and Dredging for Seaports etc.

Er. Dr Ho Kwong Meng has 31 years working experience in the Port of Singapore Authority / PSA Corporation Ltd and another 10 years working experience in consulting companies. He is currently managing his own consulting business of seaport and building projects.