WEBEarth™

HOLISTIC SOLUTIONS FOR CREATING ECO-FRIENDLY BUILDINGS & INFRASTRUCTURES

green building index

SINGAPORE GREEN BUILDING COUNCIL

BCA GREEN MARK

U.S. GREEN BUILDING COUNCIL MEMBER

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Water Resources

- Protecting ecosystems through water sensitive urban design

Proposed Mandarin Oriental
Bintan, Indonesia

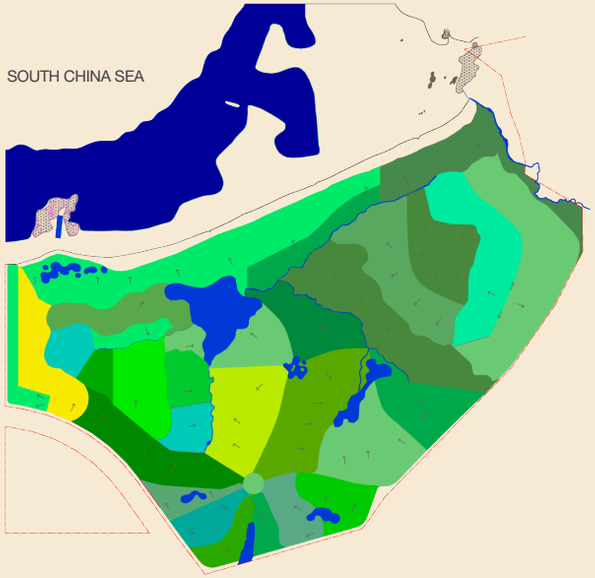


Fig. 1 - Stormwater catchment analysis, Bintan, Indonesia

SUDS at Four Seasons Resort, Seychelles

- Site area ≈ 100ha
- Ecologically sensitive area, extensive coral reefs
- Potential for high impact from increased surface run-off
- Implemented Bio-swales and natural drains using local materials encourage infiltration and trap sediments.
- A bio-retention pond was designed to store and treat stormwater, removing pollutants and sediments.

Increasing urbanisation leads to increases in stormwater runoff. This is one of the main causes of urban flooding and damage to aquatic ecosystems.

Sustainable drainage practices encourage retention and infiltration of stormwater, restoring groundwater recharge and re-establishing the natural water cycle.

Sustainable urban drainage systems (SUDS) prevent flooding and improve water quality as well as create local amenity, improve landscape aesthetics and enhance biodiversity.

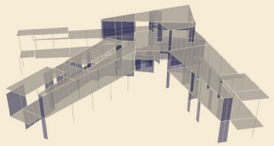
Recreational opportunities from clean water bodies can revitalise communities and transform polluted rivers and lakes.

WEB Earth's hydrological and hydraulic specialists carry out design and detailing of water sensitive urban infrastructure in a range of diverse environments.

Four Seasons Resort, Seychelles

Green Building

- Sustainable solutions for the built environment



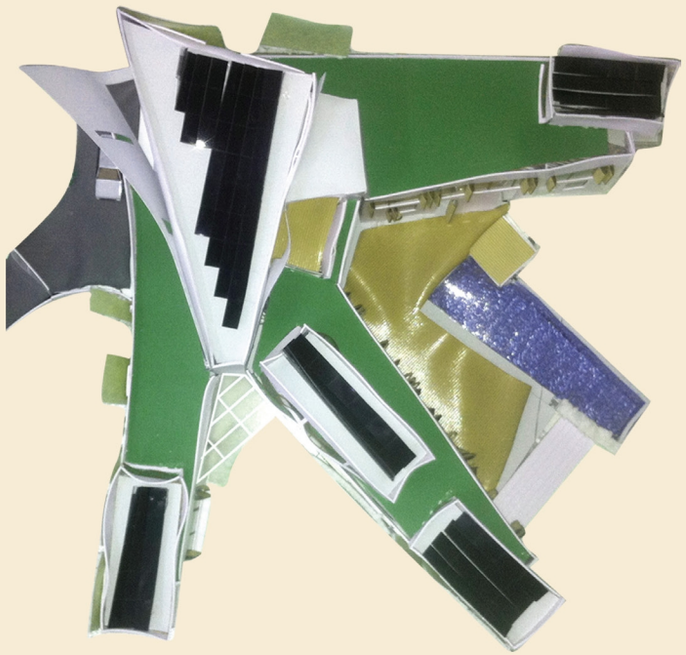


Fig. 2 - Zero Energy Building, Singapore

Passive design strategies

WEB Earth employs passive design strategies to naturally light, heat and ventilate buildings.

This reduces operating costs as well as enhancing occupant comfort levels through improved air quality, and internal acoustics.

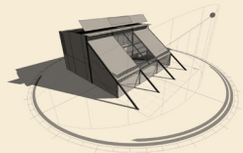
Currently, buildings consume between 25-50% of a country's energy use. They use 40% of raw materials produced, while generating 30% of the total waste stream.

By 2030, it is expected that 60% of the world population will live in urban areas. Inefficient buildings constructed to meet these needs will lock in detrimental energy and carbon impacts for years to come.

WEB Earth's integrated approach reduces the impact of development on the environment, creating buildings that can have a positive effect on their surroundings.

Green buildings do not have to cost more. Studies have shown that green buildings cost no more than their orthodox counterparts, attracting premiums for rental and increasing asset value.

Building Simulation – using state of the art building simulation to create effective design concepts that reduce energy, resources and water needs through integrative design.



Solar analysis

Daylighting and solar analysis help maximise natural lighting & minimise solar heat gain.

Grand Hyatt Hotel Kuala Lumpur

Efficient stacking of the building's multiple-use floors and using Pulverised Fuel Ash as a cement replacement enabled this 37-storey tower to reduce the embodied CO_2 from structural materials to 377 kg CO_2/m^2 of floor construction.

Carbon Management

- Quantifying and minimizing operational and embodied CO_2

Conventional Building	Low Carbon Design Building	Zero Carbon Design Building	Zero Carbon Design Building
		Potential to increase embodied CO_2 to reduce operational demand	Efficient raw material use and intelligent design to achieve minimal embodied CO_2

Fig. 3 - Reducing embodied CO_2 through efficient material use and design

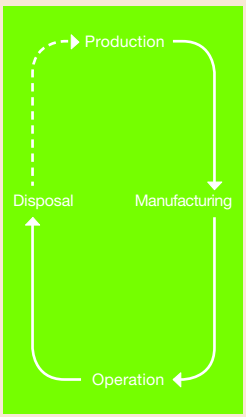


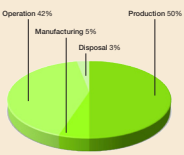
Fig. 4 - Life-cycle analysis of building emissions

WEB Earth studies the life-cycle carbon, energy and costs to quantify and assess a multitude of design concepts.

Optimisation of design concepts enables a building to achieve the lowest possible carbon and energy footprint.

Operational CO_2, generated through a building's energy and water consumption during its occupation, is often the main focus of creating sustainable buildings.

To create real low carbon buildings, the life-cycle CO2 from all the building's components must be considered.



Breaking down emissions

Lifecycle embodied CO_2 for a typical house