

Material & Workmanship For Post-Tensioning Works And Legal duties underscoring the construction industry

4th Run



By Ir. Dr. Low Hin Foo & Ms Sangeetha Pusphanathan

Date: 22 & 23 June 2023, Thursday & Friday

Time: 22 June 2023: Virtual via Zoom from 2.00pm to 5.15pm

23 June 2023: Physical course from 9.00am to 5.45pm at Orchard Hotel Singapore

Address of Orchard Hotel Singapore : 442 Orchard Road, Singapore 238879

**CPD Programme: 2 STU(Safety) & 6 STU(Structural) - Confirmed
10 SDU & 10 PDU(PE & CEng) - Confirmed**

Fees: \$378.00 (IES Members) \$432.00 (Non-Member)

- *Actual venue (hotel) will be stated in the confirmation email which will be sent to paid participant 2 weeks prior to event date*
- *Please note that attendance for both the courses are compulsory, Certificate of Attendance will be issued to participants with 100% attendance for both courses*
- **This is a blended course comprising 3 hours of zoom session and 7 hours of physical course at hotel.**
- **This course is UTAP Supported**
- **This course is SFC Funded [TGS-2022017483](#)**

- 2 Coffee Breaks at Orchard hotel
- 1 Buffet Lunch at Café
- Full Day Parking at \$10nett at Orchard Hotel
- Food at Orchard Hotel Singapore is NO Pork NO Lard

Material & Workmanship For Post-Tensioning Works (6 Hours)

Synopsis

Post-tensioning works have been an important structural element for both buildings and bridges. To ensure the performance of the structure, engineers need to make sure the material and workmanship of the prestressing components are properly done at construction site.

In the first part of the talk, the primary function of each component as well as the industry requirements on the materials for the post tensioning works will be explained. This includes the pc strands, post-tensioning anchorage system, sheath/ducts, grouts, and the requirements for tensioning and grouting apparatus. Besides that, the relevant material testing and their acceptance criteria will be discussed.

In the second part, the talk will explain the construction of the post tensioning works at site and the QA/QC requirements on the workmanship. This will cover the tendon installation, inspection before concreting and tensioning works, supervision during concreting as well as the grouting works. During this talk, the engineering fundamental of using tendon elongation as part of the QA/QC work in the prestressed beam design will be explained. Along with this, participants will be shown how to analyse the tendon stressing records as well as the possible remedial work proposal for excessive positive or negative tendon elongations. On top of that, type of common site issues during tendon stressing and grouting works, and their possible contingency plans on how to handle these unlikely events will be discussed in the talk.

1. **Introduction to Prestressed Structures (45 min)**

- Reinforced Concrete vs Prestressed Concrete
- Pre-Tensioning vs Post-Tensioning
- Bonded vs Unbonded Post-Tensioning System
- Benefits of Prestressed/Post-Tensioned Structures

2. **Material for Post-Tensioning Works (90 min)**

- PC Strands
- Post-Tension Anchorage Systems
- Sheath/ Ducts
- Grouts
- Types of Material Testing
- Tensioning and Grouting Equipment

3. **Workmanship for Post-Tensioning Works (120 min)**

- Inspection Before Concreting
- QA/QC for Concreting
- Inspection Before Cable Tensioning
- Tendon Elongation vs Stressing Force
- QA/QC for Grouting

4. **Common Problems and Solutions for Post-Tensioning Works (105 min)**

- Stressing Problems and Solutions
- Grouting Problems and Solutions

CV of Speaker

Ir. Dr. Low Hin Foo graduated from Monash University, Malaysia with a PhD(Structure). He graduated from University Malaya with an Honours degree in Civil Engineering. Since then he has almost 20 years of design and construction experience in various types of bridges, as well as prestressed building structures both locally and abroad. He was the Technical Manager for prestressing specialist contractor, BBR Construction Systems (M) Sdn Bhd; and he is currently the Principal Engineer of a bridge consultancy firm in Singapore, OS Alliance Pte Ltd, and the Group Managing Director of OSD Consultants Group in Malaysia.

Ir. Dr. 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. Besides, 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 as well as their lateral response with columns of high-rise buildings.

Legal duties underscoring the construction industry (4 Hours)

Objectives

- Learn about the latest amendments to the Building Control Act 2020
- Understand the rationale behind the amendments and the scope
- Gain an insight into the mechanics of contract law and its application to business functions
- Understand frequently used contract terms and clauses

Course Outline/Outcomes

As professionals and businessmen, you are used to risk taking in projects and at the workplace. As risky as the building and construction sector may be, practitioners are sometimes faced with a different type of risk: LEGAL DUTIES

This module will equip participants with the necessary tools to understand and manage the safety standards and risks imposed on them under the law. This course will also benefit professionals (such as, Engineers & RE/RTOs) involved in negotiating on and entering into contracts for consultancy agreements and construction work.

1. Building Control 2020 Amendments (2 hrs)

- a. Lift and Escalator amendments
- b. Periodic Façade Inspection
- c. Exterior features
- d. Builders' licensing
- e. General amendments

2. Contract law duties (2 hrs)

- a. Elements necessary for formation of contract
- b. Different types of contracts
- c. Risks
- d. Common contractual clauses
- e. Termination of contracts

CV of Speaker

Ms Sangeetha Pusphanathan was called to the Singapore Bar in 2008 (Advocate and Solicitor of the Supreme Court of Singapore) after obtaining her law degree from the National University of Singapore in 2007 and also making it to the top 20 of the bar exams. She was also awarded the F.A. Chua Prize for the best student in criminal procedure during the bar exams.

She is currently working as a data privacy lawyer for a multi-national company. Formerly, she held the role of Deputy General Counsel and was employed with the Building and Construction Authority (BCA) where she has advised on and reviewed building control laws, prosecuted building control offences, and involved in legislative amendments to several BCA legislation. She also has private sector experience in both the petrochemical industry as well as banking and financial sector.

With her sound knowledge of local laws, she conducted annual core competency legal training workshops for 6 years straight in BCA for engineers and staff on various aspects.

In her free time, Sangeetha hosts events and forums.

Her natural vibrant personality, cheerful disposition and bevy of examples keep her workshops engaging, fun and a mark above the rest!

Pre-requisites for Zoom session on 22 June 2023 from 2.00pm to 5.30pm

Prior to attending this course, you should:

- Have a PC / laptop / tablet / smart phone with built-in or external webcam.
- Installed the Zoom client.
- Have Wi-Fi / high speed internet connection available.
- Receive an email with a link for you to submit a registration for webinar 1 week prior to the commencement.
- Receive an email with a link and password for you to join the webinar session after your registration is successful.

**Material & Workmanship For Post-Tensioning Works And Legal Duties
Underscoring The Construction Industry 4th Run
(Conducting via Virtual & Physical)**

Date: **22 & 23 June 2023, Thursday & Friday**
Time: **22 June 2023 via Zoom(Virtual) from 2.00pm to 5.15pm**
23 June 2023 at Orchard Hotel Singapore(Physical) 9.00am to 5.45pm

Address: Orchard Hotel Singapore, 442 Orchard Road, Singapore 238879

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Fees*: \$378.00 (IES Members) \$432.00 (Non-Members)
(Please note Res/RTOs are registrars of IES but NOT members of IES)

Please register online/email in the completed form by 7 June 2023 to:
Karen Phua, karen@iesnet.org.sg
IES Academy@Jurong East, 80 Jurong East Street 21 #04-10
Devan Nair Institute For Employment and Employability, Singapore 609607

Participant Details

Name: _____ NRIC: _____

Company: _____ Designation: _____

Address 1: _____
(For mailing of invoice and receipt)

Address 2: _____
(For mailing of Certificate)

Tel: _____

Email: _____

Please indicate: IES members IES M'ship No.: _____ P.E. No.: _____ (if applicable)

Non-members Sponsored by company

Contact Person Details (if different from participant)

Name: _____ Designation: _____

Tel: _____ Fax: _____

Email: _____

Payment Details

Bank / Cheque No.: _____ Amount(\$): _____

* All Fees are inclusive of prevailing GST Cheque should be made payable to: **IES Academy Pte Ltd**

Acceptance of Terms and Conditions for Registrations of IES Academy's Events

I agree to abide by the Terms and Conditions for Registration of IES Academy's Events.

Name : _____ Signature: _____

TERMS & CONDITIONS COURSE REGISTRATION

Registration

Any registration, whether on-line or fax will be on a ***first-come-first-served basis*** and will only be confirmed upon receipt of full payment by Engineers Singapore Pte Ltd unless otherwise invoice to company.

All registrations must be submitted with duly completed registration form.

Closing Date & Payment

The closing date of the event will be 2 week prior to event commencement date or earlier. Cheques should be crossed 'A/C payee only' and made payable to ***IES Academy Pte Ltd***, with the ***Title of The Event indicated clearly written on the back of the cheques***, and submitted with the duly completed registration forms to:

IES Academy@Jurong East

Devan Nair Institute for Employment and Employability,
80 Jurong East Street 21, #04-10 Singapore 609607

Confirmation of Registration

Confirmation of registration will be given at least 2 weeks before the commencement date via email. ***If you do not receive the said confirmation email, you are required to contact IESA at 6463 9211 during office hours.***

IESA reserves the right to allow only confirmed registrants to attend the Event.

Withdrawals/Refunds of Fees

Written notice at least 2 weeks in advance before the commencement of the event

Full course fee shall be refunded subjected to 4.5% transaction charge.

➤ **NO** refund otherwise.

No show of participant would not be accepted as a valid reason for withdrawal/refund.

One time replacement is allowed only if written notice is received by us at least 1 week before the commencement of the event. However, when an IES member is replaced by a non-member, the participant has to pay the difference in the relevant fees.

Cancellation/Postponement

Changes in Venue, Dates, Time and Speakers for the Events can occur due to unforeseen circumstances. IES reserves the full rights to cancel or postpone the Event under such circumstances without prior reasons. Every effort, however, will be made to inform the participants or contact person of any cancellation or postponement.

Fees will be refunded in FULL if any Event is cancelled by IESA.

PERSONAL DATA PROTECTION ACT

I consent to the processing by Institution of Engineers, Singapore of personal data, including sensitive personal data as defined in the Data Protection Act 2014, about me for the proper purposes of Institution of Engineers, Singapore (IES). I undertake to observe the provisions of the Data Protection Act 2014 in relation to any personal data I may myself hold and process as a Members of Institution of Engineers, Singapore, and I agree to indemnify Institution of Engineers, Singapore from liability for any claims or damages that may arise from the processing of this data. For more information kindly refer to [here](#).

Enquiries

For further enquiries, please contact IESA general office at Tel: 6463 9211.