

BCA CONSTRUCTION EXCELLENCE AWARD

The Award

The BCA Construction Excellence Award was introduced in 1986 and is now into its 27th year of competition. To date, BCA has conferred 204 Awards and 191 Certificates of Merit (1986~2012). Invitations for nominations for the 2013 Awards were made in August 2012 to architectural and engineering consultancy firms, government departments, statutory boards as well as construction firms. 38 projects were nominated and 35 were short listed for evaluation.

The Recipients

Builders are the principal recipients of the Award. Developers and consultants (Architects, Structural Engineers, M&E Engineers and Quantity Surveyors) who were involved in the project will also be acknowledged.

Award Categories

There are 7 award categories as follows:

- a. Commercial/Mixed Development Buildings
- b. Industrial Buildings
- c. Institutional Buildings
- d. Residential Buildings (\$1800 / m² and Above)
- e. Residential Buildings (Below \$1800 / m²)
- f. Small Buildings - \$3 million to \$10 million
- g. Civil Engineering Projects

Assessment Criteria

Projects were assessed by the Assessment Committee in 3 stages:-

- a. Builders' presentation on the construction process;
- b. Site visits; and
- c. A committee meeting to deliberate the results.

The assessment of the nominations is based on the following criteria:

- a. Builder's overall management of the project;
- b. Builder's technical capability and innovations; and
- c. Quality of the completed project.

BCA CONSTRUCTION EXCELLENCE AWARD

Assessment Committee

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BCA Board Member

Managing Director

RSP ARCHITECTS PLANNERS

ENGINEERS (PTE) LTD

DEPUTY CHAIRMEN

Mr Richard Hassell

BCA Board Member

Founding Director

WOHA ARCHITECTS PTE LTD

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SHIMIZU CORPORATION

Mr Khor Tong Meng

ALLGREEN PROPERTIES LIMITED

Mr Ler Seng Ann

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Mr Louis Paul Fok Kow

LAND TRANSPORT AUTHORITY

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TIONG SENG CONTRACTORS (PTE) LTD

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NATIONAL UNIVERSITY OF SINGAPORE

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ONG&ONG PTE LTD

Dr. Tan Guan

T.Y.LIN INTERNATIONAL PTE LTD

Mr Tan Tian Chong

BUILDING AND CONSTRUCTION

AUTHORITY

Mr Yap Tiem Yew

HOUSING & DEVELOPMENT BOARD

One Shenton

Commercial / Mixed Development Buildings
Category



Builder

Hyundai Engineering &
Construction Co., Ltd

Developer

CDL Land Pte Ltd

Principal Consultant

Architects 61 Pte Ltd

Architectural Consultant

Architects 61 Pte Ltd

Structural Consultant

Meinhardt (Singapore)
Pte Ltd

M&E Consultant

Parsons Brinckerhoff
Pte Ltd

Quantity Surveyor

Davis Langdon KPK
(Singapore) Pte Ltd

Construction Cost

S\$155.5 million

Construction Period

45.0 months

Gross Floor Area

47,644 m²

Key Features

- An architecturally iconic Design & Build (D&B) mixed development comprising an 8-storey podium and 341 residential units in twin towers of gold and silver.
- System formwork was designed with pre-formed aluminium sections and a rail climbing system to improve productivity.
- Off-site fabrication of steel structures to overcome the two major challenges of connecting the three sky bridges and two 40m high curvilinear roof crowns.
- Installed Prefabricated Bathroom Units (PBU) to improve productivity and quality.
- The curved silhouette of the building was achieved by offsetting the columns at each floor during construction.
- Erection of the 3 sky bridges required the bridges to be assembled on the podium roof in stacks and lifted up using a Strand Lifting System.
- Construction of the two 40m high curvilinear roof crowns involved pre-assembling the steel components in 3 to 5 ton segments with aluminium and glass cladding installed, hoisted and fixed with bolts or welding.

Mixed Development at Clementi Town Centre

Commercial / Mixed Development Buildings Category



Builder

China Construction (South Pacific) Development Co Pte Ltd

Developer

Housing & Development Board

Principal Consultant

Surbana International Consultants Pte Ltd

Architectural Consultant

Surbana International Consultants Pte Ltd

Structural Consultant

Surbana International Consultants Pte Ltd

M&E Consultant

Surbana International Consultants Pte Ltd

Quantity Surveyor

Surbana International Consultants Pte Ltd

Landscape Consultant

Surbana International Consultants Pte Ltd

Project Management Consultant

SIPM Consultants Pte Ltd

Construction Cost

S\$145.0 million

Construction Period

56.5 months

Gross Floor Area

88,523 m²

Key Features

- HDB's first mixed development which consists of a 5-storey commercial podium with two 40-storey high residential towers housing 388 units. It also has a 2-level basement, multi-storey carparks and an air-conditioned bus interchange.
- Proximity to MRT's reserve line and a row of 30 year-old HDB shophouses less than 4m away complicated the construction of the 12m deep basement.
- Adopted a combination of bottom-up and top-down construction for the basement to achieve the timely opening of Clementi Mall.
- Just-in-time delivery of precast components due to heavy traffic and site congestion.
- Utilised "Climbing Rilscaf" system with full netting to improve safety and speed of construction.
- Excellent traffic planning includes providing an enhanced covered walkway to handle heavy human traffic from Clementi MRT to the temporary bus interchange.
- Highly praised for efficiency in clearing of defects during defects liability period.
- High workmanship standards with two-third of occupants rating "Very Satisfied".
- Won HDB Housekeeping Award 2008 for outstanding housekeeping standard.

Ocean Financial Centre

Commercial / Mixed Development
Buildings Category



Builder
Obayashi - Woh Hup Joint
Venture

Developer
Ocean Properties LLP

Principal Consultant
Architects 61 Pte Ltd

Architectural Consultant
Pelli Clarke Pelli Architects
Inc.

Structural Consultant
Parsons Brinckerhoff
Pte Ltd

M&E Consultant
Parsons Brinckerhoff
Pte Ltd

Quantity Surveyor
Davis Langdon KPK
(Singapore) Pte Ltd

Curtain Wall Consultant
ALT Cladding Inc.

Green Mark Consultant
G-Energy Global Pte Ltd

Construction Cost
S\$399.2 million

Construction Period
37.0 months

Gross Floor Area
94,056 m²

Key Features

- Structure and M&E works were under Design & Build (D&B).
- Achieved BCA Green Mark Platinum Award with notable green features like the use of triple-glazed façade glass, 400m2 of solar photovoltaic panels, paper recycling chute, vertical green walls, power-saving LEDs on façade and roof, water-efficient fittings, harvesting of rain water for irrigation, regenerative drive lifts and programmable eco-switch for controlling air-conditioning and lighting level.
- Clinched MOM SHARP Award 2011 & 2012, Keppel Land Safety GOLD Award 2009, 2010 & 2011 and Keppel Group Safety Innovation Award 2009, 2010 & 2011 due to high safety standards.
- Caisson piling was adopted to use less rebar, ensuring better quality and higher bearing capacity.
- Use of prefabricated tubular bar chairs for raft foundation and prefabricated rebar cages for columns improved productivity and reduced wastage.
- Post tension for beams and slabs to reduce usage of rebar and concrete.
- Self auto-climbing formworks for construction of columns and core walls.
- Adopted self auto-climbing metal safety screen for efficiency.
- Tie back rods were used to eliminate transfer beam and provide more headroom at core.
- Used metal prefabricated formworks for construction of staircases.
- Unitised curtain wall was installed using monorail system to reduce tower crane hook time.
- Installed separate table form lift improved safety and freed up tower crane operation.
- Adopted drywall partition for lighter structure and speedier construction.

The Fullerton Bay Hotel

Commercial / Mixed Development
Buildings Category



Builder
Kim Seng Heng
Engineering Construction
(Pte) Ltd

Developer
Precious Quay Pte Ltd

Principal Consultant
DP Architects Pte Ltd

Architectural Consultant
DP Architects Pte Ltd

Structural Consultant
Beca Carter Hollings &
Ferner (S.E. Asia) Pte Ltd

M&E Consultant
Beca Carter Hollings &
Ferner (S.E. Asia) Pte Ltd

Quantity Surveyor
Davis Langdon KPK
(Singapore) Pte Ltd

Landscape Consultant
Ong&Ong Pte Ltd

Lighting Consultant
Light Cibles Pte Ltd

Construction Cost
S\$134.9 million

Construction Period
32.0 months

Gross Floor Area
10,000 m²

Key Features

- A commercial / hotel development comprising the conservation of the Clifford Pier and former Custom Building Branch, as well as the construction of a 6-storey hotel block, single story Café, landing area, North Deck, promenades and other ancillary facilities over Marina Bay.
- Main constraints were the managing of heavy activities in the Central Business District as well as the challenges of construction over Marina Bay and along the existing seawall. Special attention was also required to avoid affecting existing underground services.
- Materials and equipment were delivered on a just-in-time basis due to site congestion.
- The coordination of high end interior finishes required careful planning and installation as most materials were imported.
- Stringent safety standards and special environmental control measures were implemented e.g. installation of perimeter underwater silt/debris control fence to prevent water pollution.
- Adopted a top-down construction and converted some structural components to precast to minimise hazards of working above water.
- Constructed a robust temporary construction deck for construction vehicles, material storage and steel framing supports for “hanging” formwork.
- Converted spun piles to micro piles for the North Deck Promenade where the micro piles also support the extension of the temporary construction deck over water.
- Converted spun piles to bored piles with left-in fiberglass-reinforced plastic casing for higher loading capacity and protection against deterioration.
- System formworks were used for construction of round columns for better finishing.

Dril-Quip Asia-Pacific

Industrial Buildings Category



Builder

Lum Chang Building
Contractors Pte Ltd

Developer

Dril-Quip Asia-Pacific
Pte Ltd

Principal Consultant

SKM (Singapore) Pte Ltd

Architectural Consultant

SKM (Singapore) Pte Ltd

Structural Consultant

SKM (Singapore) Pte Ltd

M&E Consultant

SKM (Singapore) Pte Ltd

Quantity Surveyor

SKM (Singapore) Pte Ltd

Construction Cost

S\$47.0 million

Construction Period

18.5 months

Gross Floor Area

21,934 m²

Key Features

- A single-user industrial development with 1 block of 4-storey admin office and 11 other ancillary facilities located at Tuas South Ave 1.
- Perfect safety record despite it being a fast track 17 months project.
- Achieved high productivity by adopting prefabricated steel structures, drywall and aluminium cladding construction.
- Metal roof was erected first to provide shelter prior to the construction of the slab, aluminium cladding, as well as M&E and internal works. This improved productivity and saved manpower by up to 15% as the internal works were not affected by adverse weather.
- Improved productivity by casting the slab in 7.5m width bays using a spreader placed over the angle bars at the slab edge. This also helped achieve the stringent quality requirement of flatness within 3mm.

CREATE Project

Institutional Buildings Category



Builder
Obayashi Corporation

Developer
National Research
Foundation

Principal Consultant
DP Architects Pte Ltd

Architectural Consultant
DP Architects Pte Ltd

Structural Consultant
Arup Singapore Pte Ltd

M&E Consultant
Arup Singapore Pte Ltd

Quantity Surveyor
Faithful+Gould Pte Ltd

Project Manager
Jurong Consultants Pte Ltd

Façade Consultant
Meinhardt Façade
Technology Pte Ltd

Lighting Consultant
Meinhardt Light Studio
Pte Ltd

Construction Cost
S\$269.6 million

Construction Period
22.3 months

Gross Floor Area
67,246 m²

Key Features

- A development consisting of a 16-storey Tower Block and 3 Bar Blocks.
- The tower block was constructed using precast concrete components while the 3 Bar Blocks and a basement were of an in-situ reinforced concrete (RC) structure. Jumping formwork was also used for the construction of RC core walls to improve productivity.
- Unitised curtain wall system was adopted for most of the façade to improve speed of construction.
- One of the main challenges was the construction of the main and secondary canopy which was supported by a 90m curved roof beam. The curved roof beam was fabricated in 7 segments and welded on site with temporary supports.
- Alternative design for the temporary ground anchor excavation method speeded up works and saved cost for the client.
- Changed in-situ RC staircases to precast to improve productivity.
- Maximised efficiency of the water pump by changing to smaller multiple-pump systems.

International School Campus at Tampines

Institutional Buildings Category



Builder

China Construction (South Pacific) Development Co Pte Ltd

Developer

JTC Corporation

Principal Consultant

P & T Consultants Pte Ltd

Architectural Consultant

P & T Consultants Pte Ltd

Structural Consultant

P & T Consultants Pte Ltd

M&E Consultant

United Project Consultants Pte Ltd

Quantity Surveyor

Davis Langdon KPK (Singapore) Pte Ltd

Construction Cost

S\$136.0 million

Construction Period

23.0 months

Gross Floor Area

76,000 m²

Key Features

- The project involved the construction of a 4-storey Infant Block, two 6-storey Educational Blocks, a 2-storey Amenities Block (Sports Complex) and a 14-storey Student Hostel.
- The project was completed 1 month ahead of schedule in both phases of the project.
- Reduced dumping trips through temporary stockpile excavated earths for backfilling at the Amenities Block.
- Pre-nursing of trees near site to ensure lush and mature landscape before TOP.
- Redesigned air-conditioning system to achieve better energy efficiency.
- Replaced tiled floor with vinyl sheet directly laid over structural floor omitted screeding thus saving time and cost.
- Used precast hollow core wall with skim coat for partition improved productivity and achieved better finishes.
- Fabric wrapped acoustic wall panels were fabricated off-site and are of mostly standard sizes. This eliminates wet trade and eases installation.
- Special commendation for active participation in offering innovative and creative designs for users and consultants.

NUS Graduate Residence at University Town

Institutional Buildings Category



Builder
Shimizu Corporation

Developer
National University of
Singapore

Principal Consultant
AWP Pte Ltd

Architectural Consultant
AWP Pte Ltd

Structural Consultant
Beca Carter Hollings &
Ferner (S.E. Asia) Pte Ltd

M&E Consultant
Beca Carter Hollings &
Ferner (S.E. Asia) Pte Ltd

Quantity Surveyor
Langdon & Seah Singapore
Pte Ltd

Construction Cost
S\$127.0 million

Construction Period
23.0 months

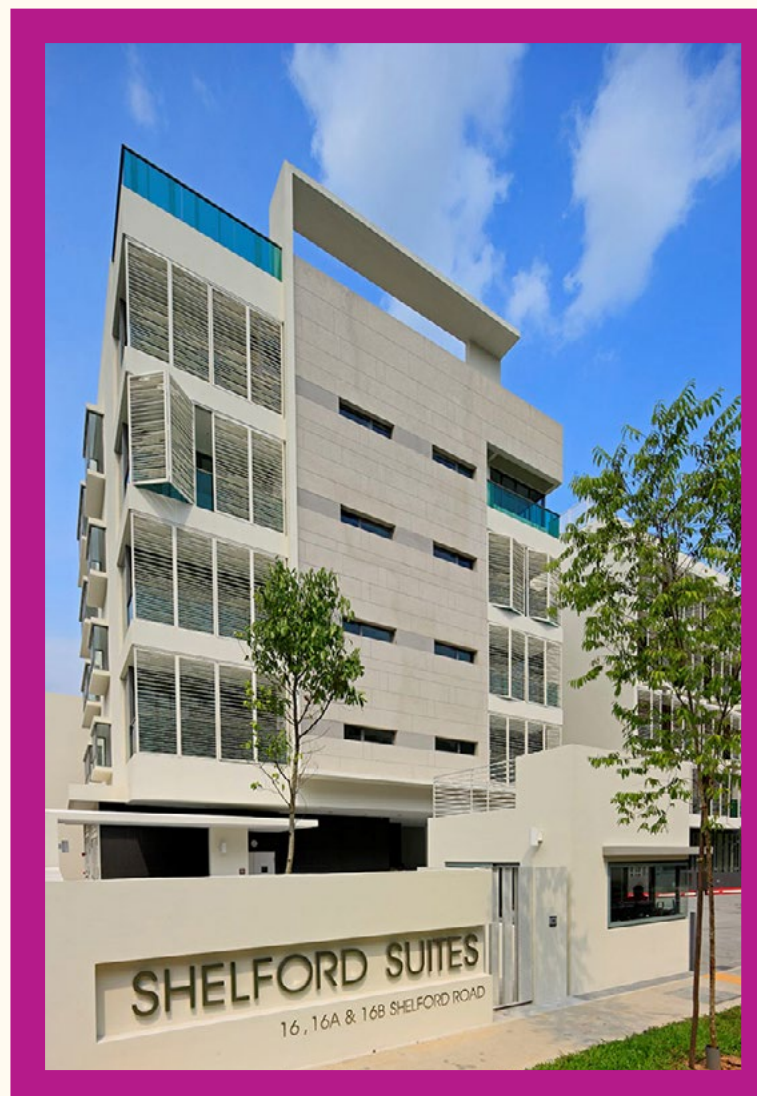
Gross Floor Area
47,905 m²

Key Features

- The NUS Graduate Residence comprises 4 units of guest apartments, 100 units of married & married handicapped student apartments, 4 units of resident advisor apartments and 400 units of single & single handicapped apartments.
- Original exterior precast wall panels were redesigned to become a permanent formwork for casting the in-situ reinforced concrete (RC) column. This helped reduce construction time.
- Combination of the vertical and horizontal precast façade elements into one component reduced installation time and eliminated potential water ingress from the horizontal joint.
- Insulation integrated into the precast elements helped shorten the construction process and reduced the weight of precast elements without compromising the Envelope Thermal Transfer Value.
- Precast elements were cast on site to reduce handling costs.

Shelford Suites

Residential Buildings - \$1,800/m² & Above Category



Builder

Tiong Seng Contractors
(Pte) Ltd

Developer

City Developments Limited

Principal Consultant

New Space Architects
Pte Ltd

Architectural Consultant

New Space Architects
Pte Ltd

Structural Consultant

LWS Consulting Engineers

M&E Consultant

Beca Carter Holling &
Ferner (S.E. Asia) Pte Ltd

Quantity Surveyor

Davis Langdon KPK
(Singapore) Pte Ltd

Interior Design Consultant

Index Design Pte Ltd

Construction Cost

S\$51.6 million

Construction Period

30.0 months

Gross Floor Area

99,958 m²

Key Features

- A Design & Build (D&B) project for the construction of a 77-unit condominium along Shelford Road.
- Achieved the highest CONQUAS score of 96.5 in 2011 and a STAR rating under the Quality Mark (QM) Tiered Rated Scheme with an average QM score of 92.68.
- Site constraints include the close proximity of high-end residential buildings, church with daycare centre, student dormitory etc which restricts noise and vibration levels.
- Sloping terrain with 14m deep basement further complicated the construction.
- Use of single roll ground anchor system for basement construction minimised soil movement and allowed unobstructed excavation.
- Used low noise jack-in spun piles minimised noise and vibration.
- Adopted a full precast envelope design.
- Use of precast components and advance system formwork for slab construction helped achieve a short 6-day construction cycle.
- Prefabricated Bathroom Units (PBU), drywall system, screedless floor for direct tiling, internal rebated doors with lift-off hinge, Polypropylene Random (PPR) plumbing, elegant stone spray for external wall were adopted to improve productivity and quality.

The Residences at W Singapore – Sentosa Cove

Residential Buildings - \$1,800/m² & Above Category



Builder
Dragages Singapore
Pte Ltd

Developer
Cityview Place Holdings
Pte Ltd

Architectural Consultant
AXIS Architects Planners
Pte Ltd

Structural Consultant
KTP Consultants Pte Ltd

M&E Consultant
Meinhardt (Singapore)
Pte Ltd

Quantity Surveyor
Davis Langdon KPK
(Singapore) Pte Ltd

Landscape Consultant
Cicada Pte Ltd

Construction Cost
S\$199.8 million

Construction Period
28.0 months

Gross Floor Area
40,849 m²

Key Features

- A luxurious condominium with 228 apartments located in 19 blocks of 6-storey buildings and a basement at Sentosa Cove.
- The main site constraints were the limited working hours imposed by Sentosa Cove Management, as well as the preservation of adjacent sea water canal which limited the use of piling and required an extra large water treatment plant to recycle water from rain, dewatering and minimising discharge to public waterways.
- A combination of raft foundation and bored piles (with dewatering) were adopted due to the sea water table. A 1mm settlement was achieved compared to 15mm forecasted at the design stage.
- Precast components were used extensively to improve productivity. These include an alternate design to integrate the bay window, as well as zig-zag walls and screen walls in precast.
- All precast elements were produced on site using early strength concrete where components could be cast one day earlier and de-moulded the next day for installation.
- Metal formwork system was used for in-situ reinforced concrete (RC) works mainly for shear walls where no internal or external plastering was required.
- Prefabricated Bathroom Units (PBU), drywall construction using recycled gypsum and paper, screedless floor for direct installation of floor finishes, lightweight pocket doors etc were some of the systems adopted to improve productivity and efficiency.
- External cantilevered façade platform, stair platform, work platform and internal shaft platform were used to eliminate full height scaffolding and ensure safety.
- Won MOM SHARP award for 2008,2009 and 2010 for excellent safety record.

Livia Condominium

Residential Buildings - \$1,800/m² & Above Category



Builder

Hyundai Engineering & Construction Co., Ltd

Developer

Hong Realty Pte Ltd

Principal Consultant

Architects 61 Pte Ltd

Architectural Consultant

Architects 61 Pte Ltd

Structural Consultant

LSW Consulting Engineers Pte Ltd

M&E Consultant

Meinhardt (Singapore) Pte Ltd

Quantity Surveyor

Langdon & Seah Singapore Pte Ltd

Landscape Architect

Tierra Designs Pte Ltd

Construction Cost

S\$279.6 million

Construction Period

33.0 months

Gross Floor Area

87,320 m²

Key Features

- A Design & Build (D&B) condominium which consists of 10 blocks of 15 and 16-storey buildings with 724 units and 1 level of basement.
- Comprehensive Earth Control Management (ECM) and monitoring required for the construction of the basement as part of it was previously a dumping ground and recently filled up to 15m deep.
- Use of precast walls and columns as well as a flat slab floor system reduced time needed to construct the basement.
- External façade elements were all precast concrete. This eliminated the need for external scaffolding and vertical formwork.
- Use of drywall system for internal partition.
- Fully furnished Prefabricated Bathroom Units (PBU) were used to reduce wet trade and improved quality.
- Introduced separate refuse disposal for organic waste and recyclable waste.
- Used Vertical Axis Wind Turbines (VAWT) to provide clean electricity for landscape lighting.
- Installed water recycling tanks to collect air conditioning condensate and rainwater for irrigation.
- Won MOM SHARP 2010, ROSPA Gold 2009 & 2010 for high safety standards.

Duchess Residences

Residential Buildings - \$1,800/m² & Above Category



Builder China Construction (South Pacific) Development Co Pte Ltd	Quantity Surveyor Langdon & Seah Singapore Pte Ltd
Developer Duchess Walk Pte Ltd	Landscape Architect Sitetectonix Pte Ltd
Principal Consultant MKPL Architects Pte Ltd	Lighting Consultant Parsons Brinckerhoff Pte Ltd
Architectural Consultant MKPL Architects Pte Ltd	Construction Cost S\$65.1 million
Structural Consultant TEP Consultants Pte Ltd	Construction Period 42.0 months
M&E Consultant CPG Consultants Pte Ltd	Gross Floor Area 19,925 m²

Key Features

- A private condominium with 4 blocks of 5-storey residential building housing 120 units as well as a basement carpark.
- Proposed contiguous bored pile (CBP) wall and steel strut as temporary earth retaining structure to ensure safety of neighbouring properties and existing 7m high retaining wall, during excavation and construction of substructure.
- CBP wall also doubled up as the basement wall.
- Changed bored pile to jack-in precast pile to reduce noise, vibration and cost. Installed pressure relief holes and trenches to minimise damages to surrounding buildings.
- Use of temporary metal working deck to overcome access constraints.
- Produced a Concrete Body Plan to coordinate the construction of 3 tiers of e-deck over a 6m difference in height.
- Use of precast components, spray painting method, prefabricated rebars, plastic formwork, mini jet fan system for basement ventilation, Polypropylene Random (PPR) piping system etc. to improve productivity.
- Applied liquid impregnator to external brick wall to prevent water seepage.
- CONQUAS score of 94.4 exceeded the contractual requirement of 88.5.

The Ritz-Carlton Residences

Residential Buildings - \$1,800/m² & Above Category



Builder

Millennium International Builders Pte Ltd (A member of Lian Beng Group Ltd)

Developer

KOP Properties Pte Ltd

Principal Consultant

Eco-id Architects Pte Ltd

Architectural Consultant

Eco-id Architects Pte Ltd

Structural Consultant

N C K Associates

M&E Consultant

Elead Associates Private

Quantity Surveyor

Northcroft Lim Consultants Pte Ltd

Project Management

Green Aces Paterson

Construction Cost

S\$99.5 million

Construction Period

36.0 months

Gross Floor Area

15,209 m²

Key Features

- A 36-storey luxury residential tower housing a total of 58 premium units with 3 levels of basement for the carpark.
- Due to site constraints, top-down construction was adopted for the basement construction. Slabs were redesigned as strutting as part of the temporary earth retaining structure. This is the same for the erection of the tower crane so that it could be in operation earlier.
- Piling works were redesigned to reduce the socketing length in the granite rock boulder area. This led to time and cost savings.
- Portland Blast Furnace Cement (PBFC) was used in the casting of the 3m to 6.2m deep raft foundation. Casting was done in 4 phases with careful monitoring of temperature during curing.
- Precast concrete components were widely used e.g. staircases, refuse chute liners, household shelter door frames etc. to improve productivity and quality.
- System formwork for in-situ reinforced concrete (RC) works to speed up construction and ensure better quality.
- Alternate epoxy floor coating to common areas like the staircase reduced slipperiness and cost.

Cliveden At Grange
Residential Buildings - \$1,800/m²
& Above Category



Builder
Kajima Overseas Asia
Pte Ltd

Developer
City Developments Limited

Principal Consultant
ADDP Architects LLP

Architectural Consultant
ADDP Architects LLP

Structural Consultant
LSW Consulting Engineers
Pte Ltd

M&E Consultant
Meinhardt (Singapore)
Pte Ltd

Quantity Surveyor
Langdon & Seah Singapore
Pte Ltd

Construction Cost
S\$136.1 million

Construction Period
47.0 months

Gross Floor Area
29,698 m²

Key Features

- Consists of 4 blocks of 24-storey flats housing 110 units with basement.
- Use of jack-in pile system significantly reduced noise during substructure construction. Spun piles were prefabricated off site. This construction method won the 2008 WSH Award Best Practice in Outstanding Achievement for Noise Control Solutions.
- Typical cast in-situ reinforced concrete (RC) was converted to precast concrete components except for the floor slab. This helped reduced the construction cycle time to 5 days per floor.
- 33% of the precast concrete components were prefabricated on site due to the narrow access road.
- 3-storey structural steel mullion replaced RC column in the living room to achieve maximum viewing space and increase productivity.
- Use of custom made ‘flying safety screen’ as safety barrier during superstructure construction saved time in moving to upper floor.
- The curved beam of the 15m tower roof was changed to precast component for safety and ease of construction.
- Used of prefabricated bathroom units improved productivity and reduced wet trades.
- Used of lift shaft jumping platform eliminated the need for scaffolding for lift installation, thus allowing earlier installation and improving safety.
- Wireless switches reduced wiring.
- Ductless mechanical ventilation system for basement carpark to create more headroom.
- Club house glass walls adopted photo catalyst technology with water film system (recycled/rain water) for cooling. This reduces energy required for air-conditioning.

Building Works at
Punggol West Contract 18
Residential Buildings – Below \$1,800/m²
Category



Builder
China Construction
(South Pacific)
Development Co Pte Ltd

Developer
Housing & Development
Board

Principal Consultant
SIPM Consultants Pte Ltd

Architectural Consultant
Surbana International
Consultants Pte Ltd

Structural Consultant
Surbana International
Consultants Pte Ltd

Mechanical Consultant
Surbana International
Consultants Pte Ltd

Electrical Consultant
Surbana International
Consultants Pte Ltd

Quantity Surveyor
Surbana International
Consultants Pte Ltd

**Project Management
Consultant**
SIPM Consultants Pte Ltd

Construction Cost
S\$102.1 million

Construction Period
32.0 months

Gross Floor Area
76,952 m²

Key Features

- A public housing development comprising 7 blocks of 16-storey buildings with a total of 562 residential units.
- Additional strengthening rebars added to the 2-tier precast concrete column prevented tilting effect during transportation and erection.
- Improved precast beam pocket design by adding skin wall on the external face as permanent formwork for grouting eliminated the need for external climbing platform.
- Modified air-con window ledge of toilets created a bigger opening for larger air compressors to go through and improved ease of maintenance.
- Replaced mixture of liquid applied membrane and PVC membrane with full PVC membrane system at roof garden reduced the risk of water seepage.
- Changed the heavy precast reinforced concrete (RC) water tank to lighter precast RC ring water tank eliminated the need for additional mobile cranes as it can be lifted by a tower crane.
- Use of precast electrical recess eliminated hacking on block wall.
- Modified mast climbing platform with adjustable panel for access used at staggered balcony areas to carry out external finishing works. This eliminated the need for erecting scaffold, thus improving productivity and safety.
- Double deck material transfer platform was used to transfer formwork and scaffold to the next level safely.
- Changed in-situ RC secondary roof slab over roof garden with precast RC slab for the double roofing.
- Rented precast yard and Temporary Occupation License for storage to manage production and to ensure consistent supply of precast components.

City View@Boon Keng

Residential Buildings – Below \$1,800/m² Category



Builder

Straits Construction
Singapore Pte Ltd

Developer

Hoi Hup Shelford Realty
Pte Ltd

Principal Consultant

JGP Architecture (S) Pte Ltd

Architectural Consultant

JGP Architecture (S) Pte Ltd

Structural Consultant

BC Koh & Partners LLP

M&E Consultant

J Roger Preston (S) Pte Ltd

Construction Cost

S\$132.0 million

Construction Period

39.0 months

Gross Floor Area

74,409 m²

Key Features

- A DBSS public housing development with 6 blocks of 40-storey buildings housing a total of 714 residential units.
- Extensive works required diversion of many underground services, e.g. high tension electrical cable, gas mains, etc before piling.
- Required a lot of redesign for piling works due to existing unmarked spun piles.
- Use of mast climbing work platform for external finishing works.
- Adopted precast partition walls improved productivity.
- Changed in-situ reinforced concrete (RC) roof feature walls to precast concrete due to extensive groove lines.
- Eliminated formworks and external access by adding an external “skin” to precast concrete components to improve safety and productivity.
- Use of pre-finished engineered timber flooring eliminated the need for sanding and varnishing.
- Adopted screedless flooring for installing floor finishes.
- Won WSH Practice (innovation) Award for the use of “Easy Install Prop” as temporary support for precast bay window canopy and MOM SHARP 2010.
- Awarded GOLD for BCA CPA (Project) 2012.

23 Shelford Road

Small Buildings – \$3 million to \$10 million Category



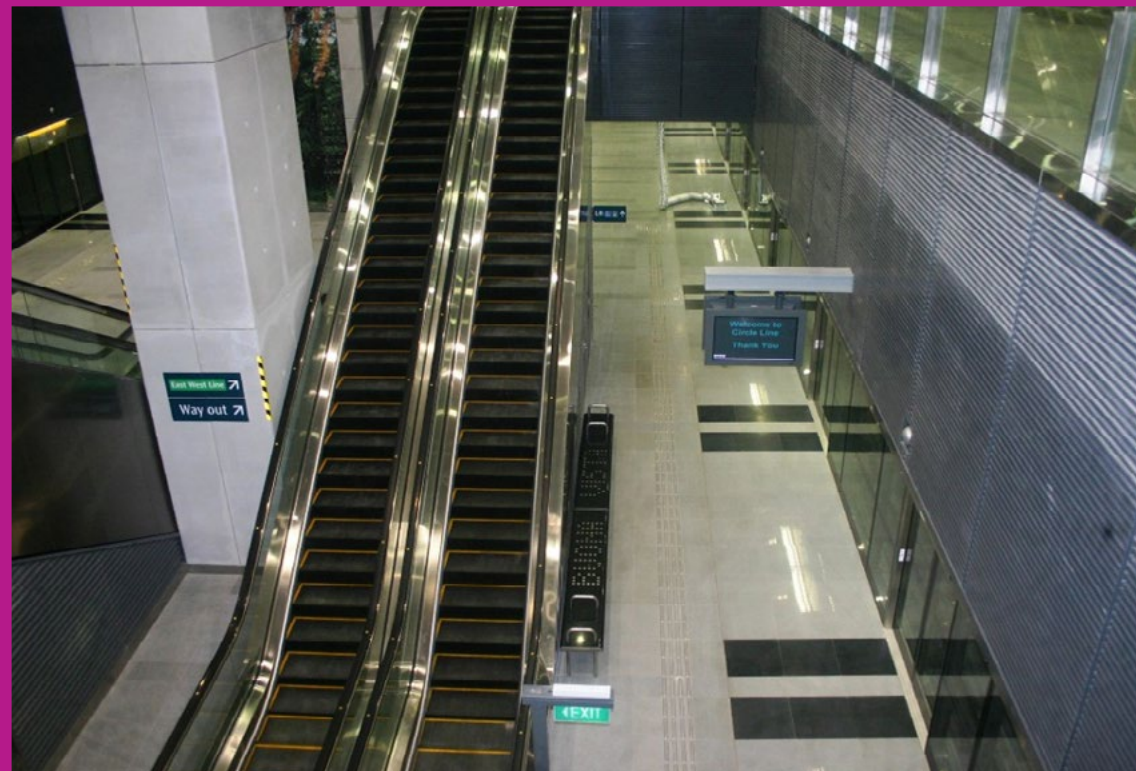
Builder Straits Construction Singapore Pte Ltd	M&E Consultant Elead Associates Private
Developer Hoi Hup Shelford Realty Pte Ltd	Construction Cost S\$9.9 million
Principal Consultant JGP Architecture (S) Pte Ltd	Construction Period 15.0 months
Architectural Consultant JGP Architecture (S) Pte Ltd	Gross Floor Area 3,493 m ²
Structural Consultant C P LIM & Partners	

Key Features

- A residential development comprising 33 units in 2 5-storey blocks and a basement carpark.
- Project was completed 7 months ahead of contractual requirement.
- Changed the conventional bored piling system to raft foundation system saved construction time.
- Use of certified green and pre-finished engineered timber flooring improved productivity.
- Provided epoxy flooring for basement to ensure better gripping over oily or water ponding areas.
- Eliminated the need to construct a staircase to the roof by changing it to a retractable cat ladder.

Circle Line Stage 4&5 - Contract 855 Construction and Completion of Buona Vista, Holland Village, Kent Ridge, One-North (Fit Out) Stations including Tunnels

Civil Engineering Projects Category



Builder
WH-STEC-AM JV

Developer
Land Transport Authority

Principal Consultant
Parsons Brinckerhoff
Pte Ltd

Architectural Consultant
SAA Architects Pte Ltd

Structural Consultant
Parsons Brinckerhoff
Pte Ltd

M&E Consultant
Parsons Brinckerhoff
Pte Ltd

Construction Cost
S\$540.0 million

Construction Period
76.0 months

Key Features

- Circle Line Stage 4 & 5 Contract 855 comprises 4 MRT Stations and 5.2km of tunnels adopting a mix of cut and cover method and tunnel boring machine (TBM).
- Ensured minimal disruption to traffic (vehicle & human) and underground services.
- The mixed ground condition with highly variable geological interfaces added to the complexity of the construction as it required different construction methods in different locations as follows:
 - Holland Village Station – Top-Down Method
 - Buona Vista Station – Semi Top-Down Method
 - One North Station – Fit-out only
 - Kent Ridge Station – Bottom-Up Method
 - One North Station to Farrer Road Station Tunnel – Slurry TBM (Mixshield)
 - Cut and Cover tunnel to HPV Station – EPB TBM
 - Ayer Rajah Ave tunnel – Mining (NATM)
 - Malaysian Railway Crossing tunnel – Caissons and Transfer Beam
 - Permanent Escape Shaft tunnel – In-situ Top-Down Method
- Won a total of 11 safety awards from LTA, MOM and SCAL as a result of excellent safety performance.

MERIT

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CONSTRUCTION
EXCELLENCE AWARD

Asia Square Tower 1
Commercial / Mixed Development Buildings Category



Builder Hyundai Engineering & Construction Co., Ltd	M&E Consultant Meinhardt (Singapore) Pte Ltd
Developer Asia Square Tower 1 Pte Ltd	Quantity Surveyor Northcroft Lim Consultants Pte Ltd
Principal Consultant Architects 61 Pte Ltd	Construction Cost S\$484.3 million
Architectural Consultant Architects 61 Pte Ltd	Construction Period 30.0 months
Structural Consultant Meinhardt (Singapore) Pte Ltd	Gross Floor Area 133,120 m ²

The Rochester
Commercial / Mixed Development Buildings Category



Builder Greatearth Construction Pte Ltd	Structural Consultant CPG Consultants Pte Ltd	Façade Consultant Aurecon Singapore Pte Ltd
Developer UE One-North Developments Pte Ltd	M&E Consultant J Roger Preston (S) Pte Ltd	Construction Cost S\$286.5 million
Principal Consultant CPG Consultants Pte Ltd	Quantity Surveyor Langdon & Seah Singapore Pte Ltd	Construction Period 39.0 months
Architectural Consultant CPG Consultants Pte Ltd	Landscape Consultant Peridian Asia Pte Ltd	Gross Floor Area 76,622 m ²

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Orchid Hotel

Commercial / Mixed Development Buildings Category



Builder
TPS Construction Pte Ltd

Structural Consultant
JYC Consultants

Construction Cost
S\$72.7 million

Developer
Orchid Hotel Pte Ltd

M&E Consultant
Meinhardt (Singapore)
Pte Ltd

Construction Period
28.0 months

Principal Consultant
H.U.A.Y. Architects

Quantity Surveyor
WT Partnership (S) Pte Ltd

Gross Floor Area
16,020 m²

Educational Resource Centre at NUS University Town

Institutional Buildings Category



Builder
Kim Seng Heng Engineering
Construction (Pte) Ltd

Architectural Consultant
W Architects Pte Ltd

Landscape Consultant
Sitetectonix Pte Ltd

Developer
National University of
Singapore

Structural Consultant
T.Y.Lin International Pte Ltd

Construction Cost
S\$41.3 million

Principal Consultant
W Architects Pte Ltd

M&E Consultant
Parsons Brinckerhoff Pte Ltd

Construction Period
18.0 months

Quantity Surveyor
Rider Levett Buckall LLP

Gross Floor Area
12,800 m²

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A&A to Jurongville Secondary School
Institutional Buildings Category



Builder Kwan Yong Construction Pte Ltd	Structural Consultant CPG Consultants Pte Ltd	Project Manager PM Link Pte Ltd
Developer Ministry of Education	M&E Consultant CPG Consultants Pte Ltd	Construction Cost S\$21.3 million
Principal Consultant CPG Consultants Pte Ltd	Quantity Surveyor CPG Consultants Pte Ltd	Construction Period 17.9 months
Architectural Consultant CPG Consultants Pte Ltd		Gross Floor Area 23,454 m ²

Reflections at Keppel Bay
Residential Buildings - \$1,800/m² & Above Category



Builder Woh Hup (Private) Limited	Structural Consultant T.Y.Lin International Pte Ltd	Construction Cost S\$910.0 million
Developer Keppel Bay Pte Ltd	M&E Consultant Beca Carter Hollings & Ferner (S.E. Asia) Pte Ltd	Construction Period 48.0 months
Principal Consultant DCA Architects Pte Ltd	Quantity Surveyor Langdon & Seah Singapore Pte Ltd	Gross Floor Area 198,669 m ²
Architectural Consultant DCA Architects Pte Ltd		

Trevista

Residential Buildings - \$1,800/m² & Above Category



Builder

Dragages Singapore
Pte Ltd

Developer

Choice Homes Gamma
Pte Ltd

Principal Consultant

Yang Architects Pte Ltd

Architectural Consultant

Yang Architects Pte Ltd

Structural Consultant

Tham & Wong LLP

M&E Consultant

Belmacs Pte Ltd

Quantity Surveyor

Langdon & Seah Singapore
Pte Ltd

Landscape Architect

Mace Studio Pte Ltd

Construction Cost

S\$183.5 million

Construction Period

42.5 months

Gross Floor Area

58,611 m²

Martin Place Residences

Residential Buildings - \$1,800/m² & Above Category



Builder

Keong Hong Construction
Pte Ltd

Developer

Fraser Centrepont Limited

Architectural Consultant

Design Link Architects
Pte Ltd

Structural Consultant

DE Consultants (S) Pte Ltd

M&E Consultant

United Project Consultants
Pte Ltd

Quantity Surveyor

Davis Langdon KPK
(Singapore) Pte Ltd

Landscape Consultant

Mace Studio Pte Ltd

Construction Cost

S\$125.7 million

Construction Period

42 months

Gross Floor Area

36,576 m²

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CONSTRUCTION
EXCELLENCE AWARD

Punggol East Contract 21

Residential Buildings – Below \$1,800/m² Category



Builder
Qingjian International (South Pacific) Group Development Co., Pte Ltd

Developer
Housing & Development Board

Principal Consultant
Surbana International Consultants Pte Ltd

Architectural Consultant
Surbana International Consultants Pte Ltd

Structural Consultant
Surbana International Consultants Pte Ltd

M&E Consultant
Surbana International Consultants Pte Ltd

Quantity Surveyor
Surbana International Consultants Pte Ltd

Project Management Consultant
SIPM Consultants Pte Ltd

Construction Cost
S\$99.9 million

Construction Period
35.0 months

Gross Floor Area
61,964 m²

Building Works at Sengkang
Neighbourhood 2 Contract 3B

Residential Buildings – Below \$1,800/m² Category



Builder
LC&T Builder (1971) Pte Ltd

Developer
Housing & Development Board

Principal Consultant
Surbana International Consultants Pte Ltd

Architectural Consultant
Surbana International Consultants Pte Ltd

Structural Consultant
Surbana International Consultants Pte Ltd

M&E Consultant
Surbana International Consultants Pte Ltd

Quantity Surveyor
Surbana International Consultants Pte Ltd

Project Management Consultant
SIPM Consultants Pte Ltd

Construction Cost
S\$121.2 million

Construction Period
31.5 months

Gross Floor Area
86,523 m²

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EXCELLENCE AWARD

Natura Loft

Residential Buildings – Below \$1,800/m² Category



Builder	QingJian International (South Pacific) Group Development Co., Pte Ltd	M&E Consultant	United Project Consultants Pte Ltd
Developer	Qingjian Realty Pte Ltd	Quantity Surveyor	Ian Chng Cost Consultants Pte. Ltd
Principal Consultant	ADDP Architects LLP	Construction Cost	S\$86.0 million
Architectural Consultant	ADDP Architects LLP	Construction Period	33.7 months
Structural Consultant	Engineers Partnership Civil & Structural Consultants	Gross Floor Area	56,004 m²

Queenstown Redevelopment Contract 25

Residential Buildings – Below \$1,800/m² Category



Builder	Chip Eng Seng Contractors (1988) Pte Ltd	Architectural Consultant	Surbana International Consultants Pte Ltd	Quantity Surveyor	Surbana International Consultants Pte Ltd
Developer	Housing & Development Board	Structural Consultant	Surbana International Consultants Pte Ltd	Construction Cost	S\$187.6 million
Principal Consultant	Surbana International Consultants Pte Ltd	M&E Consultant	Surbana International Consultants Pte Ltd	Construction Period	45.0 months
				Gross Floor Area	161,029 m²

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CONSTRUCTION
EXCELLENCE AWARD

Woh Hup Building
Small Buildings - \$3 million to \$10 million Category



Builder
Woh Hup (Private) Limited

Developer
Woh Hup Holdings (Private) Limited

Principal Consultant
RSP Architects Planners & Engineers (Pte) Ltd

Structural Consultant
RSP Architects Planners & Engineers (Pte) Ltd

M&E Consultant
Squire Mech Pte Ltd

Energy Consultant
Kaer Pte Ltd

Construction Cost
S\$7.5 million

Construction Period
14.5 months

Gross Floor Area
1,980 m²