News Release

21 May 2014

CDL LEADS AS THE MOST AWARDED PRIVATE DEVELOPER AT BCA AWARDS 2014

- *Wins top honours Quality Excellence Award – Quality Champion (Platinum) for two years in a row*

- *Yields estimated reduction in electricity consumption of over S$30 million at its 48 Green Mark awarded buildings in the last five years*

- *Achieves productivity gains of up to 80% through innovation*

- *Sets pace in 'greening' existing buildings with average energy savings of more than S$3.6 million a year*

City Developments Limited (CDL) continues to lead the sustainability drive as the most awarded private developer at the Building and Construction Authority (BCA) Awards 2014 Ceremony, which will be held at Resorts World Sentosa on 22 May 2014. CDL is conferred a total of 30 accolades, up from the 23 it won last year. For two years in a row, CDL has also been accorded the top honours Quality Excellence Award – Quality Champion (Platinum) for its sustained leadership and commitment in delivering quality homes. It is the only developer to have achieved this highest tier.

Mr Kwek Leng Joo, CDL Deputy Chairman, said, "In Singapore, the building sector is the third largest contributor of carbon dioxide. There is an urgent need to mitigate the impact of our activities on the environment. As the leading green developer, CDL firmly believes in building developments with innovative designs, quality workmanship and buildability that enhance productivity, construction excellence and most importantly, environmental sustainability."

Mr Kwek added, "The BCA Awards attest to CDL's long standing commitment and track record in conserving as we construct and spur us to set new benchmarks, initiate best practices and inspire more stakeholders in the value chain to create a greener and better tomorrow."

Between 2008 and 2013, CDL's 48 Green Mark awarded buildings have achieved an estimated reduction in electricity consumption of more than S$30 million. Since 2011, the leading green developer has also raised its target to achieve BCA Green Mark Gold^{PLUS} for all new developments, above the mandatory Green Mark certification level. Moving forward, CDL has pledged to cut its carbon intensity emissions by 22% by 2020 from the baseline in 2007 and 25% by 2030.

For over a decade, CDL has been investing 2% to 5% of the construction cost of a new development on eco-friendly features and the adoption of sustainable construction through buildable designs and extensive use of prefabrication such as precast concrete, drywalls and Prefabricated Bathroom Units (PBUs). CDL has adopted drywalls for internal partition walls and PBUs in most of its new condominium developments, including the Lush Acres Executive Condominium which is a Green Mark Platinum winner this year. Using prefab technology cuts down the amount of manpower required onsite by more than 50% as the components are manufactured in the factory before assembly onsite. Stringent quality control in factories ensures uniform and superior quality of prefab components and reduces wastage of materials on site. Adopting PBUs at CDL's projects can yield productivity improvements of up to 80% compared to the conventional way of constructing bathroom on-site using bricks, depending on the scale of the project.

Located in the Singapore Botanic Gardens, the CDL Green Gallery is another Green Mark Platinum winner in 2014. It is Singapore's first zero energy Green Gallery and was built using several eco-friendly technologies. These include two innovative features introduced in Singapore for the first time – a biomaterial known as Hempcrete (largely made from the hemp plant) and a prefabricated modular system known as the Prefabricated Prefinished Volumetric Construction (PPVC) concept. PPVC enables the building to be constructed in a simpler, faster and better way.

The external wall cladding of the Gallery is mostly made of Hempcrete which has excellent thermal properties, making it ideal for Singapore's humid climate as it creates good indoor air quality. Hempcrete is also highly durable, and naturally pest, mould, mildew and fire resistant.

The structure of the Gallery was precast into sections at an external site using the PPVC system and then brought to the Gardens for installation. This helped eliminate the massive wet works usually required in building developments and resulted in faster construction time, thus achieving higher productivity and minimising the impact on the Gardens' environment.

In addition, roof solar photovoltaic panels were installed to harness clean energy for use in the Gallery's daily operations. The solar panels are expected to generate an annual energy yield of over 31,000 kWh, which exceeds the Gallery's estimated annual energy consumption of about 30,000 kWh/year – making it self-sufficient.

CDL has also set the pace for 'greening' existing buildings. Of the 11 Green Mark Platinum Awards CDL received this year, seven are for existing buildings. Significant efforts have been dedicated to consciously implement green property and facilities management. CDL retrofitted several of its existing commercial buildings by upgrading chiller plants, introducing motion sensors, energy-efficient lighting and recladding facades. On average, this yielded annual energy savings of over 14 million kWh which is equivalent to more than S$3.6 million.

Mr Kwek said, "There is a strong business case for retrofitting existing buildings to make them green. In doing so, building owners and tenants can improve energy efficiency and lower operating expenses. Looking ahead, we will also continue to challenge ourselves to initiate cost-effective and efficient design and construction with game-changing technologies and sustainable lifestyle solutions that will enhance our capabilities, optimise resources and transform our built environment. This is crucial as labour and productivity continue to be key issues underlying the built environment sector."

Dr John Keung, CEO of BCA, said, "For over a decade, CDL has demonstrated a strong and unwavering leadership commitment towards high quality and sustainable buildings. Its developments have consistently achieved high standards in BCA Construction Quality Assessment System, Quality Mark, Green Mark and Universal Design Mark, while also showcasing innovation and best practices in productivity and safety. CDL has not only paved the way forward in developing a sustainable built environment, but also influenced fellow industry players to embark on their own green building journeys. It has also taken the lead to embrace quality workmanship and deliver high quality projects consistently, by committing all its residential developments to the Quality Mark for Good Workmanship Scheme. CDL has indeed achieved the hallmark of excellence as a Built Environment Platinum Leader, Green Mark Platinum Champion and Quality Platinum Champion."

Please refer to:
ANNEX A: List of CDL's BCA Awards in 2014
ANNEX B: Fact sheet on selected CDL's 2014 BCA Green Mark Platinum Award developments

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ANNEX A

CDL'S BCA AWARDS 2014 – HONOURS ROLL

- **Most awarded** private developer at this year's BCA Awards with a total of **30 accolades**
- Recipient of **top honours** – Quality Excellence Award – Quality Champion (Platinum) for the **second consecutive year**, in recognition of its firm commitment and leadership in delivering high quality homes. **Only developer to have achieved this highest tier**.
- Recognised with 11 BCA Green Mark Platinum Awards – the **highest number presented to a developer in a single year**
- **Leads in 'greening' existing buildings** – Out of the 11 BCA Green Mark Platinum Awards that CDL received, seven are for existing commercial buildings. During the Green Mark recertification process, all the seven existing commercial buildings have improved on their environmental performance, achieving the Platinum status – the highest tier Green Mark certification accorded.
- **Sweeps the Universal Design Mark Awards category,** winning over a third of the awards given out
- Private developer with the **most number of Construction Excellence Awards** to date

CORPORATE AWARD	
QUALITY EXCELLENCE AWARD	• Quality Champion (Platinum)
PROJECT AWARDS	
CONSTRUCTION EXCELLENCE AWARDS	• Volari • W Singapore – Sentosa Cove
CONSTRUCTION PRODUCTIVITY AWARDS – PROJECTS (PLATINUM)	• Hundred Trees • NV Residences
GREEN MARK PLATINUM AWARDS	• Central Mall Office Tower* • CDL Green Gallery @ SBG Heritage Museum • City House* • Fuji Xerox Towers* • King's Centre* • Lush Acres • Manulife Centre* • My Tree House • Palais Renaissance* • Republic Plaza* • The Venue Residences
UNIVERSAL DESIGN MARK AWARDS	Gold^{PLUS} • Cube 8 • NV Residences Gold^{PLUS} (Design) • Jewel @ Buangkok

UNIVERSAL DESIGN MARK AWARDS (cont…)	<u>Gold</u> • Hundred Trees • Quayside Isle • Tree House • W Singapore – Sentosa Cove <u>Gold (Design)</u> • Blossom Residences • D'Nest • Echelon • Lush Acres <u>Certified (Design)</u> • The Glyndebourne
DESIGN AND ENGINEERING SAFETY EXCELLENCE AWARDS (MERIT)	• Cube 8
INDIVIDUAL AWARD	
BCA-SGBC GREEN BUILDING INDIVIDUAL AWARDS	• <u>Green Facilities Manager of the Year</u> Mr Anthony Goh Senior Vice President Property & Facilities Management

** Recertified*

ANNEX B

CDL GREEN GALLERY @ SBG HERITAGE MUSEUM
– WINNER OF THE 2014 BCA GREEN MARK PLATINUM AWARD

Developed as an extension to the Singapore Botanic Gardens (SBG) Heritage Museum on Holttum Lawn by CDL, the 314 sqm CDL Green Gallery is Singapore's first purposefully built zero energy Green Gallery. The Gallery, which was officially opened by Prime Minister Lee Hsien Loong in November 2013, is built with several eco-friendly technologies, including two eco-innovative features introduced in Singapore for the first time – a biomaterial known as Hempcrete (largely made from the hemp plant) and a prefabricated modular system known as the Prefabricated Prefinished Volumetric Construction (PPVC) concept.

As Singapore's first zero energy Green Gallery, a key feature of the building is the solar photovoltaic (PV) cladded roof panels that are expected to harvest all the energy required for the building's operations. The solar panels are expected to generate an annual energy yield of over 31,000 kWh, which is more than the Gallery's estimated annual energy consumption of about 30,000 kWh/year.

GREEN FEATURES	BENEFITS
Designed for Energy Efficiency ▪ A total of 105 solar photovoltaic (PV) cladded roof panels are expected to harvest all the energy required for the building's operations, making the CDL Green Gallery Singapore's first zero energy Green Gallery ▪ The CDL Green Gallery is fitted with LED lights and high energy-saving air-conditioning systems	▪ The solar panels are expected to generate an annual energy yield of over 31,000 kWh, which is more than the Gallery's estimated annual energy consumption of about 30,000 kWh/year, making the Gallery self-sufficient ▪ The high energy-efficient, dimmable LED lights use approximately 57% less energy than conventional lighting ▪ High energy-efficient air-conditioning systems reduce consumption of electricity as the inverter air-conditioning system, coupled with an integrated building control system, consumes 50% less energy compared to conventional types

Eco-friendly Designs and Use of Innovative Eco-friendly Materials ▪ Passive Architectural Design – The design, layout and orientation take into account the site's natural attributes ▪ Use of Hempcrete – An eco-friendly biomaterial used for the first time in Singapore. Made from a mixture of hemp core, lime binders and water, it is used as the external wall cladding ▪ Utilised green building materials and finishes, low Volatile Organic Compound (VOC) paints and adhesives with no formaldehyde. No concrete was used for the building structure as well ▪ Vertical Green Walls – Purposefully cladded facades with butterfly-attracting plant species ▪ Green Roof – Installed with a selection of drought-resistant plant species	▪ The building envelop, which consists of green walls and eco-materials, helps enhance thermal insulation of the Gallery, reducing solar heat gain ▪ High thermal performance, superior acoustic properties, non-combustible, pest-, mould- and mildew-resistant, and durable ▪ Enhanced environmental protection and indoor environmental quality ▪ Extensive green coverage of over 25% while encouraging biodiversity. Also improves thermal insulation of the Gallery ▪ Lower maintenance and mitigates Urban Heat Island effect around the building
Implementation of Sustainable Construction Methodology ▪ Prefabricated Modular System known as the Prefabricated Prefinished Volumetric Construction (PPVC) concept – Introduced for the first time in Singapore, it is a unitised form of building with steel components prefabricated and assembled in an offsite production facility. They are then hoisted by a crane into position onsite. Like building blocks, they are pieced together to form the entire structure onsite.	▪ Prefabricated Modular System is easy to build and flexible. It took less than 24 hours for the building structures to be installed into their final positions. The structure is of superior quality and there is better site protection and lower environmental impact. The modular elements are also modifiable for adaptive reuse in future
Other Green Features ▪ Environmental Management System – Active monitoring and management of energy generation and consumption. Environmental performance shared in real time with Gallery visitors.	▪ Promote environmental awareness to community-at-large

MY TREE HOUSE
– WINNER OF THE 2014 BCA GREEN MARK PLATINUM AWARD

Conceptualised and built in collaboration with National Library Board (NLB), My Tree House is the first library in the world to be steered by green principles in all facets from design, infrastructure and use of sustainable materials, to collection and programming.

My Tree House, opened by Dr Yaacob Ibrahim, Minister for Communications and Information in May 2013, was designed as an enchanting and magical green space to encourage children to read and learn about the environment in a fun and interactive way.

Located at the Central Public Library, My Tree House features a tree house structure (which it is named after) that is constructed with recyclable materials. It was designed specifically with children in mind and features the extensive use of green materials, energy-efficient fittings and innovative teaching features.

GREEN FEATURES	BENEFITS
Eco-friendly Designs ▪ The tree "canopy" lighting feature comprises the creative use of over 3,000 recycled plastic bottles from more than 5,000 collected from the public as well as CDL's City Square Mall. They were cleaned and sprayed in colours of yellow and green and distributed across 10 metal rims and fastened with fishing nets. ▪ The tree trunk in the library is largely fabricated with aluminum, mild steel and recyclable plywood and fibre glass.	▪ Reduce waste and minimise impact on the environment by finding new ways of using recycled items
Designed for Energy Efficiency ▪ Energy-efficient LED lighting from Phillips is used as it enhances user comfort with less overhead glare, requires less maintenance and is a greener product to manufacture. ▪ The lighting system is zoned by different usage according to function and needs to achieve better efficiency.	▪ The LED lighting is projected to achieve approximately 47% improvement in the lighting power consumption ▪ Reduce energy consumption

Implementation of Sustainable Construction Methodology and Good Indoor Environmental Quality ▪ Extensive use of sustainable and recycled materials for construction. For example, all existing metal bookshelves from the original library were attractively refurbished using sustainable materials to resemble the images of trees in shades of green and yellow. ▪ New bookshelves were made from sustainable materials i.e. plywood and fibreboard certified by the Singapore Green Labelling Scheme. ▪ Ceiling and partition wall boards made from recycled materials certified by the Singapore Green Labelling Scheme. ▪ Interface Cubic Colours carpet is used as it comprises a high amount of recycled content and has achieved healthy indoor air quality promise as verified by the Carpet and Rug Institute (CRI) Green Label. The product has also been endorsed by the Singapore Green Labelling Scheme from Singapore Environment Council. ▪ Eco-friendly low Volatile Organic Compound (VOC) paints and adhesives were used for improved indoor air quality certified by the Singapore Green Labelling Scheme.	▪ Utilisation of materials with recycled content to minimise impact on the environment ▪ Improve environmental performance during construction phase ▪ Maximise fresh air entry to interiors and treat air-conditioned air to optimise occupants' comfort at all times ▪ Improve indoor air quality

LUSH ACRES
– WINNER OF THE 2014 BCA GREEN MARK PLATINUM AWARD

Lush Acres, CDL's latest Executive Condominium (EC) project, is an eco masterpiece that has been cleverly designed to incorporate energy and water efficient features, and innovative unit layouts which provide true cross ventilation. In addition, the lobbies in the development utilise natural ventilation, reducing the overall need for air conditioning, and units have been arranged in the favourable North-South orientation to reduce sun glare, ensuring living spaces are bright yet cooling at the same time.

CDL invested 4% of the total construction cost into the provision of the development's green innovations. Altogether, Lush Acres' green infrastructure is expected to result in energy savings of approximately 2.8 million kWh per year and total water savings of approximately 62,000 m^3 per year.

GREEN FEATURES	BENEFITS
Designed for Energy Efficiency ▪ Passive architectural design with good building orientation (North-South direction) ▪ Cross ventilation design for living and dining rooms for most units ▪ Cool paint used for all East-West facing walls ▪ Energy efficient "4-ticks" air-conditioners provided in all units ▪ Provision of gas water heaters ▪ Energy efficient lifts ▪ All lift lobbies have natural ventilation and ample natural lighting	▪ Minimise solar heat gain ▪ Improve indoor comfort level ▪ Reflect heat, hence minimising heat gain ▪ Energy savings from energy efficient air-conditioners ▪ Reduce electricity consumption ▪ Minimise use of mechanical ventilation, reducing electricity consumption ▪ Achieve overall energy savings of approx. 2.8 million kWh per year, which translates to approximately S$728,000 savings annually based on current tariffs

Designed for Water Efficiency ▪ Water efficient fittings with “excellent” to “very good” PUB WELS ratings provided for all units	▪ Minimise water wastage and increase the overall water usage efficiency of each apartment ▪ Achieve overall water savings of approximately 62,000 m^3 per year
Implementation of Sustainable Construction Methodology and Good Indoor Environmental Quality ▪ Extensive use of prefabrication such as prefabricated bathrooms, dry walls and precast concrete ▪ Use of low Volatile Organic Compounds (VOC) paints for all internal walls to improve indoor air quality ▪ 100% naturally ventilated wet areas such as bathrooms, yards and kitchens ▪ Use of non-chemical termite treatment system ▪ Provision of compost bins to collect organic waste for recycling	▪ Improve occupational health and comfort of residents ▪ Encourage recycling to protect the environment
Other Green Features and Innovations ▪ Introduction of the innovative Agri-Cube Hydroponic Farm to grow fresh vegetables in a conducive, cool environment (the first-of-its kind in Singapore and the region) ▪ Use of pneumatic waste collection and disposal system at open ventilation areas ▪ Provision of electric vehicle charging points	▪ Promote healthy and green living, encourage community gardening and support national food resilience ▪ Improve hygiene and efficiency of refuse collection with a less labour intensive collection system ▪ Encourage the usage of eco-friendly electric vehicles

THE VENUE RESIDENCES
– WINNER OF THE 2014 BCA GREEN MARK PLATINUM AWARD

The Venue Residences is situated along Tai Thong Crescent, at the junction of Upper Serangoon Road and MacPherson Road. It is a short drive from the city centre and enjoys great accessibility, being close to major expressways and just minutes away from Potong Pasir MRT station.

The development provides unparalleled convenience as it also offers a unique seamless living, shopping and dining experience through its 266 apartments, and 28 retail and dining units (The Venue Shoppes) located at its doorsteps.

CDL invested approximately 2% of the total construction cost into the provision of the development's green innovations. The Venue Residences' green infrastructure is expected to result in energy savings of approximately 1.47 million kWh per year and total water savings of approximately 51,509 m^3 per year.

GREEN FEATURES	BENEFITS
Designed for Energy Efficiency ▪ Minimise East-West facing facade ▪ Apartments designed with good natural ventilation ▪ Common areas designed with good natural ventilation and day lighting ▪ Utilise deep balconies and vertical architectural walls shading ▪ Lush green environment at facilities deck and sky terraces ▪ Energy efficient "4-ticks" air-conditioners ▪ Energy efficient lifts with Variable Voltage Variable Frequency (VVVF) drive and sleep mode function ▪ Light fittings incorporated with motion sensors provided for all staircases ▪ Provision of gas water heater in apartments	▪ Minimise excessive buildup of heat ▪ Maximise energy saving equipment

Designed for Water Efficiency ▪ Water efficient fittings with “excellent” to “very good” PUB WELS ratings provided for all units ▪ Stormwater auto irrigation system	▪ Minimise water wastage and increase the overall water usage efficiency of each apartment / retail unit ▪ Achieve overall water savings of approximately 51,509 m^3 per year
Implementation of Sustainable Construction Methodology and Good Indoor Environmental Quality ▪ Use of prefabrication such as prefabricated bathrooms, dry walls and precast concrete ▪ Use of low Volatile Organic Compounds (VOC) material and green label adhesives ▪ Use of green laminate for bedroom floors and carpentry ▪ Use of Organic Recycle Compost ▪ Recycled material for swimming pool deck and playground flooring ▪ Recycled drainage cells for plantings ▪ Use of recycled aggregates (recycled concrete aggregates and washed copper slag) for concrete works ▪ Incorporate more efficient and optimised structural systems including flat slabs and flat plates for superstructures	▪ Improve occupational health and comfort of residents ▪ Encourage recycling to protect the environment ▪ Optimise the sizes of concrete elements to achieve a sleek design, more headroom and usable area within the apartments ▪ Target to achieve better concrete usage index for the development
Other Green Features and Innovations ▪ Use of pneumatic waste collection and disposal system ▪ Use of anti-chemical termite treatment ▪ Siphonic rainwater discharge system ▪ Conservation of two matured Angsana trees ▪ Good access to nearby public transport systems	▪ Improve hygiene and efficiency of refuse collection with a less labour intensive collection system