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FACULTY OF SCIENCE AND TECHNOLOGY
DEPARTMENT of CIVIL & ENVIRONMENTAL ENGINEERING

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"Silent Piling Technologies for Sustainable Construction in Macau"

by

ER. Dr. Goh Teik Lim,
GIKEN SEISAKUSHO

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Abstract

As aging civilizations continue their growth, there is a need to constantly expand the existing public infrastructures such as road, bridge, rail, port and underground facilities. Due to environmental concerns in urban construction, many typically simple infrastructure projects can become very complex or feasibly impossible. Disruption during construction works such as traffic obstruction, noise, ground vibrations and air pollution are the common public discomforts affecting the business environment and quality of life. These are insoluble dilemma faced by planners and practicing engineers all over the world in constructing the public infrastructures in urban area.

Conventional dynamic pile driving methods are still commonly used in construction sites though they are well known for causing excessive noise, ground vibrations and damages to critical structures. Drilled shafts, slurry walls and other cast-in-place foundation piles and retaining wall systems alleviate some of these problems but add additional problems of their own with large bulky machines, reliance on dusty concrete plants and urban trucking grief. In this talk, the press-in piling technology will be introduced.

The press-in piling method allows pre-fabricated piles to be hydraulically jacked-in into the ground using a relatively small, compact and lightweight press-in machine so called the "Silent Piler". This piling technology is based on the "reaction principle' in which sufficient penetration force is derived from the shaft friction of previously installed piles. The press-in machine has the ability to self-walk on previous installed piles, enabling the pile installation to proceed on slope, above water and in a narrow construction corridor. The concept of "One-step Approach" using the press-in piling technology will be illustrated during the presentation with emphasis on how the sequence of construction works can be eliminated and singled out without reliance on temporary works. Several construction solutions based on "One-step Approach" for piling works associated to urban development will be illustrated during the presentation.

Biography

Dr. GOH Teik Lim graduated from the University of Malaya and joined ARUP (Kuala Lumpur) as a consulting engineer. He came to Singapore to further his doctorate study in National University of Singapore, researching on a deep excavation topic in soft ground. He started practising as a geotechnical engineer in SembCorp E & C, specializing in deep excavation works where he was involved in the construction of the longest cut-and-cover tunnel in Singapore. He has then joined GIKEN Seisakusho Asia as a Regional Technical Manager, in-charge of the ASIA countries. He is currently a registered professional engineer in both Singapore and Malaysia. His focus is in deep excavation and foundation with keen interest to implement cost-effective construction solutions in an environmentally responsible manner.

ALL ARE WELCOME!