

Design & Performance: Residential

BLOSSOMING SUSTAINABILITY



Blossom Residences, a 602-unit executive condominium development situated in mid-western Singapore, boasts a host of passive green building design features that work in tandem with sustainable implementation to give its residents a pleasant and healthy place to live in.

The residential development is designed with a passive and active ecological approach. Residential towers are orientated in the North-South direction with good cross ventilation and natural ventilation to all units. The design of the façade using fins act as sun shading feature for the units. In addition, an extensive lush landscape deck, sky garden, green wall of multi-storey carpark and green roof of clubhouse further enhance the ecological design of the development.

The planning strategy was to maximize the use of Gross Floor Area (GFA) while minimizing the building footprint in order to optimize the greenery provision (green plot ratio or GPR) for the site. The resulting GPR achieved is approximately 4.47, improving environmental thermal comfort levels through reduction of the urban heat island effect. Environmental management practice was also performed by the main contractor during construction

of the project, and a preliminary study was carried out to calculate estimated cost for waste disposal, consumption of water, electricity and fuel for the whole project with the objective of controlling resources within target and save as much as possible.

A number of energy saving features are implemented within Blossom Residences. The lighting in common areas and external areas is controlled by a suitable number of time switches such that approximately half of these lighting shall be switched off after predetermined time during the night to conserve energy. Internal staircases lighting are controlled by motion sensors at every light fitting. All apartment units are also provided with gas operated water heaters instead of electric heater. This results in an estimated 505,854kWh of energy savings per year. The basement car park with Mechanical Ventilation system with CO sensor and Multi-storey Car Park with fume extractor system with CO sensors, generating estimated energy savings of 272,760kWh per year. All residential units are also provided with energy efficient air conditioners certified under the Singapore Energy Labelling Scheme (4-ticks).

Blossom Residences has in place an automatic irrigation system equipped with rain sensors to water the generous amount of greenery present using water harvested from natural rainfall. As rainfall in the region is extensive, it is being harvested and stored in a tank for irrigation purposes during days with no rain. Rain sensors are also in place to detect rainy days.

A vegetated swale located next to a footpath and community gardens with seating areas slows down rainwater runoff and allows suspended solids to settle, resulting in improvements to water quality. There is also a viewing deck that overlooks the vegetated swales exposing residents to the swale and educating them on this bit of green infrastructure.

All residential units are also equipped with water-efficient fittings which can generate up to 98,328 m³ of water savings a year. Sub-meters are installed to monitor water usage in common facilities such as the clubhouse, swimming pool and the development's plentiful water features. A solar heater is installed at the clubhouse to make use of the solar energy.

Native plants species are carefully selected and planted within development. A large part of the environmental deck and roof gardens on clubhouse and multi-storey car park is covered with lush greenery. An "infinity forest" is incorporated into the environmental deck with facilities such as children's playground and spa pools nested within.

Sustainable products were extensively used during the construction of Blossom Residences. At the construction stage, the project adopted system formwork for greater productivity. Additionally, the Concrete Usage Index (CUI) is maintained at a low level by optimizing the slab's span vs thickness, minimizing transfer structures as well as a low floor-to-floor height of 2.95m. All internal walls within the residential units are using a drywall system for ease of installation. 460 bathroom units are also prefabricated minimizing in-situ works and improving efficiency and quality.

Where possible, the development makes use of building materials manufactured from sustainable sources and certified by the Singapore Green Building Product labelling scheme. These include the residential drywall systems using gypsum board, doors, drainage cells using recycled materials, EPDM rubber flooring, floor screed & skimcoat, laminated flooring as well as flexible cementitious membrane waterproofing. Low-E glass is also sourced and used for windows reduce the need for active cooling of space within the units, conserving energy.

A pneumatic waste collection limits exposure to refuse and pests. Common refuse chutes are located in openly ventilated common corridors, and recycling bins are provided at each block to help residents with their recycling initiatives.

Apart from simply providing the green amenities to residents, Blossom Residences has in place several initiatives design to educate and raise awareness of



the property's green features. Informative signages on "Clean Waterway" and "Green Infrastructure" are installed to educate residents and visitors on sustainable ecological design for this development, and Resident Handbooks are given to the homeowners and it comprises all the essential information on the use of the property's green facilities. Blossom Residence's green features are also included in the handbook to educate residents on green living. Residents are then advised to follow the rules strictly, particularly on the aspects of safety and communal living. All the green features were also briefed to the residents during an introductory TOP fair for the development. These Handbooks are given to residents in CD-ROM format instead of hard copy in a bid to be environmentally friendly.

With plenty of green features in place, Blossom Residences helps its residents go towards greener living. ✓

Developer: Grand Isle Holdings Pte Ltd
(City Developments Limited)

Architect: ADDP Architects LLP

Main Contractor: Dragages Singapore Pte Ltd

C&S: LSW Consulting Engineers

M&E: United Project Consultants Pte Ltd

Landscape: ONG & ONG Pte Ltd

Interior Designer: Axis ID Pte Ltd