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TECHNICAL TALK ON
"METHODS FOR WATERPROOFING DIAPHRAGM WALL STRUCTURES"

Organised by the Civil and Structural Engineering Technical Division (CSETD)

BEM Approved CPD/PDP: 2.0 Hours **Ref no: IEM19/HQ/478/T**

Date	:	**31ST OCTOBER 2019 (THURSDAY)**
Time	:	**5.30 p.m. – 7.30 p.m.**
		Tan Sri Prof. Chin Fung Kee Auditorium
Venue	:	**3rd Floor Wisma IEM,**
		Petaling Jaya, Selangor
Speakers	:	***Mr. HAKTAN SAHIN***

SYNOPSIS

One of the key reasons that Diaphragm Walls (D-Walls) are used is to optimize the available space for construction. In the last decades these vertical walls of the excavationhave also became integral to the design and remain as part of the final structure. Therefore they also now have to fulfil some requirements in terms of the structural engineering and waterproofing concept over the intended service life of the structure.

Diaphragm walls create challenging situations for the structural waterproofing and have to be securely sealed in order to produce a durably watertight structure:

- Waterproofing of the D-Wall panel joints
- Waterproofing of the recessed coupler areas
- Waterproofing between the D-Wall joints and the base slab
- Waterproofing of the base slab, including its connection to the D-Wall

Diaphragm walls (D-Wall) are not built as a single element, but are cast in many short sections, which means that many joints are created; and so the solutions described here are designed to provide a safe and secure system to obtain watertight D-Wall panel joints. Typically the traditional ways of doing this are to use waterbars, which unfortunately tend to fail due to the nature of the excavation and handling processes. However, by using waterbar technologies in combination with Sika Fuko technologies of injection hose systems and proven acrylate injection resins, secure sealing solutions are produced that can handle and accommodate the challenging requirements of D-Wall panel joints.

The recessed coupling areas, which are predominantly located within the reinforced concrete D-Wall, can also be complex to achieve and lead to highly honeycombed areas of concrete. These generally need to be injected to ensure they are sealed and that water cannot penetrate through the joint between the base slab waterproofing system and the D-Wall.

ANNOUNCEMENT TO NOTE FEES

(Effective 1st October 2017)

Members

Registration Fee	:	No Charge
Administrative Fee :		
Online		RM15
Walk In		RM20

Non-Members

Registration Fee	:	RM50
Administrative Fee	:	RM20

- Limited seats are available on a "first come first served" basis (maximum 100 participants).
- **To secure your seat, kindly register online at www.myiem.org.my**

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The joints between the base slab waterproofing and the D-Wall can also be securely sealed using the re-injectable Sika Fuko injection hose system. After concreting of the base slab is finished, this joint connection area will be very difficult to seal by injection alone due to the coupling connections of the steel reinforcement. This is why it is much more effective to install an injection hose system and pre-inject this, thereby always ensuring that these joints are securely sealed.

Additionally the selected base slab waterproofing system has to fulfil the necessary performance requirements throughout the intended service life, including to withstand the anticipated levels of water pressure and to provide durable watertight connections and terminations with the Diaphragm wall. However, careful selection is necessary here, as unfortunately not all basement waterproofing systems can be securely terminated to the D-Wall.

Sika uniquely provides a full range of technologies and systems for ensuring that D-Walls are durably watertight and securely sealed for all different below ground waterproofing requirements. This includes highly flexible sheet and/or liquid applied membrane systems, engineered watertight joint technologies, plus watertight concrete and other structural waterproofing solutions, as well as injection sealing systems. All of these solutions are designed to be used together to meet the specific design requirements of owners, architects and their engineers, as well as the practical demands of their contractors on site.

Sika technologies and expertise combines with experience from more than 100 years all around the world, in developing and providing successful waterproofing solutions for basements andbelow ground civil engineering structures, including:

- Residential and commercial building basements
- Underground parking structures
- Metro systems and especially their stations
- Road and railway tunnels
- Shafts for all applications from mining to diaphragm wall construction

SPEAKER BIODATA

Mr Haktan Sahin, Haktan started his career in 2008 in Sika as an product and export manager for waterproofing materials of Sucoflex AG for OEM customers (100% Sika organization). In 2012 he changed to Corporate division TM Waterproofing to support as a Corporate Product Engineer our Sales organisations globally in Injections (waterproofing repair) and Joint solutions. Over the time he was also responsible for tunnelling membrane systems. Since 2018 he takes care for the global Market Development of Sika's waterproofing range, globaly with focus to APAC in the first years.

Education:

Master of Science Wirtsch.-Ing. (Industrial Engineer specialized in civil engineering), Technical University Braunschweig, Germany (2007)

International:

- 2008-2012 Sales-and Product- Manager, Sucoflex AG
- 2012-2018 Product engineer Waterproofing, Sika Services AG
- Since 2018 Market Development Manager Infra Waterproofing, Sika Services AG

Ir. CHONG CHEE MENG
Chairman
Civil and Structural Engineering Technical Division