

ANNEX: SDE4 – SINGAPORE’S FIRST NEW-BUILD NET-ZERO ENERGY BUILDING



Construction completed: January 2019

Gross floor area: 8,588 sqm

Certification:

- Green Mark Platinum – by Singapore Building and Construction Authority
- WELL (in progress) – by International WELL Building Institute

Architect, Mechanical & Electrical Engineer, Civil & Structural Engineer, Quantity Surveyor:

Surbana Jurong Consultants Pte Ltd

Design Architect:

Serie + Multiply Consultants Pte Ltd

Energy and Climate Consultant:

Transsolar Energietechnik GmbH

Contractor:

Kajima Overseas Asia (Singapore) Pte Ltd

Facilities

Educational and Teaching facilities:

- Seminar Rooms
- Forum
- Student Hot-Desking Area
- Design Studios

Research facilities:

- Laboratories
- Research Centres
- Workshops
- NUS-CDL Smart Green Home

Common facilities:

- Open Plaza and Exhibition Area
- Library

'Well and Green' Features

SDE4 seamlessly integrates greenery, water and community with energy-efficient spaces that encourage lifestyle activities, teaching and research.

Comfort and well-being:

- Incorporation of natural elements and nature-like qualities that offer uninterrupted views to greenery and visibility of water systems, and access to daylight.
- A series of 'floating boxes' create very porous spaces and volumes that allow for cross ventilation.
- The south facade provides panoramic views and draws in daylight, giving occupants a more naturalistic experience.

Green infrastructure:

- An array of 1,225 solar photovoltaic panels installed on the roof is capable of supplying more than 500 MWh of energy per year. On days when there is insufficient sunlight, the building will draw energy from the University's power grid.
- Air-conditioning is used only where needed. Most of the rooms can be opened to let in natural breezes when the weather permits, reducing the overall electricity usage.
- An innovative hybrid cooling system, which supplies cool and fresh air at higher temperatures and humidity levels than a conventional air-conditioning system ensures that rooms would not be overly cooled.
- Large overhanging roof, together with east and west facades, provide shade from the sun's heat and provide a cooler interior.
- SDE4 uses natural purification processes to improve water quality while enhancing the aesthetics and biodiversity of the landscape. Central to this is the design of a bioretention basin, a low maintenance natural system that provides efficient treatment of stormwater runoff through filtration and biological uptake.