GREEN AND GRACIOUS BUILDER AWARD 2013

The Green and Gracious Builder Award (GGBA) aims to raise environmental consciousness and professionalism among builders. It recognises progressive builders who take the effort to address environmental and public concerns arising from construction works and serves to develop a more positive image of the industry over time. The award strongly supports BCA’s efforts in promoting sustainability, environmental protection and considerate practices by our builders during the construction phase of a development.

The Green and Gracious Builder Award is based on good international practices and was conceived in consultation with industry players. The Award has the following key features:

a. Focuses on both green and gracious aspects which have high impact on the public to provide recognition to builders for their efforts and achievements;
b. Encourages builders to participate on a voluntary basis so they can take ownership;
c. Applies at company level to encourage builders to implement best practices on their sites consistently; and,
d. Adopts a tiered rating system to quantify performance and enable differentiation of performance achievement among builders to encourage continual improvement.

Four-tier rating system

<table>
<thead>
<tr>
<th>Category Score</th>
<th>Category Score</th>
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<tbody>
<tr>
<td>Star Above</td>
<td>Above 90</td>
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<tr>
<td>Excellent</td>
<td>76-90</td>
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<tr>
<td>Merit</td>
<td>61-75</td>
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<tr>
<td>Certified</td>
<td>50-60</td>
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Firms are assessed on their construction projects in the following areas:

a. **Green (50 points):** To encourage environmentally friendly best practices such as use of recycled materials and reduction in energy and water consumption on site.

b. **Gracious (40 points):** To encourage gracious best practices which address the needs and concerns of the public, such as enhanced communications, consideration for public accessibility, mitigating noise and vibrations, minimising, if not eradicating disturbances in the vicinity and neighbourhood.

c. **Innovation (10 points):** To recognise firms which have adopted innovative solutions or technologies to address environmental concerns, site challenges, productivity and/or minimise the concerns of the public.

In addition, **bonus points of up to 5 points** are given to recognise outstanding achievements such as relevant construction industry awards and the number of Green Mark projects carried out by the firm.

**Certification**

- The GGBS certification is valid for three years.
- Companies will be audited annually by BCA during the three year certification.
- To maintain their certification or upgrade to a higher rating, builders are required to renew in the third year.
- Upon successful recertification, the new rating is valid for an additional three years.
- Companies with sub-par performance in two consecutive audits may risk being downgraded at renewal.
SUMMARY OF GGBA 2013 AWARD WINNERS

STAR
1. Expand Construction Pte Ltd (previously ‘Excellent’)
2. Hwa Seng Builder Pte Ltd
3. Kajima Overseas Asia Pte Ltd
4. Lum Chang Building Contractors Pte Ltd (previously ‘Excellent’)
5. Unison Construction Pte Ltd (previously ‘Excellent’)

EXCELLENT
6. Alpine Bau GmbH
7. China State Construction Engineering Corporation Limited Singapore Branch
8. Ed. Zublin AG, Singapore Branch
9. Greatearth Construction Pte Ltd
10. Koon Construction & Transport Co. Pte. Ltd. (previously ‘Merit’)
11. KTC Civil Engineering & Construction Pte Ltd
12. Kwan Yong Construction Pte Ltd (previously ‘Merit’)
13. Samwoh Corporation Pte. Ltd.
15. Sunhuan Construction Pte Ltd

MERIT
16. BHCC Construction Pte Ltd
17. Hock Guan Cheong Builder Pte Ltd
18. Horti-Flora Services Pte Ltd
19. Kimly Construction Pte Ltd
20. Singa Development Pte Ltd
21. Singapore Piling and Civil Engineering Pte Ltd
22. Wee Poh Construction Co. (Pte.) Ltd
Expand Construction Pte Ltd is a Grade A1 “General Building” BCA registered contractor.

**Current projects**
- Proposed Public Housing Development at Punggol West C28 and Proposed Erection of Mixed Strata Landed Housing Development at East Coast Avenue.

**Key Features**
- Use of grout mix piles instead of conventional sheet piles during piling stage to enhance productivity and reduce noise and vibration generated.
- Initiated alternate pile cap design for tower crane foundation to reduce noise and dust generated from hacking works.
- Initiated alternate design from reinforced concrete to precast components to speed up construction process and reduce noise and vibration generated from cast in situ concrete works.
- Support precast beams with steel brackets welded to existing steel columns to improve productivity and savings in materials by eliminating the use of temporary scaffolding.
- Extensive recycling of construction materials for various works.
Hwa Seng Builder Pte Ltd

Hwa Seng Builder Pte Ltd is a Grade A1 “Civil Engineering” BCA registered contractor.

Current projects

- Contract ER343 Widening of Pan Island Expressway from Bukit Timah Expressway to Adam Road
- Contract ER371 Widening of Pan Island Expressway from Clementi Avenue 6 to Bukit Timah Expressway
- Contract ER412 Widening of Bukit Batok East Avenue 3
- Improvement of PIE Slip Road between Clementi North Flyover and Toh Tuck Flyover
- Construction of West (South) Aircraft Parking Apron Associated Taxiways and Ancillary Works at Seletar Airport.

Key Features

- Extensive adoption of advanced technology at project sites.
- Reduction of noise and vibration arising from demolition works by using wire saw for cutting of parapet walls.
- Use of Cantilever Truss Shoring System at work areas above existing live traffic to reduce inconvenience caused by traffic diversion to motorists.
- Extensive recycling of demolished materials for various construction activities at project sites.
- Implemented advance tree planting at construction zones located close to residential areas as a form of barrier to reduce noise and dust generated.
Kajima Overseas Asia Pte Ltd
Kajima Overseas Asia Pte Ltd is a Grade A1 “General Building” BCA registered contractor.

Current projects
Skyline, Singapore University of Technology and Design, School of Medicine NUS MD1, Seletar Mall, Media Complex and Carlton Hotel.

Key Features
- Omitting the use of formwork and concrete at column and beam joint area through the introduction of Precast Lotus Root System for typical floor construction. This improves the cycle time and buildability of the building and helps in conserving the use of construction materials.
- Adopt the use of king post with permanent precast column for top down construction to speed up construction process and reduce construction materials.
- Reduction of noise and dust generated through the use of remote control wall saw.
- Extensive use of advanced technology such as mini crusher during demolition works to mitigate the impact of noise and dust generated.
Lum Chang Building Contractors Pte Ltd
Lum Chang Building Contractors Pte Ltd is a Grade A1 “General Building and Civil Engineering” BCA registered contractor.

Current projects
Contract 912 Design and Construction of Station at Bukit Panjang and Tunnels for Downtown Line 2, Esparina Residences, Metropolis and 2M2P.

Key Features
- Extensive use of noise barriers such as customised inflatable noise barriers to reduce noise generated from construction works.
- Conservation of energy through the use of solar-powered aircraft warning light on tower crane.
- Use of automated wheel washing bay for greater productivity and optimise usage of water.
- Steel plates instead of concrete blocks were used during pile load test to conserve materials and prevent toppling of concrete blocks.
- Conservation of trees at project sites.
Unison Construction Pte Ltd

Unison Construction Pte Ltd is a Grade B2 “General Building” BCA registered contractor.

Current project
Buckley Classique.

- Real time monitoring of electricity usage at project site offices and workers’ quarters to improve energy efficiency for projects.
- Extensive use of noise barriers to mitigate noise generated during construction.
- Comprehensive welfare benefits for workers such as providing air-conditioned housing for the workers’ quarters, and providing hand dryers and washing machines.
- Use of biometric face recognition device to enhance site processes and security.
EXCELLENT

Alpine Bau GmbH (Singapore Branch) is a Grade A1 “Civil Engineering” BCA registered contractor.

Current projects
Contract 917 Design and Construction of Stations and Tunnels at Sixth Avenue and King Albert Park for Downtown Line 2, and Contract 918 Design and Construction of Station and Tunnels at Tan Kah Kee for Downtown Line 2.

Key Features
• Extensive use of noise barriers at the project sites to mitigate noise generated during construction.
• Transplantation of trees at project sites.
• Innovative use of cooling tower for tunnel construction works to provide better tunnel ventilation.
• Conservation effort to retain the Hwa Chong International Gateway that is affected by the construction works.
• Innovative use of the Slurry Treatment Plant to mitigate the impact of noise generated.

China State Construction Engineering Corporation Limited Singapore Branch

Current projects
Contract 929 Construction and Completion of Kaki Bukit Station for Downtown Line 3 and Contract 932A Construction and Completion of Kallang Bahru Station for Downtown Line 3.

Key Features
• North-South orientation of site office to conserve energy consumption by reducing the cooling load required.
• Extensive use of noise barriers to mitigate the impact of noise generated by construction works.
• Gracious effort in constructing a barrier free access ramp used by elderly citizens visiting a restaurant adjacent to the construction site.
Ed. Zublin AG, Singapore Branch

Ed. Zublin AG, Singapore Branch is a Grade A1 “Civil Engineering” BCA registered contractor.

Current projects

Sewerage Scheme to Serve Jurong Eastern Catchment, Package A, Proposed Sewers along Jurong West Avenue 2 and Sewerage Scheme to Serve Jurong Eastern Catchment, Package B, Proposed Sewers along Jalan Boon Lay.

Key Features

- Use of Caisson Sinking Method for shaft construction to speed up the construction process and reduce noise and vibration generated.
- Improvised use of desanding machine together with centrifuge system to reuse treated wastewater for pipe-jacking works.
- Innovative use of Dual Mode with intermediate jacking system for longer drive during pipe-jacking works to improve productivity and conserve resources.
- Innovative use of precast reducer slab system for manhole construction to improve productivity, enhance safety and reduce use of construction materials.
- Transplantation of trees at the project sites.

Greatearth Construction Pte Ltd

Greatearth Construction Pte Ltd is a Grade A1 “General Building and Civil Engineering” BCA registered contractor.

Current projects:

- National Continuing Education and Training (CET) East Campus and Watercolours Executive Condominium.

Key Features

- Reduction of cooling load required at North-South orientation of site office to conserve energy.
- Conservation of energy through installation of wind turbine ventilators at the roof of workers’ rest area.
- Real time noise monitoring on site by displaying ‘live’ noise reading on LED panel.
- Use of concrete weighing bridge on site to monitor delivery of concrete in order to reduce wastage.
• Installation of green wall with automated irrigation system to improve aesthetics of the site office.

**Koon Construction & Transport Co. Pte. Ltd.**
Koon Construction & Transport Co. Pte. Ltd. is a Grade A1 “Civil Engineering” BCA registered contractor. Their current projects include

**Current projects**
Proposed Rehabilitation and Earthworks at Landfill Site off Tampines Road, Proposed Construction of Seletar Link and Widening of Tampines Expressway.

**Key Features**
• Zero tree wastage achieved during clearing of site as all cut trees were recycled as fertilizer in the form of wood chips.
• Used vetiver plants to absorb nutrients in discharged water.
• Introduced engineering controls to vibro compacted sand to mitigate the impact of noise generated.
• Innovated the leachate treatment system by diluting leachate with storm water before disposal, this reduces the amount of chemicals for treatment.
• Extensive tree conservation at project site.

**KTC Civil Engineering & Construction Pte Ltd**
KTC Civil Engineering & Construction Pte Ltd is a Grade A1 “Civil Engineering” BCA registered contractor.

**Current projects**
Their current project includes Contract 925A Construction and Completion of Tampines Station for Downtown Line 3.

**Key Features**
• Alternate use between day and night generators on site to optimise diesel consumption and reduce impact of noise generated.
• Implementation of engineering controls during piling works to reduce noise and vibration.
• Conservation of trees at project site.
• North-South orientation of site office together with other green site office features achieved greater energy conservation.
• Use of automated wheel washing bay for greater productivity and optimise usage of water.

Kwan Yong Construction Pte Ltd
Kwan Yong Construction Pte Ltd is a Grade A2 “General Building” BCA registered contractor.

Current projects
Proposed Ngee Ann Polytechnic Campus Expansion, Proposed Erection of Specialised Secondary School at Woodlands Drive 64/Woodlands Avenue 6 and Proposed Erection of Primary School at Prince Charles Crescent.

Key Features
• Innovative use of CCTV monitoring system together with mobile phone application to enhance monitoring of site progress and activities.
• Installed motion sensors in the site office to conserve energy consumption.
• Use of wall saw cutting machine to reduce noise and dust.
• Use of automated wheel washing bay for greater productivity and optimise usage of water.
• Conservation of trees at project sites.
Samwoh Corporation Pte. Ltd.
Samwoh Corporation Pte. Ltd. is a Grade A1 “Civil Engineering” BCA registered contractor.

Current projects
Contract ER401 Widening of Roads in Kallang area, Contract ER402 Widening of Fort Road and Mountbatten Road between Nicoll Highway and Kampong Arang Road and Contract 488 Construction of At-Grade Road System at Marina South.

Key Features
• Innovative use of recycled concrete aggregates (RCA) for the base of the site offices.
• Initiated alternate proposal for bridge widening design to reduce traffic diversion works, mitigate generation of dust, debris, noise and vibration.
• Use of spreader beam instead of conventional belt to hoist existing bus stop to its new location, this conserves use of resources.
• Innovative use of slab over drain design at project in order to save a tree on site.
• Conservation of trees and fishes at the project sites.

Sato Kogyo (S) Pte. Ltd.
Sato Kogyo (S) Pte. Ltd. is a Grade A1 “General Building and Civil Engineering” BCA registered contractor.

Current projects
Contract 928 Construction of Bedok Town Park Station and Tunnels for Downtown Line 3, Contract 932 Construction of Mattar Station and Tunnels for Downtown Line 3, Contract 936 Construction of Bencoolen Station and Hotel Grand Central.

Key Features
• Extensive use of noise barriers at project sites to mitigate the impact of noise generated due to construction works.
• Use of reverse rotary method for casing installation to reduce noise and vibration.
• Use of potable traffic signal system for better traffic control at site to enhance safety of motorists.
• Machineries are descended via a steel ramp to reduce crane usage.
• Tree protection at project sites.
Sunhuan Construction Pte Ltd
Sunhuan Construction Pte Ltd is a Grade A1 “General Building” BCA registered contractor.

Current projects

Key Features
• Reduction of noise and usage of materials by using Wet Speed Mixing (WSM) for soil improvement works.
• Use of automated wheel washing bay for greater productivity and optimise usage of water.
• Recycling effort through the use of recycled concrete for the lift shaft catch platform in lift upgrading project.
• Improvement in productivity and conserve materials by using precast wall for lift opening in lift upgrading project, instead of reinforced concrete.
• Pile test conducted with Statnamic Load Test using explosives in lieu of conventional Ultimate Load Test, this reduces usage of cranes and prevents toppling of concrete blocks.
BHCC Construction Pte Ltd
BHCC Construction Pte Ltd is a Grade B1 “General Building” BCA registered contractor.

Current projects
Public Housing Development at Fajar Road, Addition & Alteration Work and New Extension to Yishun Primary School, East Spring Primary School and Qifa Primary School.

Key Features
• Mitigated stagnant water at the site office through innovative construction of rainwater downpipe to incorporate flower pots for planting.
• Initiate proactive sharing sessions by public agencies like NEA to promote environmental awareness amongst workers.

Hock Guan Cheong Builder Pte Ltd
Hock Guan Cheong Builder Pte Ltd is a Grade A2 “General Building” BCA registered contractor. Their current projects include Woodlands N1 C19 and L’viv.

Key Features
• Design of floating pile cap for footing of tower crane to allow simultaneous top down construction for basement works.
• Utilise resources by incorporating working platform onto the facade precast component before hoisting, this replaces scaffolding for roof works and tower crane tie back construction.
Horti-Flora Services Pte Ltd
Horti-Flora Services Pte Ltd is a Grade B2 “General Building and Civil Engineering” BCA registered contractor.

Current projects

Key Features
• Extensive tree conservation at project site.
• Use of Gabion Wall as a bio-engineering feature in lieu of conventional concrete wall for water filtration during river construction.

Kimly Construction Pte Ltd
Kimly Construction Pte Ltd is a Grade A1 “General Building” BCA registered contractor. Their current projects include The Vermont at Cairnhill and 76 Shenton and Pavilion Park.

Key Features
• Semi top-down construction method introduced to improve productivity and reduce noise.
• Use of self-compacting concrete to mitigate the impact of noise and vibration during concreting works.

Singa Development Pte Ltd
Singa Development Pte Ltd is a Grade A2 “General Building” BCA registered contractor. Their current projects include BLISS at Kovan.

Key Features
• Proactive organising of sharing sessions by public agencies like NEA to promote environmental awareness among the workers.
**Singapore Piling and Civil Engineering Pte Ltd**

Singapore Piling and Civil Engineering Pte Ltd is a Grade A1 “General Building and Civil Engineering” BCA registered contractor.

**Current projects**

- Contract 937B Tai Seng Building Facility
- Contract ER361 Widening of Keppel Viaduct
- Proposed Common Services Tunnel Phase 3B at Downtown Marina Bay of MC02.

**Key Features**

- Innovative design of formwork system to improve productivity and reduce material usage.
- Use of enclosure shields during night road milling works to mitigate the impact of noise generated.

**Wee Poh Construction Co. (Pte.) Ltd**

Wee Poh Construction Co. (Pte.) Ltd is Grade C3 “General Building” BCA registered contractor. Their current project includes Heron Bay Executive Condominium.

**Key Features**

- Extensive use of greenery to improve aesthetics around the project site.
- Innovative use of natural daylight along common areas of the site office to reduce energy consumption.
- Innovative use of grout mix piles using treated water on site to reduce use of water obtained directly from PUB.