

MEDIA RELEASE

Three Engineering Firsts Showcase How Singapore Can Build Safely

Design and Engineering Safety Awards 2026 honours four engineers whose first-of-their-kind solutions unlock constrained urban sites and create functional spaces for Singapore.

Singapore, 21 August 2026 – The Building and Construction Authority (BCA) has recognised four Professional Engineers, their firms and project teams with the Design and Engineering Safety Award (DESA) 2026 for three landmark projects that set Singapore engineering firsts: New Central Manpower Base (CMPB), IOI Central Boulevard Towers and Geneo at Singapore Science Park.

2 These developments showcase technical excellence in urban engineering. At CMPB, Singapore's first suspended auditorium safely supports 468 seats from above, freeing up space below for a large, column-free public hall while IOI Central Boulevard Towers saw Singapore's first application of the Observational Method for an Earth Retaining and Stabilising Structure (ERSS) within a dense, infrastructure-heavy site. Geneo at Science Park features the nation's tallest Mass Engineered Timber (MET) canopy at 27 metres. Together, these projects demonstrate how engineering enables land-scarce Singapore to optimise space, elevate public environments, and build safely for the future.

3 BCA Group Director (Building Engineering) Er. Tan Chun Yong said, "As Singapore continues to develop within a highly urbanised environment, engineers must work around existing infrastructure and buildings innovatively while meeting stringent safety requirements. This year's Design and Engineering Safety Award (DESA) winners are a testament to how sound engineering can turn complex site and design constraints into ambitious developments that will serve the community for decades."

Winner of DESA - Institutional Category

Er. Clement Chen, Executive Director, Meinhardt (Singapore) Pte Ltd

New Central Manpower Base (CMPB)

4 The Central Manpower Base (CMPB) marks the start of the National Service journey. The vision behind the new CMPB is to bring together registration, medical screening, fitness assessment and visitor services within a single, welcoming campus. To realise this, engineers had to reimagine traditional structural design and construction to optimise space for every activity.

Singapore's First Suspended Auditorium

5 The 468-seat auditorium is Singapore's first suspended auditorium that does not sit on a grounded floor. Er. Chen minimised the need for multiple supporting columns by carrying the auditorium's loads upwards with the adoption of mega steel trusses at Roof Level, freeing the space below for a large, column-free public hall.

A 208-metre bridge built above an operating MRT station

6 The 208-meter multi-span pedestrian bridge links CMPB and Cashew MRT station. It was constructed directly above an operating MRT infrastructure. With strict limits on additional load that could be imposed on the MRT structure, Er. Chen designed a calibrated raft foundation with carefully positioned voids, reducing its weight by about 40% while maintaining the structural strength and stability needed to support the bridge.

32-Metre Fins Combining Structure, Shading and Architecture

7 The building's 68 tapered reinforced-concrete fins rise approximately 32 metre (about 10-storeys high) along CMPB's frontage. Each fin is set at a unique angle to provide structural support and solar shading. Due to their height, each fin was divided into five segments, secured on-site. A proprietary bracket system enabled installation without full-height temporary supports, allowing for faster installation process. Building Information Modelling (BIM) was also utilised to coordinate precise geometry, angle and connections before fabrication and installation, improving accuracy, safety and productivity.

Winner of DESA - Commercial Category

Er. Aaron Foong, Senior Executive Director, KTP Consultants Pte Ltd, a member company of Surbana Jurong (SJ Group)

IOI Central Boulevard Towers

8 IOI Central Boulevard Towers is a mixed-use development at Marina Bay, where nearly one-third of the site was occupied by a Common Services Tunnel (CST), a major monsoon drain, MRT protection zones and conserved heritage trees. During construction, engineers had to overcome severe site constraints to execute deep foundation works safely while ensuring all surrounding facilities remained fully operational and protected.

Transfer Trusses Carry Building Loads Across Protected Infrastructure Corridors

9 Er. Foong designed long-span transfer trusses that carry the load of the 12-storey East Tower across the restricted zones to columns and foundations outside them. Integrated into the inter-storey car park, the approximately 7-metre-high trusses preserved usable space and created a large column-free public area at ground level with improved pedestrian movement through the development without increasing building height.

Singapore's First Use of the Observational Method for ERSS

10 Below ground, the team adopted an innovative dual-function Secant Bored Pile (SBP) system in challenging marine clay geology. The piles that initially retained earth during excavation were retained as the West Tower's permanent deep foundation. The project was also the first in Singapore to apply the Observational Method¹ to an Earth Retaining and Stabilising Structure (ERSS)², using live sensor data and pre-agreed thresholds to verify how the ground and retaining structure were

¹ The Observational Method (OM) is an approach where design is progressively optimised during construction based on real-time monitoring data, allowing for potential cost and time savings without compromising safety. More information on OM may be found [here](#).

² Earth Retaining and Stabilising Structure (ERSS) refers to temporary or permanent engineering systems used to support deep excavations. More information on ERSS may be found [here](#).

performing and safely optimised the temporary support required during excavation. Together, these approaches maintained safety requirements while improving material efficiencies and reduced embodied carbon. It saved approximately 10,000 m³ of concrete and 1,000 tonnes of steel reinforcement.

Winner of DESA - Commercial Category

Er. Teoh Eng Sin, Structural Technical Director, Mott MacDonald Singapore Pte Ltd

Er. Ponnampalam Thusiyanthan, Technical Director (Mass Engineered Timber),

Ronnie & Koh Consultants Pte Ltd

Geneo at Singapore Science Park

11 Geneo was designed as a life sciences and innovation hub with purpose-built R&D workspaces that adapt to changing research needs while providing welcoming public spaces for the wider community. Delivering this vision required engineers to balance structural performance, flexibility and sustainability on a sloping site bordered by transport infrastructure and utilities.

Singapore's Tallest Mass Engineered Timber (MET) Canopy

12 The showpiece is Singapore's tallest Mass Engineered Timber (MET) canopy - rising 27 metres and spanning a 3,000-square-metre public plaza. Its cathedral-inspired unconventional columns and arches serve as both the canopy's main structural supports and defining architectural features. Er. Ponnampalam was behind the complex geometry design that required specially engineered connections, extensive off-site prefabrication and digitally planned assembly sequences to ensure precise alignment and safe load transfer.

Vibration-Controlled Floors for Adaptable Laboratories

13 Er. Teoh also developed a hybrid post-tensioned and reinforced-concrete structural system to achieve column-free spans of up to 19.2 metres while meeting stringent vibration performance requirements. This gives future occupants greater flexibility to reconfigure laboratory layouts, equipment and building services without major changes to the primary structure.



Winning Engineers to Receive Awards on 4 September

14 BCA will confer the Design and Engineering Safety Award 2026 on the four Professional Engineers at the International Built Environment Week (IBEW) Industry & Awards Dinner on 4 September.

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Factsheets

Annex A – Factsheet on New Central Manpower Base (CMPB)

Annex B – Factsheet on IOI Central Boulevard Towers

Annex C – Factsheet on Geneo at Singapore Science Park

About DESA

Since 2008, the BCA Design and Engineering Safety Award (DESA) gives recognition to the Qualified Person for Structural Works, the firm and the project team for ingenious design processes and solutions in overcoming project challenges to ensure safety in design, construction and maintenance of building and civil engineering projects locally. Now in its 19th edition, the award celebrates projects where sound engineering judgement, innovation and collaboration have enabled complex developments to be realised safely while delivering lasting value to the public.

About BCA

The Building and Construction Authority (BCA) champions a safe, sustainable, and liveable built environment for Singapore. As a leader in the sector, BCA is dedicated to driving industry transformation and setting rigorous standards in building safety, quality, and environmental sustainability. By advancing innovation, digitalisation, and the development of a skilled workforce, BCA fosters a dynamic industry that is ready to meet the evolving needs of the nation and build a resilient and progressive built environment for all. For more information, visit www.bca.gov.sg.