



Seminar on
FOUNDATION DESIGN AND PRACTICES
16 October 2014

Venue:

**Traders Hotel Puteri Harbour
Persiaran Puteri Selatan, Puteri Harbour,
79000 Nusajaya, Johor Darul Takzim, Malaysia**

Jointly organised by:

***IEM Training Centre Sdn. Bhd.
Keller (M) Sdn. Bhd.***

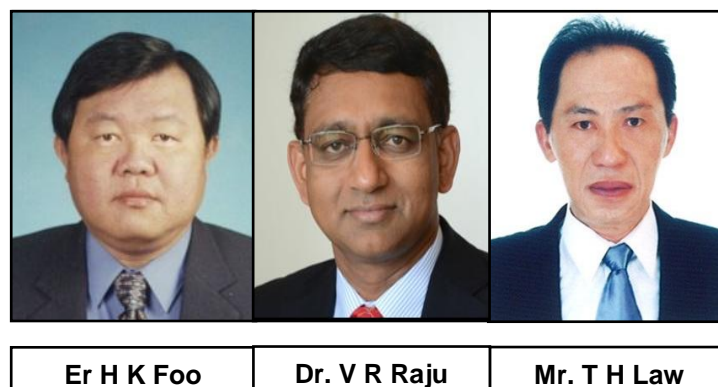
(All proceeds will go to The Institution of Engineers, Malaysia)

BEM Approved CPD Hours = 6.5 . Ref no. (tba)

KEYNOTE SPEAKERS



INVITED SPEAKERS



INTRODUCTION

Foundation is a critical component of any construction development. With the ever increasing construction activities and innovative advances in foundation development, numerous types of foundation systems are available. Different structures and geotechnical requirements call for different types of foundation systems. Many times engineers are faced with the difficult decision in deciding the correct foundation system to adopt. This seminar will highlight various aspects of foundation systems, from the viewpoint of design, execution and viability. Professor, consultant and specialist contractor will share their knowledge in this area. Practicing engineers and public are welcome to share their view in this area during the concluding discussion session.

SYNOPSIS

Keynote Lecture 1 – Foundation Piles versus Ground Treatment – Which is more important?

by **Asst. Prof. Dr. S H Chew, National University of Singapore**

It is often said that piles foundation are used to support structures, and ground treatment are used to improve soft ground. However, in many circumstances, the choice of pile foundation or ground treatment was not as easy and as clear. Are these two methods mutually exclusive or there are times that both methods are needed?

This presentation will discuss the fundamental nature and strength of these two options. Basic ground treatment methods will be summarized, and the most common pile foundation schemes will be mentioned. The presentation will then bring attention to a number of modern construction settings, ranging from large sized oil tank construction over reclaimed land to high-rise building on thick deposit of soft soils, which the choice of the most suitable scheme depends not only on its technical strength and functionality, but also on the ease of installation and construction. Yet, the cost of maintenance of these facilities or structures often make the difference to the choice. A whole life cycle approach has to be considered. Relevant Case studies will be illustrated.

Keynote Lecture 2 – Innovative Foundation Design and Ground Improvements in Hong Kong

by **Dr. K K Yin, ARUP**

Whilst the authority in Hong Kong advocates a sustainable built environment, very few studies have been conducted to examine the issues in the local context. We recognize local code of practice were implemented to provide guidelines for practitioners on design, analysis and construction; based on the requirements of the Building Ordinance and related regulations, and has taken into account the local conditions, work practice and development of new technologies. The engineering behaviour of the ground is, however, fundamental to the way most structures behave. What lies beneath the ground is often the most unknown element and has grasped the imagination and challenges to geotechnical engineers to the fullest.

This presentation, aims to foster synergy between the current local code of practice and innovation beyond its realm. It will present the foundation design for the tallest building in Hong Kong, ironically supported by friction piles instead of bearing onto bedrock; and the latest fully undredged reclamation whereby comprehensive ground improvement works were implemented at the expense of dumping pits.

Keynote Lecture 3 – Jack-in Piles for High-Rise in Malaysia

by **Ir. C M Chow, G&P Geotechnics Sdn Bhd**

Jack-in pile foundation has been successfully adopted in Malaysia since late 1990s and currently, large diameter spun piles of up to 600mm diameter with working loads of up to 3000kN have been successfully adopted for high-rise buildings of up to 45-storeys. The popularity of jack-in pile foundation systems especially for construction works in urban areas is due to their relatively lower noise and lower vibration compared to conventional piling systems such as driven piles. In practice, piles installed using the jack-in method are expected to be shorter than driven piles. This is because driven piles are often driven to greater length than is truly necessary due to the uncertainties associated with their geotechnical capacity during driving. However, jack-in piles are jacked to the specified capacity and therefore, result in savings without compromising the safety, serviceability requirements and integrity of the pile foundation. However, like all available pile systems, jack-in pile system also have its drawbacks, such as the need for a relatively stronger platform to support large and heavy machinery and a generally larger working area to install the piles. However, the drawbacks can be managed if the designer is aware of these limitations. Jack-in pile

foundation systems have been successfully adopted in congested condominium developments, piling works at different platform levels with limited working space and works carried out at lower ground level associated with basement construction.

The use of jack-in pile, however, requires proper understanding of the ground conditions, study on the accessibility of the site, stability of the platform, etc. to ensure its successful application. This presentation intends to share some of the experiences gained in the use of high capacity jack-in piles in various ground conditions such as granite, limestone and metasedimentary.

PROGRAMME

08:00 – 08:50	Registration
08:50 – 09:05	Welcome Speech <i>by IEM Southern Branch</i>
09:05 – 09:15	Opening Remarks <i>by Mr J Atkinson, CEO, Keller PLC</i>
09:15 – 10:15	Keynote Lecture 1 – Foundation Piles versus Ground Treatment – Which is more important? <i>by Asst. Prof. Dr. S H Chew, National University of Singapore</i>
10:15 – 10:45	Tea Break
10:45 – 11:45	Keynote Lecture 2 – Innovative Foundation Design and Ground Improvements in Hong Kong <i>by Dr. K K Yin, ARUP</i>
11:45 – 12:30	Invited Lecture 1 – Optimal Foundation Solutions <i>by Dr. V R Raju, Keller Asia</i>
12:30 – 13:30	Lunch
13:30 – 14:30	Keynote Lecture 3 – Jack-in Piles for High-Rise in Malaysia <i>by Ir. C M Chow, G&P Geotechnics Sdn Bhd</i>
14:30 – 15:15	Invited Lecture 2 – Bored Piling Systems: Good Practices in Malaysia and Singapore <i>by Er H K Foo, Resource Piling (M) Sdn Bhd</i>
15:15 – 16:00	Invited Lecture 3 – Case Histories of Driven Piling Projects in Johor <i>by Mr. Law T H, Ansah Asia Sdn Bhd</i>
16:00 – 16:15	Concluding Discussions
16:15 – 17:30	Hi-Tea

ABOUT THE SPEAKERS

Asst. Prof. Dr. S H Chew

Asst. Prof. Dr. Chew Soon Hoe, a Professional Engineer, graduated from the University of California at Berkeley, USA. He is currently an Assistant Professor with the Department of Civil and Environmental Engineering, National University of Singapore. His research interests include geosynthetics, soil improvement, slope engineering, land reclamation, deep excavation in soft soils, geo-environmental engineering and geological engineering. He has conducted research on pile testing using innovative method since 1998. He has published papers on Statnamic Pile Testing as well as the vibration effect of this new method. He was awarded “Defence Technology Prize”, from Ministry of Defence, Singapore in 2006. His research on the innovative use of cement mixed soil in Geotube for Pasir Panjang Port Extension work also won him the “Ministry of Transportation – Minister’s Innovation Award (excellent) prize”, 2011. He was

awarded with the “Friends of Waters” award in 2013 by PUB. He is a council member of the Institution of Engineers, Singapore, IES (2006-2013 and 2013-2015).

Dr. K K Yin

Dr Yin holds a Bachelor of Engineering from The Strathclyde University, a Master degree from the University of Cambridge and a Doctorate degree from the University of Aston in Birmingham. Professionally, he is a Fellow of the HK Institution of Engineers and Corporate Member for both the Institution of Structural Engineers and Institution of Civil Engineers. Dr Yin's experience covers a broad range of civil works including reclamation, deep basements and foundations for high rise buildings, tunnel modelling, slope and wall stability studies in Hong Kong and East Asia Pacific region. With over 22 years of challenging mega projects, Dr. Yin has established himself as one of the forefront leaders in the market today. Within Arup, Dr Yin is a Director of Infrastructure, director in charge of South East Asia and the Global Skills Leader for the Site Support Network. He is known for his charismatic approach to both clients and contractors; ability to mediate disputes; hands-on knowledge to overcome difficulties on site; creative design philosophy; and above all, manages and delivers mega projects successfully.

Ir. C M Chow

Ir C M Chow obtained his Bachelor of Engineering (Civil) from University of Malaya and won the Chan Sai Soo prize for the best engineering undergraduate thesis. He started his career with G&P Geotechnics, an independent consulting company specializing in Geotechnical and Geo-Environmental Engineering. Ir Chow is presently the Director of G&P Geotechnics. He has written numerous papers and given lectures on engineering subjects ranging from R&D to geotechnical engineering in international and local conferences and journals and his research interests includes deep excavation, jack-in pile, piled raft and soil nails. He was also involved in numerous award winning projects such as Bandar Botanic, Klang (ACEM Silver Award of Merit), Sg. Damansara Flood Mitigation (ACEM Gold Award of Special Merit) and was awarded the Outstanding Performance Award from Sunrise Berhad for geotechnical consultancy. He is also responsible for the design of numerous jack-in pile foundations for high-rises in different parts of Malaysia ranging from granite to limestone formation and has contributed to widely referenced jack-in pile specifications in Malaysia.

Dr. V R Raju

Dr. V R Raju obtained his bachelor degree in Civil Engineering from the Indian Institute of Technology in Chennai, India. He obtained his Masters and PhD from Rice and Duke Universities, USA respectively. This was followed by post-doctoral research in Ground Improvement at the University of Karlsruhe, Germany leading to a Doctor of Engineering degree. He has been working with Keller in Asia for the last 20 years and has been active in the design and construction of foundation systems for several major infrastructure projects. He is currently the Managing Director for Keller in Asia. He is also a Director of Resource Piling, a Keller group company. He has published several papers in conferences and journals. He was the keynote speaker at the 2009 International Symposium on Ground Improvement Technologies and Case Studies in Singapore.

Er H K Foo

Er Foo is currently the Managing Director of Resource Piling Pte Ltd, one of the largest piling contractors in Singapore. He obtained his degree from the University of Singapore in 1978. He is a Senior Member of Institute Engineers of Singapore (IES) and a Professional Engineer (Civil). He has more than 35 years of experience in piling and civil engineering works, having successfully completed more than 450 piling projects in Singapore. He is the industry leader in field of pile testing, having designed and tested 5,700T kentledge load test and 7,600T reaction load test on pile in Singapore. He is voted the 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 in Sept 2011 and received the Outstanding Geotechnical Entrepreneur Award from the Singapore Geotechnical Society (GeoSS) in 2012.

Mr T H Law

Mr Law obtained his Bachelor Degree in Civil Engineering from Nova Scotia Technical University (Dalhousie University), Canada. He has been working with Ansah Asia for the last 17 years and responsible for the installation of various types of piles by hammer driven and jacked in method, sheet piles and piling ancillary works. He also heads the company's piling operation in India and China on project basis. He is currently the Project Director of Ansah Asia.



IEM TRAINING CENTRE SDN. BHD. (127273-K)

No. 33-1A, Jalan 52/18
P.O. Box 224 (Jalan Sultan)
46720 Petaling Jaya, Selangor

Tel. no. 03-79586851 Fax no. 03-79582851 Email: choy.iemtc@gmail.com

FOUNDATION DESIGN AND PRACTICES 16 October 2014

Registration fees

IEM Corporate Member - RM 100.00
IEM Graduate Member - RM 60.00

IEM Student Member - RM 30.00
Non-member - RM 150.00

IMPORTANT NOTICE

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