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.
Assessment Committee

CHAIRMAN
Mr Lai Huen Poh
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

MEMBERS
Mr Anthony Chia
CITY DEVELOPMENTS LIMITED

Mr Hitoshi Fujita
SHIMIZU CORPORATION

Mr Khor Tong Meng
ALLGREEN PROPERTIES LIMITED

Mr Ler Seng Ann
URBAN REDEVELOPMENT AUTHORITY

Mr Louis Paul Fok Kow
LAND TRANSPORT AUTHORITY

Er. Ng Eng Kiong
SQUIRE MECH PTE LTD

Mr Pek Lian Guan
TIONG SENG CONTRACTORS (PTE) LTD

Prof Richard Liew
NATIONAL UNIVERSITY OF SINGAPORE

Mr Steven Low Kong Yen
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 Railcalf” 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-thirds 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
$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.
- 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
$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

<table>
<thead>
<tr>
<th>Builder</th>
<th>Obayashi Corporation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Developer</td>
<td>National Research Foundation</td>
</tr>
<tr>
<td>Principal Consultant</td>
<td>DP Architects Pte Ltd</td>
</tr>
<tr>
<td>Architectural Consultant</td>
<td>DP Architects Pte Ltd</td>
</tr>
<tr>
<td>Structural Consultant</td>
<td>Arup Singapore Pte Ltd</td>
</tr>
<tr>
<td>M&amp;E Consultant</td>
<td>Arup Singapore Pte Ltd</td>
</tr>
<tr>
<td>Quantity Surveyor</td>
<td>Faithful+Gould Pte Ltd</td>
</tr>
<tr>
<td>Project Manager</td>
<td>Jurong Consultants Pte Ltd</td>
</tr>
<tr>
<td>Façade Consultant</td>
<td>Meinhardt Façade Technology Pte Ltd</td>
</tr>
<tr>
<td>Lighting Consultant</td>
<td>Meinhardt Light Studio Pte Ltd</td>
</tr>
</tbody>
</table>

**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.

<table>
<thead>
<tr>
<th>Construction Cost</th>
<th>S$269.6 million</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction Period</td>
<td>22.3 months</td>
</tr>
<tr>
<td>Gross Floor Area</td>
<td>67,246 m²</td>
</tr>
</tbody>
</table>
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
$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**
$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.

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

**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.

**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
**Duchess Residences**
Residential Buildings - $1,800/m² & Above Category

**Builder**
China Construction (South Pacific) Development Co Pte Ltd

**Developer**
Duchess Walk Pte Ltd

**Principal Consultant**
MKPL Architects Pte Ltd

**Architectural Consultant**
MKPL Architects Pte Ltd

**Structural Consultant**
TEP Consultants Pte Ltd

**M&E Consultant**
CPG Consultants Pte Ltd

**Quantity Surveyor**
Langdon & Seah Singapore Pte Ltd

**Landscape Architect**
Sitetectonix Pte Ltd

**Lighting Consultant**
Parsons Brinckerhoff Pte Ltd

**Construction Cost**
$65.1 million

**Construction Period**
42.0 months

**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**
$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
$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

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
$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 Sheldford Road
Small Buildings – $3 million to $10 million Category

Builder
Straits Construction Singapore Pte Ltd

Developer
Hoi Hup Sheldford Realty Pte Ltd

Principal Consultant
JGP Architecture (S) Pte Ltd

Architectural Consultant
JGP Architecture (S) Pte Ltd

Structural Consultant
C P Lim & Partners

M&E Consultant
Elead Associates Private

Construction Cost
$9.9 million

Construction Period
15.0 months

Gross Floor Area
3,493 m²

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

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.

Builder
WH-STECA-M 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
Asia Square Tower 1
Commercial / Mixed Development Buildings Category

**Builder**
Hyundai Engineering & Construction Co., Ltd

**Developer**
Asia Square Tower 1 Pte Ltd

**Principal Consultant**
Architects 61 Pte Ltd

**Architectural Consultant**
Architects 61 Pte Ltd

**Structural Consultant**
Meinhardt (Singapore) Pte Ltd

**M&E Consultant**
Meinhardt (Singapore) Pte Ltd

**Quantity Surveyor**
Northcroft Lim Consultants Pte Ltd

**Construction Cost**
S$484.3 million

**Construction Period**
30.0 months

**Gross Floor Area**
133,120 m²

---

The Rochester
Commercial / Mixed Development Buildings Category

**Builder**
Greatearth Construction Pte Ltd

**Developer**
UE One-North Developments Pte Ltd

**Principal Consultant**
CPG Consultants Pte Ltd

**Architectural Consultant**
CPG Consultants Pte Ltd

**Structural Consultant**
CPG Consultants Pte Ltd

**M&E Consultant**
J Roger Preston (S) Pte Ltd

**Quantity Surveyor**
Langdon & Seah Singapore Pte Ltd

**Construction Cost**
S$286.5 million

**Construction Period**
39.0 months

**Gross Floor Area**
76,622 m²
Orchid Hotel
Commercial / Mixed Development Buildings Category

Builder
TPS Construction Pte Ltd

Developer
Orchid Hotel Pte Ltd

Principal Consultant
H.U.A.Y. Architects

Structural Consultant
JYC Consultants

Construction Cost
S$72.7 million

Construction Period
28.0 months

Gross Floor Area
16,020 m²

Educational Resource Centre at NUS University Town
Institutional Buildings Category

Builder
Kim Seng Heng Engineering Construction (Pte) Ltd

Developer
National University of Singapore

Principal Consultant
W Architects Pte Ltd

Structural Consultant
Meinhardt (Singapore) Pte Ltd

Construction Cost
S$41.3 million

Construction Period
18.0 months

Gross Floor Area
12,800 m²
A&A to Jurongville Secondary School
Institutional Buildings Category

Builder
Kwan Yong Construction Pte Ltd

Developer
Ministry of Education

Principal Consultant
CPG Consultants Pte Ltd

Architectural Consultant
CPG Consultants Pte Ltd

Structural Consultant
CPG Consultants Pte Ltd

M&E Consultant
CPG Consultants Pte Ltd

Quantity Surveyor
CPG Consultants Pte Ltd

Project Manager
PM Link Pte Ltd

Construction Cost
$21.3 million

Construction Period
17.9 months

Gross Floor Area
23,454 m²

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

Builder
Woh Hup (Private) Limited

Developer
Keppel Bay Pte Ltd

Principal Consultant
DCA Architects Pte Ltd

Architectural Consultant
DCA Architects Pte Ltd

Structural Consultant
T.Y. Lin International Pte Ltd

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

Quantity Surveyor
Langdon & Seah Singapore Pte Ltd

Construction Cost
$910.0 million

Construction Period
48.0 months

Gross Floor Area
198,669 m²
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
$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 Centrepoint 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
Da&vis Langdon KPK (Singapore) Pte Ltd

Landscape Consultant
Mace Studio Pte Ltd

Construction Cost
$125.7 million

Construction Period
42 months

Gross Floor Area
36,576 m²
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
$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
$121.2 million

Construction Period
31.5 months

Gross Floor Area
86,523 m²
Natura Loft
Residential Buildings – Below $1,800/m² Category

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

Developer
Qingjian Realty Pte Ltd

Principal Consultant
ADDP Architects LLP

Architectural Consultant
ADDP Architects LLP

Structural Consultant
Engineers Partnership Civil & Structural Consultants

M&E Consultant
United Project Consultants Pte Ltd

Quantity Surveyor
Ian Chng Cost Consultants Pte. Ltd

Construction Cost
S$86.0 million

Construction Period
33.7 months

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

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
Ian Chng Cost Consultants Pte. Ltd

Construction Cost
S$187.6 million

Construction Period
45.0 months

Gross Floor Area
161,029 m²
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