



ACES Seminar 8 March 2018

INNOVATIONS, CHALLENGES AND REGULATORY DEVELOPMENT 2018



Date: **8 March 2018 (Thu)**
Duration: **8.30 am to 6.00 pm**

ACES Member / RE & RTO / CIJC Member:	\$180 / pax
Non- Member:	\$240 / pax

Venue: **Balestier Ballroom, Level 2**
Ramada Hotel Singapore
Zhongshan Park, 16 Ah Hood Road, Singapore 329982
CPD: PDU & STU (Structural) - tbc

INTRODUCTION

As Consultants, we are facing daily challenges of regulatory changes, keeping in pace with technology advancement, continual effort to improve efficiency in our works and ensuring core competency is always maintained as well as continual progression in learning from engineering challenges faced in the industry. ACES as a representative of practitioners is always looking for ways to keep our members well informed of the industry practices, advancements and changes via these seminars to meet the challenges above.

OBJECTIVES

Our target audience are Professional Engineers & Practitioners (QPDs QPSs), Engineers, RE/RTOs and Builders in the industry. The focus of this seminar is to provide a platform for sharing of innovative experience in line with productivity; share challenges in underground / infrastructure projects; and updates of regulatory requirements. In order to achieve this objective for the better of the industry, there will be speakers from Government Agencies, Consultants and Contractors to share the insights and experiences with the audiences.

PROGRAM OUTLINES

TIME		CONTENT	SPEAKERS
8.30 am		Registration of participants and invited guests	
9.00 am		Welcome Address by ACES President	Er. Chua Tong Seng (ACES)
9.10 to 9.55 am	45 mins	Keynote Address on Ensuring Building Safety – Regulations and Beyond	Er. Chew Keat Chuan, (Commissioner of BC, BCA)
9.50 to 10.35 am	45 mins	Piling practices under Eurocode 7 – Contractor point of view	Er. Foo Hee Kang (KH Forges)
10.35 to 10.55 am		Coffee/Tea Break	
10.55 to 11.40 pm	45 mins	Trenchless Construction of Pedestrian Underpass using Rectangular Box Jack Tunnel Boring Machine for Thomson-East Coast Line Havelock and Stevens Stations	Mr. Foo Yung Thye Henry (Land Transport Authority)
11.40 to 12.25 pm	45 mins	Large diameter Pipe Roofing @ Bukit Panjang	Mr. Oliver Chen (Zublin)
12.25 to 1.25 pm		Lunch	
1.25 to 2.10 pm	45 mins	Good practices in both design and construction and/or innovative developments in diaphragm wall construction	Er. Chandrasegaran SUNDARARAJU (Bachy Soletanche)
2.10 to 2.40 pm	30 mins	Design of Trenchless excavation across a Busy Road	Er. Michelle Lew (Kiso-Jiban Consultants)
2.40 to 3.10 pm	30 mins	Design and Construction of Retaining Wall using Hat Steel Sheet Pile	Dr. Kazutaka OTSUSHI (Nippon Steel & Sumitomo Metal)
3.10 to 3.30 pm		Tea break	
3.30 to 4.15 pm	45 mins	Deep Shaft Excavation in Challenging Jurong Formation for NIPE C4, Jurong Island	Er. Stephen Kwan Choon Sien (KTP Consultants)
4.15 to 4.45 pm	30 mins	Innovative Mechanical Anchorage for RC structure under Seismic Design: HEAD-BAR	Mr. Satoru Takeda (Taisei Corp)
4.45 to 5.30 pm	45 mins	SFRC Applications in Concrete	Mr. Gan Cheng Chian (Bekaert Maccaferri)
5.30 to 6.00 pm	30 mins	Panels Discussion / Q&A	
6.00 pm		End of Seminar	

THE SPEAKERS AND THEIR SYNOPSES

1. Keynote Address on Ensuring Building Safety - Regulations and Beyond

Synopsis

With the increasing complexity and scope of building work projects going forward, regulations have been amended to continually ensure that there are sufficient safeguards to ensure building safety. However, beyond the minimum standards set out by the regulations, what else do the Qualified Persons need to look out for? What risks will the QP need to consider in the design?

This presentation will share on some cases of failure of complex building works overseas as well as highlight the recently revised regulations by BCA on building safety.

Speaker: Er. Chew Keat Chuan, Commissioner of Building Control, BCA

Er Chew Keat Chuan is the Commissioner of Building Control as well as the Group Director, Building Engineering Group, Building and Construction Authority. He is a registered PE(Civil) and Accredited Checker with more than 30 years of experience in engineering practices. His portfolio in BCA includes administrating the Building Control Act, formulating and reviewing policies on building safety, and overseeing the safety of buildings, bridges as well as subways under construction in Singapore.



2. Piling practices under Eurocode 7 – Contractor point of view

Synopsis

Since the implementation of Eurocode 7, the designer tends to increase the load of bored pile from allowable stress of 7.5 N/mm² under CP code to about 9 to 10 N/mm² with some using even up to 11 N/mm². This changes lead to reduction of pile size but increase in pile length and rock socket length. Due to the increase in working load, the piling contracts face two challenges. These are increase in rock socket length which leads to increase in additional cost and time for pile construction; and increase in test load which leads to increase in pile head settlement and higher risk of load test failure.

The speaker will discuss these issues during his presentation.

Speaker: Er. Foo Hee Kang, KH Forges

Er. Foo Hee Kang has 37 years' experience in Piling and Civil Engineering Work. He hold a BE Civil from University of Singapore and has multiple achievements in the field along with Outstanding Geotechnical Entrepreneur Award 2012. He is a senior member of Institute of Engineers, Singapore and also a member of Geotechnical Society of Singapore. He served as Engineering Service Officer in Public Works Department from 1978 to 1983 and was elected as Best Trainer for the Seminar on Good Practices of Pile Load Testing and use of Pile Load Test results to improve piling design at BCA Academy, Singapore in 2011. Currently, he is the Managing Director of KH Foges Pte Ltd.



3. Trenchless Construction of Pedestrian Underpass using Rectangular Box Jack Tunnel Boring Machine for Thomson-East Coast Line Havelock and Stevens Stations

Synopsis

In tandem to the national productivity drive, the Land Transport Authority (LTA) adopted the use of the first ever Rectangular Box Jack Tunnel Boring Machine (RTBM) in Singapore along the upcoming Thomson-East Coast Line (TEL), to construct 2 pedestrian underpasses – with lengths of 150m and 62m each, across the heavily traffic plied Zion-Havelock junction; and beneath the at-grade Dunearn Road, a pair of Wayang Satu viaduct structures, and the 27m wide Bukit Timah Canal at Havelock and Stevens Stations, respectively. The use of the RTBM offers various advantages over the conventional cut and cover construction method where surface interventions will be required, by significantly reducing the volume of construction activities being carried out from the ground surface. This has resulted in an improved productivity of approximately 30 percent due to the reduced manpower and shorter construction duration.

LTA has been invited to present on this initiative at various local and overseas conferences, and also clinched several awards such as the Singapore Concrete Institute (SCI) Excellence Award 2015, the Project Management Institute – Singapore Chapter (SPMI) Project of the Year (PoY) 2016-17 Award under the “Engineering & Construction” category and most recently, a finalist in the International Tunnelling Association (ITA) Tunnelling Award 2017 under the “Technical Project Innovation of the Year” category. This initiative has also sparked interest from the media, governmental agencies, and industry professionals. This presentation aims to showcase the journey of the first ever RTBM in Singapore, through the conceptualization, design and implementation phases, to demonstrate how the various technical, commercial and serviceability challenges were overcome, to achieve successful project completion and thereby, providing an innovative and labour-efficient alternative for the construction of underground structures.

Speaker: Mr Foo Yung Thye Henry, Deputy Group Director, Thomson-East Coast & Cross Island Lines (Civil) & Director Thomson-East Coast Line (Civil Team 3) Cross Island Line East (Civil Team 1), Land Transport Authority (LTA) Singapore

Henry joined LTA in 1999 upon graduating with First Class Honours for Bachelor in Civil & Structural Engineering, Nanyang Technological University (NTU). He is currently overseeing the construction of the 43km long Thomson-East Coast Line, and leading a team of 100 staff to manage a section of it. At the same time, Henry will also be concurrently overseeing the construction of a section of the upcoming approximately 50km long Cross Island Line, slated for completion in 2030.



4. Large diameter Pipe Roofing @ Bukit Panjang

Synopsis

The Bukit Panjang Underpass project has demonstrated the use of large diameter pipes for pipe-roofs and its advantages. The project has established that by the use of larger diameter pipes, improved speeds of tunnel excavation and high construction productivity can be achieved while ensuring safe tunnel excavation.

Speaker: Oliver Chen, Ed. Züblin AG

Oliver is the Technical Manager at Ed. Züblin AG.

5. Good practices in both design and construction and/or innovative developments in diaphragm wall construction

Synopsis

Urban settings in Singapore require more and more underground structures built close to existing buildings or infrastructure elements. New innovative designs and shapes are being deployed to fit in to tight spaces available. This requires both geotechnical models and structural models to implement new designs. Construction close to existing buildings or in the middle of a congested road require working in low headroom, confined space and in difficult site conditions. Innovative construction methods need to be adopted to cope with this new special requirement. The topic will cover innovative methods both design and construction such as prestressed diaphragm walls, temporary ERSS walls using diaphragm wall equipment, new type of diaphragm wall joints, improved verticality which are being developed etc. Methods adopted will be reviewed and discussed. State of the art equipment development will also be discussed.

**Speaker: Er. Chandrasegaran SUNDARARAJU, Bachy Soletanche,
President of GeoSS**

Chandrasegaran is a registered PE in Singapore and PE (Geo) in Singapore and Malaysia. He is also a ASEAN chartered professional engineer ACPE. He has nearly 30 years of design and construction experience in both major building developments as well as underground infrastructure in the region with the role of both consulting engineer as well as a specialist subcontractor. He is also the current President of the Geotechnical Society of Singapore. Chandrasegaran is currently Regional Design Manager with Bachy Soletanche Singapore Pte Ltd covering the region that includes Singapore, Malaysia, Indonesia, Brunei and Australia. His major area of expertise is in the deep excavation, deep foundations and ground improvement



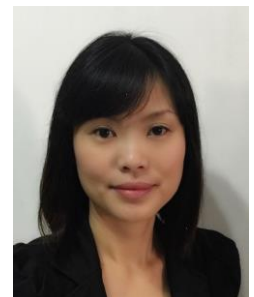
6. Design of Trenchless excavation across a Busy Road in Singapore

Synopsis

The presentation will be on the design and construction of trenchless excavation using steel pipe box to construction a linkway at the Upper Thomson Station, along the Thomson East-Coast Line Project. The congested environment, especially the busy Upper Thomson Road and close proximity of the landed residential house, has posed many challenges to designer and contractors to develop a safe and robust engineering solution. Advanced analysis method using FEM to design the construction of the 33m long linkway which include pipe jacking works and mining works will also be discussed.

Speaker: Er. Michelle Lew, Kiso-Jiban Singapore Pte Ltd

Er. Michelle is a director of Kiso-Jiban Singapore. She graduated from NTU and has more than 15 years of working experience in major underground infrastructures projects like the Circle Line, Kallang Paya Lebar Expressway, Downtown Line and Thomson-East Coast Line. She is a registered PE in Civil engineering and also a specialised PE in Geotechnical engineering. She is currently the QP design for the project T212, Upper Thomson Station.



7. Design and Construction of Retaining Wall using Hat Steel Sheet Pile

Synopsis

The speaker will present the design and construction of retaining wall using Hat steel sheet pile. Hat steel sheet pile can enhance the productivities in Singapore by higher structural reliability, superb drivability and economic efficiency. In order to satisfy the requirement of ensure structural safety in construction, the sectional performance of every sheet pile should be evaluated properly with reference to design documents. In this presentation, full-scale field test of Hat type and U type steel sheet pile conducted in Singapore will be reported. Through these tests, the better performance of Hat steel sheet pile is clarified, including the evaluation of interlock integrity under a typical soil condition in Singapore.

Speaker: Dr. Kazutaka OTSUSHI, Nippon Steel & Sumitomo Metal

Dr. Otsushi graduated from civil engineering course at Kyoto University, Japan, in 2002. He, then, obtained his doctoral degree (Dr. Eng.), and engaged in Geotechnical, Earthquake, Disaster Prevention Engineering. Dr. Otsushi is currently a Senior Manager with Nippon Steel & Sumitomo Metal Southeast Asia Pte, Ltd. as civil engineer, covering the region that includes Singapore, and ASEAN Countries. He is responsible for the Research & Development, Market Development in ASEAN and Technical Support of Steel Sheet Pile Technology, Design and Construction in Singapore.



8. Deep Shaft Excavation in Challenging Jurong Formation for NIPE C4, Jurong Island

Synopsis

A 50m deep shaft, of 18m internal diameter, was required to be excavated at Jurong Island to launch slurry-shield TBM to install tunnel from Jurong Island to Gul Road in Singapore main island for housing four Newater pipe-lines, to serve the industries at Jurong Island. The ground condition at the location of the shaft was reclaimed sand overlaying soils and rocks of Jurong Formation, where the sea at West Jurong Channel is located nearby.

Due to the substantial rock head located above the final excavation level of the shaft, the shaft construction method was based on caisson construction method, that was undertaken below groundwater table in the ground where there was ample supply of water from the sea at West Jurong Channel to the reclaimed sand and Jurong rock mass. This presentation pertains to the design considerations of the shaft excavation. The project has since been successfully completed.

Speaker: Er. Stephen Kwan Choon Shien, KTP Consultants

Er. Stephen Kwan is a Registered Professional Engineer in civil engineering, a Specialist Professional Engineer and Accredited Checker in the field of geotechnical engineering. He has acquired substantial experience in various geotechnical engineering works, particularly in deep excavation and tunneling – bored tunnels and mined tunnel works, for large infrastructure projects. Before working on geotechnical works, he has acquired substantial experience with structural works till mid-career. Er. Stephen's appreciation of both fields of engineering works puts him in good position for leading design and implementation for the successful implementation of major transport infrastructure works.



9. Innovative Mechanical Anchorage for RC structure under Seismic Design: HEAD-BAR

Synopsis

One of most important subject for RC structures designed to resist seismic loading is how to make the structure more robust against huge shear force and shear failure. Both end semi- circular hooks were used in projects but the massive and congested rebar arrangement, such hook as link bars and shear bars have some issues for the construction in terms of productivity and in part for safety reason. The speaker will present the experience gained in Japan, an earthquake-prone country, the use of HEAD-BAR which can increase productivity, ease of installation, increase buckling resistance for main rebars and reduce concrete defects due to congested rebars arrangement.

The topic will be interesting for designers to consider when designing structure in line with Eurocode 8 which has been implemented in Singapore

Speaker: Mr. Satoru Takeda, Taisei Corporation

Satoru Takeda graduated with Bachelor of Engineering and Master of International Studies from The University of Tokyo, Japan. He is currently the Engineering Manager and Risk Management Facilitator for Taisei Corporation working in Singapore for the MRT Thomson Line T226 Project. He is responsible for the engineering design and technical issue of the cut and cover, top-down construction, SCL tunnelling works for the underground station of the project. His past experience include the construction of main tunnel for Shinkansen Super Express in Japan, Palm Jebel Ali Project for the construction of pile and platform for water homes and walkway of offshore structure and precast concrete in Dubai; and bridge construction for PC Girder for a highway construction project in Algeria.



10. SFRC Applications in Concrete

Synopsis

The speaker will present applications in concrete including automatic dosing; QA/QC testing; and performance specification of SFRC; specification of fibres; project references of SFRC Precast Segmental Linings in Singapore and Malaysia; design of SFRC Precast Segmental Linings; the use of SFRC in slabs (slabs-on-ground, slabs-on-piles and topping slabs); Design of SFRC slabs; and the use of SFRC in precast elements – introduction.

Speaker: Mr. Gan Cheng Chian, Bekaert Maccaferri

Mr. Gan graduated from The National University of Singapore in 1989 as a civil engineer & has worked in the construction industry for 29 years in various capacities – Civil & Structural Engineer, Resident Engineer, Project Manager, Technical Manager and Sales Manager. He is currently working for Bekaert Maccaferri Underground Solutions as Technical Manager, Building Products Asia and operates out of Singapore. In his 20 years working for Bekaert, he has been involved in many prestigious projects around Asia. Some of the projects he has been involved with include Qinling Railway & Highway Tunnel Xian, China; Mandai Underground Cavern, Singapore; Gardens by the Bay, Singapore; Jurong Rock Cavern, Singapore; Thomson Line T206 & T207, Singapore and Klang Valley MRT Line 1 & Line 2, Malaysia. He was the President of Engineering Alumni Singapore for 2007 - 2009. On 20 Oct 2010, he received the NUS Engineering Alumni Service Honours for his contribution to the NUS Faculty of Engineering and its engineering alumni community.



Location Map:

Ramada Singapore at Zhongshan Park 16 Ah Hood Road, Singapore 329982

<http://www.ramadasingapore.com/map.aspx>



REGISTRATION FORM

For enquiry, please call ACES Secretariat at Tel: 6659 5023

Kindly sign and submit your completed registration form to secretariat@aces.org.sg

Code	Title	Fee per pax	Schedule	Venue
S18	ACES Seminar 8 March 2018 INNOVATIONS, CHALLENGES AND REGULATORY DEVELOPMENT 2018	ACES Member / RE& RTO/CIJC: \$180 Non-Member: \$240	8 Mar 2018 (Thu) 8.30 am to 6.00 pm	Balestier Ballroom, Level 2 Ramada Hotel Singapore

S/N	Full Name	PE No.	ACES M'ship No.	RE / RTO No.	Non-Member
1.					
2.					
3.					

Company:		
Address:		
Contact Person:	Mobile No.:	Email:

PAYMENT

Enclosed is a Cheque No: _____ (Cheque should be crossed and made payable to **“Association of Consulting Engineers Singapore”** and mailed to “18 Sin Ming Lane #06-01 Midview City, Singapore 573960, Attention: ACES Secretariat”.

[Note: On the back of the cheque, please indicate participant name & event name]

<p>Terms and Conditions</p> <p>By submitting and signing this application form, the company and individual applicant agree to the following:</p> <ul style="list-style-type: none"> a) The company and individual applicant has read and understood the terms of the flyer (if available) and the application form. b) Payment for the course must be made (in form of cheque or cash) two weeks before the course commencement date. c) ACES reserves the right to amend any details relating to the course, revise the course fees without prior notice, cancel or postponed the course. d) Cancellation – In the event that participant is 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 the participant did not turn up for the course. 	<p>To be completed by Company and Individual Applicant</p> <p>COMPANY APPLICANT</p> <p>Name: _____</p> <p>Signature: _____</p> <p>Date: _____</p> <div style="border: 1px dashed black; width: 100%; height: 80px; margin: 10px 0;"></div> <p style="text-align: center; font-size: small;"><i>Company stamp (for company application)</i></p> <p>INDIVIDUAL APPLICANT</p> <p>Name: _____</p> <p>Signature: _____</p> <p>Date: _____</p>
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