

franchise focus

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These are exciting times in Singapore. Singapore government has signaled a big push into green initiatives, and announced a focus on building green malls. Singapore is Asia's retail Mecca. The shopping experience has evolved through the years, since the

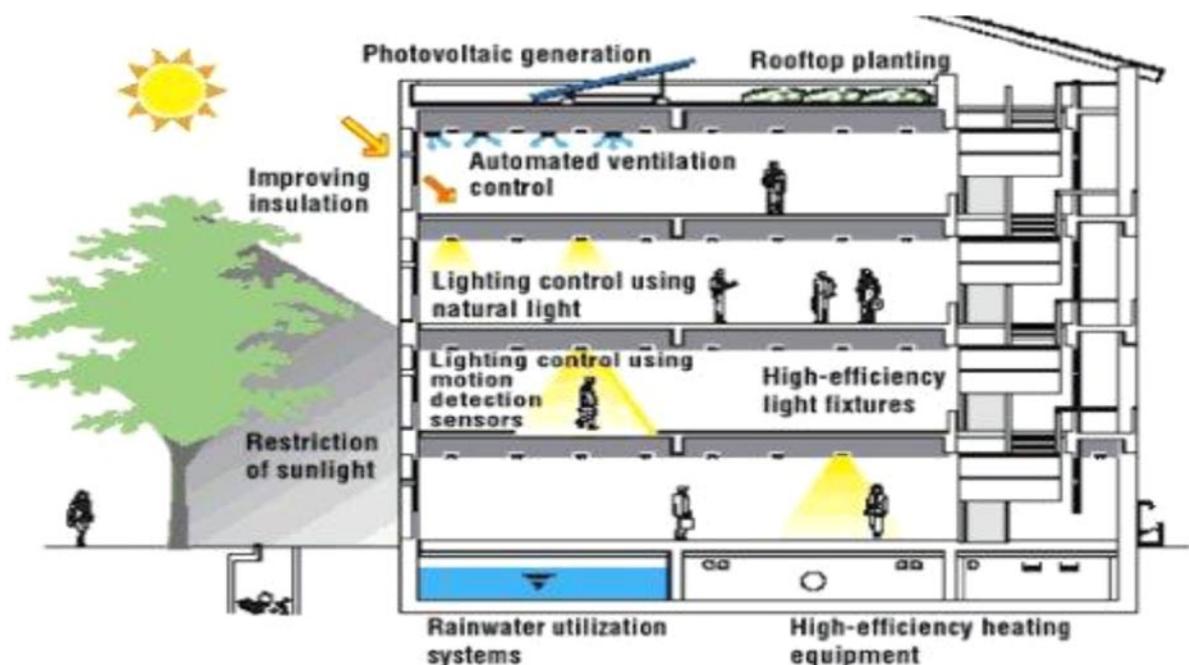
inception of the first retail mall in the early 70's to one of the swankiest retail malls - ION Orchard, opened in July 2009 on Orchard Road. So an announcement on green malls means serious business.

Building Green Debunking the Myths

Wikipedia defines a Green Building as green construction or sustainable buildings. The art of building structures, using processes that are environmentally responsible and resource-efficient throughout a building's lifecycle: i.e. from concept, design, construction, operation, maintenance, renovation, retrofitting and deconstruction. Green buildings are designed to reduce overall impact of the built environment on human health and the natural environment and are evolved around new technologies to complement current practices in creating greener structures. In essence green buildings achieve this by efficiently using energy, water, and

other resources, protecting occupant health and improving employee productivity and Reducing waste, pollution and environmental degradation.

City Developments Limited invests between 2% and 5% of the construction cost of a development on green design and features. The returns of this investment is reflected in the reduced use of natural resources, financial savings and even the possible increased capital value of the development. Moreover, through the implementation of green innovations, CDL is helping to develop the industry's expertise and capabilities in adopting sustainable solutions for the built environment.



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📌 **In the last ten years, several Singapore malls have metamorphosed from traditional vanilla malls to energy efficient, sustainable or “Green Buildings”.** 📌

Ten critical components of green buildings

- 1 High-efficiency air-conditioning plant
- 2 Motion detectors for all lighting & energy-saving LED lights
- 3 Solar panels on the roof
- 4 Indoor greenery and landscaping to mitigate urban heat island effects
- 5 Lifts, escalators and travellers with auto-lighting, ventilation and slow-down features
- 6 Use environmentally-friendly materials
- 7 Use non-PUB potable water
- 8 Sensors to monitor levels of indoor carbon dioxide and carbon monoxide
- 9 Rain gathering / Rain water harvesting
- 10 Non-chemical water treatment for cooling tower

What's Green in Singapore

The Building and Construction Authority (“BCA”) received the 2010 Energy and Environment Award presented by The Aspen Institute, for its comprehensive approach and efforts in steering the industry towards the development of green buildings and sustainable construction in Singapore. BCA is the first government agency outside North America to have clinched this prestigious award, given out by the international non-profit organization, which focuses on fostering thought leadership in global issues.

The award is deserved. In January 2005, the BCA Green Mark scheme was launched as an initiative to drive Singapore’s construction industry towards more environment-friendly buildings. The BCA Green Mark provides a meaningful differentiation of buildings in the real estate market. It has been shown clearly a reduction in water and energy bills, a reduction in potential environmental impact and better indoor environmental quality. Clear direction is also provided for continual improvement. The industry has responded enthusiastically. The Singapore Green Building Council (SGBC) was formed in October 2009 to promote green building design, practices and technologies into mainstream design and construction. The mission of the SGBC is to: “propel the building and construction industry towards environmental sustainability by promoting green building design, practices and technologies, the integration of green building initiatives into

mainstream design, construction and operation of buildings as well as building capability and professionalism to support wider adoption of green building development and practices in Singapore.”

The efforts are showing up in malls. In the last ten years, several Singapore malls have metamorphosed from traditional vanilla malls to energy efficient, sustainable or “Green Buildings”.

Five Singapore Green Malls.

Two malls have been refurbished successfully to incorporate green elements. Capitaland’s Plaza Singapura mall has also been given the BCA Green Mark Gold Award. The revamped Paragon Mall has incorporated energy saving elements, where the three-dimensional facade comprising of multiple transparent, glazed and volumetric external pop-out glass installed above the walkway level have multi-faceted layers of aluminum panels and fritted glass have in-built energy-saving LED lights.

Orchard ION, built in 2009, is the iconic mall on Orchard Road. It has won environmental awards from Singapore’s Building Construction Authority. The double-glazed glass reduces the greenhouse effect; an elaborately landscaped roof deck absorbs heat; and photo sensors tweak lighting levels in response to available daylight.



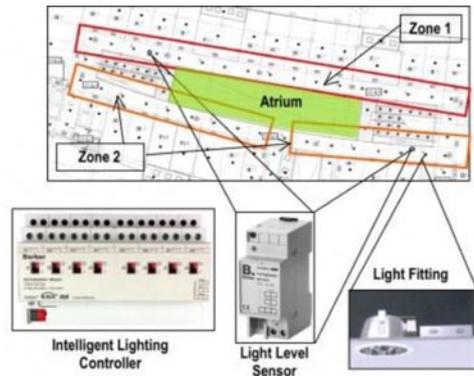
Photo 1: ION Orchard

❗❗ ...the only mall on Orchard Road to receive the prestigious BCA Green Mark Platinum Award in 2010 ❗❗



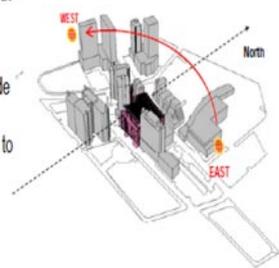
Two finest examples of Green Malls in Singapore are: 313@Somerset Mall and City Square Mall. 313@Somerset Mall was built in 2009 and was the last site on Orchard Road that was developed. Owned by a Lend Lease managed fund, ARIF and Lend Lease, it is the only mall on Orchard Road to receive the prestigious BCA Green Mark Platinum Award in 2010. Bovis Lend Lease, the construction arm of Lend Lease, were responsible for the design, project management and construction. The retail design was carried out by Aedas Pte. Ltd.

It is an eight-storied building with three basement levels including 2 levels above ground car parking with a GFA of 39,410 sqm. Some of 313@Somerset's key green elements are its Green Lease and Tenancy Collaboration. The tenant's provisions are specified in the Green Lease and there is a control on the energy usage (W/m2).



Building Orientation

- Long Facades facing North-South and minimal windows on East-West Façade
- Sun shading to East-West façade from adjoining buildings as a result of lower height compared to surrounding buildings



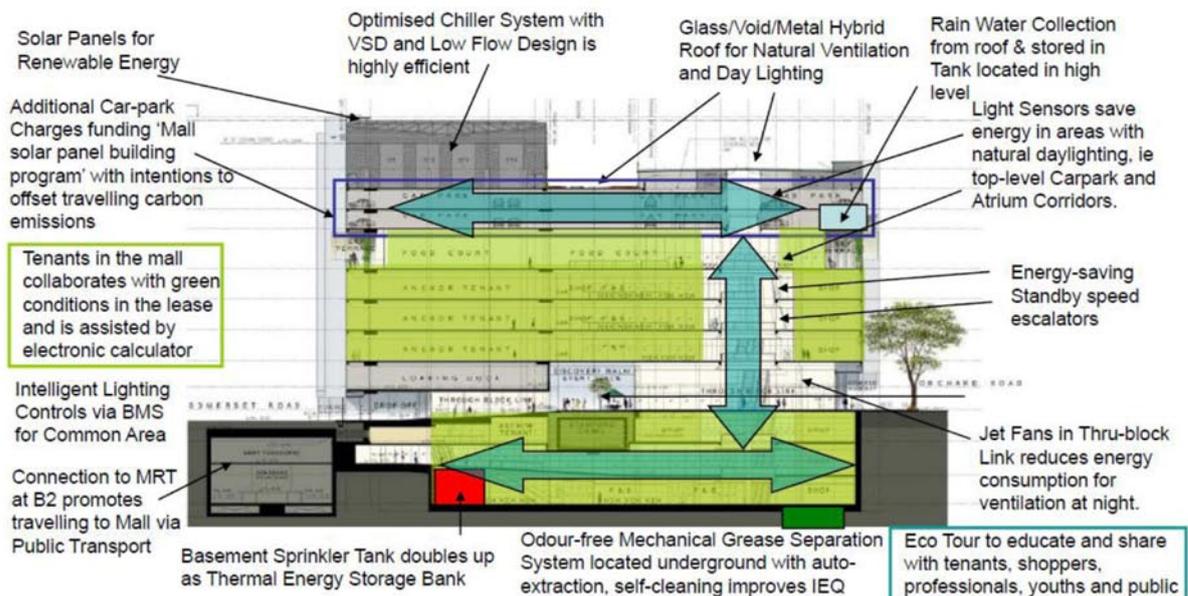
Lighting

- High frequency ECG ballasts and T5 lamps used in lieu of T8 lamps
- 35W High luminance Ceramic Discharge Metal Halides in lieu 75W Halogen
- Efficient lighting control integrated into Intelligent lighting control (Cbus or similar) with relevant lighting zones and individual lighting controls via BMS
- LED low energy façade lighting and signs



Light Transmitting Semi-Glass Roof

- With translucent membrane, no artificial lighting required during daytime
- PE sensors installed in event of extreme overcast days
- Artificial lighting only required at night
- Light fittings to be energy efficient type.
- Reduces energy consumption of lights tremendously



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A concept of carbon offsetting car-park was introduced, where a small portion of the car-parking fees is used to fund solar panels. The objective was to offset the carbon of the vehicles getting to the mall. The solar panels are used to harness the sun's energy to power up car-park lightings and barrier system. The use of sprinkler tank for thermal energy storage bank is a unique concept, where the waste heat recovery system is used to capture the heat rejected from the chiller, to heat up hot water to supply the entire mall's requirement. Instead of tiled floors, corridors on the 2nd level onwards are carpeted, which is quite different from its competitors. The large frontage provides excellent visibility and the glass façade offers excellent visibility.

The City Square Mall, which opened in September 2009 is Singapore's first eco-friendly mall, and has also won BCA's Green Mark Platinum Award. Lead Lease were involved in the concept planning, master planing, retail design and leasing for City Square Mall.

It is located at the junction of Serangoon and Kitchener Roads and it is directly connected to the Farrer Park MRT Station. It comes as no surprise then that City Square Mall was conceptualized with environmental sustainability in mind since day one. With its extensive green innovations, City Square Mall was designed to be a showcase of an eco-friendly and community-friendly mall. The 700,000 sft mall with over 200 tenants is also an effective platform for the Company to reach out to tenants and the community-at-large and raise their level of eco-consciousness through its programs and initiatives. CDL maintains extremely competitive lease rentals. It is important to note that a direct comparison of rental should also include other factors for consideration, such as the mall's location, total lettable area and overall economic situation.

Green features at City Square Mall Designed for Energy Efficiency

- Sun-path analysis for effectiveness of sunshades and wall insulation
- High-performance low-emissivity double glazing to reduce heat transmission
- High-efficiency air-conditioning plant system
- Lighting zoning and alternate lighting circuits for common areas
- Motion detectors for toilets and staircases
- Motion lighting sensor for vehicles at Basement 4 car-park
- Eco green roof with solar panels and water-harvesting capabilities
- Indoor greenery and landscaping to mitigate urban heat island effects
- Lifts, escalators and travellers designed with auto-lighting and ventilation fans and slow-down features
- Reduces total energy usage by approximately 39% compared to designs using standard industry codes
- Electricity saved per year estimated to amount to more than 11 million kWh
- Estimated reduction of 5,700 tonnes of carbon dioxide (CO₂) emission per year (approximately 140,000 trees are required to absorb this amount of CO₂ emission)





Environmentally-sustainable Site / Project, Development and Management Practices:

- Conservation of eco-system with transplantation of existing trees
- Saved natural resources such as 50 truckloads of sand and granite by using environmentally-friendly materials such as drywall partitions, non-chemical anti-termite system, recycled pre-cast concrete kerbs, drains, wheel stoppers, etc
- Use of non-PUB potable water for on-site cleaning saves 8 Olympic-sized swimming pools
- Treatment and recycling of silty water during construction

Designed for Good Indoor Environmental Quality and Environmental Protection:

- Installation of sensors to monitor levels of indoor carbon dioxide and carbon monoxide
- Designed with cooling load variations that correspond to thermal comfort
- Air-purging system integrated with smoke extraction system for improvement of indoor air quality

Design Innovations:

- Installation of a twin-chute pneumatic refuse collection and disposal system (for separation of general and recyclable waste)
- Odour-free and pest-free waste disposal system; twin-chutes encourage recycling amongst tenants
- Rain sensors for landscape irrigation
- Non-chemical water treatment for cooling tower

- Motion sensor for lighting level control for vehicles at Basement 4 car-park
- Cool breeze across Fountain Square fully powered by solar panels
- Light sensors at skylight of podium block to control electrical lighting
- “Eco-restrooms” with waterless urinals, motion sensors for lightings and indoor planting
- Electric-car ready car-park with charging stations and dedicated lots for hybrid cars
- Environmental-themed sculpture to raise public awareness on environmental conservation
- Real-time display of indoor environmental performance for shoppers

The Eco friendly elements incorporated by developers in Singapore will undoubtedly contribute its share to the much-needed effort to reduce global warming. Green malls are here to stay and the BCA revisions are expected to raise the standards of environmentally friendly buildings in Singapore, a move that would boost the country’s efforts in “greening” 80% of its buildings by 2030, an ambitious plan, which will put it ahead of other green capitals in Scandinavia, Dubai and Shanghai.

“The good building is not one that hurts the landscape, but one which makes the landscape more beautiful than it was before the building was built”.
- Frank Lloyd Wright

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