What Is Zero Energy Building?

The first Zero Energy Building (ZEB) in South-east Asia retrofitted from an existing building.

Converted from a three-storey former workshop, ZEB houses offices, classrooms and a resource centre.

The ZEB is a zero energy building because the building produces enough energy to run itself. As a critical test-bedding facility, the 4,500 m2 building aims to produce enough energy to power the building.

In all, the building will save S$84,000* a year in energy cost compared to typical office in Singapore.

The building aims to achieve this through a combination of green building technology, clever building design that takes advantages of natural ventilation and lighting (this is called 'passive design'), and the hamessing of solar energy.

*based on an electricity tariff of 21.69 cents/kWh.

The Zero Energy Building (ZEB) was conceived with the following objectives in mind:

- To serve as a test bed for integration of Green Building Technologies (GBT) in existing buildings
- To be a hub for practitioners and students in the study of energy efficiency and green buildings

Located within the BCA Academy, ZEB is retrofitted from an existing building, the first to be achieved in Singapore.

SIGNIFICANCE

The Inter-Ministerial Committee on Sustainable Development (IMCSD) has set a target for the building industry, which is to achieve 80% Green Mark Certification for all buildings by the year 2030.

To achieve this target, many existing buildings will have to be greened. The ZEB is such an existing building. The lessons learned and the experience gained in the construction and operation of ZEB will therefore be very useful and valuable as the building industry journeys to achieve the set targets.

The technology that are being test bedded in ZEB at the moment will have potential applications for many of the existing buildings that will be striving to achieve Green Mark Certification in the not too distant future.

Zero Energy also refers to energy self-sufficiency without the need to tap on power supply from the grid at all. For energy scare Singapore which is also devoid of natural resources, the success of ZEB in achieving this target is exciting and has tremendous implications on the way energy is used in Singapore for specific types of buildings.

https://www.bca.gov.sg/zeb/whatiszeb.html

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