MEDIA RELEASE

BCA GREEN AND GRACIOUS BUILDER AWARD 2012

- More builders aware of construction impact on the environment and surroundings

- Five builders upgraded to highest 'Star' rating under BCA's Green and Gracious Builders Scheme

23 May 2012 (Wednesday) – A record number of 24 builders will receive the BCA Green and Gracious Builder Award this year. Out of the 24 winners, 18 join the ranks for the first time and six were re-certified to higher ratings under the Green and Gracious Builders scheme. Five of the top seven winners - **Hexacon Construction Pte Ltd**, **Ho Lee Construction Pte Ltd**, **Samsung C&T Corporation**, **Sembawang Engineers and Constructors Pte Ltd** and **Ssangyong Engineering & Construction Co., Ltd** - were previously awarded 'Merit' and 'Excellent' ratings and have now successfully met the higher criteria during re-certification to clinch the 'Star' rating. **Lend Lease Pharmaceutical Asia Pte Ltd** and **Lend Lease Singapore Pte Ltd** are the other two in the top tier.

2 Ho Lee Construction Pte Ltd is one of the builders specialising in public housing projects to have clinched the 'Star' award. On site, they have put in place a strategic Earth Control Measure Plan from the start of the project to reduce soil erosion from exposed earth surfaces. Their exemplary efforts had led them to be selected as one of PUB's Earth Control Measures model sites. In their day-to-day activities, Ho Lee also ensures that used water is treated and recycled for non-potable consumption such as flushing of toilets, washing of vehicle wheels and watering plants. In addition to taking measures to mitigate the environmental impact, they have plants around the project

sites to enhance the surroundings and to create a more pleasant environment for their workers.

3 Another 'Star' award winner, Sembawang Engineers and Constructors, has also adopted good earth control measures by using coir logs, which are made of interwoven coconut fibres and biodegradable netting, at the bottom of slopes to prevent erosion. The logs provide temporary physical protection to a site before vegetation has been established. At one of their project sites which was previously a dumping ground, they took the initiative to sort through the unwanted items and retrieved materials that could be reused and recycled. Another initiative that they embarked on was to go paperless and instead, they used electronic gadgets such as the iPad for inspection, incident reporting and for the submission of photographic evidences. They have also been actively engaging neighbouring stakeholders to gather feedback on their projects during the construction stage.

4 Among the ten 'Excellent' award winners is Takenaka Corporation, who made use of technologically advanced equipment on site to improve their construction processes. One of the challenges that they faced in the development of the National Art Gallery, a conservation building, was the need to retain its external walls while demolishing parts of its interior within a confined space. They made use of equipment such as a 'robotic stair climber', mechanical crusher and wire saw to tear down the internal staircases, beams and walls. These helped in expediting the process to minimise disturbance to neighbouring developments and also reduce noise, dust and vibration.

5 While most of the winners of the GGBA are bigger builders, Woodwater Integrated, a small and medium enterprise proves that smaller builders also have a big role to play in mitigating the environmental impact of construction work. Among their initiatives were the use of lightweight blocks for the construction of the site office, which could be demolished and recycled as infill for external pavement and drains. The site office is also built in north-south orientation with lower ceiling, insulated roofs and tinted

windows. All these helped to reduce heat transmission and the cooling load of the site office.

6 The Green and Gracious Builder Award was introduced in 2009 as part of BCA's efforts in promoting sustainability, environmental protection and considerate practices during the construction phase of a development. The award recognises progressive builders that have taken initiatives to address environmental and public concerns that may arise from construction works. To date, 46 builders are certified under the BCA Green and Gracious Builder Scheme. Each certification will last for three years. Certified builders will be required to undergo annual surveillance audit and a renewal audit before its expiry to ensure that the high standard of environmentally friendly and gracious practices is maintained.

7 The winners will receive their awards during the BCA Awards ceremony at the Resorts World Sentosa on 24 May 2012. His Excellency President Tony Tan Keng Yam will grace the event as Guest of Honour.

About Building and Construction Authority

The Building and Construction Authority (BCA) of Singapore champions the development of an excellent built environment for Singapore. At BCA, our mission is to shape a safe, high quality, sustainable and friendly built environment, as these are four key elements where BCA has a significant influence. In doing so, we aim to differentiate Singapore's built environment from those of other cities and contribute to a better quality of life for everyone in Singapore. Hence, our vision is to have "the best built environment for Singapore, our distinctive global city". BCA works closely with its education hub, the BCA Academy of the Built Environment, and industry partners to develop skills and expertise that help shape the best built environment for Singapore. For more information, visit www.bca.gov.sg.

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Annex A

GREEN AND GRACIOUS BUILDER AWARD 2012

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.

<u>Four-tier rating system</u>

Category	Score
Star	Above 90
Excellent	76-90
Merit	61-75
Certified	50-60

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.

SUMMARY OF GGBA 2012 AWARD WINNERS

STAR

1. Hexacon Construction Pte Ltd ***(previously 'Excellent')***
2. Ho Lee Construction Pte Ltd ***(previously 'Excellent')***
3. Lend Lease Pharmaceutical Asia Pte Ltd
4. Lend Lease Singapore Pte Ltd
5. Samsung C&T Corporation ***(previously 'Merit')***
6. Sembawang Engineers and Constructors Pte Ltd ***(previously 'Excellent')***
7. Ssangyong Engineering & Construction Co., Ltd ***(previously 'Excellent')***

EXCELLENT

8. Chye Joo Construction Pte Ltd
9. Expand Construction Pte Ltd
10. Kim Seng Heng Engineering Construction (Pte) Ltd

11. Koh Brothers Building & Civil Engineering Contractor (Pte.) Ltd. ***(previously 'Merit')***
12. Koon Seng Construction Pte Ltd
13. McConnell Dowell South East Asia Pte Ltd
14. Or Kim Peow Contractors (Pte) Ltd
15. Straits Construction Singapore Pte Ltd
16. Takenaka Corporation (Singapore Office)
17. Woodwater Integrated Pte Ltd

MERIT

18. China Construction (South Pacific) Development Co Pte Ltd
19. Eng Lam Contractors Co. (Pte) Ltd
20. Hong Kiat Construction Pte Ltd
21. Kwan Yong Construction Pte Ltd
22. Progressive Builders Pte Ltd
23. Qingdao Construction (Singapore) Pte Ltd
24. Qingjian International (South Pacific) Group Development Co., Pte. Ltd.

STAR CATEGORY

Hexacon Construction Pte Ltd is a Grade A1, "General Building and Civil Engineering" BCA Registered Contractor. Their current projects include the Integrated Civic, Cultural, Retail and Entertainment Hub, Vision Condominium and Skyline.

Key Features

1. Use of numerous cutting-edge machinery to mitigate noise and vibration caused by construction works.

2. Use of Variable Message Signboard (VMS) to broadcast project status to the public.

3. Mist tubes are used to control dust at source during basement construction.

4. Extensive use of Newater on site for construction activities.

5. Top-down construction was deployed to minimise noise and air pollution caused by the construction works.

Ho Lee Construction Pte Ltd is a Grade A1, "General Building and Civil Engineering" BCA Registered Contractor. Their current projects include building works at Sengkang N2C40, Yishun N4C4, Sengkang N4C9 and various HDB projects.

Key Features

1. Extensive use of greenery in and around the project sites.

2. Excellent implementation of Earth Control Measures (ECM) Plan within project sites to maximise use of treated water.

3. Use of diamond cutter for cutting of parapet walls to reduce noise and dust pollution.

4. Extensive use of portable noise barriers during piling to reduce noise at source.

5. Use of steel plate for Peripheral Overhead Shelter (POS) in lieu of timber to enhance recyclability.

Lend Lease Pharmaceutical Asia Pte Ltd is a General Builder Class 1 BCA Registered Contractor.

Key Features

1. Extensive application of recycled materials for temporary site facilities and activities.

2. Environmentally friendly design of building structure that enhances buildability and constructability.

3. Extensive use of Mobile Elevated Platform Systems (MEWPs) to replace the use of external scaffolding which reduces wastage of materials and help improves workers' safety when working at height.

4. Extensive use of precast construction and dry trades to replace in-situ concreting works.

5. Preservation and transplantation of trees at project sites.

Lend Lease Singapore Pte Ltd is a Grade A1, "General Building" BCA Registered Contractor. Their current projects include JEM, Stamford American International School, Singapore Pools and Parkway Parade Extension.

Key Features

1. Installation of solar panels as a form of alternative energy source for the site office.

2. Top down construction deployed to reduce noise and dust pollution for basement construction.

3. Extensive use of Mobile Elevated Platform Systems (MEWPs) to replace the use of scaffolding.

4. Use of greenery such as green wall and hoarding at the project site.

5. Use of 'water harvester' at the project office and site to provide drinking water.

Samsung C&T Corporation is a Grade A1, "General Building and Civil Engineering" BCA Registered Contractor. Their current projects include Downtown Line Stage 2 Contract 922, Marina Coastal Expressway Contract 483, SLNG Terminal and Connexion.

Key Features

1. Use of social network such as Facebook to gather feedback on the project from neighbouring stakeholders.

2. Use of waterproof concrete in lieu of waterproofing membrane for construction works.

3. Conservation of trees at project sites.

4. Use of 'Easystair' formwork system for construction of staircases to minimise wastage of resources.

5. Innovative method of air raising for roof of petroleum tank for increased productivity and savings on resources.

Sembawang Engineers and Constructors Pte Ltd is a Grade A1 “General Building and Civil Engineering” BCA Registered Contractor. Their current projects include Contract 919 Design & Build of Stevens and Botanic Garden Stations for Downtown Line 2 and Lower Seletar Waterworks.

Key Features

1. The company publishes a regular newsletter to share updates and information within the company as well as with its stakeholders.

2. Use of coir log made from coconut fibre as an environmental control measure.

3. Engineering noise controlled measures adopted during piling that reduced noise and vibration.

4. Extensive recycling of materials recovered from site used previously as a dumping ground.

5. Implementation of Project Janus, as a paperless reporting system for its integrated construction management system.

Ssangyong Engineering & Construction Co., Ltd is a Grade A1 “General Building and Civil Engineering” BCA Registered Contractor. Their current projects include Quayside W Hotel, Marina Coastal Expressway Contract 482, and Downtown Line Stage 2 Contract 921.

Key Features

1. Extensive use of sprinkle water system along access roads for effective dust control.

2. Use of improvised hydraulic breaker to reduce dust and noise during operation.

3. Combined use of seawater and treated water for waterponding test to reduce use of water obtained directly from PUB.

4. Extensive use of greenery around the project sites.

5. Use of automatic wheel washers at project sites to enhance productivity and conserve resources.

EXCELLENT CATEGORY

Chye Joo Construction Pte Ltd is a Grade A1 “Civil Engineering” BCA Registered Contractor.

Key Features

1. Implementation of Demolition Protocol at project site to maximise recovery of demolition materials.

2. Extensive use of precast construction for construction works.

3. Innovative use of movable noise barriers through research and development.

4. Innovative use of crushed concrete for construction of river base at Bishan Park.

5. Alternative design for steel structure in lieu of reinforced concrete to reduce concreting works.

Expand Construction Pte Ltd is a Grade A1 “General Building” BCA Registered Contractor. Their current projects include the Energy Centre and Lion Grove Supertrees at Gardens by the Bay, Marina South.

Key Features

1. Extensive use of self-compacting concrete to reduce noise generated.

2. Sixteen un-retained trees at project site were sent off-site to an Eco Recovery Centre for recycling purposes.

3. Use of non-timber shoring system for inspection chamber.

4. Water taps at boots washing area are fitted with reduced pressure water jets and brushes resulting in 50% water savings.

5. Silo tanks are provided at various locations within site for harvesting of rainwater and recycling of water for non-potable usage.

Kim Seng Heng Engineering Construction (Pte) Ltd is a Grade A1 "General Building" BCA Registered Contractor. Their current projects include Ardmore Park Three, Centennia Suites, Madison Residences, and Erection of Primary Schools at Punggol Place and Anchorvale Link.

Key Features

1. Innovative use of self-irrigation system using treated water to water trees at project site.

2. Extensive use of movable noise barriers for construction works.

3. Extensive use of greenery around project sites.

4. Conservation and protection of trees around site.

5. Implemented compulsory proper storage of cement bags on site to reduce wastage and dust.

Koh Brothers Building & Civil Engineering Contractor (Pte.) Ltd. is a Grade A1 "General Building and Civil Engineering" BCA Registered Contractor. Their current projects include Contract 903 Construction and Completion of Bugis Station for Downtown Line Stage 1 and Improvement to Geylang River.

Key Features

1. Implementation of Demolition Protocol at project site to maximise recovery of demolition materials.

2. Extensive use of precast components that improve productivity.

3. Collaboration with town council to participate in cleaning program for residential common areas.

4. Use of high noise barriers around the boundary of the project site.

5. Extensive use of energy efficient fittings and appliances at the site office.

Koon Seng Construction Pte Ltd is a Grade A2 “General Building” BCA Registered Contractor. Their current projects include Hotel and Residential Development at New Bridge Road and Factory Development at Sungei Kadut Loop.

Key Features

1. Conduct air quality tests on site with regular monitoring to maintain a healthy working environment for the workers.

2. Screeding is done to actual floor level prior to laying of tiles hence conserving materials and resources.

3. Use of self compacting concrete for construction of reinforced concrete wall to enhance productivity and reduce noise and vibration.

4. Conduct analysis of traffic count to ascertain traffic conditions at vicinity of project site prior to determining the site access.

5. Use of greenery around project site.

McConnell Dowell South East Asia Pte Ltd is a Grade A1 “Civil Engineering” BCA Registered Contractor. Their current projects include the Upgrading of Underground Link between Orchard MRT and Tang Plaza, and Design and Construction of Station at Beauty World and Tunnels for Downtown Line Stage 2.

Key Features

1. North-South orientation of site office to reduce the cooling load required.

2. Harvesting of rainwater for recharge wells.

3. Extensive use of green hoardings and noise barriers at project sites.

4. Tree conservation and protection at project sites.

5. Innovative engineering control measures implemented during piling work to reduce noise and vibration.

Or Kim Peow Contractors (Pte) Ltd is a Grade A1 “Civil Engineering” BCA Registered Contractor. Their current projects include the Construction of Interchange at TPE / Sengkang West Road and the widening of Old Choa Chu Kang Road.

Key Features

1. Extensive turfing at barren and exposed earth surfaces around project sites to minimise earth erosion.

2. Innovative engineering control measures implemented during bored piling to reduce noise and vibration.

3. Use of greenery around project sites.

4. North-South orientation of site office to reduce the cooling load required.

5. Implemented alternative kerb construction method to reduce noise.

Straits Construction Singapore Pte Ltd is a Grade A1 "General Building" BCA Registered Contractor. Their current projects include Vacanza @ East Condominium, The Milton Residences, Building Works at Sengkang N4C11 and Building Works at Yishun N3C23.

Key Features

1. Tree conservation and protection at project sites.

2. Use of noise barriers at project sites to reduce noise pollution.

3. Extensive use of recycled concrete for site activities.

4. Use of automatic wheel washers at project sites to enhance productivity and conservation of resources.

5. Use of face detection technology to enhance site security.

Takenaka Corporation (Singapore Office) is a Grade A1 "General Building" BCA Registered Contractor. Their current projects include the National Art Gallery.

Key Features

1. Extensive recycling of demolition materials that are salvaged from demolition works.

2. Use of automatic wheel washers at project sites to enhance productivity and conserve resources.

3. Use of mechanical crusher and wire saw for demolition works to reduce noise and vibration.

4. Alternative top down construction method to enhance productivity and reduce usage of materials.

5. Jacketing of external facade to reduce usage of materials for shoring.

Woodwater Integrated Pte Ltd is a Grade C1 "General Building" BCA Registered Contractor. Their current projects include the erection of a new Primary School at Woodlands Crescent.

Key Features

1. North-South orientation of site office to reduce the cooling load required.

2. Early construction of permanent road base with recycled aggregates to double up as a site access during construction stage.

3. Screeding is done to actual floor level prior to laying of tiles hence conserving materials and resources.

4. Design for green site office such as insulated roof to reduce heat radiation and low ceiling height to reduce cooling load required.

5. Early construction of permanent fencing post to double up as a temporary hoarding support during construction stage.

MERIT CATEGORY

China Construction (South Pacific) Development Co Pte Ltd is a Grade A1 "General Building" BCA Registered Contractor. Their current projects include Silversea Condominium, Boulevard Vue, Building Works at Woodlands N8C20 and Building Works at Woodlands N7C26 & 28.

Key Features

1. Alternative top down construction method to enhance productivity and reduce usage of materials.

2. Use of automatic wheel washers at project sites to enhance productivity and conserve resources.

3. Innovative use of movable noise barriers through research and development.

4. Construction of high concrete bund wall along perimeter wall as an enhanced earth control measure.

5. Implementation of layer slab casting to prevent late and overtime casting.

Eng Lam Contractors Co. (Pte) Ltd is a Grade A2 “Civil Engineering” BCA Registered Contractor. Their current projects include Construction of Roads, Drains, Sewers & Ancillary Works at Cleantech Park.

Key Features

1. Tree conservation and protection at the project site.

2. Extensive use of precast components for the project.

3. Use of sewer pipe jacking to reduce earthworks and disturbance to the neighbouring stakeholders.

4. Extensive use of recycled concrete aggregate for road construction.

5. Use of desander at project site to segregate waste for recycling and disposal.

Hong Kiat Construction Pte Ltd is a Grade B1 “General Building” BCA Registered Contractor. Their current projects include Waterline, Estrivillas and Poetsvillas.

Key Features

1. Tree protection at project sites.

2. Use of greenery around the project sites.

3. Extensive use of noise barriers at the project sites.

4. Sequential planning on construction of electrical substation to tap on direct electricity supply from Power Grid.

5. Innovative design of fly cage to conserve and reduce use of materials during construction.

Kwan Yong Construction Pte Ltd is a Grade A2 “General Building” BCA Registered Contractor. Their current projects include the upgrading of Ang Mo Kio Primary School and Bendeemer Primary School.

Key Features

1. Tree conservation and protection at the project sites.

2. Use of greenery around the project sites.

3. Use of low noise generators to minimise noise pollution.

4. Application of UV film on site office windows to reduce heat radiation.

5. Use of motion sensors at the site office toilets to conserve and reduce use of energy.

Progressive Builders Pte Ltd is a Grade A1 “General Building” BCA Registered Contractor.

Key Features

1. Use of Lift Internal Platform System (LIPS) to reduce use of materials for scaffolds.

2. Conservation of trees at the project site.

3. Use of recycled concrete and hardcore for site access roads to mitigate dust pollution.

4. Use of formwork systems to enhance productivity and reduce use of materials.

Qingdao Construction (Singapore) Pte Ltd is a Grade C3 “General Building” BCA Registered Contractor. Their current projects include Nin Residences and River Parc Residences.

Key Features

1. Conservation of trees at project sites.

2. Use of high hoardings at project sites to mitigate noise and dust pollution.

3. North-South orientation of site office to reduce the cooling load required.

4. Use of steel plate for Peripheral Overhead Shelter (POS) in lieu of timber to enhance recyclability.

Qingjian International (South Pacific) Group Development Co., Pte. Ltd. is a Grade A1 “General Building” BCA Registered Contractor. Their current projects include Riversound Residences.

Key Features

1. Conservation of trees at project sites.

2. Use of high hoardings at project sites to mitigate noise and dust pollution.

3. North-South orientation of site office to reduce the cooling load required.

4. Use of steel plate for Peripheral Overhead Shelter (POS) in lieu of timber to enhance recyclability.