Malaysia's 1st Green Certified Shopping Mall

Setia City Mall - Setia Alam, Selangor

Night falls at Setia City Mall

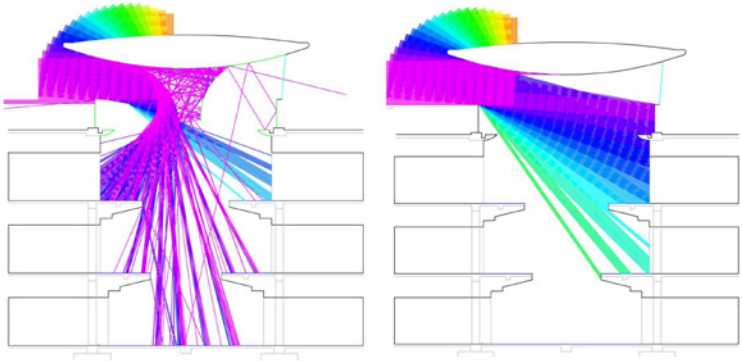
Setia City Mall was envisioned and planned from the early conception of the project to be Malaysia's first "green" mall. Located at the heart of Setia Alam, Malaysia, Setia City Mall is positioned to offer a fun family experience, which encompasses food and beverage, entertainment and specialty shopping.

Sustainable Site

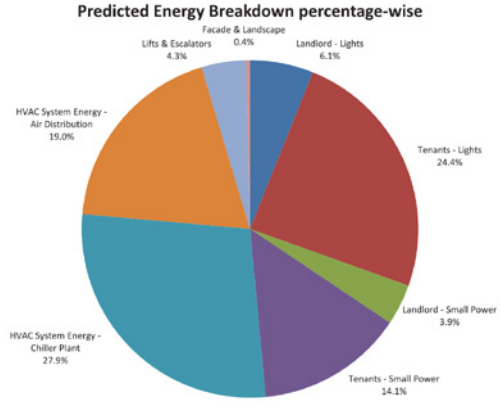
The shopping centre is located within a master planned commercial precinct with pedestrian network and bus stops to facilitate the use of public transportation. Bicycle parking facilities are available to encourage visitors to move around the vicinity using fuel and emission-free means of transportation. Preferential car parking lots close to key entrances are marked for family or car-pool vehicles. Fuel efficient vehicles, e.g. hybrid cars have been assigned designated car parks on every retail floor. Provision for electric car charging station units have been allocated and can be utilised when electric cars are introduced into Malaysia.

During construction of the Mall some key measures were put in place to preserve the environment namely the storage of chemicals and paints at designated areas away from the building enclosures well ventilated and under controlled distribution.


Internal View of well daylit circulation spaces coupled with "just sufficient" ambient lighting


Daylight studies using in-house developed Raytrace Software to test various Atrium daylighting options

All generated waste from these elements were removed and disposed of by registered department of environmental collection contractors as to the environmental act requirements. Silt and erosion control was also implemented with the introduction of temporary earthen drains connected to a purpose made temporary silt trap within the vicinity of the project with all rain water and construction water reused for construction purpose having passed through a temporary chemical treatment plant.



Energy Pie Chart- Setia City Mall vs Typical Shopping Mall (mixed Retail + F&B)

Energy Efficiency

Setia City Mall is designed with sustainability and energy efficiency in mind. Sophisticated computer simulations were conducted by IEN Consultants to ensure that the energy performance is met for this building and that the payback for each of the energy conservation strategies met the client's hurdle rate.

An integrated BMS and CEMS is installed to assist the building manager to operate the building efficiently. To be energy efficient, the mall needed a high efficiency air conditioning system. In a typical mall, the air conditioning system takes up as much as 45-50% of the total energy consumption. High COP Chiller and high efficiency variable speed air handling unit fans, high efficiency motors and pumps are used in Setia City Mall to minimize energy consumption.

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The chiller plant is achieving an minimum SCOP (System Coefficient of Performance) of at least 4.0 throughout the year.

Energy efficient T5 fluorescent lamps will be used throughout the car park instead of the conventional T8 fluorescent lamps. In addition, carpark lighting is also controlled by lux sensor, located along the perimeter of each carpark floor to save on lighting energy. Detailed daylight simulations were carried by IEN Consultants to ensure the right lighting circuits were provided with automated control by Lux sensors.

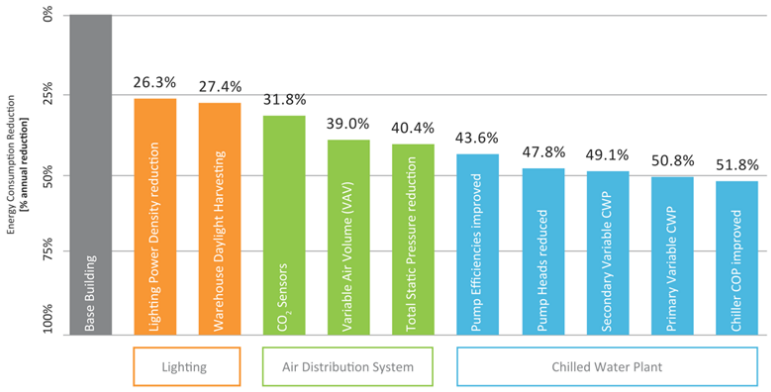
The lighting control systems will be set with the required illuminance levels. In mall concourse and common areas, energy efficient compacted fluorescent light is utilised instead of metal halide and halogen which are commonly use in shopping centres. Once again Lux sensor are utilised along mall commons areas with glazing and motion sensors in back of house areas and service corridors.

CO_2 sensor is provided for all AHUs to ensure that adequate fresh air is delivered to all the visitors and occupants of the building. This type of control allows precise control of fresh air intake into the building to optimise the building performance for both the occupants comfort and energy use.

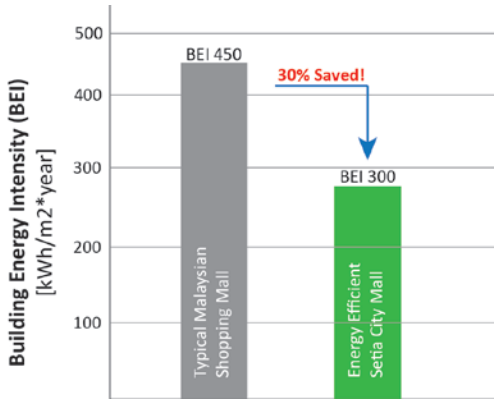
A Green Lease, which was jointly developed by the operator with the assitance of the sustainability consultant and commissioning specialist, is applicable to all mall tenants to encourage the tenants to install energy efficient lighting and equipment by limiting the maximum power density to 35 W/m² for Retail and Food & Beverage-Dining Area, and 85 W/m² for Food & Beverage-Kitchen Area.

The Setia City Mall is designed and constructed to reduce the building energy consumption and to set a new standard for Shopping Malls in Malaysia.

With significant effort by the sustainability team comprising of the sustainability consultant and the commissioning specialist, the building energy systems were properly comissioned and optimized. A very efficient BEI of **300kWh/m²*yr is achieved**



Energy Efficiency "Shopping List" developed by IEN Consultants



Energy Comparison- Typical Mall vs Setia City Mall

Water Efficiency

Water saving fittings complying to WELS (Singapore's Water Efficiency Labelling Scheme) rating are selected for toilets, sinks and taps in the mall. This strategy alone saves as up to 50% of the toilet water consumption.

One third of the roof of Setia City Mall acts as a water catchment plane and drains the rainwater into a collection tank via a siphonic drain pipe system. The rainwater is used for irrigation of the landscape for the Mall. Proper sizing of rainwater tank through the use of hourly basis rainfall weather data for Kuala Lumpur, Malaysia, no potable water will be used for landscape irrigation.

Less potable water will be used for cooling tower as the condensate water collected from AHUs and FCUs will be used to top up the makeup water for the cooling tower.

Project Information

Green Certification	*BCA GreenMark GOLD + GBI Silver*	
Gross Floor Area	*107,000m² (excluding Car Park)*	
Nett Lettable Floor Area	*72,000m²*	
Completion	*July 2012*	
Tenancy Mix	*Retail*	*Supermarket*
	Food & Beverage	*Cinema*
	Bars and Restaurants	*Bowling Alley*

Project Team

Client & Owner	*Greenhill Resources*
Sustainability Consultant	*IEN Consultants Sdn Bhd*
Commissioning Specialist	*Pureaire Sdn Bhd*
Architect	*Archicentre Sdn Bhd*
MEP Consultant	*KTA Tenaga Sdn Bhd*
Landscape Architect	*LandArc Associates Sdn Bhd*
C&S Consultant	*T&T Konsult Sdn Bhd*