BCA AWARDS 2025

Recognising Excellence in the Built Environment

DESIGN AND ENGINEERING SAFETY AWARD

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The BCA Design & Engineering Safety Award (DESA) gives recognition to the Qualified Person for Structural Works [QP(ST)], QP(ST)'s 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.

The Award aims to:-

a) Inculcate a strong safety culture among building professionals in developing our built environment
b) Give recognition to QP(ST)s and their firms for engineering achievements
c) Provide an avenue through which competition for work excellence can be enhanced.

The Award will be given out in 5 categories, namely:

- Commercial
- Institutional
- Industrial
- Civil Engineering
- Mixed Development

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Award Winners of BCA DESA 2025

Pan Pacific Orchard

SGH Emergency/National Neuroscience Institute

The GEAR

T226 of Thomson East Coast Line, Marina Bay Station (SCL Tunnels)

The Woodleigh Residences and The Woodleigh Mall

Pan Pacific Orchard

Winner of Commercial Category

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BCA DESIGN AND ENGINEERING SAFETY AWARD 2025

Photo Credit to Darren soh

Qualified Person
Er. Tan Chin Hock

Developer
UOL Claymore Investment Pte Ltd

C&S Consultant
DP Engineers

Architectural Consultant
WOHA Architects Pte Ltd

Builder
Shimizu Corporation

KEY CHALLENGES

- Requirement for the project to be built over the former Hotel Negara, with tight site constraints.
- Its unique spatial planning enables the creation of multi-level sky terraces that necessitate a complex structural system.

SOLUTIONS

- Re-usage of the existing basement diaphragm walls as Earth Retaining and Stabilising Structures (ERSS) walls in a shored semi-top-down excavation. Planned and sequenced the demolition of the existing two-level basements with the ERSS, incorporating sustainable materials such as Recycled Concrete Aggregates (RCA) in combination with Liquified Soil Stabilisers (LSS).
- Rehabilitated and reconditioned the existing diaphragm walls by adding a new composite, waterproofed concrete skin, thereby recycling the original basement walls.
- Employed a combination of steel structures and precast reinforced concrete structures to create a buildable structure through the adoption of Design for Manufacturing and Assembly (DfMA) techniques.
- Directional mechanical pot bearings and steel reinforced neoprene bearings were used to ensure long-term building serviceability.
- Strategic application of partial prestressing to the reinforced concrete design to further enhance safety and long-term building serviceability.

SGH Emergency/National Neuroscience Institute

Winner of Institutional Category

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BCA DESIGN AND ENGINEERING SAFETY AWARD 2025

Photo Credit to China Construction (South Pacific) Development Co Pte Ltd

Qualified Person
Er. Kam Mun Wai

Developer
Ministry of Health Singapore

C&S Consultant
Meinhardt (Singapore) Pte Ltd

Architectural Consultant
RDC Architects Pte Ltd

Builder
China Construction (South Pacific) Development Co Pte Ltd

KEY CHALLENGES

- Deep basement excavation in undulating ground terrain, resulting in high unbalanced lateral pressures during construction and in permanent condition.
- Elevated hospital facility, integrating and connecting seamlessly existing Emergency Department with new SGH Emergency, built over busy thoroughfare.
- Fast track construction in close proximity to sensitive building structures, with stringent safety, operational and environmental considerations.

SOLUTIONS

- Robust Earth Retaining/Stabilising Structures (ERSS) in tandem with full top down construction, enabling substructure and superstructure to be built concurrently, saving time.
- Holistic execution of DfMA systems and technologies, adopting prop-free construction strategy with extensive off-site fabrication of components, enhancing buildability, productivity and overall safety.
- Innovative structural efficiency in suspending and bridging the new facility over the thoroughfare, maintaining uninterrupted vehicular and pedestrian flow.

The GEAR

Winner of Industrial Category

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BCA DESIGN AND ENGINEERING SAFETY AWARD 2025

Photo Credit to Daici Ano

Qualified Person
Er. Kam Mun Wai

Developer
Kajima Development Pte Ltd

C&S Consultant
Meinhardt (Singapore) Pte Ltd in collaboration with Kajima Design

Architectural Consultant
Surbana Jurong Consultants Pte Ltd in collaboration with Kajima Design

Builder
Kajima Overseas Asia (Singapore) Pte Ltd

Specialist Consultants
Kajima Design
KaTRIS

KEY CHALLENGES

- Integrative Architecture, Minimalist Design embracing wellness, sustainability and energy efficiency.
- Expressive Structure with deep basement construction in poor ground condition.
- Spatial flexibility with large column-free spaces.

SOLUTIONS

- Structural Rationalism, innovating the Skeleton-and-Infill concept, to achieve a ‘beamless structure’ and porous building, abundant in elevated landscape and greenery.
- Creative structural form and configuration realising long span and large column-free floor plates, maximising space flexibility and headroom, built using the semi-top down method to minimise impact to adjacent buildings and services.
- Highly-sustainable innovations incorporating advanced designs and technologies, creating a confluent spatial experience blended with natural breeze and sensory changes.

T226 of Thomson East Coast Line, Marina Bay Station (SCL Tunnels)

Winner of Civil Engineering Category

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BCA DESIGN AND ENGINEERING SAFETY AWARD 2025

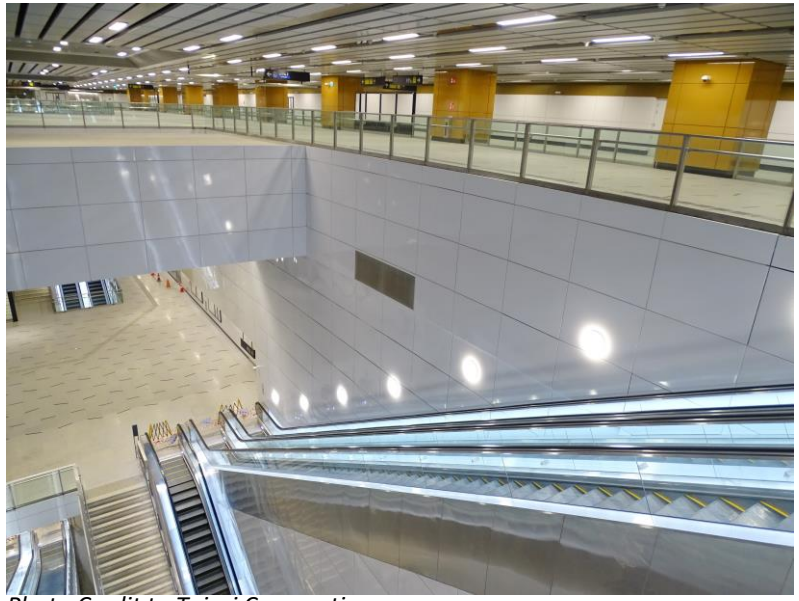

Photo Credit to Taisei Corporation

Qualified Person
Er. Chua Tong Seng (QPD, Civil)
Er. Michelle Lew Geok Theng (QPD, Geo)

C&S Consultant
Kiso-Jiban Singapore Pte Ltd

Builder
Taisei Corporation

Developer
Land Transport Authority

Architectural Consultant
Aedas Pte Ltd

AE Consultant
Arup Singapore Pte Ltd

KEY CHALLENGES

- Contract T226 involves the construction of the new Marina Bay interchange station and tunnels for TEL. In addition to the presence of MRT structures and train operations, the site is located on reclaimed land. The new tunnels are very deep up to 40m below ground.
- Several bored piles from existing structures that obstructed the new tunnels alignments were removed.
- The new tunnels passes through mixed-soil condition and constructed using SCL mining. High water pressure and the uncertainty surrounding conventional ground improvement techniques for treating the partially weathered soil of Bedok Formation posed a great challenge.

SOLUTIONS

- 3D FEM analyses were conducted by QPD to simulate the complex work to find the best solution. Soil improvement was implemented to strengthen the surrounding Marine Clay of the Rochor Member using vertical jet grout piles. In areas that could not be reached, horizontal jet grout piles were executed.
- A purpose-built Rectangular Open Shield Machine was manufactured to mine the space required for constructing transfer beams, which underpinned the existing tunnels and facilitated the removal of existing piles.
- To ensure that the SCL tunnels could be mined in dry condition, Ground Freezing using Brine System was introduced. Frozen local soil properties were determined. Large refrigeration units with brine chilled to -30oC formed contiguous 1.8m diameter frozen soil columns and created impervious walls. The work was continuous monitored by temperature sensors and real time ATM system. Once it had served its intended functions, frozen soils were defrosted and returned to its original condition.

The Woodleigh Residences and The Woodleigh Mall

Winner of Mixed Development Category

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Photo Credit to The Woodleigh Residences Pte Ltd & The Woodleigh Mall Pte Ltd

Qualified Person
Er. Kam Mun Wai

C&S Consultant
Meinhardt (Singapore) Pte Ltd

Builder
Kajima Overseas Asia (Singapore) Pte Ltd and Tiong Seng Contractors (Private) Limited

Developer
The Woodleigh Residences Pte Ltd & The Woodleigh Mall Pte Ltd

Architectural Consultant
DP Architects Pte Ltd

KEY CHALLENGES

- Integrated mixed-use comprising residential, commercial and communal development with deep basement construction, in close proximity to sensitive structures, heritage park and underground services.
- Underground pedestrian network and bridges, connecting Woodleigh MRT Station, Bidadari Park and adjacent public housing estates.
- Fast track strategy, embracing advanced DfMA designs and sustainable construction technologies.

SOLUTIONS

- Integrative Earth Retaining/Stabilising Structures (ERSS) executed in conjunction with full top down method to enable concurrent construction of basements and tower superstructure safely, minimising impact to adjacent structures and services.
- Highly-buildable structural systems adopted for basement and podium, including Prefabricated Prefinished Volumetric Construction (PPVC) for residential units, enhancing productivity and sustainability.
- Innovative steel for long span bridges, offering 24/7 seamless connectivity and expansive views of the park and lake for the public and residents.

WINNERS OF BCA DESIGN AND ENGINEERING SAFETY AWARD 2025

PROJECT NAME	PROJECT TYPE	QP / QP COMPANY
Pan Pacific Orchard	Commercial	Engineer Tan Chin Hock DP Engineers Pte Ltd
SGH Emergency/National Neuroscience Institute	Institutional	Engineer Kam Mun Wai Meinhardt (Singapore) Pte Ltd
The GEAR	Industrial	Engineer Kam Mun Wai Meinhardt (Singapore) Pte Ltd
T226 of Thomson East Coast Line, Marina Bay Station (SCL Tunnels)	Civil Engineering	Er. Chua Tong Seng, Er. Michelle Lew Geok Theng Kiso-Jiban Singapore Pte Ltd
The Woodleigh Residences and The Woodleigh Mall	Mixed Development	Engineer Kam Mun Wai Meinhardt (Singapore) Pte Ltd

Organiser

Building and Construction Authority

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