

SUSTAINABILITY CASE STUDY Galaxis

April 2018



LOCATION

1 & 3 Fusionopolis Place, Singapore 138522. Situated above the One-North MRT station of the Circle Line.

Located in the heart of one-north district, a 200-hectare development designed to host a cluster of world-class research facilities and business park space, and target end-users engaged in Biomedical Sciences, Infocomm Technology, Media, Physical Sciences and Engineering.

SUMMARY

Ascendas-Singbridge believes properties and green spaces built to high standards of quality and sustainability can be of great value to our customers. Since 2012, we have set a minimum target to achieve the Singapore's Building and Construction Authority (BCA) Green Mark GoldPLUS Standard for all new developments in Singapore, and the US Green Building Council Leadership in Energy & Environmental Design (USGBC LEED) Silver or equivalent for our overseas projects.

The project's objective is to develop a sustainable business park building that would achieve a higher BCA Green Mark Platinum standard. Key features include extensive greenery, recycling bins at common areas, high efficiency multi-tiered chiller plant and air-conditioning system, high eco-friendly interior fittings and materials, effective ETTV*, as well as intelligent lighting control.

* Envelope Thermal Transfer Value: measures thermal performance of a building envelope

ACHIEVEMENTS

Galaxis was designed to achieve more than 30% energy consumption saving against the Singapore Building Control (Environmental Sustainability) Regulation 2008.

This translates to an estimated energy and water consumption savings of S\$0.9 million per annum.

SPECIFICATIONS

Integrated development	Comprising 17-storey business park tower, 2-storey retail podium, and 5-storey office block
State of the art business space	Offering contemporary urban living and retail activities within a central plaza
Gross floor area	68,839 sqm
Occupancy	Project is almost fully let out to leading MNCs such as Canon, Garena (now known as SEA) and Ascendas-Singbridge Group

TIMEFRAME

Project Inception: 2012
Completion: 2016 (Certificate of Statutory Completion)

MAIN STAKEHOLDERS

Developer/Owner: JV between Ascendas-Singbridge (developer) and Mitsui & Co., Ltd (capital partner)

KEY GREEN STRATEGIES

Passive design

- 10% of green cement (incorporating recycled materials) were used in the overall construction
- Integrated façade design that uses double glazed glass with shading strategic and optimal orientation to achieve a good ETTV (Envelope Thermal Transfer Value) based on current applicable standards

Active design

Achieve cooling footprint of 113.54 W/sqm by implementing:

- Recovery system that used the cool air from the toilet exhaust to pre-cool the incoming outside fresh air
- Extensive usage of LED lighting and high efficiency T5 fluorescent light to achieve lighting load of 6.25 W/sqm, which is lower than average industry standard.

AWARDS

- BCA Green Mark Platinum
- ASEAN Energy Efficiency and Conservation (EE&C), Best Practice Competition in Buildings, ASEAN Energy Awards – 2016
- SGBC-BCA Sustainability Leadership Award 2017

KEY FEATURES

Thermal Performance of the Building Envelope

Several strategies were adopted to achieve a good ETTV to reduce cooling costs. Sun-shading profile and planter boxes were provided on the south east and south west facades to minimise the solar heat gain.



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Chiller Plant System

The high efficiency chiller plant was installed with permanent measuring instruments for monitoring its efficiency. To further reduce its energy consumption, Variable Speed Drive (VSD) controls are fitted to the chilled water pumps, condenser water pumps and cooling tower fans to vary the speed of the equipment according to cooling load demand.

High efficiency Trane Centravac Chillers System



AC VVVF (Variable Voltage Variable Frequency) Device

All the lifts are installed with AC variable voltage variable frequency (VVVF) device and come with sleep mode function to reduce the energy consumption during idle mode and off-peak periods. Similarly, the escalators are equipped with AC VVVF devices and come with dual speed function to reduce the energy consumption during idling mode and off-peak periods.

Water and Energy Saving

All basin taps, mixers, flushing cisterns, shower taps, shower heads, sink/bib taps, urinals and urinal flush valves are installed to meet WELS rating of "Excellent" wherever applicable. Water meters are installed to track consumption of make-up water to the cooling towers, toilets etc. and are linked to the Building Management System.

The lighting system in the building is designed to achieve 39% energy saving with reference to the lighting budget stipulated in the SS 530. High frequency ballasts are used on all fluorescent luminaries to improve the workplace lighting quality.

Green Elements and Materials

Using eco-friendly, recycled and/or sustainable materials including environmentally friendly drains, road kerbs and wheel stoppers, low volatile organic compounds paints, waterproofing compounds, precast inspection chamber, green cement, wooden door and timber deck etc.



A high proportion of eco-friendly recycled and/or sustainable materials have been utilised within and outside the buildings.

Extensive and lush landscape provided at ground level and roof terrace with a green plot ratio of 2.96.



IMPLEMENTATION

The project was implemented using the build and design concept where the main contractor was responsible for the overall project management and delivery of the development according to the agreed performance and design. The design architect, sustainable design consultant, structural consultant, and MEP consultant were under main contractor's supervision.

INFORMATION

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