

Factsheet - Construction Productivity Awards (Projects)

Sengkang N4 C16

Gold Award

(Residential Non-Landed Buildings Category $\geq 25,000 \text{ m}^2$)



Sengkang N4 C16, located along Fernvale Road, is a Design & Build HDB residential development. It comprises of 5 blocks of flats with a total of 623 dwelling units, together with 1 block of multi-storey carpark with roof garden and communal facilities such as precinct pavilion & playground.

Architectural Consultant	Consortium 168 Architects Pte Ltd
Structural Consultant	E2000 Pte Ltd
M&E Consultant	Rankine & Hill Singapore Pte Ltd
Builder	Kimly Construction Pte Ltd
Client	Housing & Development Board
Construction Cost	S\$ 91.5 million
Gross Floor Area	71,280 m ²

Key Features

- Onsite precasting of elements enabled a just-in-time construction, thus eliminating the need for storage area and transportation within site which has resulted in time and cost savings as well as better control of quality.
- High level of precast elements was adopted in the project such as 2-tier columns, air-con ledges, service ducts, facades and bay windows. This has facilitated the construction process and resulted in high productivity.
- NMB Splice Sleeve System was used for connecting the vertical elements of precast structural members. The system was precise with easy installation and reduced the construction time.

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One Shenton

Gold Award

(Residential Non-Landed Buildings Category $\geq 25,000 \text{ m}^2$)



One Shenton is a residential development situated at Shenton Way with commercial use on the first storey and comprising 43/50-storey of flats with a total of 341 units. The development also has a 7-storey podium carpark, swimming pool and communal facilities.

Architectural Consultant	Architects 61 Pte Ltd
Structural Consultant	Meinhardt (Singapore) Pte Ltd
M&E Consultant	Parsons Brinkerhoff Pte Ltd
Builder	Hyundai Engineering & Construction Co., Ltd.
Client	CDL Land Pte Ltd
Construction Cost	\$160.4 million
Gross Floor Area	47,645 m ²

Key Features

- Prefabricated bathroom units (PBU) were adopted in the project and were installed sideways, that is, hoisted by a crane onto a working platform and rolled into the unit from the balcony. As compared to the method of having the PBUs hoisted in from a void above, the adopted sideways method was faster in terms of execution.
- Structural steel link bridges and roof crown were prefabricated in a factory and installed on site using advanced methodology.
- System formwork and rail climbing system were adopted in the project to improve constructability and reduce labour demand.
- Use of Building Information Modelling (BIM) for 3D design of the roof crown has enabled better planning and design while helping to detect obstruction early.

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City View @ Boon Keng

Gold Award

(Residential Non-Landed Buildings Category $\geq 25,000 \text{ m}^2$)



City View @ Boon Keng is a public housing development under the Design, Build and Sell Scheme (DBSS) and comprises 3 blocks of 40 storey residential flats (total 714 units) with a block of 6 storey multi-storey car park and 2 blocks of pavilions.

Architectural Consultant	JGP Architecture (S) Pte Ltd
Structural Consultant	BC Koh & Partners LLP
M&E Consultant	J Roger Preston (S) Pte Ltd
Builder	Straits Construction Singapore Pte Ltd
Client	Hoi Hup Sunway Development Pte Ltd
Construction Cost	\$132 million
Gross Floor Area	74,409.71 m ²

Key Features

- Screedless system was used to receive the living room tiles. This helped to save materials and labour, allowing faster progress of tiling works to be achieved since it is no longer dependent on the screeding process.
- Use of engineered wood for the timber flooring at the bedrooms resulted in time savings with the elimination of sanding and lacquering works and also led to less housekeeping works.
High level of precast elements for structural and non-structural components was adopted to enhance productivity.
- Mast Climbing Platform was utilised for architectural finishing works to the external wall. As compared to the traditional method of using gondola and scaffold, this system allowed a larger/wider area of the external face to be accessed at one time.

Factsheet - Construction Productivity Awards (Value-Added Productivity)

Greatearth Construction Pte Ltd

(Category 1: Turnover \geq S\$100 million)

Best VAP Builder & Best VAP Improvement Builder

Key Features:

- Has a sustainable business model to control costs and quality and to maximise equipment usage.
- Shares knowledge and related skills through management, site and safety meetings.
- Emphasises on adoption of technology to reduce manpower and implement good practices to enhance constructability and productivity. Examples are:
 - ✓ Use of system formwork, aerial platforms, cast-in conduits for lighting, mast climbing platform, spray painting, cuplock scaffold system, 2-D barcode security and CCTV systems for manpower monitoring, weighing bridge, scissor lifts, bobcat skid steer loader, floor crane, silent piler, etc.
 - ✓ Adoption of precast construction methods, ductless fan system for basement car parks, siphonic rainwater downpipe, etc.

Straits Construction Singapore Pte Ltd

(Category 1: Turnover \geq S\$100 million)

Best VAP Builder

Key Features:

- Specialises in the construction business and project management with targets for short-term, medium-term and long-term key performance indicators.
- Enhances productivity with improved processes by having centralised purchases and a cost control department.
- Increases investments in technology to enhance productivity. Examples are:
 - ✓ Stationary pump rotary distributor, IBS mould, single mast work platform, automatic wheel washer, stationary concrete placing boom, telescopic handler 3.1 ton, 58.5m mobile concrete pump, full hydraulic crawler tower crane

Factsheet - Construction Productivity Awards (Value-Added Productivity)

Chye Joo Construction Pte Ltd

(Category 2: Turnover < S\$100 million)

Best VAP Builder

Key Features:

- Has a business philosophy of providing quality services on schedule at cost-effective prices.
- Client-oriented with focus on forging strong and long-term relationships with service customisation.
- Emphasises on people management strategy for successful business outcomes.
- Focuses on employees' career development with a comprehensive plan in place to acquire new construction technologies to handle complex CE projects in the near future.
- Use of mechanical systems to reduce manual work and increase productivity with adoption of technology such as:
 - ✓ Cabor-stress and hardwire system, mechanical kerb-installer, silent piler, built-in electric profiler, Building Information Modelling (BIM) and accounting and HR software
 - ✓ A strong fleet of earth-moving vehicles, demolition machinery, crawlers, etc.

Santarli Construction Pte Ltd

(Category 2: Turnover < S\$100 million)

Best VAP Builder

Key Features:

- Adopts a business model of Performance Related Pay (PRP) scheme to motivate staff and drive labour productivity.
- Focuses on project management which includes site supervision, technical coordination, quality assurance and quality control, as well as the production of shop drawings and coordinated services drawings.
- Adoption of technology include:
 - ✓ Building Information Modelling (BIM), precast technology, prefabricated cage and steel wire mesh, system formwork
 - ✓ Paperless office solution through the use of high speed scanners and high capacity data storage platforms
 - ✓ Dropbox cloud storage – significantly improved backup solutions, file sharing and collaboration

Factsheet - Construction Productivity Awards (Value-Added Productivity)

Unison Construction Pte Ltd

(Category 2: Turnover < S\$100 million)

Best VAP Builder

Key Features:

- Embarks on innovative and productive construction methods with a quality culture.
- Focuses on value added services in effective project management built on trust and integrity.
- Increases mechanisation by expanding technology adoption with MechC scheme to gain competitive edge.
- Adoption of technology includes:
 - ✓ Integrated formwork systems, Building Information Modelling (BIM), builders' hoists, scissor lifts and reflectorless total stations
 - ✓ Encourages re-engineering and adopts precast and prefabricated technology system

Guan Ho Construction Co. Pte. Ltd.

(Category 2: Turnover < S\$100 million)

Best VAP Improvement Builder

Key Features:

- Focuses on 3 core competencies: leveraging innovation, continual improvement in people and work processes and efficient operation of construction site.
- Focuses on the development of people and deploys state-of-the-art construction techniques and technologies such as system formwork, steel I-beam with structural steel decking, Building Information Modelling (BIM) and pre-fabricated formwork system.
- Monitors market situations and constantly source for new products to enhance productivity.
- Established a Design and Technical Department to address the challenges faced in every project and devise buildable construction approaches and method of construction to enhance productivity.