Introduction

Singapore’s steady economic and population growth has created the needs for greater efficient use of land resources. Building underground infrastructures help us to address these needs as it creates valuable space for utility and transportation network.

In a densely populated and highly urbanised environment like Singapore, it is a great challenge to design and build underground infrastructures adjacent to sensitive structures such as MRT tunnels and other existing buildings.

To ensure safe and reliable underground structures for the citizens, the nation needs to continuously explore various advanced construction methods. Robust retaining wall systems that incorporate top-down construction methods, coupled with cross-walls and ground improvement methods are often used to limit the soil and wall movements in compliance with regulations.

Objectives

This workshop is joint-organised by LTA Academy and Holcim (Singapore) Pte Ltd with the aim to recognise special challenges encountered in the design and construction of major underground infrastructures around the world, as well as to identify the vast opportunities and solutions in enhancing underground infrastructures.
8:30am  Registration

9:00am  Welcome address
Mr. Mohinder Singh, Dean, LTA Academy, Singapore
Opening speech
Dr. Sujit Ghosh, MD & CEO, Holcim Singapore, Singapore

9:15am  Keynote speaker 1
“Creation of Space in Rock Caverns in Singapore - Past, Present, Future”
Prof. Lui Pao Chuen, Advisor National Research Foundation, Prime Minister’s office, Singapore

Keynote speaker 2
“Urban Tunnelling: State-of-the-Art Ground Improvement”
Mr. Felix Amberg, President of Amberg Group, Switzerland

Keynote speaker 3
“Planning and Design of Singapore’s Underground Land Transport Infrastructures – Future Challenges”
Mr. Paul Fok, Group Director (Engineering), LTA, Singapore

Panel Discussion
Moderated by Mr. Manuel Furer, Regional Director Aggregates & Construction Materials, Holcim South Asia/ASEAN

12:30pm  Lunch Break

1:30pm  Durability of Underground Concrete
Dr. Michael Romer, HGRS, Switzerland

Tunnel Support - Composite Linings
Dr. Wolfgang Aldrian, BASF - Head of Technical Management Meyco Global, UGC, Switzerland

State-of-the-Art Tunnel Boring Machines
Mr. Wilm Schaub, Herrenknecht Asia, Singapore

Brisbane Airport Link: Tunnel Arch Lining Concrete
Mr. Peter Ney, Holcim (Australia), Australia

Centri Base Tunnel/Cross-City Zurich: Solutions Partner for Large Tunnel Projects
Mr. Ruedi Hefti, Holcim (Switzerland), Switzerland

6:00pm  End
PROF LUI PAO CHUEN is currently an Adjunct Professor of the Faculty of Engineering in NUS and College of Engineering in NTU. He is also the Chief Scientific Advisor of the Ministry of Foreign Affairs and the Advisor of the National Research Foundation. He is holding several appointments such as the Director of Singapore Technologies Electronics Ltd; Chairman of Singapore Technologies Dynamics Pte Ltd; Chairman of Jurong International Holdings Pte Ltd; Chairman of Sembcorp Design and Construction Pte Ltd; Chairman, Board of Directors of ATREC Pte Ltd; Director of Singapore Technologies Kinetic. He has outstanding and distinguished directorship in various agencies and institutes. In 2002, he was awarded the National Science and Technology Medal. The citation read “For his outstanding leadership in the build up of science and technology capability for the nation and its exploitation for major systems of national impact.”

FELIX AMBERG is the President of Amberg Group, a leading global expert in tunnelling and engineering consultancy. He is responsible for the overall group direction, management, marketing as well as technical design issues and construction management for road, rail, and service tunnel projects with collaborations on various underground construction Research & Development projects. He is also the Treasurer and member of the ExCo of ITA, Tutor of ITA-COSUF Committee and WG 12 ITA AITES, Secretary and member of foundation council of the ITA –CET Foundation, former President of the Swiss Tunnelling Society, President of the CUC Foundation, and of L-surF Foundation Memberships.

Er. PAUL FOK is the Group Director, Engineering, in Land Transport Authority (LTA), Singapore, and oversees 640 engineering staff in LTA. He has more than 30 years of varied and in-depth experience in civil and structural engineering design and management. His experience includes planning and design of offshore structures, design and construction of buildings, road and railway infrastructures, structural investigation and restoration of buildings and design management of multi-disciplinary teams of consultants for fast-track design of large-scale highway and transit projects in Singapore.

Er. Paul Fok graduated with a First Class honours in Civil Engineering from the City University in London and a Master of Science in Concrete Structures from Imperial College, London University. He also obtained a Law Degree with honours from London University and had completed a Bridge Engineering Course in Japan. Er. Paul Fok is a registered Professional Engineer with the Professional Engineers Board Singapore. He was also awarded the National Day Public Administration Medal (Silver) in 2009.

DR. MICHAEL ROMER obtained his Master and PHD degrees specialised in Mineralogy and Petrography, Swiss Federal Institute of Technology, ETH. He is currently the Head of Research & Development in the Holcim Group Support based in Holderbank, Switzerland, responsible for product solutions and application oriented Research & Development initiatives within the innovation function. His area of expertise is primarily on concrete technology, durability and microstructure of cementitious material.
DR. WOLFGANG ALDRIAN was the Professor for Tunnelling for the Mining University Leoben, Austria. He worked for Geoconsult, a specialist consultant in tunnelling design. Through the many years working abroad as project manager in site management, site support and supervision, he has gained valuable hands-on site and project management experience in underground construction which was a natural extension into the specialised field of construction chemical with various companies such as MBT, Degussa and DACH. He is currently the Head of Technical Management Meyco Global (Underground Construction) for the world leading construction chemical supplier, BASF which develops many innovative chemicals catering to the underground construction applications.

WILM SCHAUB is currently the Technical Manager of Herrenknecht Asia based in Singapore, an established and innovative leader in tunnelling machines. He has been involved in many tunnelling projects for site management in China namely Yellow River Crossing, Guangzhou Metro, Beijing Metro, Shanghai Water Tunnel, Shenzhen Metro, Foshan Metro, Wuhan Metro and Chengdu Metro. He is in charge of various Research & Development for new tunnelling procedures with strong emphasis on safety. He is also involved in the development of project solutions in EPB Shields, as well as MX Shields for the Herrenknecht Asia marketplace.

PETER NEY graduated with BSc and MSc in Civil Engineering from the University of Sydney in 1992 and 1998 respectively. He is a leader in technical sales and project management with more than 15 years of extensive experience and knowledge in large infrastructure projects including Brisbane Airport Link, Sydney Desalination Plant, Lane Cove Tunnel, M5 East and M7 Western Sydney Orbital. He is currently with Holcim Australia in charge of National Technical Sales in concrete and in all aspects of high performance concrete. Over the years, he has accumulated knowledge in cement, quarry, admixture and asphalt premix. He is also a member of the Australia Slag Association in the promoting of green and sustainable construction.

RUEDI HEFTI obtained his MSc of Civil Engineering from Swiss Institute of Technology, Zurich. His extensive work experience includes Works Master Tunnel Construction sites, Locher Ag, Zurich in 1986-1993. During 1994 – 2003, he was the Head of Foundation Engineering, Marti Ag, Zurich and subsequently he took the role as Sales Manager for north and central areas of Switzerland until 2007. He was the Head of Sales Cemenitious for Holcim Switzerland before his current position as the key account personnel for large construction projects for Holcim Switzerland since 2010.

MANUEL FURER has 15 years of experience in the mining and construction materials industry. He has worked with Holcim for 10 years, of which 8 years he was in Asia. He is currently undertaking the roles of Regional Director for Holcim’s Aggregates and Concrete businesses in Southeast- and South Asia with Educational background of MSc in Geophysics (ETH, Zurich) and MBA (INSEAD).