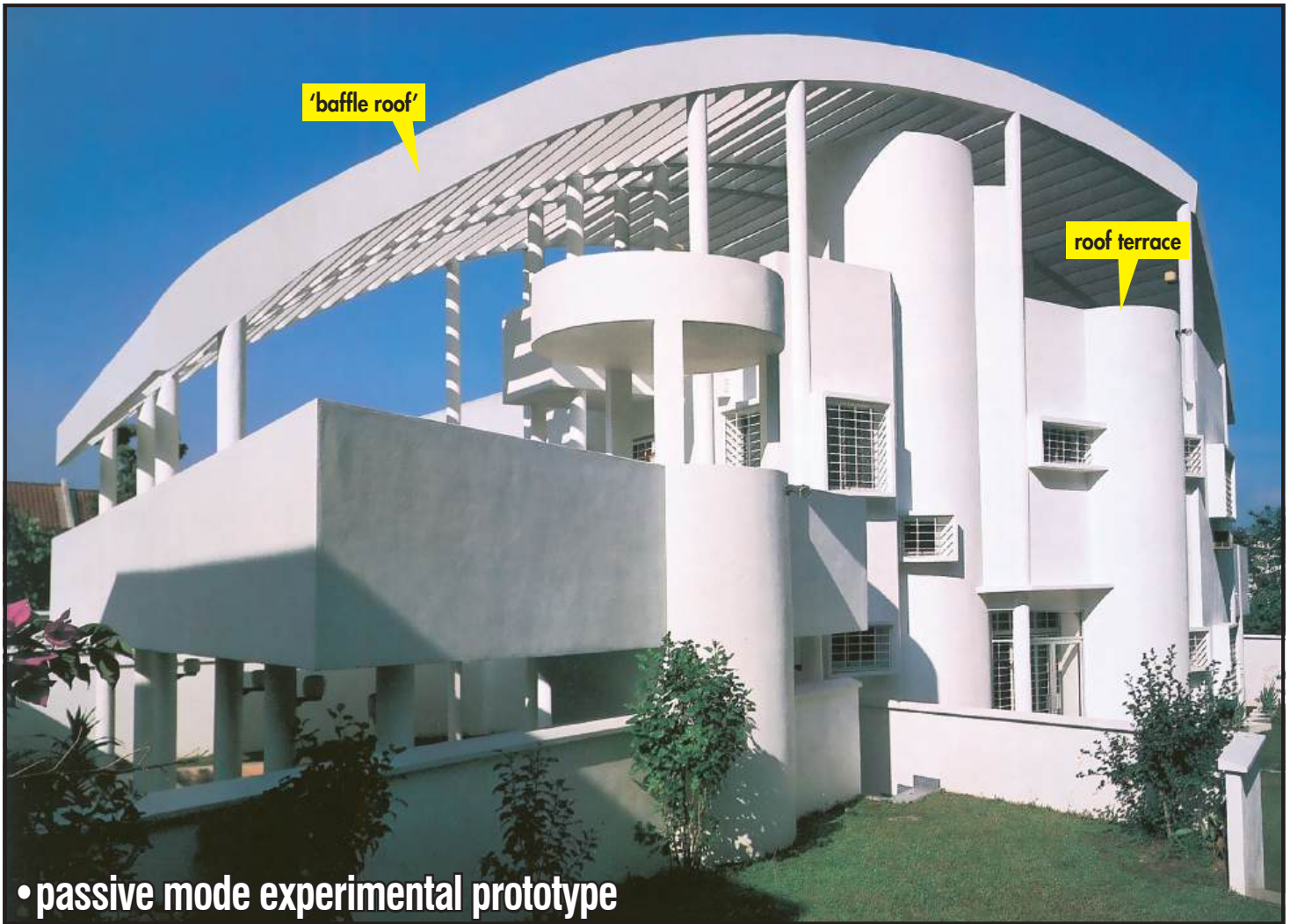
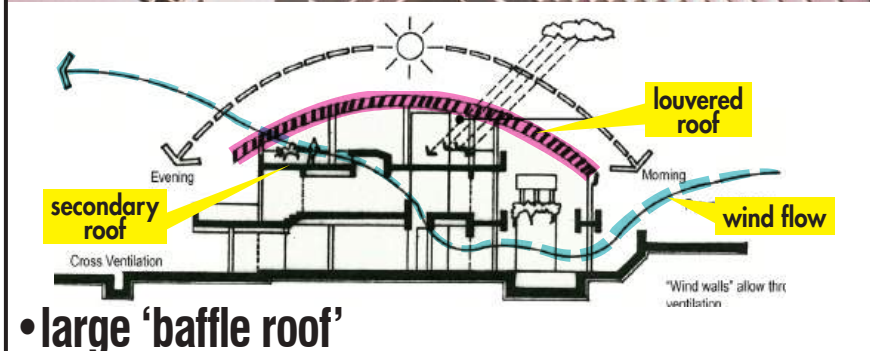


Net Zero Energy & Carbon Neutral Design: Passive Mode

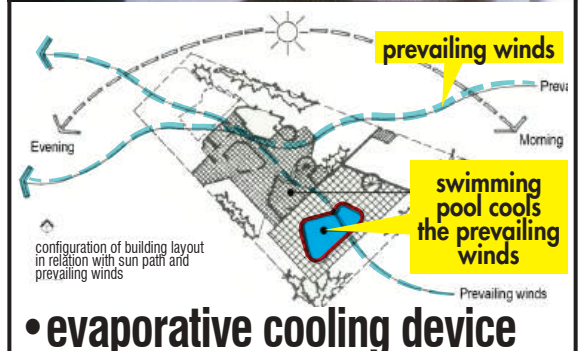
• Roof Roof House, Malaysia



• passive mode experimental prototype



• large 'baffle roof'



• evaporative cooling device

Location: Ampang, Malaysia
Total Built-up Area: 3,500 sqft
Year of Completion: 1984
Scope of Services: Architect

The house is designed as an experimental life-size working prototype. The design is based on a theoretical idea that buildings should be designed as "enclosural systems that operate as a valve within the optimised landscape". The design uses climatic factors opportunistically to shape the building's form (by solar orientation, wind direction, etc.), in its configuration and spatial organisation.

Ecoarchitecture: biodiversity enhancement

• Suasana Putrajaya, Malaysia



Biodiversity Targets Matrix

Plan

Habitats

1 create habitats

Target Fauna Species

2 select native fauna species to be brought back to locality: for feeding, breeding, refugee from prey

3 select non-invasive flora species to attract fauna

4 establish interactions between fauna and habitats

Target Species

1. Priority species for active conservation
 2. flagship species that could symbolize urban nature
 3. Indicators of good populations of small mammals
 4. Indicators of good populations of butterflies
 5. Indicators of good populations of bats
 6. Indicators of good populations of invertebrates
 7. Indicator of good water quality
 8. Species with special aesthetic qualities or interest to us, eg. ornamental beauty, song or behaviour or symbolic value

Keys

Species with Social/Amenity/Cultural/Educational Value:

Species with Insect and Ecosystem Support Value:

Flora Species

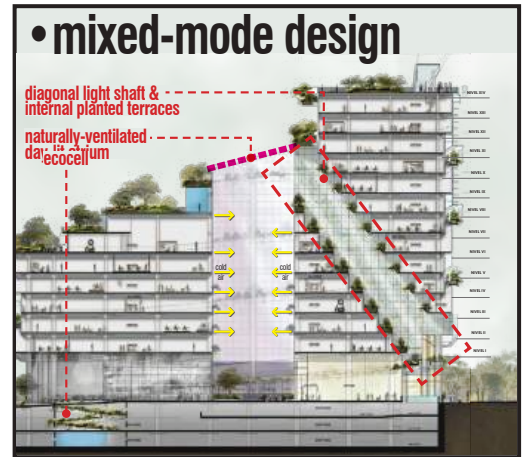


Location: Putrajaya, Malaysia
Total GFA: 813,316 sqft
Year of Completion: 2017

The building is a 14-storey mixed-commercial development. The development is two almost symmetrical 7-storey podiums, and two 7-storey towers on top of the podiums. A landscaped Central Promenade is designed between the two blocks along the axis to Millennium Monument.

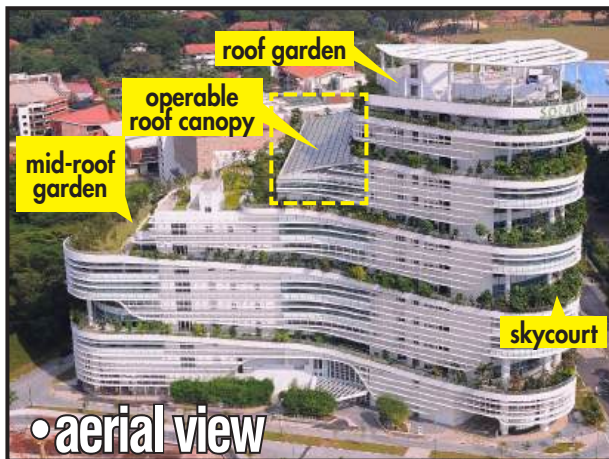
Ecoarchitecture: vegetated ramp; Net Zero Energy & Carbon Neutral Design: Mixed Mode atrium

• Solaris, Singapore



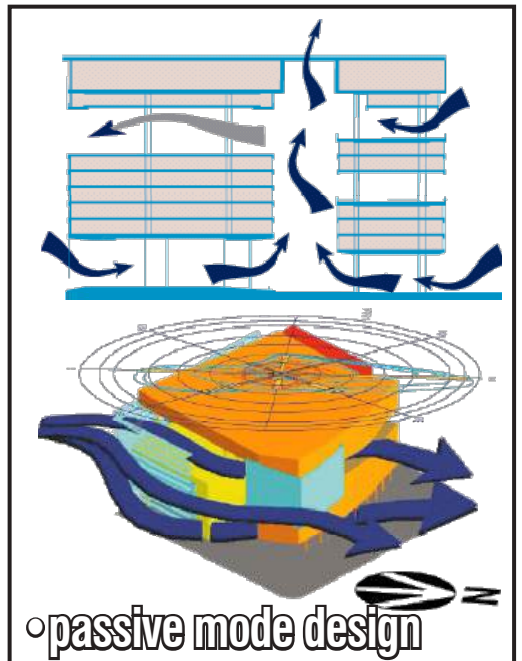
Location: One North, Singapore
Total GFA: 541,112.54 sqft
Year of Completion: 2010

The ecological sustainable significance of the project is its 1.5km long continuous perimeter landscaped ramp from the basement to roof garden, which demonstrating ecological nexus and connectivity. The vegetation has compensates vegetation cleared for construction on-site, which exceed site footprint by 80%. These is how Solaris strives to enhance the provision of site's ecosystem services.



Ecoarchitecture: vegetated skycourts & overhead canopy

• National Library, Singapore



Location: Victoria Street, Singapore
Total GFA: 635,393.63 sqft
Year of Completion: 2005

The design is the National Library of Singapore is designed as a state-of-the-art library for the tropics that serves as an icon for the region and it's locality. More than 6,300sqm of this building are given to green spaces in the form of urban skycourts, constituting more than 60% of the building's footprint.

Ecoarchitecture: ecological nexus: continuous vertical green wall

• DIGI Technology Operation Centre, Malaysia



• Use of plants to absorb VOC (Volatile Organic Compounds)

Emitters

Plants

formaldehyde
xylene / toluene
benzene
alcohols

People

acetone
ethyl alcohol
methyl alcohol
ethyl acetate

Chairs

formaldehyde

Photocopiers

xylene / toluene
benzene
trichloroethylene
ammonia

Chipboards

formaldehyde
xylene / toluene
benzene
alcohols

Correction Fluids

acetone

Computer Screen

xylene / toluene

Absorbers

Bamboo palm

formaldehyde
trichloroethylene
benzene

Peace lily

formaldehyde
trichloroethylene
benzene
alcohols
acetone

English ivy

formaldehyde
various other



Location: Subang, Malaysia

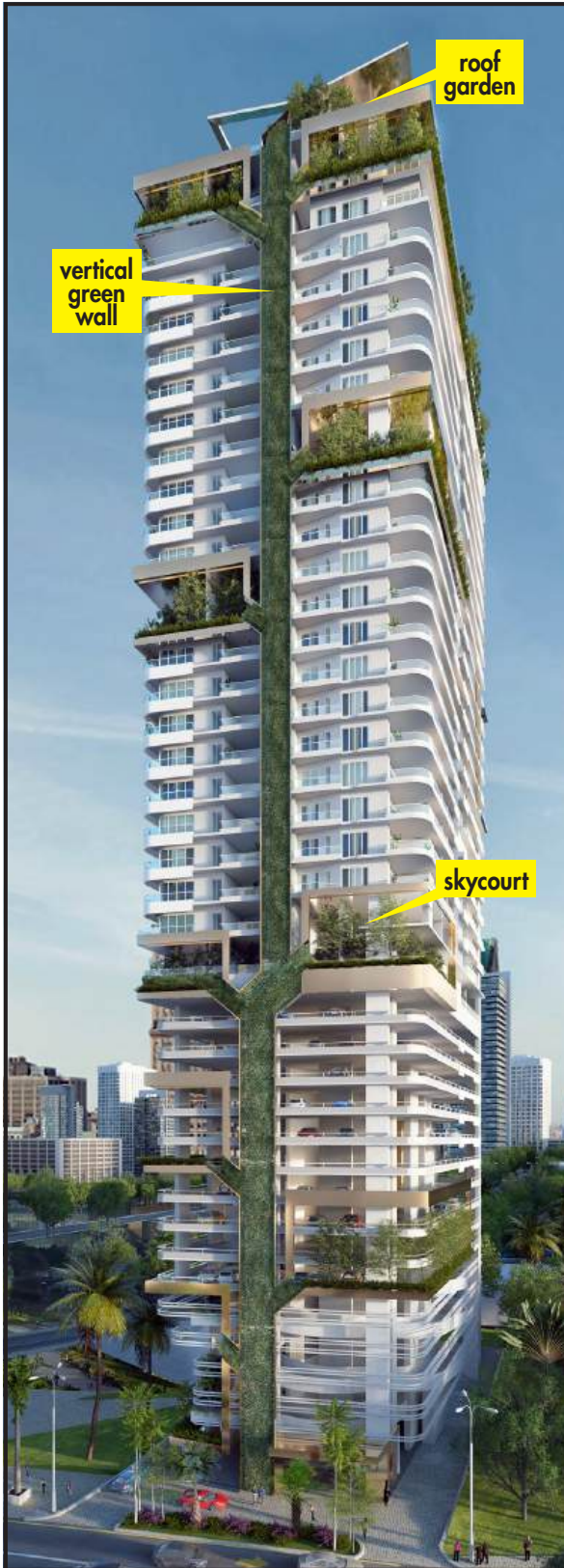
Total GFA: 134,204.44 sqft

Year of Completion: 2010

The DIGI Technology Operation Centre is located in Subang High Tech Park. It has since been awarded a GBI Gold rating. The Client's brief was to design a data centre with ecological features and is based on the 'IT Data Centre's Uptime Institute' Tier III platform with the possibility of scaling up to Tier IV security. A key feature of the DIGI Centre is a vegetated green wall that wraps around its four facades - to act as living habitats and as means of filtering and improving its ambient air quality. The roof canopy is covered with PV panels.

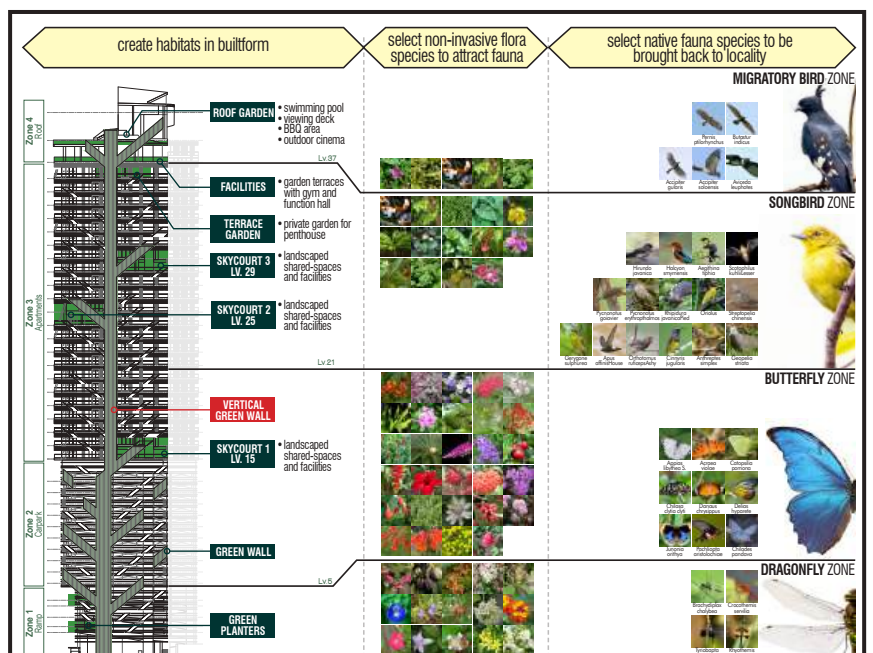
Net Zero Energy & Carbon Neutral Design: Mixed Mode canopy roof

• Skylon Residence, Malaysia



Location: Kuala Lumpur, Malaysia
Total GFA: 172,588 sqft
Year of Completion: under construction
Scope of Services: Architect and Interior Designer

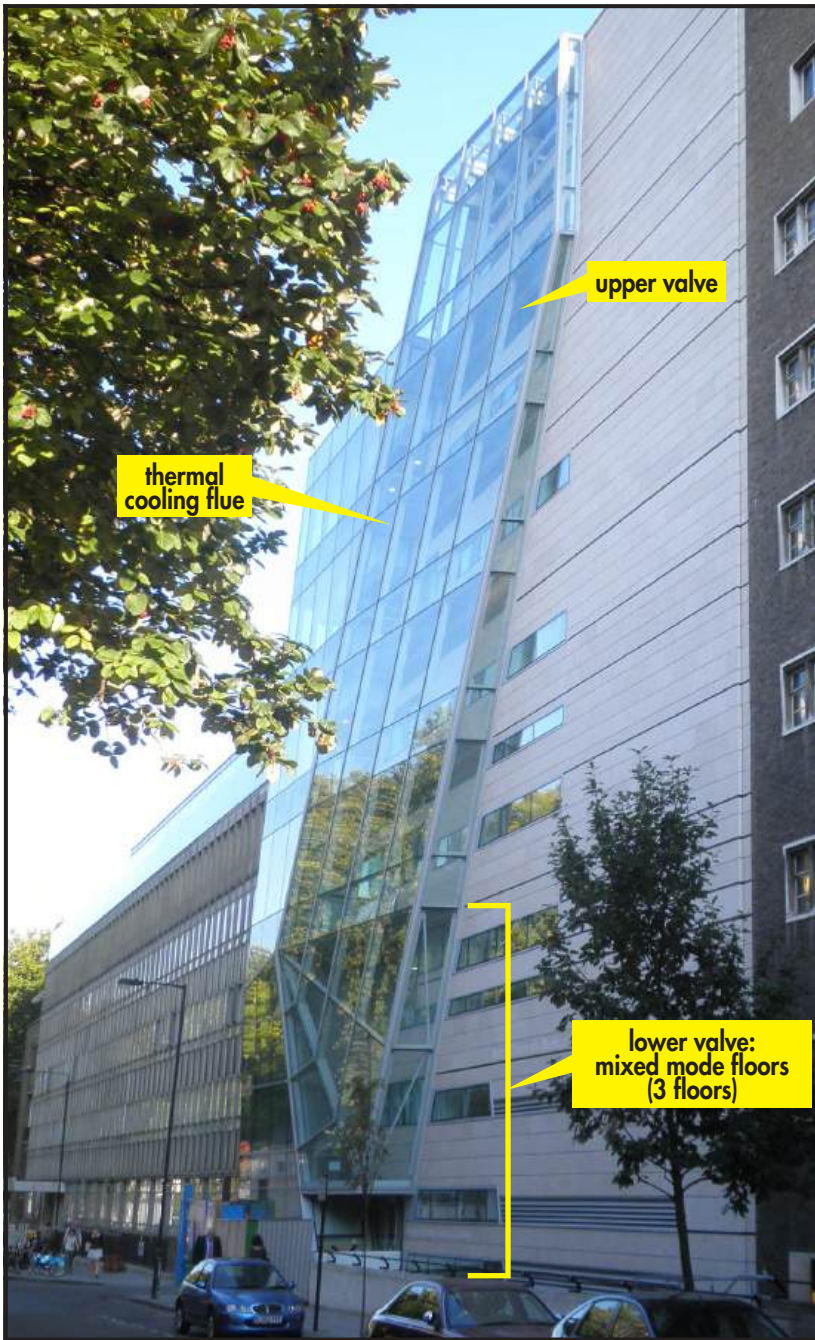
This development provides a world-class residential building. The green features includes a vertical green wall that connects the vegetation from the ground to the sky courts and link to the roof garden. The innovative vegetated sky courts create a place of respite for the dwellers.



• Biodiversity Targets Matrix

Net Zero Energy & Carbon Neutral Design: Flue-wall (mixed mode & full mode)

• Great Ormond Street Children Hospital Extension, London



• building featured in London underground

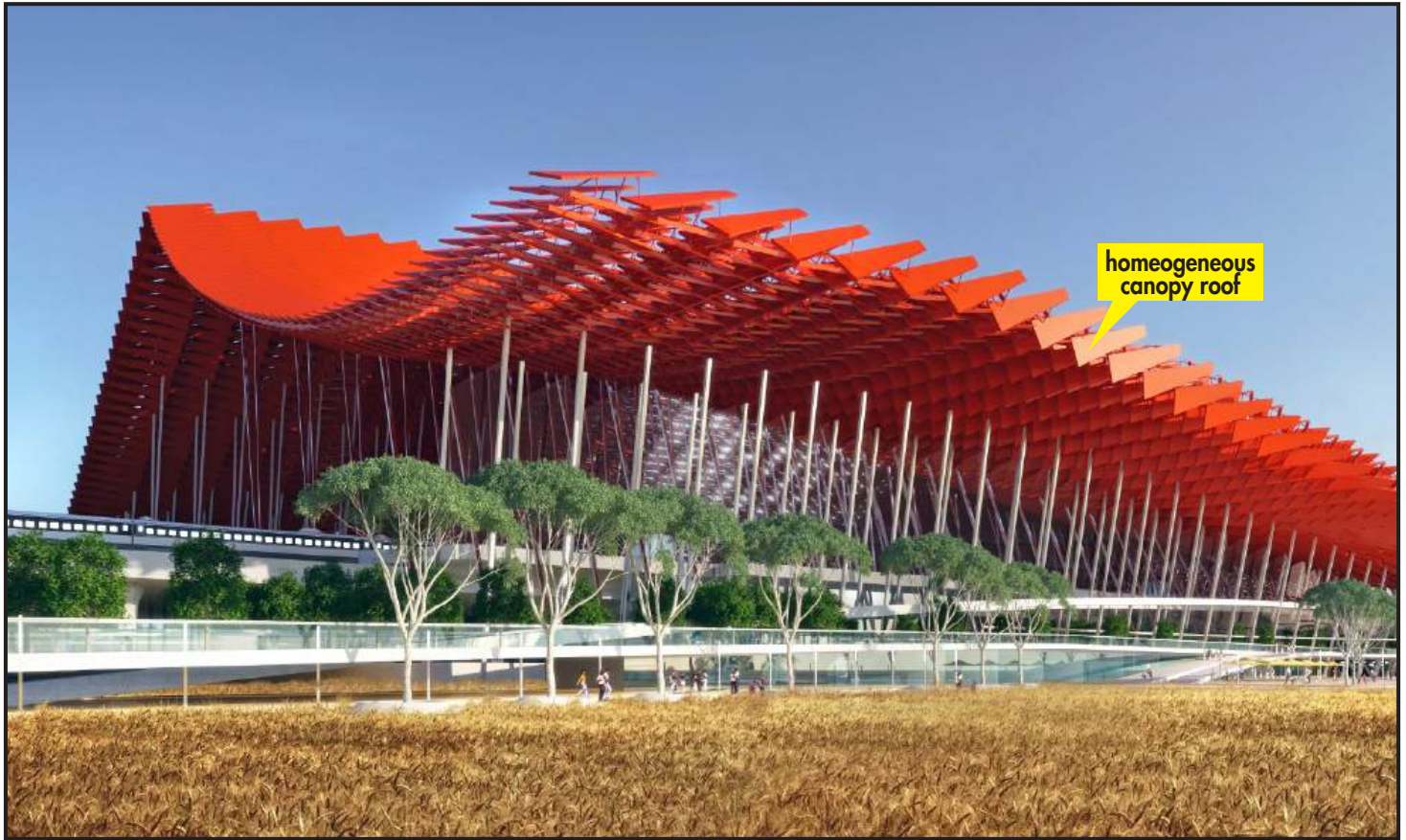
Location: London, UK
Total GFA: 199,132.34 sqft
Year of Completion: 2012



The Great Ormond Street Hospital Extension building is the first "Excellent" BRE-rated hospital in the UK. A key feature of the hospital extension is the flue wall which is an energy efficient ventilation system expressed on the façade facing Guilford Street. The glass flue-wall naturally ventilates the lower 3 floors during the mid-seasons (Spring & Autumn) and reduce the energy consumption.

Net Zero Energy & Carbon Neutral Design: Mixed Mode canopy roof

• Xiong'an Station, Beijing, China



homogeneous canopy roof

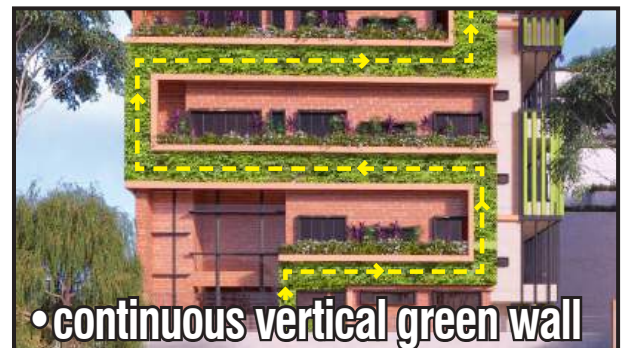
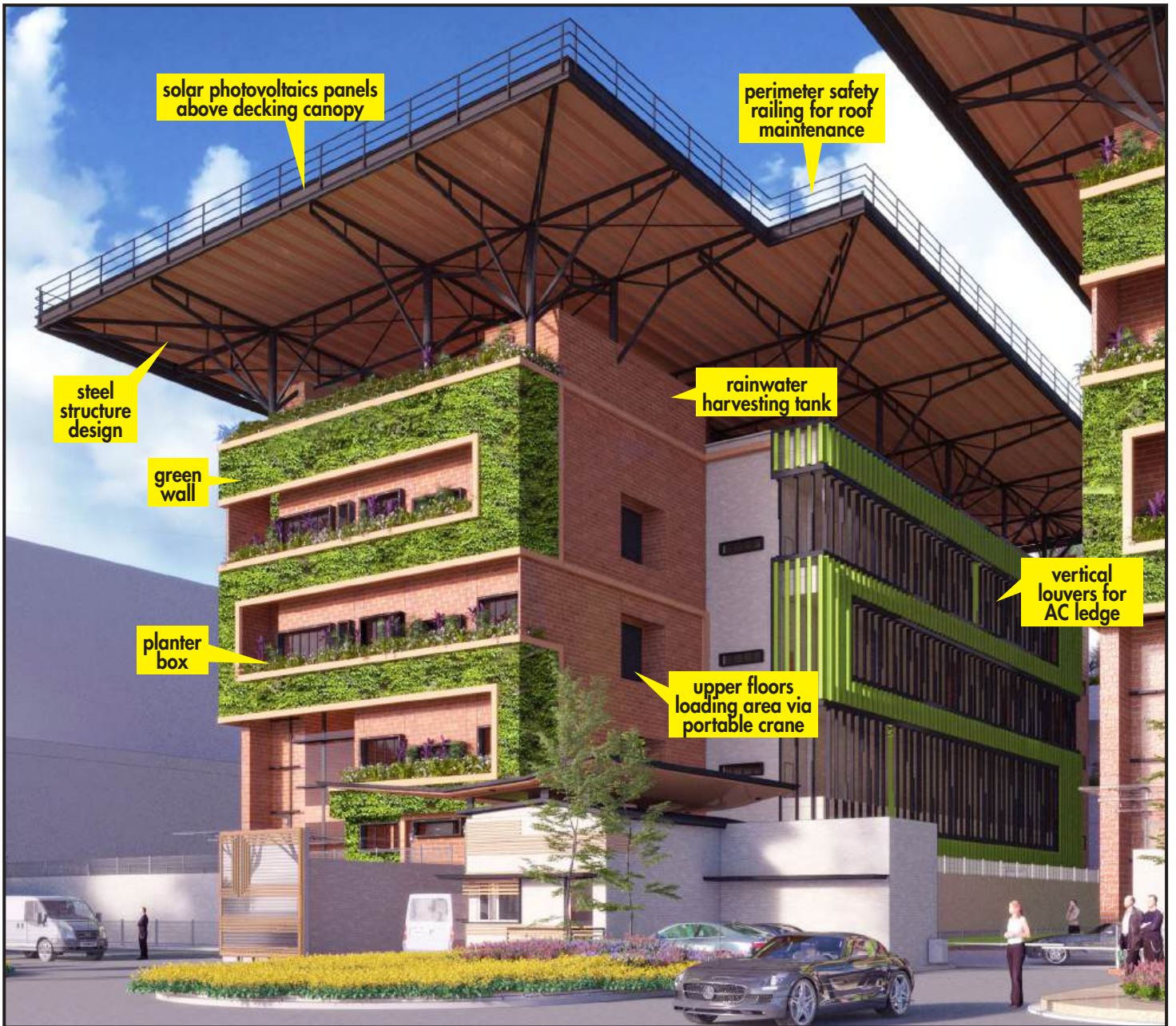


Location: Xiong'an, Beijing
Scope of Services: Architect

The building is known as the "Station in the Park". It integrates the public spaces, ecology and state-of-the-art rail services conceived as an iconic gateway into the city. The design of the station is an innovative construction that combines cutting edge technology with close references to the local context and Chinese culture.

eco-architecture: productive mode design (photovoltaic canopy)

• B Data Centre, Cyberjaya (on-going)



Location: Subang, Malaysia

Total GFA: 56,079.97sqft

Green Rating: targeted LEED Gold / Platinum rating

PUE: 1.49 (current)

Data Centre's Tier Classification: targeted Tier IV

The Client's brief was to design a data centre with ecological features with high-security. A key feature of the Data Centre is a continuous vegetated green wall that brings the vegetation from the ground level to the rooftop level- meant to act as living habitats and as means of filtering and improving its ambient indoor air quality.