

Designing for national defence

DSTA civil engineer Koh Yong Hong plays an important role in developing robust facilities for soldiers

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WHEN it comes to designing buildings and infrastructures, two twin objectives drive engineers: sustainability and engineering excellence.

These goals guide civil engineer Koh Yong Hong, whose job is to plan and design infrastructures for the Ministry of Defence and the Singapore Armed Forces.

Er Koh, 38, is a programme manager at Defence Science and Technology Agency's (DSTA) Building and Infrastructure Programme Centre.

He holds a Master of Science (Civil Engineering) from the University of Florida and a Master of Science (Building Science) from the National University of Singapore.

Er Koh plays a key role in developing armament storage facilities and implementing solutions to deal with associated hazards.

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ER KOH YONG HONG
programme manager
Defence Science and Technology Agency

He is also one of the main men in the team involved in the relocation of the Paya Lebar Airbase to Changi East.

Sustainable design

Er Koh's work is challenging. He says: "Projects are very dynamic during front-end masterplanning as there are so many ways we can move forward.

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He adds that sustainability in the building industry is multi-faceted.

It comprises designing for energy efficiency as well as for the future.

Examples of eco-friendly solutions that DSTA engineers have incorporated into the infrastructure they designed are green roofs that reduce a building's heat load and natural ground features that create thermal barriers to minimise heat gains in the building.

One of DSTA's engineering achievements in this area was the implementation of an energy-efficient air-conditioning system for Changi Naval Base in 2002, says Er Koh.

The system's winning factor was that it used cool seawater instead of potable water. This innovative application earned DSTA several industry awards, including the Asean Energy Award, the Institution of Engineers Singapore's Engineering Achievement Award, and the Building and Construction Authority's Energy Efficient Building Award.

"It is a testament to DSTA's efforts in harnessing cutting-edge technology in the development of defence infrastructures," he says.

Thinking ahead is another aspect



Er Koh plays a key role in developing armament storage facilities and implementing solutions to deal with associated hazards. PHOTO: DSTA

of sustainability in design, he explains.

He looks at sustainability as a building's ability to be reused beyond its designed lifespan or function. This slashes the need to keep constructing new buildings, which is a strain on resources in land-scarce Singapore.

The big picture

"A good engineer shouldn't just look at an engineering solution by itself,

but how individual solutions are integrated and work in tandem with other solutions," says Er Koh, a registered member of the Professional Engineers Board since October 2013.

He works with a multi-disciplinary team that includes civil engineers like himself; electrical engineers who manage the power and electricity; architects who oversee the building's aesthetics; and experts who oversee the infocomm infrastructure of buildings.

At the masterplanning stage, he has to visualise the end result.

When deciding where to place buildings, for instance, he has to consider details such as the location of the electricity grid, as well as the locations of the facilities and amenities, to ensure smooth workflow.

"It is about smart planning so that the functions of facilities are optimised and benefit the soldiers who use them," says Er Koh.

Earning the professional engineer

(PE) certification has enabled him to gain greater insights to contribute more as a defence engineer.

"Being a PE brought me into a professional community and helped me grow in my competency as a defence engineer," he says.

"More importantly, it has inspired me to seek excellence and continual development. Being a PE reminds me of my lifelong commitment to uphold the integrity and high standards of the engineering profession."